ECONOMIC AND SOCIAL SURVEY OF ASIA AND THE PACIFIC 1990

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FOREWORD

This is the forty-fourth *Economic and Social Survey of Asia and the Pacific.* As in previous years, it is divided into two parts.

The slow-down in the Asian and Pacific economies that began to be felt in the developing economies of the region in 1989 became more pronounced and widespread in 1990. In most cases the slow-down towards the end of the 1980s stemmed primarily from the hectic pace of growth which many economies had experienced for over a decade. It was reinforced by the weakening of the growth impulses in the world economy, especially trade and capital inflows.

The international economic environment deteriorated considerably during 1990, notwithstanding the high hopes raised at the beginning of the year in the wake of the dramatic end of the cold war. Towards the end of 1990, the impact of the Persian Gulf crisis was keenly felt by many economies of the region through a sudden rise in oil prices, falling remittances and disruption in exports, especially of tourism, which stemmed from concerns of security related to the outbreak of the war. Another source of considerable dismay to the region's developing economies was the adjournment, instead of successful conclusion, of the Uruguay Round negotiations at Brussels in December 1990. These events have greatly reinforced the rising apprehensions about a recession in the world economy and its adverse impact on the developing economies of the region. Part one of the *Survey* discusses in detail these and other current economic developments in the region. It also addresses a number of social issues related to the persistence of poverty and high population growth in many parts of the developing ESCAP region.

Part two of the *Survey* focuses on development of infrastructure which is of vital importance to the viability of the growth momentum of the developing economies of the region. In the *Survey* the development of infrastructure is extended to cover not only physical facilities such as electric power stations, roads, bridges and ports, but also social infrastructure, such as that relating to education, health, water and sanitation. The *Survey* assesses the availability of the services of such infrastructure in relation to the needs, which vary quite substantially among the region's developing economies. Among the policy questions raised in the *Survey*, not only investments in and financing of infrastructure facilities, but also issues relating to their management, maintenance and impact on the environment and human resource development, as well as possibilities of regional co-operation, are considered. In the past, infrastructure development was considered to be the sole responsibility of the State, often on the assumption that the private sector lacked both the finances and the incentives to undertake such investments. In today's changing world not only the private sector but also the non-governmental organizations are being increasingly called upon to share this burden with the government, which, however, continues to have the primary responsibility for infrastructure development. I hope that the issues raised in the *Survey* will generate a useful policy debate.

Like previous *Surveys,* which were entitled *Economic Survey of Asia and the Far East* until 1974, this issue is published on the responsibility of the ESCAP secretariat, and the views expressed herein do not necessarily reflect those of member and associate member Governments.

S.A.M.S. Kibria
Executive Secretary

February 1991

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EXPLANATORY NOTES

The term "ESCAP region" is used in the present issue of the *Survey* to include Afghanistan, Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Commonwealth of the Northern Marianas, Cook Islands, the Federated States of Micronesia, Fiji, Guam, Hong Kong, India, Indonesia, the Islamic Republic of Iran, Japan, Kiribati, the Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Myanmar, Nauru, Nepal, New Zealand, Niue, Pakistan, Papua New Guinea, the Philippines, the Republic of Korea, the Republic of the Marshall Islands, the Republic of Palau, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Tonga, Tuvalu, Vanuatu and Viet Nam. The term "developing ESCAP region" excludes Australia, Japan and New Zealand.

The designations employed in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

The abbreviated title *Survey* in footnotes refers to *Economic and Social Survey of Asia and the Pacific* for the year indicated.

Many figures used in the *Survey* are on a fiscal year basis and are assigned to the calendar year which covers the major part or second half of the fiscal year.

Reference to "tons" indicates metric tons.

The term "billion" signifies a thousand million.

In the tables, three dots(...) indicate that data are not available or are not separately reported, a dash (–) indicates that the amount is nil or negligible, and a blank indicates that the item is not applicable.

In dates, a hyphen (-) is used to signify the full period involved, including the beginning and end years, and a stroke (/) indicates a crop year, a fiscal year or plan year. The fiscal years, currencies and 1990 exchange rates of the ESCAP economies are listed in the following table:

Country or area	*Fiscal year*	*Currency and abbreviation*	*Mid-point rate of exchange for $US 1 as of June 1990*
Afghanistan	21 March to 20 March	Afghani (Af)	50.600
Australia	1 July to 30 June	Australian dollar ($A)	1.267
Bangladesh	1 July to 30 June	Taka (Tk)	34.900
Bhutan	1 April to 31 March	Ngultrum (Nu)	1.000
Brunei Darussalam	1 January to 31 December	Brunei dollar ($Br)	1.710[a]
Cambodia	1 January to 31 December	Riel (CR)	...
China	1 January to 31 December	Yuan renminbi (YRMB)	4.722
Cook Islands	1 April to 31 March	New Zealand dollar ($NZ)	1.702
Fiji	1 January to 31 December	Fijian dollar ($F)	1.500
Guam	1 October to 30 September	United States dollar ($US)	1.000
Hong Kong	1 April to 31 March	Hong Kong dollar ($HK)	7.787
India	1 April to 31 March	Rupee (Rs)	17.453
Indonesia	1 April to 31 March	Rupiah (Rp)	1,844.000
Iran, Islamic Republic of	21 March to 20 March	Rial (Rls)	69.719
Japan	1 April to 31 March	Yen (Y)	152.900
Kiribati	1 July to 30 June	Australian dollar ($A)	1.267
Lao People's Democratic Republic	1 July to 30 June	New kip (NK)	713.500
Malaysia	1 January to 31 December	Ringgit ($M)	2.710
Maldives	1 October to 30 September	Rufiyaa (Mal Rf)	9.650
Mongolia	1 January to 31 December	Tughrik (Tug)	2.990[b]
Myanmar	1 April to 31 March	Kyat (K)	6.499
Nauru	1 July to 30 June	Australian dollar ($A)	1.267
Nepal	16 July to 15 July	Rupee (NRs)	29.200
New Zealand	1 April to 31 March	New Zealand dollar ($NZ)	1.702
Niue	1 April to 31 March	New Zealand dollar ($NZ)	1.702
Pakistan	1 July to 30 June	Rupee (PRs)	21.790
Papua New Guinea	1 January to 31 December	Kina (K)	0.962
Philippines	1 January to 31 December	Peso (P)	23.270
Republic of Korea	1 January to 31 December	Won (W)	716.000
Samoa	1 January to 31 December	Tala ($WS)	2.330
Singapore	1 April to 31 March	Singapore dollar ($S)	1.840
Solomon Islands	1 January to 31 December	Solomon Islands dollar ($SI)	2.527
Sri Lanka	1 January to 31 December	Rupee (SLRs)	40.000
Thailand	1 October to 30 September	Baht (฿)	25.790
Tonga	1 July to 30 June	Pa'anga (P)	1.272
Tuvalu	1 January to 31 December	Australian dollar ($A)	1.267
Vanuatu	1 January to 31 December	Vatu (VT)	119.900
Viet Nam	1 January to 31 December	New dong	4,500.000

Sources: United Nations, *Monthly Bulletin of Statistics*, vol. XLIV, No. 12 (December 1990); and national sources.

[a] November 1990. [b] November 1989.

ABBREVIATIONS

ADB	Asian Development Bank
ASEAN	Association of South-East Asian Nations
COTAC	Committee on Transportation and Communications
CPI	consumer price index
DAC	Development Assistance Committee
FDI	foreign direct investment
GDP	gross domestic product
GNP	gross national product
GSP	generalized system of preferences
HDI	human development indicator
IRDP	Integrated Rural Development Programme
NIEs	newly industrializing economies
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
SAARC	South Asian Association for Regional Co-operation
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNCHS	United Nations Centre for Human Settlements
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
WHO	World Health Organization

Part One

RECENT ECONOMIC AND SOCIAL DEVELOPMENTS

I. WORLD ECONOMIC SITUATION AND PROSPECTS FOR DEVELOPMENT

A. WORLD ECONOMIC DEVELOPMENT

1. Emerging risks and uncertainties in the world economy

World economic growth, which had already weakened substantially in 1989, decelerated in 1990 to the slowest rate since 1983. An overall growth rate of only 2.0 per cent was expected to be achieved in 1990. The prospects for 1991 were bleaker owing to the Persian Gulf crisis. The international environment at the end of 1990 stood in considerable contrast to that which was emerging a year ago, when hopes had been raised of a peace dividend for the world economy. The euphoric expectations aroused by the developments in Eastern Europe and the Union of Soviet Socialist Republics were soon replaced by more sombre calculations of the costs both in time and money, of the transition of these economies to a market-based system. The stalemate in the Uruguay Round of multilateral trade negotiations in Brussels added to the uncertainty about the possible evolution to a more liberal and equitable world trading system, which the developing countries had hoped for as a means of reinvigorating their growth and development.

Notwithstanding these uncertainties, the record of performance of the world economy, does give hope that these difficulties will be overcome. The growth of the world economy, though spread very unevenly over the globe, was impressive in the 1980s, especially after the recovery from the recession in the early years of the decade. A long period of sustained growth, especially in industrial countries, accompanied by high rates of investment and capacity utilization, a strong expansion in world trade, a decline in the high rates of unemployment and continued price stability in an increasing number of countries, were among the considerable achievements made during the 1980s, although world economic growth rate averaged 2.8 per cent only during the period 1981-1990 (table I.1).

The apparent insensitivity of the performance of the world economy to the uncertainties in the global economic environment has resulted from a perceptible change in the way fluctuations in economic activity, especially those emanating from the United States of America, still the world's largest economy, affect the rest of the world. No longer does a recession in the United States spread rapidly to all the economies of the world. This is partly because of the decline in the relative importance of the United States economy which faces increasing challenges to its global economic preeminence from Germany and Japan, as well as from many developing economies, especially the newly industrializing economies (NIEs). It also stems partly from the growing possibilities for economic diversification resulting from changes in the pattern of international comparative advantage and the consequent restructuring undertaken in many of the more dynamic economies, both developed and developing. Yet another reason for the greater resilience of the economies outside the United States, especially in Europe, is the increased reliance on intraregional trade.

An impressive feature of growth in the latter half of the decade was that world trade volume expanded, at an average of 6.6 per cent, more than twice the rate of expansion in world output. This contrasted with the first half of the decade, when both world trade and output grew at the slower average annual rate of 2.5 per cent. In the last two years of the decade, however, world trade growth decelerated along with the slow-down in world output. World trade volume grew at a slower 7.3 per cent in 1989 compared with the 9.1 per cent expansion in 1988 and slowed down further to an estimated 5.4 per cent growth in 1990 (table I.2). However, the rate of growth of world trade remained more than double that of world output. The value of world merchandise trade rose from $US 1.9 trillion in 1985 to $US 3 trillion in 1989, while the value of world trade in services rose from $US 789 billion in 1985 to $US 1,340 billion in 1989.[1]

[1] Bank for International Settlements, *60th Annual Report*, 1 April 1989-31 March 1990 (Basle, 11 June 1990), p. 63.

Table I.1. World output, 1981-1991[a]

(Annual percentage change)

	Average 1981-1985	Average 1986-1990	1987	1988	1989	1990[b]	1991[b]
World	2.5	3.1	3.3	4.1	3.0	2.0	2.4
Industrial countries	2.4	3.3	3.4	4.4	3.4	2.6	2.4
United States	2.6	2.9	3.4	4.5	2.5	1.3	1.7
Japan	4.0	4.6	4.6	5.7	4.9	5.1	3.7
Germany, Federal Republic of	1.2	3.1	1.6	3.7	3.9	3.9	3.3
Other industrial countries	1.9	3.1	3.2	3.9	3.3	2.3	2.2
Developing countries	2.8	3.5	3.9	4.2	3.0	2.2	4.2
Africa	1.5	2.4	1.2	2.5	3.2	2.7	3.2
Asia	6.9	6.8	8.1	9.0	5.0	5.0	5.4
Europe	2.2	1.7	2.4	1.2	-1.4	-3.1	2.1
Middle East	0.1	1.8	-0.6	3.8	3.7	2.6	3.7
Western hemisphere	0.6	1.8	3.0	0.5	1.6	-0.4	3.6
Other countries[c]	2.0	0.7	1.7	1.7	0.2	-2.5	-0.3

Source: IMF, *World Economic Outlook* (Washington, D.C., October 1990).

[a] Real gross domestic product (GDP) or gross national product (GNP) for industrial and developing countries and real net material product (NMP) for other countries. Composites for the country groups are averages of percentage changes for individual countries weighted by the average United States dollar value of their respective GDPs (GNPs or NMPs where applicable) over the preceding three years. Because of the uncertainty surrounding the valuation of the composite NMP of the other countries, they have been assigned – somewhat arbitrarily – a weight of 11 per cent in the calculation of the growth of world output. [b] Projections. [c] The USSR and countries of Eastern Europe that are not members of the International Monetary Fund.

World economic growth slowed down from 4.1 per cent in 1988 to 2.0 per cent in 1990, losing a percentage point in each of the two intervening years. In 1989, however, growth, though half that of the 4.1 per cent achieved in 1988, had a more balanced pattern. After stagnating for almost a decade, growth in Africa revived from 2.5 to 3.2 per cent, and in Latin America and the Caribbean, although it remained weak, there was perceptible improvement in average growth rates from 0.5 to 1.6 per cent. The Middle East maintained the strength it had gained in 1988 with a 3.7 per cent growth in 1989 as oil prices increased. A sharp deceleration of the Asian growth rate from 9.0 to 5.0 per cent, brought down the average growth rate of the developing countries by more than a percentage point.

The average growth rate of the industrial countries also fell by a percentage point, from 4.4 per cent in 1988 to 3.4 per cent in 1989, with all major economies, except for the Federal Republic of Germany, contributing to the slow-down. The deceleration in growth in the United States was, however, the most pronounced, falling by two percentage points from 4.5 per cent in 1988 to 2.5 per cent in 1989. The economic growth of Japan fell from 5.7 per cent in 1988 to 4.9 per cent in 1989, while that of the Federal Republic of Germany accelerated to 3.9 per cent compared with 3.7 per cent in 1988. A slow-down from 3.9 per cent in 1988 to 3.3 per cent in 1989 in other industrial countries reflected the slow growth of the economies of Canada, Italy and the United Kingdom of Great Britain and Northern Ireland.

The estimated fall in world economic growth to 2.0 per cent in 1990 was the result of a slow-down in both industrialized and developing countries, with a sharper deceleration in the former. It was also affected by the decline in the output of the economies of the Union of Soviet Socialist Republics and Eastern Europe, estimated at about 2.5 per cent, mainly on account of the transitional problems arising from their effort to transform from centrally-planned to more decentralized and market-oriented economies (see box I.1). The slow-down was also partly caused by the steep rise in oil prices after August 1990. Capacity limitations, high interest rates to curb inflationary pressures, and a slack in consumer demand were other factors contributing to the slow-down in output expansion.

The prospects for 1991 and beyond remained highly uncertain in view of the continuing political

Table I.2. Growth in world trade volume and prices, 1981-1991

(Annual percentage change)

	Average 1981-1985	1986	1987	1988	1989	1990[a]	1991[a]
World trade volume[a]	2.5	4.9	6.7	9.1	7.3	5.4	5.3
Exports							
Industrial countries	3.8	3.1	5.1	8.8	7.0	6.3	5.2
Developing countries	-1.2	8.3	12.1	10.5	6.7	5.0	5.3
Imports							
Industrial countries	3.8	8.9	7.0	9.0	8.1	5.5	4.5
Developing countries	0.2	-3.0	7.2	10.6	8.6	4.1	6.3
Terms of trade							
Industrial countries	0.5	9.0	0.7	1.4	-0.2	-0.5	-0.2
Developing countries	-0.4	-16.4	1.8	-3.4	2.3	-0.2	-0.3
World trade prices for major commodity groups[b]							
Manufactures	-2.2	17.7	11.9	6.1	-0.4	7.9	5.7
Oil	-2.7	-48.8	28.7	-20.5	21.4	19.9	10.5
Non-fuel primary commodities	-5.7	-3.9	8.6	23.5	-0.3	-8.1	-0.4

Source: IMF, *World Economic Outlook* (Washington, D.C., October 1989 and October 1990).

[a] Projections [b] Averages of growth rates for world exports and imports based on data for the industrial and the developing countries and on partly estimated data for the USSR and other countries of Eastern Europe. [c] The export unit value index for the manufactures of industrial countries; the average of United Kingdom Brent, Dubai, and Alaska North Slope crude petroleum spot prices; and the index of market quotations for non-fuel primary commodities exported by the developing countries.

crisis stemming from the Iraqi occupation of Kuwait, which turned into an armed conflict of serious proportions by the middle of January 1990. Notwithstanding the outcome of that crisis, world economic growth could remain depressed because of the rise in oil prices, a recessionary tendency in the United States and other industrial economies, the escalating transitional problems of the USSR and Eastern European economies and the looming danger of protectionist trends. The risks and uncertainties about the continuing growth of the global economy in 1991 pose enormous challenges to the weak fabric of international and regional co-operation currently in existence.

2. Continuing global concerns

The slow-down in world economic growth is taking place within the context of a number of global economic issues which have persisted throughout the 1980s. For the major industrialized countries, these issues include large current account imbalances, and for developing countries, the problems of the balance of payments, debt and resource transfers.

The large current account imbalances among major industrial economies have been narrowing since 1987 (figure I.1). The United States deficit, which peaked at $US 162.3 billion in 1987 fell from $US 128.9 billion in 1988 to $US 110 billion in 1989 and was projected by the International Monetary Fund (IMF) to fall to $US 97.0 billion in 1990; the Japanese surplus was reduced from its peak of $US 87 billion in 1987 to $US 79.6 billion in 1988 and $US 57.2 billion in 1989 and was estimated to fall by another $US 10 billion in 1990. The Federal Republic of Germany's surpluses increased from $US 50.4 billion in 1988 to $US 55.4 billion in 1989. Germany's surplus was estimated to fall in 1990.

The decline in the United States trade deficit was a consequence of the continuing exchange rate adjustments which had led to rapid growth in United States exports and slower growth in imports. This pattern of growth was reflected in an improvement in the trade balance with Japan, the European Community and the East Asian NIEs, the main sources of current account surpluses. Indeed, in 1989, the United States transformed its trade deficit with European Community into a surplus while its deficits with the Federal Republic of Germany and

with the East Asian NIEs were halved between 1987 and 1989. A reduction of 30 per cent was effected in the trade deficit with Japan during the same period. In 1990 the deficit was estimated to be $US 97.0 billion, below $US 100 billion for the first time in many years, although some of the momentum of export growth since 1985 was lost. However, the current external deficit in the United States still remained very large, the financing of which required massive capital inflows into the United States, raising its large external debts, exerting considerable pressures on the exchange and interest rates and causing volatility in the world financial markets (figure I.2).

Notwithstanding continuing efforts at policy co-ordination among the major industrial countries, volatility in the foreign exchange markets remained high, requiring substantial official intervention in the market. During much of 1989 and until early 1990 the United States dollar tended to strengthen, especially *vis-à-vis* the Japanese yen, which threatened to halt the improvement in, or even to widen, the trade and payment imbalances between the two countries.

Box I.1. Implications of reforms in CMEA countries

At the forty-fifth regular session of the Council for Mutual Economic Assistance (CMEA) which took place at Sofia on 9-10 January 1990 a special commission was appointed to work out proposals on fundamental issues of co-operation in the framework of CMEA and to draft its new basic documents. The Council decided to place trade and industrial co-operation between CMEA countries on a market basis and to use free convertible currency and world prices in mutual payments. The adoption of convertible currency as the basis for trade among the countries of the former CMEA from 1 January 1991 marked the beginning of a new phase in their external trade and payments. This will have far reaching implications for the outside world in areas of trade, investment and aid flows.

The implications for trade are likely to be small in the short run. The share of Eastern Europe and the Union of Soviet Socialist Republics in world trade was only 6.3 per cent, with the Soviet share at 3.7 per cent in 1989. However, at present the economies of both the USSR and Eastern Europe are undergoing a period of painful transition and are preoccupied with concerns for regaining economic, social and political stability. In the economic field regaining monetary and exchange rate stability are the major objectives. The most immediate concern in these transition economies is to raise domestic supplies of manufactured consumer goods, which had been seriously disrupted in 1990.

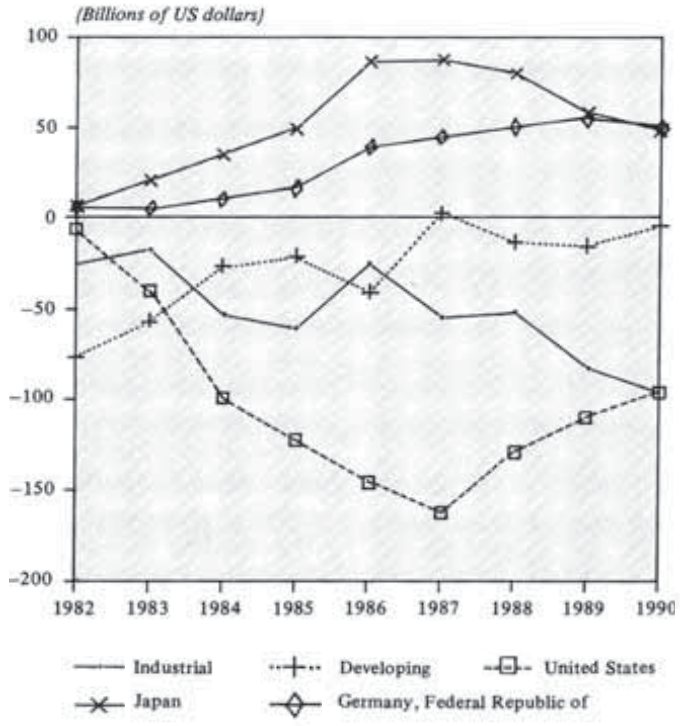
Currently most of the Eastern European economies, except Czechoslovakia and Romania are heavily indebted and most have substantial deficits in external trade and payments accounts, which can be expected to continue to be substantial, necessitating a net inflow of capital. Further, the countries will continue to require substantial inflows of new technology in order to raise productivity and compete effectively in international markets. These structural imbalances in the economies will have to be removed before full integration in the world economy can take place. One of the most pressing demands on policy makers is to formulate and implement reform and macro-economic policies that will facilitate structural adjustments in the economy and capital inflows for their development.

Therefore, the transitional effect of the economic reforms in these economies will be felt mostly through the alteration of global patterns of aid and investment flows. In 1990, largely at the initiative of the member countries of the European Community (EC) the European Bank for Resconstruction and Development (BERD) was being set up. As with other development banks, the European Bank for Reconstruction and Development will be able to lend no more than its capital established at the level of 10 billion European currency units or $US 13.5 billion and will finance its loans in the bond markets. The Bank was designed to concentrate its lending on the private sector and on productive investment in the Eastern European countries. Countries that benefit from BERD's lending must be moving towards a market economy. However, as the private sector is small in Eastern Europe and the USSR, the bank will also give loans for infrastructure and for the promotion of economic reforms.

The 12 EC countries, plus the European Investment Bank, and Japan will form almost 60 per cent of the starting capital for the bank. In addition, EC has committed aid to support economic reforms in the Eastern European countries. Japan announced a $US 1.8 billion aid package for Hungary and Poland, and the United States of America was considering the channelling of aid funds to the USSR and Eastern Europe over the next three years to support economic reforms.

The movement towards a free-market economy could also encourage the inflow of private investment flows. Skilled labour, relatively low wage rates, geographical closeness to Western Europe give some advantages to the Eastern European countries and the USSR in attracting foreign capital. A number of options were being considered in the Western European countries, Japan and the United States, ranging from plans to take over and develop entire regions in Eastern Europe to more modest proposals to co-ordinate vertical integration of clusters of foreign investment. A growing number of joint ventures, formed with the participation of foreign capital, were already operating on the territories of the Eastern European countries and the USSR. Capital flows to Eastern Europe and the USSR still remained small. In 1990 the value of foreign investment in Poland reached $US 1.2 billion, in the USSR $US 1 billion, and in Hungary $US 0.7 billion.

Figure I.1. Current account balance of payments, 1982-1990



Source: IMF, *World Economic Outlook* (Washington, D.C., October 1990).

Along with the efforts to improve the current account deficit there have been serious efforts to reduce the fiscal deficit in the United States. An agreement between the executive and the legislative branches of the United States Government in mid-1990 to reduce the Government's large budget deficits by $US 500 billion over a five-year period was in line with those efforts. The move would not significantly reduce the size of the deficit in the short run. However, broaching of the subject of tax increases was a welcome signal indicating that the United States Congress was serious about reducing the fiscal deficit.

Nevertheless, demand on the available surplus savings in the world economy, with the Federal Republic of Germany and Japan providing the major sources, remained high putting upward pressures on interest rates. The six-month London Interbank Offer Rate (LIBORs) on United States dollars rose to an average 9.3 per cent in 1989 from 8.1 per cent in 1988 (figure I.2b). The rates had fallen since the last quarter of 1989 although they were still higher than those prevailing in 1987-1988. Monetary authorities in most countries showed reluctance in relenting from their strict adherence to the objective of containing inflation or to averting its re-emergence even in the face of visible signs of economic slow-down. However, the fall in the dollar rates and the gradual rise in the yen and deutsche mark rates led towards a convergence of the rates in 1990 which augured well for currency stability. With a few exceptions, inflation rates in industrial countries remained low, averaging 4.4 per cent in 1989 and forecast at 4.8 per cent in 1990, compared with the 3.3 per cent in 1988.

3. Current account deficits and related problems of developing countries

It is estimated that the aggregate current account deficit of the developing countries increased by $US 2 billion in 1989 to $US 16 billion.[2] The increased deficit reflected the effect of a combination of adverse factors, including a decline in non-oil commodity prices, a rise in oil prices, a weaker demand for manufactures and a deterioration in net service payments. It has also been estimated that in 1990 the deficit will fall sharply to $US 4.75 billion, mainly as a result of an improvement in the current account balances of oil-exporting countries, which would more than offset the worsening of the current account balances of oil-importing countries. IMF estimates that in 1991 the current account deficits of developing countries will widen again to $US 11 billion, with a $US 22 billion deficit of oil-importing developing countries being partly offset by a $US 11 billion surplus of oil-exporting developing countries. The surpluses of the four Asian NIEs, Hong Kong, the Republic of Korea, Singapore and Taiwan Province of China, have also been declining in recent years as have those of Japan. From a peak of $US 27.8 billion in 1988, they are estimated to have declined by more than a half to $US 13.1 billion in 1990 and were likely to fall further in 1991 (see figure I.1).

The pattern of resource flows to the developing countries has undergone fundamental changes in

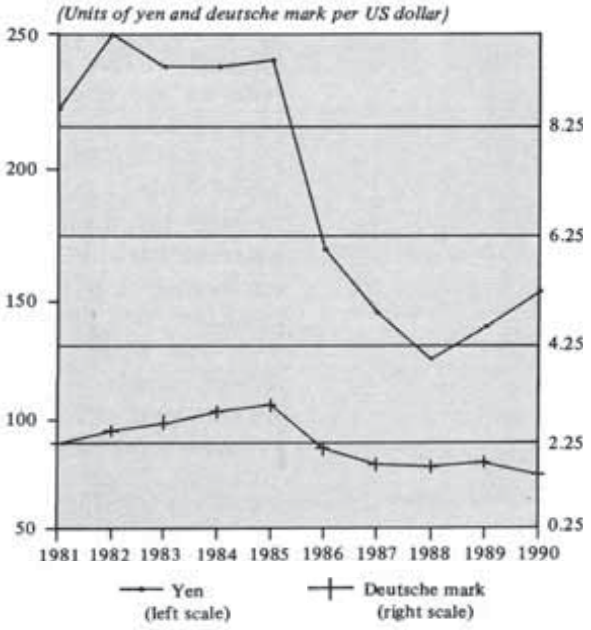
[2] IMF, *World Economic Outlook* (Washington, D.C., October 1990), pp. 28-29.

recent years. New bank financing has declined, especially for major debtor countries, and reliance on official sources of finance has increased relatively. For the developing countries as a whole, the total volume of official development finance, of which the major component has been official development assistance (ODA), tended to remain stable in 1988-1989. Private flows which were running at the rate of $US 74.3 billion in 1981 and which fell in 1986 to their lowest point of $US 28.2 billion, revived somewhat after 1987 to reach $US 40.7 billion in 1989, of which more than half was foreign direct investment (FDI). FDI and portfolio investments, and bond lendings have assumed growing importance in recent years in the composition of international financial flows. Particularly rapid growth has occurred in FDI flows. The amount of FDI flow to the developing countries, however, has formed a small proportion of total FDI flow world-wide. Total FDI flow of $US 16 billion to the developing countries in 1989, lower by a billion dollars than in 1988, constituted about 12 per cent of $US 133.6 billion of estimated inflow into 13 industrial countries.[3, 4]

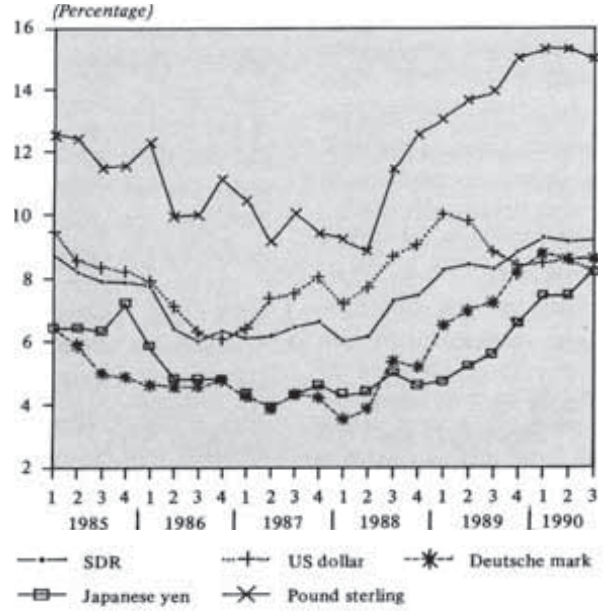
The Latin American debtor countries have continued to experience a negative net transfer since 1984, amounting in 1989 to $US 15 billion. There has been a recent upsurge in FDI into these countries, running at an annual inflow of $US 5 billion during the period 1988-1989 compared with a $US 1 billion average in 1985-1986. Total net inflow

Figure I.2. Exchange rate and interest rate movements relating to some major currencies

(a) Exchange rate



(b International interest rates. Six-month London interbank offer rates



Sources: IMF, *International Financial Statistics*, various issues.

[3] Bank for International Settlements, *60th Annual Report*, 1 April 1989-31 March 1990 (Basle, 11 June 1990), pp. 82-92.

[4] The OECD figure of FDI flows to developing countries in 1989 was $US 22 billion. No comparable figure for inflows to developed countries was given. OECD, *Financing and External Debt of Developing Countries, 1989 Survey* (Paris, 1990), table III.1, p. 26.

of $US 25 billion in 1989 was outweighed by interest and dividend payments amounting to $US 40 billion resulting in a net transfer of $US 15 billion.[5]

Efforts to reduce the developing countries' debt have achieved limited success thus far. The total external debt of the developing countries is projected to increase by 9 per cent in 1990-1991, reaching $US 1,354 billion at the end of 1991. The increase in debt will arise mainly from regions other than Latin America; while the debt of Latin America is projected to remain broadly unchanged at $US 415 billion, that of other regions would rise by about 13 per cent in 1990-1991. The share of total debt owed to official creditors could rise from 42 per cent in 1989 to 45 per cent in 1991. However, three fourths of the $US 100 billion increase in official debt will be new financing for countries with recent debt-servicing difficulties, as well as for debt-reduction operations, including debt-equity swaps, buy-backs and private sector discounted pre-payments. A disturbing consequence of these developments, raising concerns about the "moral hazard" associated with the solution of the debt problems of developing countries, stems from the fact that "the share of official creditors in the total debt of countries with debt-servicing difficulties has continued to reach new peaks", while this share has declined to levels below those of 20 yeras ago for countries that avoided such difficulties.[6]

4. World trade problems

The failure of the Uruguay Round of multilateral trade negotiations in December to reach an agreement was, perhaps, the greatest set-back to the spirit of international co-operation that had recently been in evidence. The inability of the four-year long round to conclude on schedule was primarily the result of the widely differing negotiating positions of the United States and the European Community on one issue, agriculture, out of the 15 under negotiation. The failure of the Uruguay Round is likely to strengthen protectionist pressure from powerful interest groups, particularly in the United States. It could also encourage the search for alternative solutions to trade problems that might result in an increased resort to unilateral and bilateral arrangements and to the creation of protectionist trading blocs. However, there is also the risk that these solutions would be seen as a substitute to undermine, rather than as a complement to strengthen, the General Agreement on Tariffs and Trade (see box I.2). Not only would such developments cause world trade and output growth to fall, but also they might have adverse repercussions in financial markets. Another disturbing factor was the continuing weakness in the demand for and prices of primary commodities, greatly hurting the export possibilities of the primary producing developing countries. The high rates of world economic growth in recent years had not resulted in high demand and prices for primary commodities as in earlier periods of strong world economic growth; neither had the recent surge in oil prices been accompanied by a rise in the price of non-oil primary commodities, as in previous oil shocks. Moreover, the oil producers themselves had experienced real income losses as the real price of oil had remained below the mid-1970 level since 1986 (figure I.3).

5. The Persian Gulf crisis

The outbreak of the Persian Gulf crisis in August 1990 cast a long shadow on the prospects of the world economy in 1990 and beyond. By the end of the year the crisis had already taken its toll on many economies of the world in a number of ways. There were signs of a significant slowdown in the world economy which seemed poised on the brink of a recession.

Among its many adverse consequences, the crisis was likely to increase military spending, which was otherwise likely to have fallen, not only in the Middle East but also elsewhere in the world. Many countries would suffer economic losses directly because of their loss, not only of trade in the Middle East, but also of workers' remittances and other business contracts, such as construction contracts. The United Nations action to impose economic sanctions against Iraq and the international mobilization of military forces to enforce the sanctions and to deter any further Iraqi actions against neighbouring countries, were causing dislocations for normal trading activities, particularly for countries directly affected by the imposition of sanctions on Iraq.

However, the most critical factor in determining the performance of the economies of the world is the price of oil, which rose briefly to above $US 40 per barrel in September 1990. Barring a catastrophic and prolonged war, the oil price rises could still be contained, if the industrial countries' high oil stocks could be tapped and other members of OPEC remained able and willing to make up for the loss of supplies from Iraq and Kuwait. Much of the immediate rise in prices, perhaps the result of speculative activities in the market because of the

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[5] *Ibid.*, p. 24.

[6] IMF, *World Economic Outlook* (Washington, D.C., October 1990), p. 30.

current uncertainties, could stabilize when the uncertainties were removed.

Most Organization of Petroleum Exporting Countries (OPEC) and other oil producers were augmenting their production and supply to make up for the shortages occasioned by the disruption in supply from Iraq and Kuwait. Governments in most consuming countries were trying to cushion the impact by releasing stocks and/or by using special reserve funds to hold down prices. However, it is unlikely that they would be willing to hold the price rises by relaxing monetary and fiscal policies, in view of the experience of the previous oil crisis when such a policy had

Box I.2. Adjournment of the Uruguay Round of multilateral trade negotiations: implications for developing countries

The Uruguay Round of multilateral trade negotiations, which was launched in 1986 with an ambitious and comprehensive agenda of old and new trade issues, was expected to reach a successful conclusion at the final ministerial meeting in Brussels in December 1990. After the mid-term review meetings of the Uruguay Round in Montreal and Geneva in December 1988 and April 1989 respectively, a wide measure of agreement appeared to have been reached on a number of issues. This included agreement to reduce or eliminate tariffs on a broad range of goods, with an overall reduction target of about 30 per cent, and elimination or substantial reductions of tariffs on tropical products in both processed and semi-processed forms, such as coffee, cocoa, rubber, banana, vegetable oil and jute. Agreement was also reached on the procedures for negotiations during the remaining period on such subjects as non-tariff barriers to trade, liberalization of trade in natural resource-based products, review of the General Agreement on Tariffs and Trade (GATT) articles, review of the code on subsidies and countervailing measures, and the construction of rules to govern the new issues of trade-related investment measures and trade in services.

Prior to the final ministerial meeting in Brussels, framework agreements in most of the 15 negotiating groups had already been achieved. However, the issues were linked and results in one often depended on the outcome in another. All the pieces of the jigsaw puzzle were expected to fall neatly into place once the United States and the European Communities (EC) agreed to a substantial reduction in agricultural subsidies and to a phasing out of the Multi-Fibre Arrangement.

However, these key differences could not be resolved, in spite of the mandate of the Houston Summit declaration of 11 July 1990 "to achieve far reaching, substantial results in all areas of the Uruguay Round by the end of the year", particularly agricultural subsidy. Instead, the Uruguay Round negotiations were adjourned on an inconclusive note on 8 December 1990. Although the adjournment does not constitute a complete failure of the trade negotiations, the high hopes raised during the last four years have been dealt a serious blow. If the negotiations do not come to a successful conclusion soon after their resumption in mid-January 1990, serious doubts will be cast on the efficacy of the multilateral negotiation process and may eventually undermine GATT itself. In the worst scenario, protectionism in developed countries would intensify, the trend towards liberalization in developing countries would be reversed, bilateralism would be strengthened and the formation of regional trading blocs would gather momentum.

If protectionism intensifies in the developed countries, it will discourage developing countries from pursuing liberalization, especially in their service sector. The launching of the Uruguay Round had encouraged several developing countries to liberalize trade in such services as transport, communications, banking and insurance. For example, in November 1988, Indonesia announced sweeping reforms, including the abolition of various import monopolies and the opening of wholesaling and shipping industries to foreigners. A month earlier, Indonesia had introduced a package of reforms aimed at opening up Indonesia's heavily regulated banking services. Developing countries such as Indonesia were willing to liberalize their service sector in the hope that the developed countries would reduce restrictions on manufactures exports.

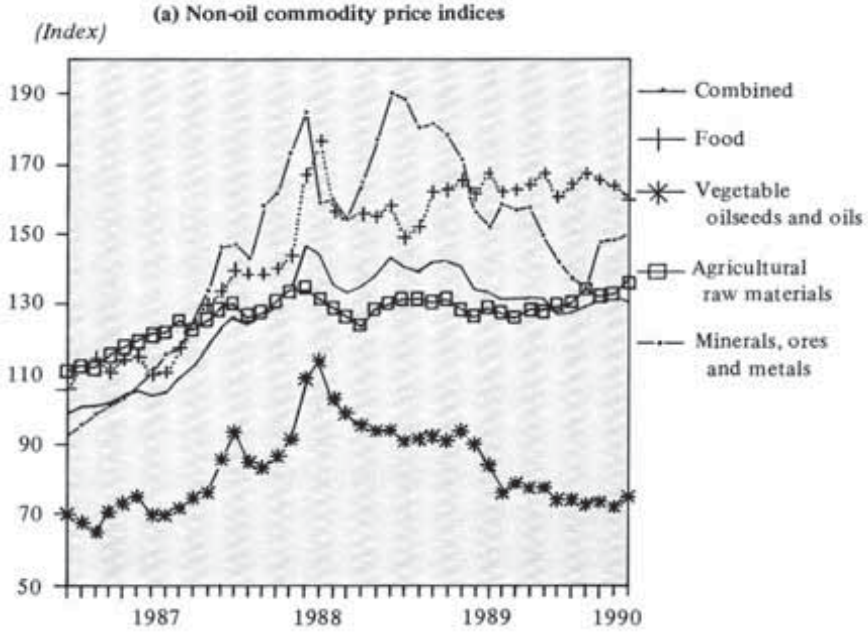
The possible failure of the Uruguay Round or even the exaggerated fears about failure would also give considerable encouragement to the formation of trading blocs in various parts of the world. On the very day that the final ministerial meeting in Brussels opened, the United States of America proposed to offer discriminatory regional free trade agreements to the nations of Latin America, as part of the Enterprise for the Americas Initiative. Similar proposals have been floated in the Asian and Pacific region during the last two years or so. Fortunately in the developing Asian and Pacific region, there seems little enthusiasm for the formation of such trading blocs; instead regional co-operation efforts to strengthen the region's growth momentum have found a strong response.

It is, therefore, of the utmost importance that the Uruguay Round is saved from failure and the last ray of hope for its success is kept aglow. In a way, the adjournment of the Uruguay Round was a better option than a compromise agreement which would have left most trade barriers intact. Such an agreement would not have significantly reduced the possibilities of unilateral trade actions or the promotion of discriminatory bilateral and regional trade pacts. However, one important reason for the urgency to conclude the negotiations at an early date arose from the impending deadline of 1 March 1991 for the Congress of the United States to extend the administration's implementing authority if the talks run past that date.

triggered high inflation and subsequently required much more stringent macro-economic measures. Retail oil prices, therefore, could be expected to go up generally, except where governments were inclined to postpone such decisions for reasons of policital expediency. In any event, the impact on output growth was likely to be adverse. There was, therefore, a need for a delicate balance to be achieved between the objectives of containing inflation and maintaining the growth momentum.

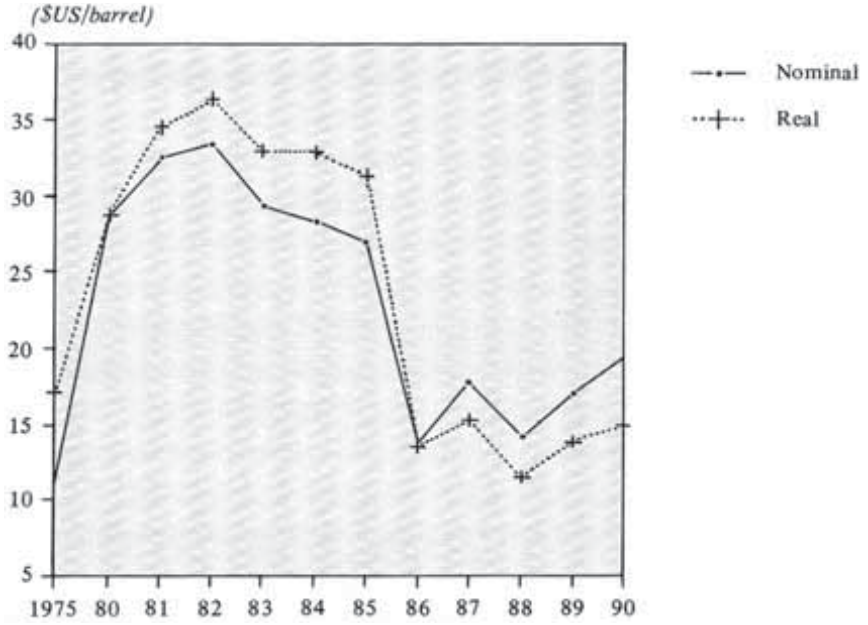
Figure I.3. Movements of commodity prices

(a) Non-oil commodity price indices



Source: UNCTAD, *Monthly Commodity Price Bulletin* (July, August and September 1990).

(b) Nominal and real prices of oil



Source: IMF, *International Trade Statistics* (Washington, D.C., November 1990).

6. The prospects

Earlier in the year, the world economic growth rate in 1990 was forecast at 2.3 per cent.[7] The revised forecast after the Persian Gulf crisis erupted placed the rate of growth in output in 1990 at 2 per cent, ruling out the possibility of an immediate recession. However, the prospects for 1991 and beyond were much less certain. Much would depend on the severity of the third oil price shock (see box I.3).

Even after taking the above factors into consideration, a short-term slow-down in 1990 and 1991 was unavoidable. The extent and duration of the slow-down would depend on the extent of escalation of oil prices and the nature of the outcome of the current crisis. Based on the assumption of a 50 per cent rise from a base price of $US 18 per barrel prevailing immediately before the start of the Persian Gulf crisis, a 0.5 per cent drop in output in the industrial countries was expected in 1990. In 1991, the negative impact would be more as the full impact of the crisis would be felt in that year.[8] However, some of the Organisation for Economic Co-operation and Development (OECD) economies, Canada, the United Kingdom and the United States which were already experiencing a slow-down before the crisis broke out, were more vulnerable in the short term. The economy of the United States

[7] IMF, *World Economic Outlook* (Washington, D.C., May 1990), and United Nations, *World Economic Survey*, forecast 2.2 per cent.

[8] IMF, *World Economic Outlook* (Washington, D.C., October 1990), p. 35.

which slowed to a 0.4 per cent growth in the second quarter of 1990 (pre-crisis) was heading to a recession by the end of the year. Similarly, the economy of the United Kingdom was visibly in recession by the end of 1990. Much, however, would depend on the policy undertaken with regard to controlling inflation *vis-à-vis* maintaining growth. Both countries had large external deficits, inflationary pressures and high interest rates, particularly in the United Kingdom.

The East European economies were also very vulnerable to the crisis. Apart from their other transitional problems, they would face the high world prices of oil and payment in hard currencies beginning early in 1991, as they were losing their privileges to buy oil from the USSR at special prices under payment arrangements which did not require hard currency. The heightened payment problems arising out of the need for oil imports could make their transitional problems even more difficult.

Finally, the developing countries, particularly those heavily

Box I.3. The third oil shock: causes and consequences

The crisis in the Persian Gulf which erupted on 2 August 1990 and is likely to drag on well into 1991 has brought with it the third oil shock. Although this third oil shock bears considerable resemblance to the previous two shocks, it has distinctive features of its own. The world is better prepared to meet the present oil shock than the previous two, which came in rather quick succession within a period of five and a half years, whereas the present one has come after an interval of over a decade. However, the adjustments that it may call for, especially in the non-oil developing countries, are likely to be much more difficult and challenging.

The first oil shock of 1973 came in the wake of political turmoil affecting the oil-producing countries in the Persian Gulf region as have the succeeding two. The Arab-Israeli conflict in October 1973 led to an oil embargo and subsequently to a rise in oil prices from $US 2.50 a barrel to over $US 10. The second oil shock of 1979, which was triggered by the revolution in the Islamic Republic of Iran, drove up the oil prices from $US 13 a barrel to $US 34. The global economic consequences of these price increases were very heavy, resulting in high rates of inflation and later to the highest unemployment levels and deepest recession since the 1930s depression.

The current oil shock, which has already outlasted the previous ones, has not yet resulted in as steep a rise in oil prices. Just before the Persian Gulf crisis erupted, oil prices were around $US 20 a barrel and except for a brief period in September 1990 when they touched $US 40, the prices averaged around $US 25 until the middle of January 1991. However, they could rise steeply to $US 60 or beyond if the major oil facilities, including refineries, in the Middle East are put out of commission during the war.

Since the second oil shock, however, a number of developments have taken place which have resulted in an improvement in the margin between available supplies and consumption demand for both energy, in general, and oil in particular. On the supply side, not only did the share of world supply from the Organization of Petroleum Exporting Countries (OPEC) decline from 64 per cent in 1979 to 42 per cent in 1988, but the world has increasingly moved away from oil to natural gas, coal, hydroelectric and nuclear power.

On the demand side, the factors that have affected the safety margin are several. The first, of course, is the considerable impact of conservation measures which has reduced both the energy and oil intensity of output very significantly in the developed countries. The increasing concerns about the environment are also likely to have an effect on depressing demand in the developed countries. In the pursuit of the structural transformation of their economies initially low per capita consumption of energy in developing countries has continued to rise, despite low economic growth in the 1980s and some success in conservation measures. However, their share of oil in overall energy consumption and of oil imports as a percentage of gross domestic product (GDP) has remained low. The oil shocks of the 1970s have also led to the creation of strategic petroleum reserves by the industrialized countries, under both the auspices of the International Energy Agency and the national Governments themselves. These are estimated to amount to about 1 billion barrels.

As a result of the above developments, the situation in regard to the available supplies has improved considerably since the first two oil shocks. Indeed, the situation of oil "scarcity" was transformed to that of "oil glut", after the second oil shock, partly through a shift in the supply curve (increase in exploration activity, substitution by other fuels), as well as a shift in the demand curve (conservation measures, environmental concerns). Thus the long-term expectations about continuing low oil prices remain upbeat, especially since investments in oil explorations in the latter half of the 1980s were subdued owing to low oil prices. The share prices of most energy stocks reflect the expectation that real oil prices per barrel will fall back to somewhere between $US 20 and $US 25 over the long run.

Another important development has been the structural change in the oil market that has taken place since the two oil shocks. Before 1970 the major petroleum companies ran the oil industry in a vertically integrated manner combining crude oil production, refining (usually located in industrialized countries) and distribution activities. This was broken by the nationalization of the oil industry. However, with the accumulation of wealth after the two oil shocks many of the oil-exporting countries, particularly Kuwait, attempted to reintegrate the industry with investments in both refining and marketing. Kuwait virtually became an integrated oil company possessing not only huge oil reserves and a large export refinery capacity, but also overseas

dependent on oil imports would suffer the worst. Apart from the oil effects on the balance of payments, domestic costs, prices and output, many of them would lose millions of dollars in workers' remittances. Trade losses would result as the world economy slowed down or went into recession. Development assistance would be further affected by any unscheduled diversions occasioned by the crisis. Any windfall accruing to oil exporters was unlikely to be recycled to the developing countries on a significant scale, given the continuing reluctance of commercial banks to resume voluntary lendings to the developing countries. It was still unclear how much success a reported special fund created through voluntary contributions from oil-exporting countries under IMF auspices could achieve.

B. IMPLICATIONS FOR DEVELOPMENT IN THE ESCAP REGION

The developing countries in the ESCAP region achieved an economic growth rate during the

refineries and thousands of gas stations in Western Europe operating under the name Q8. Similar downstream investments were undertaken by other oil exporters, for example, Indonesia, Saudi Arabia and Venezuela. The loss of 800 million barrels per day of refinery capacity in Kuwait created a very tight supply situation in refined products world-wide, since refinery capacity can be expanded only with high investments and considerably long lead time.

The current pressure on oil prices arises from the trade embargo on Iraq and Iraqi-occupied Kuwait, which together contributed 4.5 million barrels per day or about 7 per cent of world oil consumption. The other members of OPEC, Saudi Arabia, United Arab Emirates and Venezuela, have declared their intention to increase supplies by 3.5 million barrels per day. If the strategic oil reserves of the developed countries, drawn upon to a significant extent, the pressure on oil prices could be contained, at least, in the short run.

The present oil shock is different from its two predecessors, therefore, in two main respects. First, it reflects a short-term disturbance rather than a long-term disequilibrium between world demand and the supply of oil. Second, it is a shock created not entirely by the scarcity of crude oil, but also by that of refined oil products, especially light products such as jet fuel, gasoline and heating oil. Even if other OPEC producers could increase their production of crude oil, the right product mix to meet world demand will not be forthcoming. Any further disruption of refinery capacity during the current hostilities in the Persian Gulf could trigger an enormous price hike.

However, even if the price of oil reaches $US 60 per barrel, the real price of energy will not have increased above that reached after the first oil shock in the 1970s. Thus, the present oil shock, unlike the previous two, will not require a serious adjustment in the goods market as a result of a rise in the relative price of energy. Its main impact on the developing countries is likely to arise in capital markets where, by contrast, opportunities were far more favourable in the previous two oil shocks.

The first two oil shocks brought about adjustments in the capital markets, which considerably assuaged the unfavourable effects of the oil price rise for developing countries. The huge increase in the oil revenues of the oil-exporting Persian Gulf economies could not be absorbed domestically, notwithstanding the frantic pace of their growth in the 1970s. The large financial surpluses generated as a result were recycled through commercial banks and other institutions as loans to developing countries. In addition, the oil-exporting countries became major contributors to the official development assistance (ODA) flows to developing countries. The bulk of the funds from the commercial banks and other institutions was channelled to Latin America, while the ODA flows provided by the oil-exporting countries were largely directed towards the poorer developing countries of Asia, the Middle East and Africa. In addition, a large number of developing countries, especially those of the ESCAP region, received large amounts of remittances from the oil-exporting countries of the Middle East. The estimated remittance earnings of these workers from the developing countries of the ESCAP region was around $US 8 billion by the end of the 1980s.

In contrast, the capital market implications of the third oil shock will be largely unfavourable. The disappearance of remittance and aid flows will cause the erosion of an important source of support for the current accounts of the balance of payments. At the same time, the increase in the earnings of oil-exporting countries, many of which currently have large debt burdens or are likely to undertake increased military expenditure, will not result in the recycling of oil revenue surpluses. Even if it were possible to recycle the surplus funds, the reluctance of the commercial banks to play an intermediary role will make it unlikely. Furthermore, the international capital markets are hardly flush with liquidity, as they were at the time of the two earlier oil shocks. There is a tightening in capital markets everywhere, except in the United States of America, which is undergoing a recession. The official capital flows are also shrinking and Eastern Europe's capital needs are likely to receive the priority attention of the donors.

In view of the growing needs of many of the developing countries for rebuilding their essential physical and social infrastructure, largely neglected during the past two decades, this resource crunch is likely to prove very unfavourable to the prospects of their continued growth. Therefore, the medium- and long-term imperatives of the present oil shock, should it become more prolonged and severe, would be to renew efforts to increase capital transfers necessary for the growth of the developing countries.

1980s roughly twice that of the world average. All countries obviously did not perform equally well. Some of the least developed and small island economies tended to stagnate. A few of the region's other countries suffered economic dislocations stemming from conditions of political instability that sometimes led to military conflicts. The more successful economies of the region built their success on, amongst other things, trade expansion and capital inflows which supplemented their own rather high rates of domestic savings to finance investment rates of 30 per cent or more. The trade volume of East Asian economies expanded at an annual rate of 15 per cent during the period 1980-1989 while that of South Asia grew by 6 per cent. The developing Asian economies could take advantage of the expanding OECD markets, despite protectionist pressures for entry into those markets, at a time when other developing countries were mostly stagnating and experiencing only moderate export growth.

Japan and the East Asian NIEs generated the largest surpluses of the world economy which facilitated an accelerated flow of investment from Japan and the NIEs, mostly to the East and South-East Asian developing economies. Foreign direct investment flows to Asian countries from the Development Assistance Committee of OECD averaged $US 8.5 billion in 1988-1989 compared with the previous high of $US 5.1 billion in 1981. The flow from NIEs to South-East Asia, still relatively small in absolute volume, has shown a sharp rise since 1987 as the NIEs were experiencing domestic cost and other pressures inducing them to relocate some of their industries to other areas of the region as was the case with Japan.

The highly trade oriented economies of the region would be adversely affected by the slowdown in world trade expected to take place in the short run. The United States, the largest single market for exports for most countries, experienced a deceleration in imports volume growth from 6.5 per cent in 1988 to 5.8 per cent in 1989. The recessionary tendency in the United States economy in 1990, which was being reinforced by the Persian Gulf crisis, were to squeeze imports further to a 3.5 per cent forecast growth. At the same time, the trend towards a narrowing of external deficits could be reversed by the higher costs of oil imports and further strengthen the protectionist lobbies in the United States.

The European market, the second largest for exports from the region, has not expanded in recent years for exports from Asia and the Pacific. Any slowdown in economic activities in 1990-1991 would further reduce demand, strengthen protectionist pressures while market competition from Eastern Europe and also Latin America would increase. Latin American economies are forecast to revive and grow strongly under recently introduced policy and reform measures. Latin American exports were likely to have a better leverage to European markets through their traditional Latin European connections in so far as trade relations still remained politically determined. Trade competition in the United States market would also intensify from three sources: freely accessible Canadian imports, imports from Eastern Europe and from Latin America.

Over the medium term, there could arise greater opportunities to trade with the Latin American countries, as there could be possibilities of expanded trade with Eastern Europe and the USSR as a result of the rapid disappearance of cold war psychology and the reopening of diplomatic ties between countries which had long remained apart. It could be necessary for the developing economies of the ESCAP region to look for opportunities to diversify markets. That might also require changes in the commodity composition of their export trade and improvement of product qualities to suit the new situations which were emerging.

Apart from the difficulties in export trade owing to lower demand and intensified competition, the developing countries in the region would face higher import bills on oil for which most economies were import dependent. After the previous oil crisis most countries in the region made efforts to augment domestic supplies with various types of energy resources. These efforts included increased exploration and development of fossil fuels and increased attention to the production of hydro and geothermal power. Efforts in many countries of the ESCAP region were also focused on increasing efficiency in energy use. Measures adopted included adjustment of prices to reflect actual costs (lowering subsidies) and adoption of energy efficient techniques in industry and transport. These measures succeeded in reducing the share of liquid fuel in total commercial energy consumption in the region from 44.6 per cent in 1980 to 35.8 per cent in 1987. On the other hand, the consumption of solids went up to 51.6 per cent and gas 9 per cent from 45.8 and 6.7 per cent respectively of total consumption during the same period. However, in many countries the supply of energy and imports remained an important

growth limiting factor. The slack in the world prices of oil since 1985 could have resulted in a relaxation of efforts to augment domestic production and conservation of energy. The "third oil crisis" should stimulate those efforts. Yet the short-to-medium term impact of the crisis on the economies of the region could be severe.

The full impact of the higher cost of oil, if it were to persist, would be felt in 1991. The excess expenditure would run to $US 4.8 billion for the net oil-importing developing economies assuming a $US 25 price per barrel and $US 8.2 billion with a $US 30 price per barrel with net quantity imports as in 1988. The impact on cost and prices also was expected to be limited in 1990 but could add more than one percentage point to the inflation rates in 1991. However, the situation in many countries which were already facing economic difficulties, such as those in South Asia and the Philippines, could be very serious. Countries such as Bangladesh, India, Pakistan, the Philippines and Sri Lanka, as also the other least developed and island countries, were much less well placed to adjust to the changes than some of the other countries. Even the East Asian NIEs, which were experiencing an economic slow-down and a dwindling of their payment surpluses, would be hard put to adjust as oil constituted a very high proportion of their energy consumption, almost the whole of which was imported.

That short-to-medium term payment deficits and financing needs of many countries in the region would increase, could hardly be in doubt. A total net resource flow of $US 38.3 billion to Asian countries in 1989 was almost 54 per cent from official sources (bilateral and multilateral ODA and other disbursements). Half of the private inflows were FDI, most of which came from Japan and the NIEs whose surpluses were being reduced.

Domestic policies should be geared to create a more favourable environment for capital inflows. The region's more dynamic economies, which had come to depend more on private capital flows to meet their external financial needs, would have to adjust to the changing character of international flows which were increasingly taking the form of FDI, portfolio investments and bond lendings, and a decline in bank lendings. Further market liberalization, stable monetary conditions, healthy budgetary practices, strengthened money and capital markets were some of the necessary conditions to be met. For the poorer countries of the region, which depended for as much as 98 per cent of their external financial flows on official sources as of 1988, stepped up financial assistance would be necessary for them to overcome the extremely difficult situation they would otherwise face.

II. MACRO-ECONOMIC PERFORMANCE AND POLICIES IN THE ESCAP REGION

A. HIGHLIGHTS OF REGIONAL ECONOMIC PERFORMANCE

Notwithstanding the adverse developments in the world economic environment discussed in chapter I, the developing countries of the ESCAP region maintained their overall growth rate of 5.4 per cent in 1990, same as in 1989. The balance of adversity, however, shifted towards the oil-importing economies, which generally suffered a decrease in their growth performance. A compensating increase in growth rates took place mainly in China and in the Republic of Korea. Despite slower growth of exports and higher growth of imports, the Republic of Korea managed to stimulate domestic demand to increase the growth rate of gross domestic product (GDP) from 6.1 per cent in 1989 to 8.8 per cent in 1990. Other countries which experienced some growth acceleration in 1990 were Bangladesh and Sri Lanka – largely a result of a recovery from the low levels of output in the preceding two years.

Slower growth in exports owing to lower rates of world economic growth affected the balance of payments and the capacity for growth, particularly of economies which are highly trade oriented. The rise in oil prices subsequent to the onset of the Persian Gulf crisis, with its impact on the cost of imports of most developing economies which are net energy importers, and on domestic production costs and prices, is an additional factor in the emerging scenario of decelerating rates of economic growth and accelerating rates of inflation in most countries of the region.

As in the past, the region showed considerable diversity in economic performance. The economic slow-down is more pronounced in the East Asian region which includes China, Hong Kong, Mongolia, the Republic of Korea and also Taiwan Province of China. With the exception of Mongolia, growth in these economies slowed in 1989, particularly in China and Hong Kong. Growth in the Republic of Korea also suffered a sudden loss of momentum, decelerating from a rate of 11.5 per cent in 1988 to 6.1 per cent in 1989. It recovered substantially in 1990, despite the continued slow growth of exports. Much of the growth stimulus came from the expansion of domestic demand, both for consumption and investment.

The South-East Asian economies have largely sustained their vigorous growth performance since 1986. The overall growth rates of the region moderated; those of the oil-exporting countries, especially Indonesia, accelerated while those of the oil-importing countries, especially the Philippines whose problems were compounded by natural calamities and other non-economic factors, decelerated. The improved performance of recent years by South Asian countries has been disrupted by the Persian Gulf crisis. Nevertheless, despite continuing external and internal problems, some of the economies, especially Bangladesh and Sri Lanka, have achieved satisfactory growth rates.

Although evidence of high growth rates in some of the least developed and Pacific island economies periodically dispels the pessimism about their economic performance, the failure to sustain such rates of growth remains the main problem of their development. Weather conditions, natural calamities and fluctuations in the prices of their primary commodities remain the main determinant of their economic performance. Some countries, such as Bhutan and Maldives, have recorded high growth rates, but the outlook has remained generally unpromising.

Growth in 1991 is likely to be considerably slower than in 1990 as adverse international economic developments, especially the Persian Gulf crisis and the lack of success of the Uruguay Round of multilateral trade negotiations, begin to have their full impact - unless dramatic events take place to reverse them. Although the overall effect of these factors will be to slow down the developing ESCAP region's growth rate from 5.4 per cent in 1990 to 5.1 per cent in 1991, the brunt of the burden of deceleration will be borne by the poorer and non-oil exporting developing economies in the region.

Current international developments will have a major adverse impact on trade and capital flows in the region. Since 1987 there has been a steady slow-down

in growth in the world trade volume. Growth slowed down from 9.1 per cent in 1988 to 7.3 per cent in 1989, and to an estimated 5.4 per cent in 1990. Much of the slowdown in world trade has come from a weakening in the growth of the import capacity of industrialized countries. Correspondingly, the growth of the dollar value of exports from developing countries in the ESCAP region fell from 23.2 per cent in 1988 to 11.6 per cent in 1989 and to

Box I.4. Capital market developments in the developing ESCAP region:

In the past several years, policy discussions have been focused on the development of equity markets in developing countries, partly to help channel domestic savings into investment and partly to add to the flow of non-debt creating foreign finance for development.[a] Developing countries are discovering that equity markets may constitute an important and efficient mechanism for raising foreign resources as foreign funds from other sources, especially official development assistance and commercial bank loans, shrink.

These considerations have led to the emergence of several equity markets in the developing ESCAP region. Bangkok, Bombay, Hong Kong, Jakarta, Kuala Lumpur, Manila, Seoul and Singapore have grown rapidly in recent years. However, their sizes are still relatively small in terms of transaction volumes and the value of stocks, and participation is limited to small number of firms and/or individuals. For example, the market capitalization of stocks traded in Seoul, the largest market in the developing ESCAP region,[b] is about 4 per cent of those in New York or Tokyo and 12 per cent of that of London.

More significantly, the equity markets of the developing ESCAP region are of only limited importance in the economies and national financial systems of most developing countries. The table below shows that even in those countries which have relatively active equity markets, the value of share issues in relation to gross domestic product was significantly lower than in industrial countries and other developing countries in other regions between 1980 and 1986, except in the case of Malaysia.

Following the outbreak of the Persian Gulf crisis in August 1990, the stock markets, including those in Asia, fell sharply, which may make it more difficult and costly for business firms in the developing ESCAP region to raise funds for expansion at least in the short term. Over the longer run there are good prospects for the development of markets for private-sector securities. Many factors could prompt the development of such markets. It is said, for example, that in India the domestic securities markets grew strong over the years as a way around the Government's policy of allocating bank credit to the private sector. The growth of equity markets can be fuelled by the conversion of family-owned firms and the privatization of state enterprises. As family-owned firms have grown large in the Asian and Pacific region, some appear to have decided to restructure and "go public". One reason might be to raise resources for investment, but a major motivation of the owners seems to be also to capture the capital gains when shares are sold to the public.

Thus far almost all the international financial flows to developing countries have been mediated by large institutions, either governmental agencies, multilateral financial institutions or direct investors. Flows among industrial countries, in contrast, are much more the result of international transactions in securities. Over time, flows to developing countries will also increasingly be in terms of securities, which will be facilitated by the liberal reforms introduced in the financial sector in many developing countries in the region. However, at least for the near term, it appears that even securitized flows will mainly involve the participation of large financial institutions, especially large-scale international commercial banks.

However, there are many pitfalls to be guarded against in the development of the nascent capital markets in the developing countries. It can be argued that equity markets have not been a major source of investment funds in industrial countries and are unlikely to be more effective in developing country conditions.[c] In current practice, substantial funds raised in recent years by floating issues of shares have been mainly used to retire debt. For example, in Thailand, where debt/equity ratios on the whole are of the order of 4 to 6, the ratio for companies listed on the Stock Exchange of Thailand was estimated at about 1.1 in August 1990. However, strengthening the financial condition of companies is an important undertaking and these firms will be better positioned to borrow for expansion at a later time.

International participation in equity markets in developing countries can be a mixed blessing. Although these foreign capital inflows contribute to the net financing of investment in aggregate terms, they can be highly speculative and potentially destabilizing for the equity markets and the balance of payments itself.

There is another reason for the possible destabilizing effect of foreign funds on developing country equity markets. Even a relatively small investment made by a medium-sized institutional fund of an industrial country could give a large boost to the stock market of a developing country receiving the funds and a large shock to the market when moved or even reallocated within the market. Indeed, one difficulty that has arisen in certain of the mutual funds of developing country shares that have become popular in recent years is not

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[a] See, for example, the report and recommendations of an international group of experts, chaired by Sir Kenneth Berrill, *Foreign Portfolio Investment in Emerging Equity Markets*, WIDER Study Group Series, No. 5 (Helsinki, World Institute for Development Economics Research, United Nations University, March 1990).

[b] Barring Taipei.

[c] Joseph E. Stiglitz, "Financial markets and development", *Oxford Review of Economic Policy*, vol. 5, No. 4 (Winter 1989), pp. 55-68.

an estimated 9.8 per cent in 1990. Although the imports of these countries also declined, they did not do so commensurately, and therefore the balance of payments of many countries incurred larger deficits. The prospects of larger oil import bills will further aggravate the balance of payments problems. The prospects for resource transfers to dificit countries, including remittances, have also suffered adversely because of a decline in the capital surpluses of Japan and the newly industrializ-

progress and prospects

in raising funds from industrial country sources, but in finding sufficient, appropriately diversified shares in which to invest the funds.

Another problem relates to the small size of the equity markets in the developing ESCAP region discussed above. Generally small equity markets do not function efficiently. The risks for investors are too great since every transaction can affect the market price and there is only limited scope for portfolio diversification. Moreover, the small size of transactions facilitates insider trading, resulting in a lack of confidence by small investors.

These problems will gradually be solved with the growth and maturity of developing country equity markets, but in the transitional period they will continue to confront both the industrial country fund managers and the promoters of the recipient markets in the developing countries. In the meantime, the appropriate policy would seem to be to provide a regulatory framework to ensure the sound development of equity markets in the region to protect the interests of investors in the market. More specifically, the authorities should implement effective measures to preempt the emergence of abuses, such as insider trading, which have recently plagued the developed country markets. The authorities can also make the stock market more attractive, especially in terms of research and technology development. If such measures are taken, there are excellent prospects for the further development of equity markets in the ESCAP developing region. At present, of the 30 emerging equity markets in the third world, 10 are in Asia. More impressively, the capitalization of these 10 markets accounts for over three quarters of the total capitalization of all the 30 emerging equity markets.

Size of the equity market in selected industrial and developing countries, 1980-1986

	Value of share issues as percentage of GDP[a]			*Value of share issues as percentage of M2*[b]		
	1980-1981	*1982-1984*	*1985-1986*	*1980-1981*	*1982-1984*	*1985-1986*
Industrial countries						
Canada	40.1	38.7	43.9	83.3	83.9	100.5
France	7.4	6.9	17.9	15.5	14.9	38.3
Germany	9.0	11.9	29.1	16.6	21.2	49.6
Japan	35.3	45.4	81.3	40.3	48.6	81.7
United States	49.2	51.8	61.0	86.7	86.2	95.6
Developing countries						
Argentina	2.1	1.8	2.5	6.9	5.7	11.4
Brazil	4.1	8.4	17.5	35.4	74.8	134.4 [c]
Chile	27.8	14.1	18.4	93.7	42.8	n.a.
Colombia	4.3	2.6	1.9	20.6	12.2	8.7 [c]
India	6.7	5.7	8.6	16.6	13.1	18.6
Malaysia	55.9	61.7	53.1	103.7	104.7	77.0
Mexico	5.6	1.8	3.5	17.9	6.0	13.1
Nigeria	3.5	3.4	3.7 [c]	11.9	9.7	8.3
Pakistan	2.9	3.8	5.0	7.2	9.1	12.2
Peru	4.5	5.1	...	17.7	19.0	...
Philippines	5.2	3.1	5.2	24.5	13.4	24.7
Republic of Korea	6.1	6.3	11.3	18.3	17.1	29.4
Thailand	3.2	3.8	5.9	8.6	7.8	10.0
Venezuela	4.1	2.6	2.6	11.5	5.8	5.0
Zimbabwe	14.0	4.9	7.6	39.8	16.0	27.4

Source: U. Corsepius, "Liberalization of capital markets in developing countries", *Intereconomics*, vol. 24, September/October 1989, p. 224.

[a] Gross domestic product. [b] Cash, demand deposits and quasi-money. [c] Only 1985.

ing economies (NIEs) and the competing needs of Eastern European economies which seem to be receiving greater attention from the industrialized countries.

The task of macro-economic management in the developing countries of the Asian and Pacific region was becoming increasingly difficult in the face of uncertainties in the global economic environment. Inflation rates are edging up in most economies because of an increase in oil prices and other cost-push factors, including inadequacies in infrastructure development. Most countries in the region have adopted prudent fiscal policies and have restrained monetary growth. However, the instruments of fiscal and monetary control remain weak in many developing economies, especially the least developed and Pacific island economies. Moreover, political pressures, both external and internal, often result in contradictory and self-defeating macro-economic policies.

Investment growth was slowing down as monetary and credit policies were being tightened in many countries to counteract inflationary pressures and to discourage speculative activities especially in the property and stock markets (box I.4, p. 18). The need for fiscal responsibility and prudence, sometimes explicitly and involuntarily accepted as conditions for international financial assistance, induced governments to reduce their budgetary deficits through cut-backs in government expenditure. This has, however, not only permitted the policy makers less freedom to use an instrument for providing the economy with an expansionary stimulus, but the cut has also fallen on certain categories of socially necessary expenditure, such as education, health and other basic amenities.

B. DIVERSITY IN REGIONAL ECONOMIC PERFORMANCE

1. The developed countries

(a) Overview

The three developed countries of the ESCAP region, Australia, Japan and New Zealand, according to latest available data, account for 69.9 per cent of the region's GDP and 5.0 per cent of its population. Their share in the region's world exports was 48 per cent, while that in imports was 40 per cent in 1989. They took 17.5 per cent of the region's developing country exports and supplied 22.3 per cent of their imports. Moreover, they play an important role in supplying capital to the developing countries of the region in the form of official development assistance (ODA) and private investments. Thus, they have developed increasingly close economic and trade links with the developing countries of the ESCAP region. A brief account of the recent economic performance and policies of the three developed countries is given below.

(b) Overall economic performance

Of the three countries, Japan's economy – being also the second largest in the world – remained the strongest, with an annual average of more than 5 per cent gross national product (GNP) growth rate during the period 1987-1989, low rates of inflation and the largest balance-of-payments surplus in the world. Japan's economy was estimated to grow by over 5 per cent also in 1990 (table I.3). The Australian economy also grew at healthy rates of 4.1 per cent in 1989, and a lower 3.3 per cent in 1990. Unlike Japan, however, the Australian economy experienced high rates of inflation and large current account balance-of-payments deficits. The fiscal and monetary policies designed to correct the deficits have adversely affected the economy's rate of growth. The Government has also implemented measures of micro-economic reforms in recent years to improve the economy's structure and performance. In contrast with the experience of most other economies of the region, the New Zealand economy has shown the weakest performance, with stagnation in output growth, high rates of inflation and large balance-of-payments deficits. New Zealand's economy virtually stagnated with real GDP growing at an average 0.2 per cent during the period 1987-1989. A zero rate of growth was estimated for 1990. A series of policy reforms were implemented to remove measures of control and regulations under which the economy had operated up to the mid-1980s. A notable achievement of the reform measures was the reduction of inflation to a 5.7 per cent rate in 1989 from 15.7 per cent in 1987.

Japan's recent economic growth is credited to have been based largely on domestic demand expansion. Exports, usually perceived to be the main propeller of the economy, grew in volume by an annual average of 2.3 per cent during 1986-1989 while imports grew by 11.1 per cent. The trade surplus, however, remained almost unchanged up to 1988 because of very substantial terms-of-trade gains since 1986 with the appreciation of the yen. In 1989, a 5.3 per cent decline in terms of trade led to a substantial reduction in the trade surplus to $US 76.9 billion from $US 95.0 billion in 1988. Business fixed investment rose by 17.3 per cent in 1988 and by

Table I.3. Developed ESCAP economies. Basic indicators, 1985-1990

(Percentage)

		1985/86	1986/87	1987/88	1988/89	1989/90	1990/91[a]
Australia	Real GDP growth	3.9	2.5	4.8	4.1	3.3	2.0
	Saving/GDP	22.2	22.7	22.6	23.7	23.8	...
	Investment/GDP	24.4	22.9	23.7	27.1	25.5	...
	Current account balance/GDP	-6.2	-4.7	-3.7	-5.3	-5.6	-4.5
	Budgetary balance/GDP	-3.0	-2.5	0.7	1.7	2.2	2.0
	M1 growth	3.6	11.4	20.3	29.6	7.5	...
	Changes in CPI	6.4	9.0	7.3	7.3	8.0	6.5
Japan	Real GNP growth	4.7	2.7	4.6	5.7	4.8	5.2
	Saving/GDP	31.9	32.2	32.4	33.3	33.9	...
	Investment/GDP	28.5	28.1	29.1	31.0	32.5	...
	Current account balance/GDP	3.6	4.3	3.6	2.7	1.9	...
	Budgetary balance/GDP[b]	-0.8	-0.9	0.6	2.1	2.7	...
	M1 growth	3.0	10.4	4.8	8.6	2.4	...
	Changes in CPI	2.0	0.6	0.1	0.7	2.3	3.0
New Zealand	Real GDP growth	1.6	1.4	0.8	-1.4	1.1	0.0
	Saving/GDP	22.3	23.8	21.8	20.7	...	...
	Investment/GDP	26.4	23.6	21.7	19.2	...	...
	Current account balance/GDP	-8.1	-6.4	-4.8	-1.5	-5.4	...
	Budgetary balance/GDP	-4.7	-3.7	1.1	2.1	2.7[c]	...
	M1 growth	9.1	21.0	47.3	12.1	...	...
	Changes in CPI	15.5	13.2	15.7	6.4	5.7	6.2

Sources: Australian Bureau of Statistics, *Australian National Accounts: National Income and Expenditure* (June 1990); IMF, *International Financial Statistics* (December 1990); Department of Statistics, *New Zealand Official 1990 Yearbook*, 94th Edition (June 1990).

Notes: [a] Forecast. [b] Based on Bank for International Settlements, *60th Annual Report* (Basle, 11 June 1990). [c] Central government only and based on Bank for International Settlements, *60th Annual Report*.

16.5 per cent in 1989. In 1990, despite the adverse impact of the slump in the stock exchange and the rise in interest rates, business fixed investment was estimated to grow at a rate close to 10 per cent. Although there was a rise in the national savings rate from 32.4 per cent of GNP in 1987 to 33.3 per cent in 1988 and 33.9 per cent in 1989, private consumption expanded at rates of 3 to 4 per cent in 1989 and 1990 after a 5 per cent expansion in 1988.

Japan's external balance-of-payments surplus, which in 1986 reached $US 94.1 billion, equivalent to 4.3 per cent of GDP, has been steadily declining since then largely owing to substantially increased payments on services and transfers. The surplus in 1989 at $US 53.4 billion, equivalent to 1.9 per cent of GDP, was a 30 per cent decrease from $US 77.6 billion in 1988. The accentuated fall was the result of a large drop in trade surpluses since 1986. In 1990, the surplus could further decrease to only $US 30 billion, equivalent to 1 per cent of GDP. as the surplus during the first half of the year actually stood just above $US 15 billion.

The gross investment rate in the Australian economy was equivalent to 27.1 per cent of GDP in 1989 whereas the gross savings rate was only 23.7 per cent, which left a savings-investment gap of 3.4 per cent of GDP. This was the result of a much faster growth of private investment than the private sector savings, leaving a gap between the two. The public sector developed a surplus of savings over investment which helped to reduce the overall savings-investment gap. Excessive domestic demand had an unfavourable impact on the external current account, which ran a deficit of 5.1 per cent of GDP on an average during 1986-1990. In 1990, the deficit widened to 5.6 per cent of GDP, despite a 6.1 per cent growth in exports during the year.

Investment rate in the New Zealand economy declined during the period since 1986. The current account balance of payments which was persistently in deficit in the 1980s, recorded somewhat lower deficits during 1988-1990. Low prices of New Zealand farm product exports and adverse terms of trade were responsible for the deficits.

(c) Macro-economic management

The Government of Japan has been running a budget surplus since 1987, which was equivalent to 0.6 per cent of its GDP The surplus rose to 2.1 per cent in

1988 and 2.7 per cent in 1989. With a 0.7 per cent rate of inflation in 1988, Japan's inflation rate was the lowest among the Organisation for Economic Co-operation and Development (OECD) countries. However, inflation rates have been creeping up since then, the rate rising to 2.3 per cent in 1989 and to 3.0 per cent in 1990. The latest figure showed Japan's inflation rate exceeding that of Germany for the first time in many years. In response, interest rates in Japan have also been rising.

Australia has also been running a budget surplus since 1988, when it had a surplus equivalent to 0.7 per cent of GDP. The surplus rose to 1.7 per cent in 1989 and 2.2 per cent in 1990. The budget surplus apparently did not make an impression on Australia's inflation rates which tended to accelerate from 7.3 per cent in 1989 to 8 per cent in 1990. Rates of interest in Australia have remained one of the highest among the developed countries of the world. New Zealand has also developed budget surpluses since 1987, equivalent to 1.1 per cent of GDP in that year, sharply reversing a trend of deficits of 3.7 per cent in 1986. The surplus rose to 2.1 per cent in 1988 and to 2.7 per cent in 1989. The budget surplus together with stringent monetary measures succeeded in moderating inflation in New Zealand which fell from a 15.7 per cent rate in 1987 to 6.4 per cent in 1988 and 5.7 per cent in 1989.

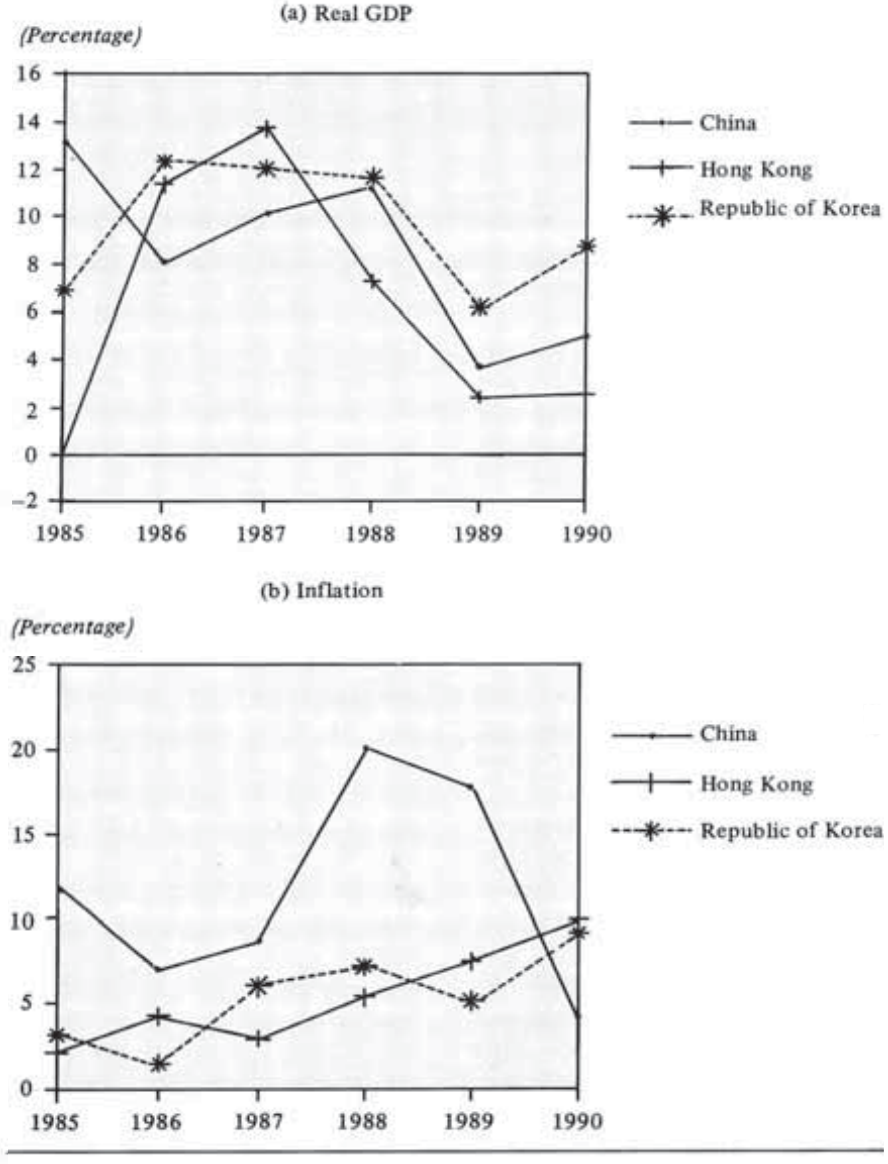
2. East Asian developing economies

(a) Overview

The rate of growth in the East Asian developing economies slowed down markedly in the last two years of the 1980s, average GDP growth rate falling sharply from 10.3 per cent in 1988 to less than half that rate in 1989 and 1990. China and Hong Kong bore the brunt of the deceleration, with growth rates around a third of those in 1988 (figure I.4). The Republic of Korea was able to sustain its growth at a rate that was a little better than others', especially in 1990, despite the adverse effects of the oil price rise in the last quarter of 1990.

The problems faced by China are qualitatively different from those faced by the three East Asian NIEs. While China was undergoing a deliberate policy-induced slow-down in growth to avoid the overheating of its economy and to bring down the high rates of inflation, the three NIEs have faced increasing problems in their external trade, partly arising from the erosion of the competitiveness of their ex-

Figure I.4. Selected East Asian economies. Rates of growth in real gross domestic product (GDP) and inflation, 1985-1990



ports due to rising wage costs. Since 1987, trade friction with the United States, upward revaluation of their currencies, and increasing competition from South-East Asian exporters of manufactures in third markets have dampened the export orientation of the economies and caused them to place greater reliance on domestic markets for their growth. In the Republic of Korea higher oil prices and the loss of textiles and electronics markets to ASEAN competitors have resulted in a trade deficit of $US 1.5 billion in 1990, compared with a trade surplus of $US 11.4 billion in 1988 and of $ 4.6 billion in 1989. Taiwan Province of China, however, has continued to post high trade and current account surpluses.

China's three-year economic slow-down, the result of deliberate measures, was coming to an end with inflation reduced substantially and the trade balance turning around by $US 10 billion from a deficit of $US 5.6 billion in 1989 to a surplus of $US 4.8 billion in 1990. While exports grew impressively by 15 per cent, the trade balance was also the result of an 8 per cent contraction in imports. The improvement in the economic situation encouraged the authorities to relax monetary and credit policies with a view to boosting investment. An end to the ban on international lending, especially by Japan, was also likely to promote the economic recovery in China.

(b) Overall economic performance

In China, the rate of GNP growth slumped from 11.2 per cent in 1988 to 3.6 per cent in 1989 (table I.4) and the output declined in absolute terms during the fourth quarter of the year. Agricultural output grew by 3.3 per cent over the previous year. Total grain production reached a record level although output of cotton, oil- and sugar-bearing crops declined owing to weather related causes. The industrial sector's output growth rate fell

Table I.4. Selected East Asian economies. Macro-economic data, 1985-1990

(Percentage)

	1985	*1986*	*1987*	*1988*	*1989*	*1990[a]*
China						
Real income growth[b]	13.1	7.9	10.2	11.2	3.6	5.0
Savings	34.5	35.5	35.9	35.6	36.5	34.5
Investment	38.6	38.7	37.2	37.6	37.0	35.5
External current account balance	-4.8	-3.1	0.1	-1.2	-1.3	...
Budgetary balance	-6.8	-2.1	-2.2	-2.5	-2.7	...
Money supply growth (MI)	20.0	27.9	18.5	20.0	16.3	...
Change in consumer price index	11.9	7.0	8.8	20.7	17.8	3.3[c]
Hong Kong						
Real income growth	-0.1	11.9	13.9	7.9	2.3	2.5
Savings	27.3	28.6	32.8	33.0	33.5	33.3
Investment	21.7	24.0	26.9	28.0	27.1	26.2
External current account balance	6.2	5.2	6.4	5.7	5.6	...
Budgetary balance	0.6	1.3	3.2	3.9	0.6	...
Money supply growth (MI)	23.0	23.9	46.0	8.5	10.3	...
Change in consumer price index	2.1	4.4	2.8	7.5	10.0	7.0
Republic of Korea						
Real income growth	6.9	12.4	12.0	11.5	6.1	8.8
Savings	29.1	32.8	36.2	38.1	36.3	32.2
Investment	29.9	28.9	29.6	30.7	34.7	35.7
External current account balance	-1.0	4.4	7.5	8.3	2.3	...
Budgetary balance	-1.2	-1.0	1.5	1.3	1.2	...
Money supply growth (MI)	10.0	16.6	14.7	20.2	17.9	...
Change in consumer price index	2.5	2.8	3.0	7.2	5.7	9.2

Sources: Asian Development Bank, *Asian Development Outlook 1990;* IMF, *International Financial Statistics* (Washington, D.C., November 1990); and national sources.

Notes: Growth in real income indicates rates of change in gross domestic product (GDP)over the previous year or the period indicated. Real income calculations are on different base-year prices in different cases. Money supply growth and consumer price index are also annual percentage changes over the previous year or for the period indicated.

Figures on savings, investment, and the current account and budgetary balances are percentages of GDP.

[a] Estimates/forecasts. [b] Gross national product (GNP). [c] Average rate of urban inflation for the first 8 months.

to 8.3 per cent compared with 20.8 per cent in 1988. Most sectors of industry were operating substantially below capacity, and yet accumulated large unsold stocks owing to slack in both consumer and investment demand. Drop in output growth to 3.7 per cent was the sharpest in the state-owned enterprises. Growth in the tertiary sector was limited to 2.9 per cent only.

In 1990, China's economy recovered slowly with a GNP growth rate of 1.6 per cent during the first half as against a 5 per cent target for the year. The industrial sector continued to experience sluggish demand and accumulation of large inventories, low levels of efficiency and profitability and structural imbalances. The Government set a target of 6 per cent growth in industrial output and advanced liberal credit support to industry, reversing earlier policies of a tight credit squeeze. Industrial production accelerated in the latter half of the year. The Government continued to attach priority to agricultural development by strengthening infrastructure to reduce its vulnerability to natural calamities and by ensuring better supplies of inputs and services. A target of 4 per cent agricultural growth in 1990 was set. Agricultural output growth showed good promise during the year with a bumper summer harvest of grains and a good autumn crop in prospect. Output of cotton was also expected to increase by 10 per cent over 1989. The latest available information indicated a 4.4 per cent real GNP growth, compared to the 5 per cent target set by the Government.

Real GDP growth in Hong Kong rapidly declined from a peak of 13.9 per cent in 1987 to 7.9 per cent in 1988 and 2.3 per cent in 1989. Hong Kong's growth performance has closely reflected developments in China, which is both an important market for its exports and the main supplier of raw materials and labour. The austerity measures adopted by China had both direct and indirect effects on the Hong Kong economy. Furthermore, the reduced tourist flow to China through Hong Kong depressed the retail trade and property market in the territory. Growth had been affected also by labour shortages with low unemployment (1.5 per cent) and underemployment rates (approximately 0.8 per cent). In spite of robust re-exports, economic growth in the first half of 1990 remained sluggish mainly because of subdued domestic exports and internal demand. The official forecast of real GDP growth for 1990 was reduced from an earlier 3 per cent to 2.5 per cent after the Persian Gulf crisis, although the impact of the oil price rise is likely to be relatively small in Hong Kong because of it's low dependence on oil.

In the Republic of Korea GDP growth also fell sharply in 1989 to 6.1 per cent, about half the rate of growth in 1988. The industrial sector registered a growth of 3.5 per cent with manufacturing growing by 3.7 per cent. Capacity utilization rate in manufacturing was 78 per cent in 1989 compared with 81 per cent in 1988. The slack in manufacturing activities also influenced growth in services, such as wholesale and retail trade, and transport and financial services. Construction activities involving housing and office buildings, however, showed stronger growth than in the previous year. The economic slow-down was largely attributed to a sharp drop in exports to only 3 per cent compared with 29 per cent in 1988, owing to domestic cost-price increases, a slack in external demand, protectionist pressures, and appreciation of the domestic currency. Domestic consumption and investment demand expanded at the rates of 9.5 and 16.2 per cent to sustain growth at the reduced rate.

In 1990 the economy of the Republic of Korea grew more strongly at an estimated 8.8 per cent rate propelled by continued expansion in domestic demand. Government monetary and fiscal policy support to manufacturing and export activities was strengthened. A lowering of the interest rates during the second half of the year became necessary for the revival of industrial growth and exports. Yet, there was expectation of insufficient revival of growth in manufacturing production and exports which were estimated to grow by 3.8 per cent and 3.4 per cent respectively. Agriculture and allied activities rose by an estimated 1.8 per cent, and led by the construction industry, output growth in the non-manufacture industrial sector was estimated to strengthen to 9 per cent in 1990 from 6.7 per cent in 1989.

(c) Macro-economic management

The economic slow-down in China since 1989 can be largely attributed to the austerity measures adopted by the Government under a three-year economic re-adjustment programme initiated in October 1988. The focus of the programme was on the control of inflation, which at one point in 1988 reached as high as 30 per cent in the urban areas of the country. The principal measures used to implement the programme were a severe squeeze on credit, a scaling down of investment and the encouraging of savings by interest rate adjustments. Bank interest rates on saving deposits have been raised twice since

September 1988 to encourage savings and reduce consumption.

The aggregate savings rate has generally been high in China. The domestic savings rate averaged approximately 35 per cent during the 1980s. A new factor that emerged in the 1980s was the increased role of the household sector in savings generation. Thus, household savings increased from 7 per cent of GNP in 1981 to 17 per cent in 1987, higher than either enterprise or government savings. However, in mid-1988, in response to accelerating inflation, there were massive withdrawals of savings deposits by households from the banking system and panic buying all over the country. An increase in the rate of interest along with the introduction of "indexed savings deposits" in September 1988, and an increase in the interest rates on savings for a second time in February 1989, restored confidence and household savings again picked up to reach 29 per cent of household income in 1989.

Rates of investment in the economy, which were also high, at an average of 37.8 per cent of GNP during the period 1986-1988, slowed in 1989 as a result of the deliberate decision to reduce public enterprise investments, along with continuing interest rates and credit restrictions. Investment fell by 11 per cent in 1989 compared with an 18.5 per cent growth in 1988. The investment structure was, however, adjusted to put more emphasis on the key sectors of energy, transport, raw material production and agriculture.

Although the rate of inflation was substantially reduced, the drastic cut in investment and consumption demand was responsible for the downturn in economic activity. Therefore, some of the earlier policies were being modified, as indicated by cut-backs in the rate of interest on both loans and deposits in 1990. Investment started rising again as was indicated by data for the first half of the year. The inflow of foreign direct investment and loans, which was sharply reduced in 1989, was also growing.

The country's balance of payments improved as a consequence of the austerity measures and the economic slow-down. Two major devaluations – one undertaken in December 1989 and the other in November 1990 – along with control of inflation have considerably improved the competitive edge of Chinese exports. This was reflected in a major improvement in the balance of trade and payments which turned around from a deficit of $US 5.6 billion and $US 4.3 billion in 1989 to a surplus of $US 4.8 billion and $US 6.3 billion in 1990.

China has been running large budget deficits since 1986. In 1989 the deficit stood at a record 9.5 billion yuan renminbi, rising from about 7.9 billion yuan renminbi in 1988. Since this balance was defined net of external and domestic borrowings, the size of the deficit indicated an expansion in the economy's monetary base from budgetary operations. In spite of government efforts to reduce the deficit by slashing expenditures and improving revenue collections, the deficit in 1990 was projected to be reduced only marginally to 8.9 billion yuan renminbi. Continued high expenditure on price subsidies to consumers and to loss-making enterprises, and emergency expenditure to repair the damages inflicted by recent natural calamities made expenditure reductions difficult. Revenue augmentation was also hampered by the low level of economic activity, and by the fact that a large part of the revenue remained relatively fixed under the contract responsibility system of contributions by enterprises to government revenue, the value of which was eroded by inflation.

Growth in money supply was, however, reduced in 1989 under the austerity programme to 16.3 per cent compared with 20 per cent growth in 1988. This was associated with the rise in interest rates on loans and deposits. As a result the annual rate of inflation as measured by the consumer price index (CPI), which was running at 20.7 per cent in 1988 was brought down to 17.8 per cent in 1989. The rate of inflation in the economy continued to fall from the second half of 1989 through 1990. The average rate of urban inflation was reduced to 3.3 per cent for the first eight months of 1990. However, attempts to reflate the economy were being made through monetary expansion needed to meet the credit needs of state enterprises. Growth of money supply was estimated at between 25 to 30 per cent. This had inherent risks of rekindling inflation (see box I.5).

Domestic demand also remained weak in Hong Kong in 1989 and 1990. Although government expenditure increased substantially, it could not entirely offset the slow-down in private spending. Gross domestic savings at 33 per cent of GDP were marginally higher in 1989 than in the previous year. Domestic investment at around 27 per cent of GDP was one percentage point below the level of 1988. Much of the investment activity was in manufacturing and construction. Hong Kong's foreign trade sector remained weak because of the weak demand for exports in its major markets. During the first half of 1990, domestic exports decreased by about 3 per cent; re-exports, main-

ly of Chinese origin, increased by about 10 per cent.

The government budget surplus was sharply reduced in 1989 as a result of an increase in public expenditure, particularly on the capital account, following the Government's decision to undertake some large-scale infrastructural projects. Growth in the money supply appeared to have moderated in 1988 and 1989. Nevertheless, with a tight labour market situation and other bottlenecks in the economy, the inflation rate accelerated from 7.5 per cent in 1988 to 10.0 per cent in 1989. During the first half of 1990 the rate of price increase was marginally lower at 9.3 per cent.

The economy of Mongolia is estimated to have achieved a national income growth of 6.3 per cent in 1989, exceeding the 2.4 per cent growth recorded in 1988. Gross industrial and

Box I.5. China's austerity programme: downturn and recovery

Since 1978 the main source of worry in China regarding the economy has been the tendency to overheat created by rapid economic growth. A decade of continuous high growth, averaging about 10 per cent a year, reached its peak in 1988. Spiralling inflation, overheated industrial growth, excessive money expansion, bank deposit withdrawals and panic buying on an unprecedented scale emerged as some of the more prominent symptoms of over-expansion. Inflation also reached its peak in 1988, food prices being especially affected.

The situation was precipitated partly by a new series of price reforms which was expected to lift control on most commodity prices. Inflationary expectations caused rapid withdrawals of bank deposits as panic buying spread nation-wide in mid-August. From 1 to 15 August 1988, the banks issued 7 billion yuan renminbi – about one third of the entire year's originally targeted amount. Responding to the banking crisis, the People's Bank of China raised interest rates while the State Council announced that there would be no price changes for the rest of 1988. The consumer boom fuelled industrial expansion. China experienced its longest period of sustained rapid industrial growth of the 1980s, with monthly output gains of up to 13 to 20 per cent between October 1986 and September 1988. However, shortages of raw materials, energy and transport grew tighter. Many factories had to stop production because of energy shortages.

Inflation accelerated in the second half of 1988, despite government efforts to curb demand by reducing imports and credit. Money supply (defined as "money circulation in the market") grew by 27.1 per cent. By July 1988, the retail price index rose to 19.2 per cent while the indices in the major cities ranged from 20 to 30 per cent.

With inflation and other economic imbalances reaching intolerable proportions, the Government introduced an austerity programme in 1988 which was later reinforced by the 1989-1991 retrenchment plan. The three-year plan introduced deeper cuts in investment, budget deficits, consumption and non-state economic activity. The plan proposed to reduce inflation to 10 per cent in 1990 and then to 5-8 per cent by 1991, compared with rates of up to 30 per cent in early 1989. At the same time, radical reform experiments, such as the quasi-privatization of state enterprises, free grain markets and leasing of land, were deferred. To ensure that prices would remain stable, despite shortages, extensive price controls were used. All these measures helped to bring down the retail price index from a peak of 27.9 per cent in February 1989 to 23 per cent in May. At the same time, after several years of double-digit growth, budgeted investment finally contracted in 1989 and the monetary system regained stability. Credit growth slowed while bank savings stabilized.

At the onset of austerity measures in late 1988, the state sector was affected most adversely because of its lack of dynamism and reliance on state subsidies. But with the Government's renewed supports for state enterprises, it was expected to pull through better than collective or private sector enterprises. Nevertheless, a year after China initiated its austerity programme, the economy as a whole continued its downward slide. Despite the Government's preferential policies, the state sector grew by 5.2 per cent compared with the 12.5 per cent growth rate achieved by the collective sector. Industrial output rates dropped sharply from 9.6 per cent in July to 0.9 per cent in September 1989. Retail sales were depressed and inventories expanded. With slow sales, shops and their suppliers experienced cash-flow problems.

The financial squeeze affected the collective, private and construction sectors most adversely, as a result of sharply reduced bank loans. Rates of investment in the economy slowed in 1989 as a result of the deliberate decision of the Government to reduce public enterprise investments and also because of high interest rates and credit restrictions. Investment fell by 11 per cent in 1989 compared with an 18.5 per cent growth in 1988. A large-scale investment cut-back was carried out. As many as 18,000 projects were postponed or cancelled in 1989, notably in the construction of hotels, restaurants and office buildings. State-owned capital construction projects numbered 43,000 fewer in 1989 than in 1988.

Agriculture continued into its fifth consecutive year of stagnation in 1989. Although total area under grain grew by 1.8 million to 111 million hectares in 1989, output rose only slightly because of low farm incentives as well as the reduced application of fertilizers and other agricultural inputs whose prices had risen.

Although the economy continued to struggle under the austerity programme in 1990, it began to emerge from the recession in the second quarter of 1990 with industrial output up 4.1 per cent in real terms. Inflation in the first half of 1990 was reduced to 3.5 per cent, a sharp fall from the first half of 1989, but the rate may be expected to rise with the accelerated increase in money supply and as the effects of the 21 per cent

agricultural output increased by 4.3 and 4.2 per cent respectively in 1989. Economic growth in Mongolia was spurred by the recently introduced economic reform measures which, among other things, emphasized the key role of agriculture and the food industry in the economy. Major sectors of the economy have been placed under new methods of management since 1989. An important step towards restructuring and regenerating the Mongolian economy was the passage of two new laws, one on state enterprises and one on co-operatives, which came into force in 1989 and 1990.

Investment in the Mongolian economy increased by 9.2 per cent in 1989 over 1988, raising the value of the economy's total assets to 52.6 billion *tughriks* in 1989 from 49.5 billion in 1988. Investment in the material production sphere registered a higher increase of 11.7 per cent compared with a 4.4 per cent growth in investment in the non-material production sphere.

In the Republic of Korea, investment as a percentage of GDP rose from 30.7 per cent in 1988 to 34.7 per cent in 1989. Consumption expenditure also grew, as reflected in the decline of the savings ratio from a record 38.1 per cent in 1988 to 36.3 per cent in 1989. Both consumption and investment were expected to remain strong in 1990, with estimated rates of 9.9 per cent growth in consumption and 21.6 per cent growth in fixed investment, helping to sustain growth in the economy. The foreign trade sector provided a decreasing stimulus to economic growth as exports volume declined by 5.2 per cent in 1989 and was expected to rise by only 3 to 4 per cent in 1990. Since imports were rising at much faster rates, the trade and the current account balances were expected to run deficits of $US 1.5 and $US 1.8 billion in 1990 reversing the trend of surpluses since 1986.

Fiscal and monetary measures were mainly aimed at keeping inflation in check and providing some stimulus for higher growth. Both in 1989 and 1990 the Government's general account budgets were presented in balanced forms, limiting expenditure to available revenues. Inflationary pressures, generated in the economy from wage increases and demand expansion during a period of rapid economic growth, eased to 5.7 per cent in 1989 from 7.2 per cent in 1988.

devaluation in December 1989 take hold. Despite the resurgence in industrial growth, overall performance remained tarnished by the continued poor performance of the inefficient state-owned sector. Although the state factories were the primary beneficiaries of credit relaxation, growth was only 1.8 per cent. In fact, the recovery in industrial growth was entirely on account of the performance of dynamic rural industries which gained 6.6 per cent in the second quarter from a year earlier.

Unfortunately, the economic performance of China in the first half of 1990 reveals that deep-seated structural problems in the economy are continuing to persist. The most immediate of these relates to the inadequacy of China's fiscal system, especially the problem of declining central government revenues, which remain primarily dependent on taxes and profits generated by state-owned enterprises. The continuing poor performance of the state-owned sector is thus damaging for the national budget.

Overall revenues in the first half rose 5.8 per cent on a comparable basis, but expenditure increased by 12.2 per cent. The budget deficit will provide little relief to the country's infrastructural problems, much of the infrastructure predating the Second World War. The energy shortage has reached a critical stage where economic development is seriously being impeded. Similarly, although China's railways are being improved, there are still not enough tracks and trains to meet passenger and freight needs.[a] The drive to export has also strained existing facilities, with the result that delays in delivery frequently occur.

Despite the problems faced during the austerity programme period, China completed the goals of its seventh five-year economic plan in 1990 better than expected. The economy is expected to enjoy a modest recovery, most of it coming in the second half of the year. In the first nine months of 1990, industrial output amounted to 1.4 trillion yuan renminbi ($US 298 million), up 3.1 per cent from the same period in 1989. In the third quarter, industrial output grew 5 per cent from 1989, to 475 billion yuan renminbi. The recovery is being led by the light-industrial sector, enterprises in rural townships and private-sector businesses which have benefited from the relaxation of restrictions. Retail sales in the first eight months of 1990 fell by 1.1 per cent from a year earlier but in August 1990 rose 1.9 per cent to 65.1 billion yuan renminbi.

Barring natural disasters, this year's grain harvest is also expected to show good results. The summer grain crop amounted to 99.4 million tons, and with a bumper autumn harvest expected, annual production may increase to a record 413 million tons, compared with 407 million tons in 1989. Favourable results have also been recorded in the country's foreign trade where exports in the first eight months of 1990 rose 15 per cent from a year earlier to $US 36.3 billion while imports fell 16 per cent to $US 32.1 billion.

Overall, the prospects for continued high growth in the fourth quarter of 1990 were good. However, because of the economy's poor performance in the first half of the year, the gross national product for the full year is expected to fall short of the Government's target.

[a] See this *Survey*, part two, chap. II, "Physical infrastructure development in the ESCAP region".

Money supply (M1) growth also eased in 1989 to 17.9 per cent from 20.2 per cent in 1988. Among the measures adopted were a lowering of the Central Bank's rediscount rate from 8 to 7 per cent, and a slowing of the issuance of Monetary Stabilization Bonds which were being used to reduce excess liquidity in the market. Growth in money supply in 1990 was not expected to accelerate any further but the inflation rate was expected to reach 9.2 per cent under continued wage pressures, property market speculation and widespread inflationary expectations.

3. South-East Asia

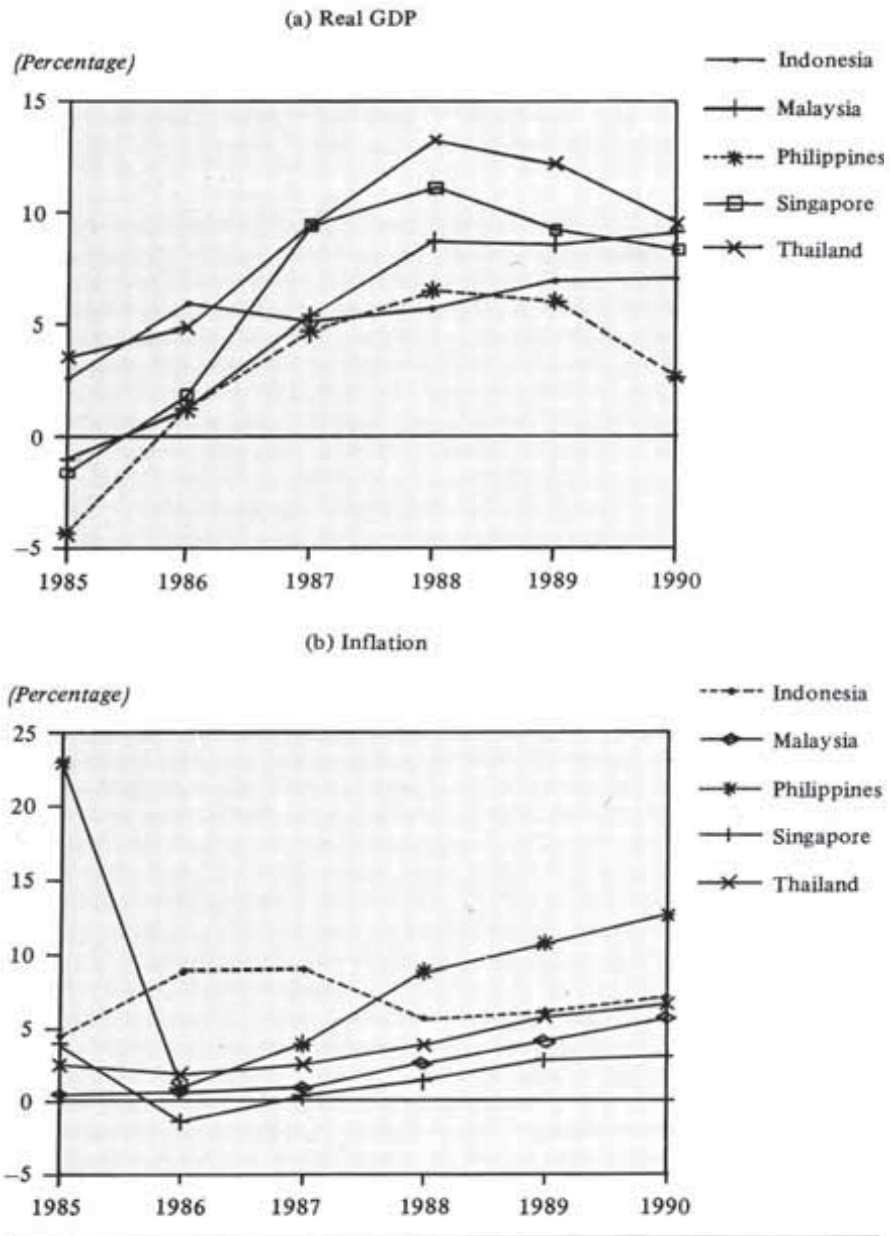
(a) Overview

In 1989 and 1990 the South-East Asian economies (other than Brunei Darussalam) largely sustained their vigorous performance of the previous two years. The strong growth upsurge they had been experiencing since 1986 continued (figure I.5). Although growth rates generally moderated in 1989, Indonesia enjoyed accelerating growth rates from 1988 to 1990. With a recovery in oil prices which had been depressed since 1986, booming investments, and a continued upsurge in non-oil exports under the stimulus of the various deregulatory reforms and other measures carried out since 1987, Indonesia's economic growth rate accelerated to 6.9 per cent in 1989 from 5.7 per cent in 1988 and was expected to rise to over 7.0 per cent in 1990.

The growth performance of South-East Asian economies in 1990, while generally robust, differed largely as a result of the differences in their ability to cope with the impact of the developments arising from the Iraqi invasion of Kuwait in August 1990. The subregion's three net oil-exporting countries, Brunei Darussalam, Indonesia and Malaysia, were among the region's main beneficiaries from the increases in oil prices, the principal economic outcome of the Persian Gulf crisis. Growth rates of Indonesia and Malaysia, which were already accelerating prior to the Persian Gulf crisis on the strength of domestic consumption and investment expansion, received a boost from the rise in oil export revenues, which counteracted some slack in demand for non-oil exports. The growth rate of the two countries have been estimated to rise to 7 and 9.2 per cent respectively in 1990.

On the other hand, the Philippines and Thailand, being net oil importers, faced adverse effects of the crisis. The two countries, however, differed great-

Figure I.5. Selected South-East Asian economies. Rates of growth in GDP and inflation, 1985-1990



ly in their resilience to the oil price shock. The Philippines, which was struggling to consolidate a recovery from the negative growth effects of its large external debt through painful structural adjustments, found it extremely difficult to sustain the robust rates of growth recently achieved. Thailand, however, was able to cope with the crisis much better with the continuing strength of its exports, relatively lower dependence on energy imports, and strong domestic consumption and investment expansion. Despite the expected slow-down in Thailand's economic growth by almost three percentage points from the 12.2 per cent rate achieved in 1989, the country was likely to maintain its track record of being among the fastest growing economies in the region by achieving a growth rate of 9.5 per cent. In contrast, growth in the Philippines could slump to half of the 6 per cent average rate of growth achieved in 1988-1989. The GDP growth during 1990 was 3.1 per cent according to latest estimates. Singapore also experienced a slow-down in its economic growth from 11.1 per cent in 1988 to 9.2 per cent in 1989. The estimated growth rate for 1990 was just above 8 per cent. Viet Nam's economy also slowed down in 1989 with a 2.4 per cent GNP growth rate compared to 5.9 per cent in 1988.

The divergence among South-East Asian countries in price stability was considerably greater than in their economic growth performance (figure I.5). While inflation rates accelerated in Malaysia from 2.6 to 4.1 per cent, in Singapore from 1.5 to 2.8 per cent and in Thailand from 3.8 to 5.8 per cent between 1988 and 1989, they were still among the lowest in the region. In Malaysia and Thailand, the rates were estimated to have accelerated to 5.5 and 6.6 per cent respectively in 1990 from 4.1 and 5.8 per cent in 1989. However, in Indonesia and the Philippines the inflation rates were relatively high and were likely to increase further. In Indonesia after a decline from 8.9 per cent in 1987 to 5.5 per cent in 1988, the rate of inflation accelerated to 6 per cent in 1989 and to an estimated 7 per cent in 1990. In the Philippines the inflation rate accelerated from 8.7 per cent in 1988 to 10.6 per cent in 1989 and to 12.7 per cent in 1990. In Viet Nam, where substantial reforms in the financial and fiscal system had brought down inflation rates to single digits by 1989, inflation pressures were re-emerging. The main factor was the trebling of fuel prices as a result of a switch from cheap Soviet oil to purchases in the world market.

(b) Overall economic performance

Indonesia's GDP growth rate in 1989 accelerated to 6.9 per cent from 5.7 per cent in 1988 and a higher 7 per cent growth was expected in 1990 (table I.5). Growth in all sectors of the economy has been strong. With a large inflow of foreign investment, the economy experienced an investment boom. However, the fear of inflation led to a tightening of monetary policy and a rise in interest rates during 1990, with some dampening effects on the economy. The rise in oil prices enabled Indonesia to overcome the adverse effect of weakening foreign demand for its non-oil exports.

Malaysia's economy also continued its upward movement with rates of GDP growth accelerating to an average of 8.6 per cent in 1988-1989 from 5.3 per cent in 1987. Partly reflecting the increase in oil prices, GDP growth was expected to be 9.2 per cent in 1990,[1] a substantial increase over the 6.5 per cent GDP growth estimated before the Persian Gulf crisis. As in other ASEAN countries, Malaysia's high growth has been sustained by a continuing investment boom fueled by a large inflow of foreign investment. Private consumption also rose rapidly at rates of 15.7 per cent in 1988 and 13.0 per cent in 1989, compared to 2.1 per cent in 1987. Exports recorded rapid growth from 1988 to 1990. The weaknesses in the prices of Malaysia's major primary commodity exports have been offset by the rise in oil prices since August 1990. All components of domestic demand were expected to remain strong. Industry and construction were among the fastest growing sectors of the economy.

The economies of both Singapore and Thailand remained buoyant in 1989-1990, although the growth rates of both slowed somewhat compared with their 1988 levels. Thus, Singapore's rate of GDP growth in 1989 at 9.2 per cent was lower than the record 11.1 per cent growth in 1988 but was close to the 9.4 per cent rate of growth achieved in 1987. In 1990, a still lower rate of 8.3 per cent was expected, the first half of the year recording an 8.4 per cent growth. Foreign investment in Singapore also remained strong and was expected to rise by 20 per cent in 1990 over 1989. Both manufacturing and construction activities remained strong.

Thailand's rate of economic growth at 12.2 per cent in 1989 after a 13.2 per cent growth in 1988 and an expected 9.5 per cent in 1990, continued to be one of the highest in the region. In 1989

[1] Malaysian Institute of Economic Research forecasts.

Table I.5. Selected South-East Asian economies. Macro-economic data, 1985-1990

(Percentage)

		1985	1986	1987	1988	1989	1990[a]
South-East Asia							
Indonesia	Real income growth	2.5	55.9	5.0	5.7	6.9	7.0
	Savings	29.7	27.2	32.7	32.8	33.7	37.2
	Investment	27.9	28.9	31.2	30.2	31.1	28.1
	External current account balance	-2.2	-5.1	-3.0	-1.9	-2.4	...
	Budgetary balance	-3.7	-5.6	-4.9	-7.2	-7.2	...
	Money supply growth (M1)	17.7	15.6	8.6	13.5	18.1	...
	Change in consumer price index	4.3	8.8	8.9	5.5	6.0	7.0
Malaysia	Real income growth	-1.0	1.2	5.3	8.7	8.5	9.2
	Savings	32.7	32.1	37.3	36.4	33.5	...
	Investment	27.6	26.0	23.4	26.1	27.9	...
	External current account balance	-2.1	-0.6	8.1	5.0	-0.7	...
	Budgetary balance	-7.4	-10.5	-7.7	-4.3	-5.2	...
	Money supply growth (M1)	1.7	7.0	12.8	14.4	2.5	...
	Change in consumer price index	0.3	0.6	0.8	2.6	4.1	5.5
Philippines	Real income growth	-4.3	1.4	4.7	6.4	5.7	2.7[b]
	Savings	16.3	16.5	17.5	18.1	17.4	...
	Investment	13.9	12.9	16.0	17.3	18.8	...
	External current account balance	-0.1	3.2	-1.4	-1.0	-3.1	...
	Budgetary balance	-1.8	-5.0	-2.9	-2.5	-1.9	...
	Money supply growth (M1)	6.5	19.1	22.9	13.9	16.7	...
	Change in consumer price index	23.2	0.8	3.8	8.7	10.6	12.7
Singapore	Real income growth	-1.6	1.8	9.4	11.1	9.2	8.3
	Savings	40.6	38.9	39.8	40.7	41.6	...
	Investment	42.5	38.2	39.1	36.6	38.3	...
	External current account balance	0.0	1.9	1.4	5.6	8.9	...
	Budgetary balance	-1.8	-1.4	-4.0	2.8	1.2	...
	Money supply growth (M1)	-0.9	11.8	12.3	8.4	10.4	...
	Change in consumer price index	4.1	-1.4	0.5	1.5	2.8	3.0
Thailand	Real income growth	3.5	4.9	9.5	13.2	12.2	9.5
	Savings	20.6	22.2	24.7	27.0	28.1	...
	Investment	24.0	22.0	25.8	27.5	29.4	...
	External current account balance	-4.4	0.2	-1.0	-3.1	-3.8	...
	Budgetary balance	-4.2	-3.2	-0.6	2.5	4.4	...
	Money supply growth (M1)	-3.3	20.5	28.0	12.2	18.3	...
	Change in consumer price index	2.5	1.8	2.6	3.8	5.8	6.6

Sources: Asian Development Bank, *Asian Development Outlook 1990;* IMF, *International Financial Statistics* (Washington, D.C., November 1990); and national sources.

Notes: Growth in real income indicates rates of change in gross domestic product (GDP) over the previous year or the period indicated. Real income calculations are on different base-year prices in different cases. Money supply growth and consumer price index are also annual percentage changes over the previous year or for the period indicated.

Figures on savings, investment, and the current account and budgetary balances are percentages of GDP.

[a] Figures are estimates and forecasts. [b] First half.

the rates of growth in both agriculture and industry continued to be high at 6.3 and 17 per cent, compared with 10.2 and 17 per cent growth respectively in 1988. In 1990, agricultural growth was expected to slow down considerably — to 2.7 per cent — because of unfavourable weather. The industrial sector was also estimated to grow at only 10 per cent, a marked slow-down compared with the previous two years. Growth in the services sector was expected to remain stable at about 11 per cent as in 1989.

On the demand side, growth in consumption accelerated from 12.2 per cent in 1988 to 16.5 per cent in 1989. The rate of growth in gross fixed capital formation slackened to 33.9 per cent in 1989 from 37.5 in 1988. Thailand's investment boom was also supported by the large inflow of direct foreign investment in 1988 and 1989. Owing to rapid

rates of growth in imports in response to high levels of investment and consumption demand, the balance-of-payments deficits widened to 3.1 per cent of GDP in 1988 and 3.8 per cent in 1989. They were expected to widen further in 1990.

The economy of the Philippines, which achieved an average 6 per cent annual growth in 1988-1989, experienced serious difficulties in 1990. In addition to the heavy debt burden, the performance of its economy was adversely affected by several unfavourable factors including severe natural calamities (droughts, typhoons, earthquakes), and a weakening of external demand for its exports. The rise in oil prices further aggravated the situation. The Philippines was among the worst affected countries in the region by the Persian Gulf crisis because of its very high import bill for oil, which increased further, and because of the decline in its remittances from the Gulf region. A 3.1 per cent real GNP growth, during 1990 marked the growth slowdown. The economic growth took a downward slide from the second quarter onwards after having maintained a 5.7 per cent growth in the first quarter. The industrial sector grew by 3.6 per cent during the first half of 1990 compared with 6.9 per cent in 1989. The agricultural sector in the first half of 1990 expanded by 0.2 per cent only compared with 4.2 per cent in 1989. Speculations about the country's political instability also compounded its already complex economic problems.

In spite of a record 5.8 per cent growth in agriculture, the economy of Viet Nam registered a GNP growth rate of only 2.4 per cent in 1989 compared with 5.9 per cent growth in 1988. Industrial production contracted by 4 per cent in 1989. Investment in the economy fell by 3 per cent, although exports increased substantially as a result of 1.5 million tons of rice exports. Imports also declined by 11 per cent. Yet the balance of payments remained one of the country's most serious problems. Viet Nam continued to implement its economic reform programmes, including liberalization of investment activities permitting a greater role of the private sector in both industrial and agricultural production. Numerous small enterprises in the industrial sector have been established, contributing the major share of industrial output. In the agricultural sector the household contract system was being expanded to encourage production. Extensive reforms in the country's fiscal and financial systems were also being carried out. The economy's growth prospects in 1990 remained weak, however, as the reforms being carried out were still to make their impact felt. Control of inflation and restoration of financial stability were some of the positive achievements of recent reforms. The reforms' greatest success was in the sphere of inflation, which was brought down from triple digit figures in the mid-1980s to a single digit figure by late 1989. However, inflationary pressures were re-emerging in late 1990, largely as a result of the switch from cheap Soviet oil to high priced oil in the international market. Oil prices tripled in two months – the highest rise in oil prices experienced by any country in the region.

(c) Macro-economic management

With the recovery in oil prices, budgetary deficits in Indonesia stabilized at 7.2 per cent of GDP in 1988 and 1989. Budgetary deficits in Malaysia at 4.3 per cent of GDP in 1988 and 5.2 per cent in 1989 were still high, although they were much lower than the rates of deficits of 8 to 10 per cent prior to 1987. Thailand has achieved budgetary surpluses since 1988, with a surplus of 2.5 per cent of GDP in 1988 which went up to 4.4 per cent in 1989.

The rate of inflation in Malaysia, Singapore and Thailand has been relatively low although there has been some rise in all three countries since 1988. The rate of inflation advanced to 4.1 per cent in Malaysia in 1989 from 2.6 per cent in 1988 and less than 1 per cent earlier. In Singapore also the rate of price rise in 1989 increased to 2.8 per cent from 1.5 per cent in 1988 and less than 1 per cent in previous years. In Thailand the inflation rate rose from 2.6 per cent in 1987 to 3.8 per cent in 1988 and 5.8 per cent in 1989. In Indonesia and the Philippines, the rates of inflation have been much higher. In Indonesia the rate appeared to have fallen from 8.9 per cent in 1987 to 5.5 per cent in 1988 and 6.0 per cent in 1989. In the Philippines, on the other hand, the rate of inflation, which was sharply reduced in 1986-1987 through various stabilization measures, crept up to 8.7 per cent in 1988 and 10.6 per cent in 1989. Inflation in all these countries further accelerated in 1990.

The rate of growth in money supply in all three countries has been rather moderate and the impact on price levels has been cushioned by high rates of real output growth. However, critical supply and infrastructural bottlenecks, higher wage demands and other cost increases have put upward pressure on price levels. Adjustments in the domestic price of oil were adding further to inflationary pressures in 1990,

and inflation rates were estimated to rise to 7 per cent in Indonesia, 5.5 per cent in Malaysia (against a revised 4.1 per cent in 1989), 12.7 per cent in the Philippines and 6.6 per cent in Thailand.

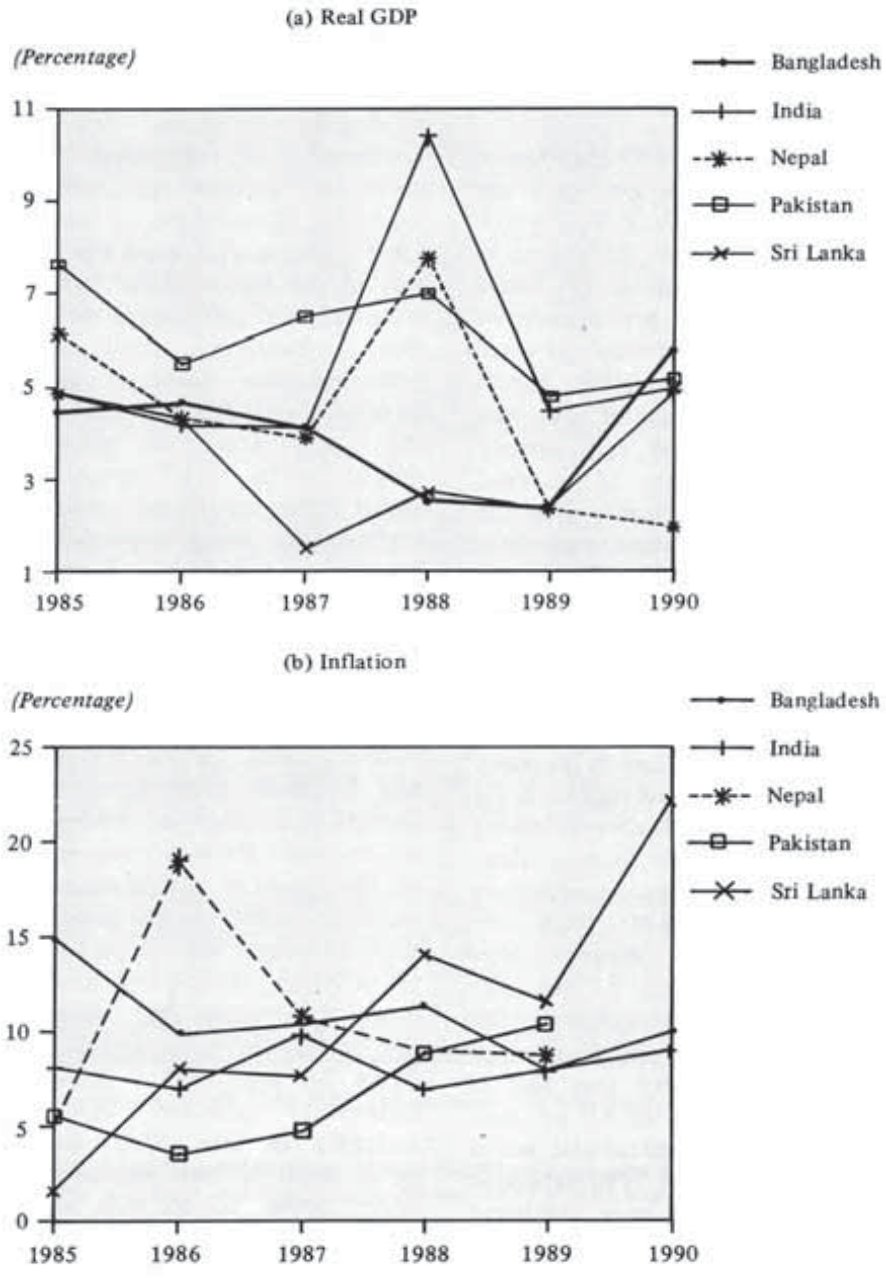
4. South Asia and the Islamic Republic of Iran

(a) Overview

The South Asian economies also showed a decelerating pattern in the last two years, although the impulses for the slow-down varied considerably. The Indian economy, by far the largest in the subregion, achieved the unprecedentedly high rate of growth of 10.4 per cent in 1988, largely because of favourable weather and high agricultural growth, slowed down to 4.5 per cent in 1989 and was expected to marginally improve to 5.0 per cent in 1990. Pakistan, which had also recorded high growth rates in 1988, experienced a similar slow-down in 1989 and only a modest recovery was expected in 1990. Bangladesh and Sri Lanka had both experienced very low growth rates of GDP and imperceptible changes in per capita incomes during 1988 and 1989. However, the performance improved markedly in 1990 (figure I.6).

All South Asian countries are likely to be very adversely affected by the Persian Gulf crisis in 1991 as the consequences of high oil prices, sharp declines in remittances and a fall in export receipts fed into the economy. The current account deficits of South Asian economies are likely to widen by up to $US 2 billion in 1991 partly because of these developments. These economies are also likely to face increasing adjustment problems as inflation rates rise and fiscal and balance-of-payments deficits widen. External reserves were running precariously low in many South Asian countries, while prospects for external aid were generally poor, and especially affected Pakistan, because of the suspension of aid from the United States.

Figure I.6. Selected South Asian economies. Rates of growth in real GDP and inflation, 1985-1990



The Islamic Republic of Iran, recovering from the effects of a decade of internal turmoil and war with Iraq as well as low oil prices, faced the enormous tasks of rehabilitation and reconstruction of its economy. It was among the region's few oil exporters which benefited from the rise in oil prices. However, the challenges of macro-economic management in the Islamic

Republic of Iran were not less than those in other countries. It experienced one of the highest rates of inflation in the region, generated by large budgetary deficits, a strong expansion in money supply and a general shortage of consumer goods. However, the Government's commitment to strong social policies assuaged, to some extent, the effect of these unfavourable factors.

(b) Overall economic performance

The Indian economy recorded a 4.5 per cent GDP growth in 1989 after a 10.4 per cent growth achieved in 1988 (table I.6). The 1988 growth record was unusually high because of the record performance by agricultural and allied activities which grew by 17.4 per cent during the year. Value added in the industrial and service sectors increased at 8.3 and 6.9

Table I.6. South Asian countries. Macro-economic data, 1985-1990

(Percentage)

		1985	*1986*	*1987*	*1988*	*1989*	*1990*[a]
South Asia							
Bangladesh	Real income growth	4.4	4.6	4.1	2.6	2.4	5.8
	Savings	3.2	2.8	4.0	2.5	2.7	...
	Investment	13.0	11.8	12.4	11.9	11.7	11.0
	External current account balance	-8.2	-7.0	-5.5	-5.9	-6.9	-6.7
	Budgetary balance	-7.5	-7.6	-8.4	-7.8	-7.4	-7.4
	Money supply growth (MI)	8.7	8.8	2.0	4.2	12.9	...
	Change in consumer price index	10.7	11.0	9.5	9.3	10.0	7.5
India	Real income growth	4.9	4.2	4.1	10.4	4.5	5.0
	Savings	20.4	19.5	19.6	21.0	21.4	21.5
	Investment	23.4	23.4	22.1	22.6	23.1	...
	External current account balance	-2.4	-2.2	-2.1	-2.9	-2.5	-2.1
	Budgetary balance	-9.3	-9.5	-8.5	-8.2	-8.6	-8.7
	Money supply growth (MI)	15.8	16.8	13.7	15.0	22.2	18.0
	Change in consumer price index	8.1	7.0	9.8	7.0	8.0	9.0
Nepal	Real income growth	6.1	4.3	3.9	7.8	2.3	2.0
	Savings	11.9	11.0	9.9	10.8	7.2	...
	Investment	22.9	20.7	19.6	19.7	20.0	...
	External current account balance	-8.3	-7.9	-7.4	-11.4	-10.2	...
	Budgetary balance	-7.6	-7.2	-6.6	-6.2	-7.0	...
	Money supply growth (MI)	13.6	23.8	24.9	13.2	19.3	...
	Change in consumer price index	5.0	19.0	13.2	14.3	8.8	...
Pakistan	Real income growth	7.6	5.5	6.5	7.0	4.8	5.2
	Savings	6.3	10.9	10.6	9.4	9.4	...
	Investment	18.3	18.8	19.1	18.2	17.5	...
	External current account balance	-4.8	-3.6	-3.0	-5.4	4.6	...
	Budgetary balance	-7.8	-8.1	-8.2	-8.6	-7.0	...
	Money supply growth (MI)	16.3	18.0	19.1	9.7	4.3	...
	Change in consumer price index	5.6	3.5	4.7	8.8	10.4	...
Sri Lanka	Real income growth	4.9	4.3	1.5	2.7	2.3	4.9
	Savings	11.5	12.1	12.8	12.0	11.9	...
	Investment	13.7	23.6	23.3	22.8	21.6	...
	External current account balance	-10.0	-9.5	-7.8	-8.5	-7.6	...
	Budgetary balance	-11.7	-12.3	-11.0	-15.7	-11.0	...
	Money supply growth (MI)	...	12.8	18.4	29.0	9.0	...
	Change in consumer price index	1.5	8.0	7.7	14.0	11.6	22.1

Sources: Asian Development Bank, *Asian Development Outlook 1990;* IMF, *International Financial Statistics* (Washington, D.C., November 1990); and national sources.

Notes: Growth in real income indicates rates of change in gross domestic product (GDP) over the previous year or the period indicated. Real income calculations are on different base-year prices in different cases. Money supply growth and consumer price index growths are also annual percentage changes over the previous year or for the period indicated.

Figures on savings, investment, and the current account and budgetary balances are percentages of GDP.

[a] Figures are estimates/forecasts for fiscal years 1989/90 for Bangladesh, Nepal and Pakistan and 1990/91 for India.

per cent respectively. In 1989 the growth rate in agriculture and allied activities fell to less than 1 per cent. The industrial and service sectors grew at rates of 7.5 and 5.5 per cent respectively. In 1990, despite only 1.5 per cent growth in agriculture and allied activities, GDP was expected to grow by 5 per cent, largely as a result of 8 per cent growth in industry and 6 per cent in the service sector. With these patterns of growth, the economy's overall performance during the latter half of the 1980s markedly improved with an average rate of 5.5 per cent growth during the period 1985-1990 compared with an earlier trend growth rate of 3.5 per cent only.

The economy of Pakistan achieved a lower rate of growth in 1989-1990, 4.8 per cent in 1989 and an estimated 5.2 per cent in 1990 compared with 7 per cent in 1988. The 5.2 per cent growth in 1990, though lower than the target 5.4 per cent, was an improvement over the 4.8 per cent growth in the previous year. This improvement was achieved with a 4 per cent rate of growth in agriculture compared with the unusually high rate of agricultural growth of 7.1 per cent in 1989. That indicated superior performance in the other sectors of the economy, particularly manufacturing. The rate of growth in the manufacturing sector improved from 4 per cent in 1989 to 7.9 per cent in 1990, with the large-scale manufacturing sector growth accelerating from 2.4 to 7.7 per cent.

The economy of Sri Lanka grew at an average annual rate of 2.9 per cent during the period 1985 to 1989. The growth rate declined sharply during 1987-1989. A better prospect for the economy was projected for 1990 with a real GDP growth rate of 4.9 per cent, a rate which was last achieved in 1985. The agricultural sector of the economy suffered a decline at an average annual rate of 0.5 per cent over the period owing to adverse weather and unfavourable prices for agricultural products. In 1990, the sector was projected to grow at 5.9 per cent with substantial gains in the production of tea and paddy. The manufacturing sector, which has a strong link with agriculture, was projected to improve its performance with a growth rate of 8.2 per cent in 1990, compared with an average 5.9 per cent during the period 1985-1989. The service sector was also expected to grow at the higher rate of 4.1 per cent in 1990 compared with the 2.9 per cent average of the previous five years. The construction sector was expected to contract by 2 per cent.

The economy of the Islamic Republic of Iran, despite the unsettled conditions prevailing in the aftermath of the revolution in 1979 and the outbreak of the war with Iraq soon after, achieved an average real GDP growth rate of 5.6 per cent in 1980-1985. During the next three-year period, the economy contracted by an average of 5.6 per cent annually under the impact of intense hostilities, and a slump in prices of oil which is the economy's mainstay. With the cessation of the war and recovery in oil prices, the economy was estimated to have expanded by almost 4 per cent in 1989 and by over 7 per cent in 1990. In addition to a resurgence of oil output, recovery also came from manufacturing, mining and construction.

The investment rate in the economy was running at a rate of only 10 per cent of GDP in 1988-1989 compared with 30 per cent in the years immediately preceding the revolution. The rate of investment, however, was expected to rise to 15 per cent of GDP in 1990.

(c) Macro-economic management

As a reflection of their relatively large, often inefficient, public sectors and their inability to mobilize sufficient public revenues, the South Asian countries recorded high fiscal deficits relative to their GDP. However, these deficits have been declining. In India, the central government deficits stood at 8.2, 8.6 and 7.7 per cent of GDP in gross terms and 1.4, 2.7 and 1.5 per cent of GDP in net terms (net of non-bank borrowings) in 1988, 1989 and 1990 (estimated). The 1990 actual deficit, however, was likely to exceed estimates, in view of the increased expenditure incurred in the wake of the Persian Gulf crisis. The net deficit is estimated to rise to 2 per cent of GDP.

The fiscal deficits as a percentage of GDP in Pakistan during the last three fiscal years were 8.4, 7.3 and 6.7 per cent. Enhanced levels of net external receipts with increases of 43.4 per cent in 1989 and 31.6 per cent in 1990 enabled the country to reduce bank financing from 2 per cent of GDP in 1988 to 0.1 and 0.4 per cent in 1989 and 1990. Domestic non-bank borrowing also increased by 22.4 per cent in 1989 but in 1990 fell to the level of 1988 again. Tax revenue as a percentage of GDP as well as total revenue has tended to stagnate at around 14 and 18 per cent of GDP respectively.

Sri Lanka recorded an overall budget deficit of 11 per cent of GDP in 1989, declining markedly from 15.7 per cent in 1988 and was estimated to fall to 10.8 per cent in 1990 before the Persian Gulf crisis. On the average, 60 per cent of the budget deficits during the period 1985-1989 was financed by foreign grants and

loans. In 1988 and 1989 foreign grants and loans financed 39.4 and 43.5 per cent of the deficits. Domestic bank borrowings amounted to 30 per cent of the deficits in 1988, but were sharply reduced in 1989 and 1990. A reduced deficit and sharply increased domestic non-bank borrowing in 1989 and a substantially increased level of external grants and loans in 1990 reduced bank borrowing. Sri Lanka has also been implementing a structural adjustment programme under the International Monetary Fund (IMF)-World Bank auspices, a major aim of which was to reduce the budgetary deficits. However, an escalation in defence expenditure, higher wage demands, and revenue shortfalls arising out of a decline in the prices of major export commodities and tax collection difficulties prevented any significant reduction in the deficit in 1990. Indeed, as a consequence of the Persian Gulf crisis, the deficit may well rise substantially.

In the Islamic Republic of Iran, government revenue fell from a ratio of 30 per cent of GDP in 1978 to about 9 per cent in 1988 as revenue from oil contributed only 2.9 per cent of GDP compared with 19 per cent in pre-revolution years. Government expenditure was also substantially reduced, involving heavy cut-backs in capital expenditure, and stood at approximately 19 per cent of GDP in 1988, thus still leaving a wide gap between revenue and expenditure. The year 1989 was a turning point in the country's budgetary situation when the deficit in the budget was reduced to less than half of that of the previous year. Both oil and non-oil revenues improved substantially. The government continued its policy of fiscal restraints directed at economizing public expenditure.

Inflation rates in the South Asian economies were relatively high, with the rates accelerating in 1988 and 1989. In India the CPI for the industrial workers eased from the rate of 9.8 per cent in 1987 to 8.6 in 1988 and to 6.6 in 1989. The fall reflected the influence of food prices on the indices. The rise in food price index, following the bumper agricultural growth in 1988, was reduced to less than half the 10.5 per cent rate in 1988. The price indices were estimated to rise by 9 per cent in 1990. Inflation in Pakistan accelerated to a rate of 10.4 per cent in 1989 from 8.8 per cent in 1988, but eased to 6.0 per cent in 1990. The Sri Lankan economy experienced the highest acceleration in inflation rates, the CPI for Colombo rising from 7.7 per cent in 1987 to 14 per cent in 1988. After slowing to an 11.6 per cent rise in 1989, a 22.1 per cent rise was projected for 1990.

Apart from the occasional pressures arising from weather-generated fluctuations in agricultural output, high rates of monetary growth supported by budgetary deficits helped fuel inflation in many South Asian developing countries. The money supply (M_1) in India, rose by more than 16 per cent a year during the period 1986-1988, but was estimated to rise by 22.2 per cent in 1989 and was targeted at 18 per cent in 1990. Growth in the money supply in Pakistan declined to a rate of 9.7 per cent in 1988 following a 19.1 per cent growth in 1987. The rate of growth was 4.3 per cent in 1989. The decline could be attributed to the Government's ability to finance most of its deficits from external and domestic non-bank receipts, as all other sectors had exerted expansionary pressures. Growth of the money supply in Sri Lanka reached a high of 29.0 per cent in 1988 accelerating from 18.4 per cent growth in 1987. The rate of growth decelerated to 9.0 per cent in 1989. Money supply growth averaged 16 per cent during the period 1985-1990, net credit to government rising by 20 per cent and private sector credit by 13.3 per cent during the period.

The Islamic Republic of Iran experienced one of the highest inflation rates in the region with an average annual rate of 27.6 per cent during the period 1985-1988. Large budgetary deficits, strong expansion in money supply, and supply shortages emanating from both domestic production and import shortfalls, contributed to the inflationary forces in the economy. In 1989, the rate of inflation was reduced to 17.4 per cent and it was falling further in 1990. Only a 4.2 per cent rise in the CPI was recorded during the first three months of the year compared with a 25 per cent rise during the corresponding period of the previous year.

5. The least developed countries and Pacific island developing economies

(a) Least developed countries

(i) Overview

In sharp contrast to the generally high rates of growth in other developing countries, economic growth in the least developed countries of the region remained weak and unstable, lacking any positive trends. This characteristic of their growth performance reflected their basic structural weaknesses and the paucity of their human, material and financial resources. Savings, investment, balance of payments, budgetary and other financial processes, all reveal these weaknesses.

Agriculture, which contributes between one third to three fifths of GDP, provides employment for two thirds of the active labour

force and accounts for over one half of the exports of most of the countries, remained highly vulnerable to climatic hazards and market fluctuations often beyond their control. Industrial development, still at a nascent stage, is closely linked to agriculture and any change in agriculture becomes magnified in the economy through its impact on industrial and other activities. Their external trade relies on the exports of a narrow range of commodities which are highly vulnerable to external market developments. The service sector appears important in these countries, contributing, in some cases, the largest proportion of GDP. Most of the services, however, are unorganized and low-technology based with low productivity, which is partly a reflection of the same characteristics prevailing in the agricultural and industrial sectors.

The extremely low per capita income constitutes the main constraint to the mobilization of domestic savings in the least developed countries. The lack of appropriate institutions and instruments prevents the effective mobilization of the modest savings potential that does exist. In many economies the domestic savings rate and its contribution to the investment rate has been falling. The investment/GDP ratio is also typically very low and highly variable – as a large part is financed out of external savings over which domestic policy makers have little influence.

The Substantial New Programme of Action for the 1980s for the Least Developed Countries aimed at a 7.2 per cent GDP growth for the least developed countries whereas an actual average growth rate of only 2.3 per cent was materialized (box I.6). The growth in four of the least developed countries in South Asia, Bangladesh, Bhutan, Maldives and Nepal, continued to lack vigour in the absence of any strong impulse. Bhutan and Maldives have shown some promise of improved performance in recent years with real GDP growth remaining consistently high in Maldives since 1985. The Bhutanese economy, after some strong stirrings in 1986 and 1987, has relapsed into slow growth. Bangladesh and Nepal have remained lack-lustre in their growth performance. Of late the increasing incidence of natural calamities

Box I.6. The Programme of Action: a renewed

After two successive United Nations decades of development, it became clear that a group of disadvantaged countries were unable to participate in the growth and development process that had begun to take root in most of the developing countries. On the basis of certain criteria, these countries were identified as least developed countries. In 1981 the international community, at the initiative of the Government of France decided to convene in Paris the first United Nations Conference on the Least Developed Countries; the Substantial New Programme of Action for the 1980s for the least developed countries was adopted at that Conference.

The Programme had laudable objectives and rather ambitious targets, many of which, however, remained unfulfilled by the end of the decade. For example, it aimed at a growth rate of 7.2 per cent of gross domestic product (GDP) for the least developed countries, whereas an actual average growth rate of only 2.3 per cent was achieved. A 1.6 per cent growth in agricultural production against the target of 4 per cent, and 2 per cent growth in manufacturing output against the target of 9 per cent provide some further indication of the frustration of hopes raised by the Substantial New Programme of Action. Even more significantly, the targets of the Programme for raising significantly the official development assistance (ODA) flows from developed countries to 0.15 per cent of their gross national product (GNP) generally remained unfulfilled. While some donors achieved this target or doubled their ODA, the average contribution represented only 0.09 per cent of GNP.

These failures and the growing concern for the least developed countries led to the convening of the Second United Nations Conference on the least Developed Countries in Paris in September 1990. The Conference adopted a Programme of Action for the Least Developed Countries in the 1990s seeking "to arrest the further deterioration in their socio-economic situation, to reactivate and accelerate growth and development in these countries and, in the process, to set them on the path of sustained growth and development".

Basic principles

The main elements of the newly adopted programme for the 1990s are not radically different from those of the Substantial New Programme of Action adopted in the 1980s. However, the underlying spirit of understanding about the implementation of the Plan of Action was a considerable departure from the past. This understanding is reflected in the four basic principles guiding the relationship between the least developed countries and the development partners including international organizations, financial institutions and development funds. The basic principles are as follows:

Principle No. 1: Success depends on a shared responsibility and a strengthened partnership for the growth and development of least developed countries;

Principle No. 2: The least developed countries have the primary responsibility for the formulation and effective implementation of appropriate policies and priorities for their growth and development;

Principle No. 3: The strengthened partnership for development necessitates adequate external support from the least developed countries' development partners;

Principle No. 4: Commitments undertaken should be measurable and sufficiently transparent to enable monitoring and assessment of the Programme of Action for the 1990s.

which inflicted grievous damage has added to the continuing structural problems faced by these two primarily agricultural economies.

Among the Pacific island least developed countries, Samoa and Vanuatu achieved modest rates of economic growth in 1989. Samoa experienced a GDP growth rate of 1.3 per cent in 1989, after a decline of 0.2 per cent in the previous year, and Vanuatu achieved an estimated rate of growth of around 2 per cent in 1989.

(ii) Macro-economic performance and management

In Afghanistan, the continued civil disturbances severely affected the country's economy. The GDP at constant prices is estimated

hope for the least developed countries in the 1990s

The Programme of Action emphasizes that for long-term and sustainable development, sufficient resources, domestic and external, would be required. The availability of these resources depends heavily on the implementation of the necessary policies to encourage savings and investment, the provision of adequate development assistance and supportive external economic development.

The Programme also calls for arrangements for the implementation, follow-up and review process at national, regional and international levels. Among other significant measures outlined in the Programme of Action, the following deserve to be highlighted.

Official development assistance flows

Given the magnitude of the least developed countries' development needs and their limited capacity to generate an investible surplus, the Programme of Action emphasizes that the external financial resources should be both sufficient in terms of volume and efficient in terms of allocation. In this regard, the international community, particularly the developed countries, is urged to commit itself collectively to a significant increase in the aggregate level of external support to the least developed countries.

External indebtedness

The Programme of Action notes the continued deterioration in the overall external debt situation of the least developed countries, with a total debt reaching $US 70 billion in 1989 from $US 35.8 billion in 1982 and the annual debt service amounting to about $US 4 billion. Accordingly, the Programme of Action emphasizes the need to improve and widen the scope of existing debt relief measures for debt reduction through the cancellation of ODA debt, and the alleviation of debt-service obligations to official creditors and multilateral institutions as well as commercial debts.

External trade

As regards external trade, the Programme of Action emphasizes the urgent need to provide improved market access for products originating from the least developed countries. Owing to the complex nature of the generalized system of preferences (GSP) schemes as well as the least developed countries' weak and narrow economic base, these countries have not been able to benefit much from the schemes. There is, therefore, scope for further improvement in GSP schemes and for improved utilization of the benefits conferred. Important supportive measures in favour of least developed countries need to be taken in such areas as duty-free treatment for their exports, exemption from quotas and ceilings and the use of simplified and flexible rules of origin. A successful conclusion of the Uruguay Round of multilateral trade negotiations will also hold out prospects for significant market liberalization for the products of the least developed countries.

Environment

While the current environmental degradation is of common concern to all countries, the least developed countries in particular are the main victims. The problems arising from environmental degradation are found to be closely linked to such problems as poverty and underdevelopment. The Programme, therefore, stresses the need to tackle the twin problems of poverty and environmental degradation simultaneously to provide a basis for long-term and sustainable growth and development, and to enhance the capacity of the least developed countries to protect the environment. The Programme further calls for an integrated and multilateral approach in this regard and recommends that assistance should be extended to the least developed countries in developing their capacities to identify environmental problems and prepare national conservation strategies. The Programme also contains measures and recommendations on disaster mitigation, preparedness and prevention for implementation at both national and international levels.

Paris Declaration

Along with the Programme of Action, the Second United Nations Conference on the Least Developed Countries also unanimously adopted the Paris Declaration, which in the words of the President of France, represents a "contract of solidarity" among all parties concerned. It reinforces the solemn commitment of the international community towards the implementation of the Programme of Action throughout the 1990s.

The Declaration, *inter alia*, emphasizes strengthened partnerships based on mutual commitment between the least developed countries and their development partners. It has defined five priorities: to conduct a macro-economic policy; to develop human resources; to reverse the trend towards environmental degradation; to promote an integrated policy for rural development; and to develop a diversified productive sector. In the implementation of these priorities, the Declaration recognizes the essential role played by ODA in complementing the efforts of the least developed countries to mobilize domestic savings and to create a favourable climate for foreign investment.

to have declined by 1.2 per cent during the period 1978/79-1986/87. Agricultural production declined most at a rate of 3 per cent a year. The economy further contracted by 7.1 per cent in 1989/90. In contrast to the general decline in the productive sectors during the war years, the service sectors prospered with an annual average rate of growth of 4.5 per cent. Although private services declined at the rate of 2 per cent a year, this decline was more than compensated for by expansion of government services and defence.

It is estimated that the period 1990/91 could witness a reverse trend with a strong GDP growth rate of 12 per cent. This strong growth in GDP is based on the assumption of a recovery of agriculture in peaceful areas, rising exports of dried fruits, nuts and textiles and the resumption of oil and gas exports to the USSR. The Government is planning to adjust the official rate of the national currency (Afghani) in order to reduce the gap with the rate prevailing unofficially, and to attract foreign investment.

Efforts were under way to stimulate savings and investment. The constitution was amended in May 1990 to encourage foreign investment and to allow the private sector to invest in those industries which were previously reserved for state investment. The country is endowed with extensive deposits of gold, copper, tin, uranium, iron and zinc as well as a wide variety of gemstones which could attract foreign investment. No reliable data on savings and investment in the country are available however.

The economy of Bangladesh suffered serious set-backs in output growth in 1988 and 1989 when its GDP growth rates were reduced to 2.6 and 2.4 per cent, about half the rates achieved in previous years. The widespread droughts in 1987 and the two consecutive floods in 1988 and 1989 were undoubtedly responsible for the country's economic set-backs. In a relatively stable weather situation the economy grew by an estimated 5.8 per cent in 1990, with a 5.5 per cent growth in agriculture after two consecutive years of contraction of the sector. The industrial sector grew by 0.6, 2.8 and 7.9 per cent in 1988-1990. The country's medium term five-year plan (1985/86-1989/90) envisaged a moderate 5.4 per cent average annual growth rate over the period, but only 3.8 per cent was actually realized (see table I.6, p. 33).

In Bangladesh, domestic and national savings rates improved to 3.4 and 6.2 per cent of GDP respectively in 1987. The national savings ratio fell to 5.7 per cent in 1988 and further to 4.8 per cent of GDP in 1989. The fall in gross domestic savings was more pronounced (2.5 per cent in 1988) though continued remittance flows sustained the national savings rate. Heavy dependence on foreign capital flows for financing investment is a major structural constraint for Bangladesh. Approximately two thirds of gross domestic investment has been financed by foreign grants and loans. Investment has stagnated at around 12 per cent of GDP and tended to decline marginally in 1988 and 1989.

Budgetary revenue of about 9 per cent of GDP in 1988 reflected an inelastic tax system, and the low levels of economic activity and of dutiable imports. In 1989 and 1990 the total receipts of tax and non-tax revenues fell short of the budget estimates while expenditure increased because of large relief operation needs in the aftermath of the floods. The budget proposal for 1991 envisaged new fiscal measures to raise additional revenues producing a modest surplus of revenue over current expenditure to finance the large capital expenditure by the Government. Overall budget deficits of 7.4 per cent emerged in 1989 and 1990.

In the area of money and credit, recent data indicate very moderate growth in the money supply, accelerating however to 12.9 per cent growth in 1989 from 4.2 per cent in 1988. The rate of inflation was estimated at 7.5 per cent in 1990 as against 10.0 per cent in 1989. The lower inflation rate reflected the slow rates of monetary growth as well as supply expansion and improvement of the public distribution system of food grains.

Bhutan's growth rate accelerated to 17.8 per cent in 1987 from 3.7 per cent in 1985. After a temporary spurt resulting from the commissioning of a few large-scale projects in 1986 and 1987, the rate of growth in 1988 slowed down to 3.3 per cent (table I.7). A contraction in quarrying and construction, and the relative stagnation of agriculture, contributed to the slow-down.

The rise in domestic revenues in Bhutan from 26 per cent of total expenditure to 48 per cent in 1988, represented a considerable improvement in fiscal effort. Domestic revenue for the first time financed most current expenditure in that year. In 1989, however, domestic revenue declined by about 25 per cent whereas the current expenditure slightly increased. Consequently, domestic revenues fell short of the current expenditure by about 15 per cent. The shortfall and the entire capital expenditure were financed by external receipts, the largest share of which was provided by India.

The lack of reliable data on savings investment and on other key aggregate variables continues to be a serious handicap in the macro-economic management in Bhutan. The Royal Monetary

Authority (central bank) has, however, been keeping close track of deposit mobilization and the loan portfolio of the country's few financial institutions.

With the accelerated rate of monetization of the economy in recent years, Bhutan has been exposed to inflationary pressures. The average annual rate of inflation has been around 10 per cent. The inflation rate in Bhutan usually stays at the same level as in India because of the strong economic links between the two

Table I.7. Selected least developed countries. Macro-economic data[a], 1985-1990

(Percentage)

		1985	*1986*	*1987*	*1988*	*1989*	*1990*
Afghanistan	Real income growth	0.1	3.2	-10.4	6.8	...	...
	Savings	...	...	...	...	...	...
	Investment	...	...	...	...	...	...
	External current account balance	-8.2	-17.9	-5.2	0.7	...	...
	Budgetary balance	...	...	...	...	...	...
	Money supply growth (M1)	11.2	11.5	54.4	36.5	...	...
	Change in consumer price index	112.3	-2.1	18.4	22.0	71.8	...
Bhutan	Real income growth	3.7	10.2	17.8	3.3	...	...
	Savings	...	...	...	...	...	...
	Investment	...	...	...	...	...	...
	External current account balance	-49.0	-38.4	-19.1	...	...	...
	Budgetary balance	-41.4	-32.3	-28.4	...	...	...
	Money supply growth (M1)	24.7	5.9	14.3	30.1	...	...
	Change in consumer price index	1.9	10.0	6.4	10.1	...	...
Kiribati	Real income growth	2.9	-3.7	18.2	...	...	...
	Savings	-44.5	-39.2	-41.1	-19.1	...	...
	Investment	31.5	34.1	30.6	27.8	...	...
	External current account balance	-39.2	-20.7	23.1	17.0	...	...
	Budgetary balance	-34.0	31.7	26.5	...	...	...
	Money supply growth (M1)	...	...	...	...	...	...
	Change in consumer price index	4.5	6.5	6.5	3.1	...	...
Lao People's Democratic Republic	Real income growth	9.1	7.1	-2.4	2.1	4.0	...
	Savings	3.0	3.2	-2.8	8.9	10.0	...
	Investment	25.9	22.0	17.3	30.6	30.0	...
	External current account balance	-5.9	-8.4	-30.7	-23.6	...	...
	Budgetary balance	-10.9	-5.8	-5.7	-20.3	...	...
	Money supply growth (M1)	35.3	69.6	79.0	37.3	56.7	...
	Change consumer price index	115.0	35.0	7.0	33.0	60.0	...
Maldives	Real income growth	16.2	12.0	8.9	8.6	9.3	...
	Savings	...	...	...	...	...	...
	Investment	...	...	...	...	...	...
	External current account balance	-5.7	-9.3	-0.4	-2.6	...	...
	Budgetary balance	-5.3	-7.2	-2.7	-14.9	...	...
	Money supply growth (M1)	50.8	12.4	5.7	12.7	17.5	...
	Change in consumer price index	...	...	...	...	...	...
Myanmar	Real income growth	3.2	-1.1	-4.0	-11.4	7.4	...
	Savings	11.5	10.1	8.1	9.7	11.0	...
	Investment	15.5	12.7	11.6	11.4	12.6	...
	External current account balance	-4.2	-4.7	-2.6	-2.3	-0.2	...
	Budgetary balance	-0.8	-2.5	-2.2	-4.0	-0.8	...
	Money supply growth (M1)	-9.6	41.4	-42.0	65.4	...	...
	Change in consumer price index	6.8	9.3	24.8	16.1	27.2	...
Samoa	Real income growth	6.0	0.6	1.0	-0.2	1.3	...
	Savings	-8.3	-10.2	-14.8	-4.9	...	...
	Investment	28.4	25.5	29.6	31.5	...	...
	External current account balance	-11.1	-6.1	-6.2	-7.0	-4.3	...
	Budgetary balance	-14.6	-14.5	-14.2	-7.5	...	...
	Money supply growth (M1)	3.1	8.4	32.6	5.2	9.8	...
	Change in consumer price index	9.1	5.7	4.6	8.5	6.4	...

(Continued on next page)

Table I.7 *(continued)*

(Percentage)

		1985	1986	1987	1988	1989	1990
Vanuatu	Real income growth	1.1	-2.0	0.7	1.0	2.0	...
	Savings	6.9	-2.6	4.0	...	...	...
	Investment	28.3	29.0	34.4	...	...	...
	External current account balance	-19.0	-21.0	-31.4	...	...	...
	Budgetary balance	-0.5	-7.0	0.0	...	...	...
	Money supply growth (M1)	-12.7	6.4	50.1	-19.5	26.9	...
	Change in consumer price index	1.0	4.8	14.8	8.5	8.0	...

Sources: Asian Development Bank, *Asian Development Outlook 1990;* IMF, *International Financial Statistics* (Washington, D.C., November 1990); and national sources.

Notes: Growth in real income indicates rates of change in gross domestic product (GDP) over the previous year or the period indicated. Real income calculations are on different base-year prices in different cases. Money supply and consumer price index growths are also annual percentage changes over the previous year or for the period indicated.

Figures on savings, investment, and the current account and budgetary balances are percentages of GDP.

[a] For Bangladesh and Nepal data, see table I.6.

countries. The prime concern currently is to expand the money supply in a manner commensurate with the increasing monetization of the economy and to prevent excessive demand. The money supply increased at an annual rate of about 16 per cent between 1983 and 1988. The growth of money in circulation increased at the much higher rate of 40 per cent annually, reflecting the increasing monetization as well as the prevalence of non-banking habits in the country's rural areas.

In the Lao People's Democratic Republic the GDP growth of 4.0 per cent in 1989, as against 2.1 per cent in 1988, resulted largely from a sharp recovery in agricultural production. Also the domestic savings and investment rates seemed to have greatly improved with the savings/GDP ratio reaching 10.0 per cent and the investment/GDP ratio 30.0 per cent in 1988, which may partly reflect recently introduced changes in accounting procedures. An important element of the recently introduced new economic management system has been the change in government policy towards foreign investment. Under the 1988 Foreign Investment Law, foreign companies are allowed to set up wholly-owned enterprises, or joint ventures with a minimum of 30 per cent foreign capital, with guarantees against nationalization and for profit repatriation.

There has been a fundamental restructuring of government revenue sources in the Lao People's Democratic Republic from almost total dependence on non-tax to tax sources in recent years. The share of non-tax revenue in the total government revenue fell from 90 per cent in 1987 to only 20 per cent in 1989 . However, the overall budget deficit stood at 20.3 per cent of GDP in 1988, and could have been higher in 1989 and 1990. Much of the economy of the Lao People's Democratic Republic is unmonetized. Rapid monetary growth at rates of 70 to 80 per cent took place in 1986 and 1987 (partly reflecting the monetization of the economy).

During the period 1985-1989 Maldives' economy grew at an impressive average rate of about 12 per cent per annum in real terms. Both local and foreign investment flourished under investment protection laws, flexible regulatory measures and effective incentives systems. These measures also enhanced the effectiveness of infrastructure development which took place during the period. The rapid economic growth in these years helped raise the income level by offsetting the high population growth rate of 3.2 per cent. However, the country's special locational and environmental characteristics impose severe limits on sustainable growth. The small size of the population, dispersed over 200 scattered islands separated by the sea and the limited land available on these small islands impose a heavy burden on the development process.

In Maldives, the savings rate stood around 16 per cent of GDP in 1987. Gross investment has increased substantially over the decade, reflecting the rise in public sector investments on infrastructure. Government policies provided encouragement to private investment activities. The overall budget deficit also rose from 15 per cent of GDP in 1987 to 24.3 per cent in 1988.

In 1989/90, Myanmar's GDP grew by 7.4 per cent as against the decline of 11.4 per cent in the previous year. Agricultural output grew by 13.3 per cent in 1989/90

compared with 1988/89. The favourable weather conditions and expansion of cultivation of high yielding varieties of crops accounted for the significant growth rates. The forestry sector output registered a significant increase in 1989/90 because permission was granted for the extraction of hardwood and other forest products. The growth in the manufacturing sector increased to 12.3 per cent. The mining sector also registered a growth of 14.5 per cent.

Gross domestic investment as a percentage of GDP decreased in Myanmar from 15.5 per cent in 1985 to 11.4 per cent in 1988, but it was estimated to have increased to 12.6 per cent in 1989. Under the Foreign Investment Law promulgated in November 1988, foreign investors are offered a number of incentives, including tax exemptions for up to three years and guarantees against nationalization and for repatriation of profits. The domestic savings rate fluctuated between 8.1 and 11.5 per cent during the period 1985-1989.

The consolidated public sector budget in Myanmar showed an overall deficit equal to 4 per cent of GDP in 1988 but it was reduced to less than 1 per cent in 1989, which reflected a fall in capital expenditure and an increase in revenue. The inflation rate rose to 27.2 per cent in 1989, which was likely to remain at that level in 1990. Inflationary pressures increased in recent years as a result of the large increases in the money supply. Large increases in fuel and utility costs and in the prices of some of the products of the state economic enterprises, supply rigidities and land speculation were the other inflationary forces in the economy.

Nepal faced unprecedented hardships recently because of a severe earthquake that struck the country in 1988 and a stalemate in trade and transit relations with India for a period of 15 months starting in March 1989. The GDP growth rate of 7.8 per cent in 1988 was reduced to 2.3 per cent in 1989 and to 2.0 per cent in 1990. The favourable monsoon in 1989 and 1990 led to an increase in agricultural production by 6.4 and 3.2 per cent, but non-agricultural production declined by 3.3 per cent in 1989 and increased marginally by 0.16 per cent in 1990. Industrial production, however, fell by an estimated 13.4 in 1990, with most of the industrial units operating at below capacity owing to shortages of raw materials, electricity and trained manpower.

Nepal adopted a policy of limiting the growth rate in money supply to 13 per cent a year during the period 1985-1990, but actual growth during the first four years was an annual average of 21.2 per cent. The continuous growth of domestic credit to the Government, public enterprises and the private sector contributed to the high rate of growth in the money supply. However, in 1990, credit to Government and public enterprises was expected to fall, reducing the rate of growth in the money supply to 11.6 per cent.

In Nepal gross domestic savings were rising during the period 1983-1988, the savings/GDP ratio reaching 10.8 per cent in 1988. However, in 1989 gross domestic savings declined by 25.0 per cent and the ratio went down to 7.2 per cent. The investment/GDP ratio was relatively high at 20.0 per cent in 1989 and 19.7 per cent in 1988, which left a wide gap mostly financed by external assistance.

The overall budget deficits have stayed at 6 to 7 per cent of GDP, which has been financed largely by foreign grants and loans. In the 1991 budget the share of total estimated expenditure to be met from internal sources was around 60 per cent.

The inflation rate in Nepal was 13.2 per cent in 1987 and 14.3 per cent in 1988. The rise in prices was associated with domestic supply conditions, growth in total domestic credit and price developments in neighbouring India. Inflation was moderated in the wake of expansion in agricultural production in 1989 and 1990.

Kiribati, Samoa, Tuvalu and Vanuatu have registered very modest rates of growth in recent years. In Samoa real GDP recovered by 1.3 per cent in 1989 from a decline of 0.2 per cent in 1988. Growing tourism and other service sector incomes and the large inflow of private remittances permitted the modest gain. The GDP growth in Vanuatu was 2 per cent in 1988. A similar rate of growth was estimated in 1989. Tourism and other service sectors, including the activities of the offshore financial centre recently established in the country, contributed to the growth.

Gross domestic savings of the Pacific least developed countries remained insignificant compared with their investment requirements. They are dependent almost totally on foreign assistance to finance their development programmes. These countries have offered fairly liberal financial incentives to attract foreign investment. In Samoa, these include tax holidays, exemption from import duties for capital equipment and materials, and accelerated depreciation.

With the exception possibly of Vanuatu, net flows of foreign investment have taken place on a small scale. There has been a net outflow from Samoa. Vanuatu has experienced a net inflow of foreign investment in recent years, which is largely associated with investments in the tourist sector and activities of the financial centre established recently. Both Kiribati and Tuvalu have limited appeal for foreign investors because of geographic

isolation and restricted opportunities for investment in profitable ventures.

A major challenge that Kiribati, Tuvalu and Vanuatu have recently faced in the fiscal arena was to establish a sound revenue base, following the cessation of direct budgetary aid from the United Kingdom and, in the case of Vanuatu, from France. Accordingly, these countries adopted fairly conservative fiscal policies to restrain government spending. Efforts were also made by Samoa to strengthen domestic revenue bases and to identify new avenues for securing foreign assistance. Kiribati achieved the aim of functioning without being dependent on direct budget aid in 1986. This involved some restraint in expenditure, particularly on public service emoluments. Samoa faced persistent deficits on government account in the early 1980s. Cuts in development expenditure, a freeze in public sector salaries and wages, tax reforms and rationalization of tax incentives to industry have improved the fiscal situation in recent years as reflected in the fall in the size of the overall budget deficits from an average of 14.5 per cent of GDP in 1985-1987 to 7.5 per cent in 1988.

Among the Pacific least developed countries, Samoa is institutionally well-equipped to implement monetary policy and has been relatively successful in achieving stability in this field. The central bank policy has sought to promote financial stability by maintaining high interest rates and direct control of commercial bank lending to the private sector. In Vanuatu, monetary policy is dominated by efforts to realign the local currency with the currencies of major trading partners. Attempts to find more realistic exchange rate levels led to the successive devaluation of the *vatu* and a delinking of the *vatu* with the special drawing rights (SDR) in favour of a basket of currencies. The small size and open nature of the economies of Kiribati and Tuvalu restrict the capacity to engage in monetary management. A further constraint on domestic management capacity arises from the use of the Australian dollar as the national currency in these countries.

Inflation trends in the Pacific least developed countries present a mixed picture. In Vanuatu and, to a lesser extent, Kiribati and Tuvalu, the inflation rate has been relatively high in recent years. However, by comparison, inflation has been relatively low in Samoa, where it has averaged around 3 to 4 per cent per year. This record is creditable, in view of the annual 20 per cent inflation rate prevailing in the country during the early 1980s. In Vanuatu the inflation rate was an average 10 per cent during the period 1986-1988, with a peak of nearly 16 per cent in 1987. This performance reflected a succession of currency devaluations. The *vatu* was devalued four times during the period 1985-1988. The inflation rate for Kiribati and Tuvalu over the recent period averaged around 6 to 8 per cent per year. As with Vanuatu and Samoa, these two countries are highly exposed to imported inflation.

(b) The Pacific island developing economies

(i) Overview

Most of the Pacific island economies, like the least developed countries, also suffer from severe structural disadvantages and resource limitations. Agriculture, dominated by tree crops, fisheries and forestry products, and minerals are the mainstay of most of these economies. Exports consist mainly of agricultural and mineral products, the demand for and the prices of which considerably influence the overall performance of these economies. They are also heavily dependent on imported petroleum products as their major source of energy. Their efforts to develop alternative sources of energy following the previous oil shocks have met with limited success, except in Fiji and Papua New Guinea which have concentrated on hydropower development.

In 1989 and 1990 the prices of most commodities produced in the Pacific islands, except sugar, remained depressed. Although the prices of some commodities rose early in 1990, those of most others still remained below their 1988 levels although export earnings did not suffer as much owing to increases in the level of production. The Persian Gulf crisis has further compounded the difficulties of the Pacific island economies in view of their heavy dependence on petroleum products imports.

Despite difficulties, generally favourable climatic conditions free from major cyclones which frequently hit the Pacific island subregion, and improvement in political conditions in some countries, created a favourable environment for growth and development in 1989. That showed up in a positive growth performance in several countries reversing the contractions generally experienced during the period between 1986 and 1988. The growth pattern in many Pacific island countries, however, remained highly unstable, fluctuating between high and low (often negative) growth rates in successive years. In 1990, these countries were expected to achieve less favourable results, with lower rates of GDP growth and higher inflation. They will continue to depend on the good will of donor governments to provide assistance

while making their own efforts to tackle, among other things, the problems of budgetary imbalances and financial instability.

Data on savings and investment activities of Pacific island economies are scarce. However, available information suggests that, on the one hand, domestic savings have been very low or negligible with some countries recording negative rates of savings. On the other hand, the ratio of investment to GDP in the majority of the Pacific island countries has averaged well over 20 per cent in recent years and is increasing. The rise in investment notwithstanding, in general, it still seems to be insufficient for development needs. The savings and investment gaps were being filled by foreign monies, principally aid, but increasingly foreign borrowings. This dependence on aid creates some problems, which may include a disincentive to domestic savings, apart from a rise in debt burdens as aid is replaced by loans. Therefore, there is an urgent need for domestic sources of development funds to be mobilized and saved as a means of reducing reliance on foreign aid (box I.7).

Most island countries continue to experience budget deficits. In most cases, this is the result of increases in total expenditure outpacing the increases in revenue, largely reflecting the low prices of and earnings from their agricultural products in the export market. The Governments have had to confront the need to provide essential services for their fast-growing population and rapidly expanding urban sector. For most of these countries, foreign aid and borrowings have been relied upon to bridge the resource gap. Countries have, however, sought to restrain expenditure in recent years to improve their budgetary performance.

The attempts of the Pacific island countries to control their budget deficits have been complicated, among other things, by the occurrence of natural disasters, notably hurricanes and cyclones. Moreover, only a few Pacific island countries can effectively employ monetary policy as a part of overall economic strategy. This is because not all of these countries possess the necessary institutions, such as a central bank. In some of these countries, their local currencies are tied to a single foreign currency, usually to either Australian or New Zealand dollars, and therefore they have limited control over local prices. At the same time some countries have only one or two banks providing commercial services with interest rates administratively set, which often provide disincentives for local savings and private capital inflow. Nevertheless, some Pacific island countries have adopted monetary policy measures with success.

(ii) Macro-economic performance and management

Measured by the record of GDP growth, 1989 was a relatively good year for many of the Pacific island economies. From the strong cyclical pattern discernible in the economies of the subregion, it could be said that many were experiencing an upturn (table I.8).

The Fijian economy, after a decline of 6.3 per cent in GDP in 1987, recovered with a 0.4 per cent growth in 1988 and experienced a sharp upward turn in 1989 to attain a GDP growth rate of 12.1 per cent. The sugar industry and tourism, the two sources of growth of the economy, provided the main impulse. The agricultural sector grew by 13.8 per cent, with a 28 per cent increase in sugar production. The manufacturing sector also recorded 18.7 per cent growth, largely reflecting the improved performance of agro-based industries, such as furniture making, sugar refining and fish canning.

Although favourable weather conditions were responsible for the underlying growth of the agricultural sector, industrial growth benefited greatly from a package of economic reforms introduced by the Government in 1988. These included fiscal and wage restraints, taxation reforms, deregulation and privatization of the economy directed towards the promotion of exports. The establishment of tax-free zones in 1988 provided further incentives and led to a remarkable growth in non-traditional export manufacturing. The construction sector recorded a 33.6 per cent growth in 1989, after two successive years of decline. A 20.4 per cent growth in tourist arrivals revived the tourist industry almost to the record level of 1986.

The urgent need for prudent fiscal policies in Fiji was realized in the wake of political changes in 1987. The Government's initial economic policies included restraint upon expenditure and wages and a 35 per cent devaluation of the currency. In the face of declining revenues, pay in the public services was cut by 15 per cent, with similar reductions instituted by the public sector corporations and in parts of the private sector. The rapid decline in the country's foreign exchange reserves in 1987 brought about the two devaluations of the Fiji dollar. Apart from contributing to the general increase in prices, the devaluation of the currency increased the Government's debt servicing burden which in 1989 was 30 per cent of general revenue compared with 21 per cent in 1986.

While the 1988 budget was formulated in an atmosphere of economic uncertainty, the 1989 budget reflected a period of recovery. As a result of increased

revenues and delays in implementing capital programmes, the 1989 budget deficit was smaller than projected, at $F 107 million as opposed to the original estimate of $F 112 million. In the 1990 budget, increased outlays are forecast for agricultural extension services, education, housing and health, with the deficit projected to decline further to $F 25 million.

The improvement in the performance of the Fijian economy has also been the result of the effective use of monetary policy to sustain price stability. The increases in inflation rates in 1987 and 1988 were considered short-term phenomenon as a result of the two devaluations in 1987. The main objective of monetary policy during 1988 was the maintenance of an adequate level of foreign reserves which had come under

Box I.7. Learning to live on less aid: a daunting challenge for the Pacific

External resources play a crucial role in the growth and development of the Pacific island economies. The absolute volume of aid received by them is small; for example, the $US 628 million official development assistance (ODA) received by 14 of these economies in 1988 was less than half of that received by Bangladesh. However, the level of aid per capita and as a proportion of their gross national product (GNP) is much higher than that of other least developed countries. For many of the Pacific island economies aid accounts for 20 per cent or more of their GNP, with the figures rising to 70 and even 100 per cent in some cases. Per capita aid receipts similarly reach above $US 2,000 a year in some cases. With the exception of Fiji, most other Pacific island economies have relied on external resources to finance major proportions of their budgetary expenditure (see table below). External resources serve as a means of supplementing inadequate domestic savings, of relaxing the foreign exchange constraints and of enabling the import of capital and technology necessary for growth and development. Inflows of external resources are thus especially significant to the Pacific island economies, which have narrow output and export bases and which, together with their isolation and smallness, higher transport and production costs, are put at a severe disadvantage in export competitiveness and technology transfer.

Unfortunately for the Pacific island economies, the time may be approaching when they have to wean themselves away from heavy dependence on foreign aid and rely more on their own resources. The trend is already evident. Given the uncertainties surrounding the global economic environment, the Pacific island economies may find it prudent to prepare themselves for a further reduction in ODA. In Tuvalu and Vanuatu the inevitable has already occurred, with France and the United Kingdom of Great Britain and Northern Ireland withdrawing their budgetary aid in 1986 and 1988 respectively.

Any reduction in ODA will be a severe blow to many Pacific island economies, most of which continue to experience budget deficits. In many cases, this is the result of increases in total expenditure outpacing those in revenue. The island Governments also had to confront the need to provide essential services for their fast-growing population and an increasingly urban sector with the limited resources available at their disposal. Foreign aid, including loans, has been relied upon to bridge the resource gap without which the situation would have been worse. If such aid were reduced these countries would have to restrain their expenditure to narrow their budget deficits.

Several Pacific island countries have taken steps in this direction in recent years. Papua New Guinea, for example, has been forced to reduce its expenditure as part of its overall economic strategy in recent years in the light of decreasing budgetary aid. Successive Governments have established a tradition of sound economic management which

Selected Pacific island economies: aid receipts per capita and as a proportion of total government expenditure

	Aid per capita (US dollars)			*Aid as percentage of total government expenditure*	
	1984	*1987*	*1988*	*1984*	*1987*
Territory of American Samoa	1 108	1 408	...	100	50
Cook Islands	460	635	600	60	41
Fiji	46	23	74	9	5
Guam	7 931	397	...	37	17
Kiribati	191	224	233	80	109
Nauru	6	6	25	...	...
Niue	1 104	2 002	2 304	69	78
Republic of Palau	1 753	1 715	...	104	109
Papua New Guinea	99	100	107	39	37
Samoa	127	110	180	48	36
Solomon Islands	74	83	194	42	36
Tonga	160	134	157	82	47
Tuvalu	647	604	1 750	83	...
Vanuatu	192	172	262	95	48

Sources: Organisation for Economic Co-operation and Development, *Geographical Distribution of Financial Flows to Developing Countries, 1985/1988,* (1990); South Pacific Commission, *South Pacific Economies: Statistical Summary,* Nos. 9 & 11, (1987 & 1989).

extreme pressure. Having attained a comfortable level of foreign reserves, $F 327 million compared with $F 179 million in 1987, the Government shifted the focus of its monetary policy during 1989 to the excess liquidity in the banking system. The Reserve Bank, for example, encouraged the Government and statutory corporations to satisfy their borrowing requirements from domestic non-bank sources, and later in the year, even encouraged selective pre-payments of the more expensive foreign loans. The high level of foreign reserves also allowed some room for relaxation in exchange control policy. The Reserve Bank's liquidity management measures had an impact on short-term interest rates and bank liquidity. Interest rates on promissory notes and treasury bills rose by 3.4 and 2.3 per cent respectively in 1989 compared with less than 1 per cent in 1988.

Narrow money supply (M1) contracted in 1987 but grew by 62 per cent in 1988, largely reflecting the accumulation of foreign reserves. The monetary policy measures adopted in 1989 resulted in a fall in the money supply by 3.4 per cent. Following the currency devaluations, the rate of inflation almost doubled, peaking at 11.8 per cent in 1988, from 5.7 per cent in 1987. The rate declined to 6.1 per cent in 1989 and was estimated to have recorded 7.4 per cent for the 12 months preceding September 1990.

In contrast to the improved performance of many of the other Pacific island countries, in Papua New Guinea the GDP growth rate was reduced to 1.4 per cent in 1989 from 3.1 per cent in 1988. The closure of the Bougainville mine, which contributed about 20 per cent of government revenue and 40 per cent of exports annually, and the depressed prices of agricultural products in 1989, contributed to this outcome. Economic activities picked up in the latter half of 1989 following a general decline in all sectors of the economy during the first half of the year. Growth was particularly strong in the building and construction sector, associated with the development of Pogera and Misima mines and the construction of residential accommodation in the national capital district, which partially offset the impact of the depressed income of producers in agriculture, forestry and fishery and major declines in mining and quarrying.

islands

has resulted in a steady, if small, growth in incomes, a low rate of inflation, a stable monetary environment and a sustained level of debt service. The fiscal deficit has been further restrained in 1989/90 and attempts have been made to broaden the tax base in order to raise additional revenue. Government borrowing has also been restricted and private liquidity has been tightened. In Solomon Islands, where the overall budget deficit had almost tripled between 1985 and 1987, some improvements were made in 1988 and 1989. The attempts of other island countries to control their budget deficits have been handicapped by, among other things, the necessity to deal with the consequence of natural disasters, notably hurricanes and cyclones. This is illustrated by the experience of Samoa and Vanuatu.

The cyclone which struck Samoa in February 1990 caused great economic damage and reversed the favourable economic conditions of 1989. In order to deal with the cyclone damage, the Government implemented a supplementary budget, which increased the share of development expenditure on the rebuilding of infrastructure. Natural disasters in Vanuatu also made management of budgetary finance difficult. Cyclones that struck the country in 1985 and 1987 caused widespread damage to tourist resorts and infrastructure. In addition, as stated earlier, the United Kingdom withdrew budget aid in 1986. While external grants continue to finance a higher proportion of the country's development expenditure, the Government has preferred to finance most of the recurrent expenditure from its own resources. Prior to 1986, the funding shortfall between domestic revenue and recurrent expenditure was financed mainly by drawdowns on government reserves. These reserves were exhausted by 1987 and the Government resorted to domestic borrowing to meet most of its deficit financing needs, mainly through the issue of government bonds which were readily absorbed by the banking system. The 1989 budget, which did not include recurrent external grants, was aimed at balancing current revenue and expenditure. The stringent and severe budgetary control measures imposed during 1989, which were mainly in education and health sectors, coupled with a 5 per cent growth in government revenue (excluding borrowing) resulted in a recurrent budget surplus of more than 200 million *vatu*.

Apart from restraining expenditure, the Governments in the Pacific island economies which face a reduction in ODA will have to increase savings. Improving the efficiency of public enterprises may help to generate some contribution to government savings. Similarly, the design and implementation of appropriate financial policies, including measures for the widening and deepening of sound financial markets, institutions and instruments may encourage household savings. In addition, the Pacific island economies and the donor countries could work together to improve the conditions for more effective aid use and to enhance prospects for self-reliance. Forms of aid which contribute to self-reliance should be encouraged. This applies to the whole range of financial and technical assistance for human resources development and institution building. However, the currently known resource base of many Pacific islands is so limited that aid dependency will be a long-term reality, notwithstanding the efforts already undertaken or planned.

Table I.8. Selected Pacific island economies. Macro-economic indicators, 1985-1989

(Percentage)

		1985	1986	1987	1988	1989
Fiji	Real income growth	-5.1	8.3	-6.3	0.4	12.1
	Savings	17.2	22.1	16.7	15.5	14.8
	Investment	19.1	18.1	13.9	13.1	15.5
	External current account balance	-4.0	-1.8	-2.9	1.5	-0.3
	Budgetary balance	-4.0	-5.4	-6.0	-2.2	-7.4
	Money supply growth (M1)	1.3	24.9	-2.2	62.1	-3.4
	Change in consumer price index	4.4	1.8	5.7	11.8	6.1
Papua New Guinea	Real income growth	4.8	5.0	4.8	3.1	-1.5
	Savings	9.6	11.9	15.0	19.1	9.2
	Investment	20.0	19.7	21.6	24.5	24.3
	External current account balance	-15.5	-12.0	-13.5	-12.1	-19.0
	Budgetary balance	-11.3	-10.9	-8.4	-13.3	-12.2
	Money supply growth (M1)	-1.9	5.1	11.6	14.9	9.1
	Change in consumer price index	3.7	5.5	3.3	5.4	4.5
Solomon Islands	Real income growth	2.6	-2.2	-3.0	5.3	5.5
	Savings	7.7	3.6	0.5	...	...
	Investment	26.2	26.2	23.1	32.7	...
	External current account balance	-20.3	-26.6	-26.9	-34.4	...
	Budgetary balance	-9.0	-16.0	-21.9	-19.2	...
	Money supply growth (M1)	0.0	7.2	22.4	31.7	7.9
	Change in consumer price index	9.5	13.6	11.0	16.7	14.9
Tonga	Real income growth	7.4	3.3	3.5	-2.1	3.6
	Savings	...	...	...	...	...
	Investment	...	...	...	...	...
	External current account balance	-2.9	1.9	11.6	-21.0	...
	Budgetary balance	-5.0	-1.2	-6.0	3.1	...
	Money supply growth (M1)	8.7	21.6	14.3	3.2	9.5
	Change in consumer price index	16.8	21.7	4.7	9.9	4.1

Sources: IMF, *International Financial Statistics* (Washington, D.C., October 1990); Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries* (July 1990); and national sources.

Notes: Growth in real income indicates rates of change in gross domestic product (GDP) over the previous year or the period indicated. Real income calculations are on different base-year prices in different cases. Money supply and consumer price index growths are also annual percentage changes over the previous year or for the period indicated.

Figures on savings, investment, and the current account and budgetary balances are percentages of GDP.

Papua New Guinea has been forced to adopt restraint in government expenditure as part of its overall economic strategy in recent years in the light of decreasing foreign budgetary aid and high debt commitments. The country's successive Governments have established a tradition of sound economic management which has resulted in a steady, if small, growth in incomes, a low rate of inflation, a stable monetary environment and a sustained level of debt service. In recent years, the fiscal deficit has been restrained and attempts have been made to broaden the tax base in order to raise additional revenue. Government borrowing has also been restricted and private liquidity has been tightened.

The need for further restraint upon expenditure has been necessitated by the closure of the Bougainville mine in May 1989, coupled with a serious decline in world prices for the country's major commodities during the year. These events have drastically affected the flow of government revenue, causing a serious shortfall in export income and a drop in international reserves. The government budget recorded a deficit of 31 million kina in 1989, little changed from the 30 million kina in 1988 but much better than the budgeted deficit of 70 million kina for the year. A large shortfall in expenditure was partly offset by a fall in revenue. Despite the Government's attempts to reduce expenditure by 25 million kina, it was unable to implement cuts as desired. The shortfalls in expenditure occurred in the key areas of capital and maintenance works as a result of a lack of project implementation. This was a matter of great concern as these categories

of expenditure are of particular importance for the economic development of the country.

At the beginning of 1990, the Government adopted a stabilization and structural adjustment package to overcome the economy's current difficulties. This package included a 10 per cent devaluation of the currency in January 1990, a restraint upon public sector wages, a net reduction of 80 million kina in government expenditure and a monetary stance that accommodates the credit needs of the non-mining private sector.

In Papua New Guinea, while the Central Bank is responsible for formulating monetary policy without attempting directly to influence the real variables in the economy, the main influence on economic growth, employment and income distribution is exerted through the Government's fiscal policy. The Bank has direct responsibility for the level of interest rates, foreign exchange reserves and the exchange rate. The extent to which monetary policy can accommodate fiscal goals is defined by the balance-of-payments constraints and the desire to maintain a reasonable degree of price stability.

Given this dichotomous approach to policies, the 1989 budget set 4 to 5 per cent as a target for real GDP growth. However, since the financing requirements of mining and oil explorations are met from offshore banks and financial institutions, the goal of monetary policy was set to ensure a medium-to-long-term sustainable growth in GDP of the non-mining sector, monetary policy thus being based on the existence of a predictable relationship between credit and non-mining GDP. Given this relationship, private sector credit becomes the immediate target of monetary policy by introducing direct credit controls. Taking into account the possible developments in the domestic economy during the year, the Central Bank set 9 to 11 per cent as a target for private sector credit growth for 1989. The closure of the Bougainville mine in May 1989 prompted the Central Bank to revise the credit target to 8 to 10 per cent growth, and in November 1989, for the first time, gave specific directives to individual commercial banks to achieve a specific credit target by the end of December 1989. Although each commercial bank achieved its target by end December, the overall growth of private non-mining sector credit grew by 12.1 per cent, more than the revised target set by the Central Bank.

Monetary policy for 1990 was formulated on the assumption that the Bougainville mine would remain closed throughout the year. As an interim measure, and until a comprehensive economic policy package was put into place, the target credit growth for the non-mining private sector was set at zero. However, to minimize the effect of this very tight monetary stance on priority areas, a set of exemptions to the credit target was granted. This policy was subsequently eased with the adoption of the Government's comprehensive stabilization plan at the beginning of 1990 that included a 10 per cent devaluation of the currency, a net cut of 80 million kina in government expenditure and a restraint on wages. The target of the non-mining sector credit was eased from zero growth to 4 to 5 per cent growth and the minimum liquid assets ratio was reduced from 12 to 11 per cent. This was to reduce pressure on liquidity arising from the increase in the credit target. The weighted average deposit interest rate in 1989 was 11.3 per cent compared with 10.6 per cent in 1988 and 1987. The lending rates followed a similar trend and averaged 14.6 per cent in 1989 compared with 14.3 per cent in 1988 and 14.5 per cent in 1987.

The rate of inflation increased to 5.4 per cent in 1988 from 3.3 per cent in 1987 but declined to 4.5 per cent in 1989. The slowdown in inflation rate in 1989 was mostly attributed to the behaviour of betel nut prices, which added one percentage point to the consumer price index in 1988 but reduced its contribution to 0.2 percentage points in 1989. However, the devaluation of the currency was expected to contribute to the overall increases in the level of prices during 1990 with immediate rise in price of imported goods including many basic foodstuffs.

A 5.5 per cent growth in GDP in 1989, following an above 5 per cent growth in 1988, set the economy of Solomon Islands on a strong course after the dismal performance of 1986 when the economy suffered a decline of 0.8 per cent owing to the damage caused by the cyclone that hit the country. The agricultural sector benefited from investments undertaken in recent years and favourable weather conditions improved its performance. Production of major crops such as palm oil/kernel, copra, cocoa and timber, all recorded positive rates of growth although fishery and forestry recorded some negative results.

There has been a pressing need for restraint on public expenditure in Solomon Islands. The overall budget deficit has widened since 1985, and almost tripled between 1985 and 1987. Some improvements have been made in the last two years. In most cases, the actual budget deficits were far higher than originally budgeted, largely reflecting the ineffectiveness of administrative and procedural controls, and the inadequacy of financial and accounting informa-

tion. The Government has taken some measures to remedy this situation but more needs to be done. Increases in public sector wages, the most recent being the 17.5 per cent pay rise awarded to public servants in the latter half of 1989, have contributed to the Government's problems in controlling the deficits. Some changes were made in the taxation system in 1989. However, even with additional revenue arising from these changes there is expected to be a sizeable shortfall. The 1990 budget deficit was expected to be $SI 33 million, of which only $SI 6 million was development expenditure.

Thus the need to finance the persistent budget deficits partly from domestic sources, particularly from the Central Bank, has increased rapidly in Solomon Islands. The claims upon the Government by the Central Bank totalled $SI 10.21 million at the end of 1988, 69 and 220 per cent more than the corresponding figures for 1987 and 1984. This trend put increased pressure on the growth of domestic liquidity, the balance of payments, domestic prices and the local currency. Monetary policy has therefore been restrictive in order to prevent domestic liquidity from rising too rapidly, and the loss of reserves becoming more severe. For example, the liquid assets ratio of 27.5 per cent, which has been in place since 1987, was increased to 30 per cent in 1988. Other measures adopted by the Central Bank included the reimposition of a statutory reserve deposit of 5 per cent in September 1988 and the issuance of Bokolo bonds in March 1989 in an attempt to absorb some of the growing liquidity in the banking system.

Solomon Islands has experienced double digit rates of inflation during the four years since 1986, with the rate peaking at 16.7 per cent in 1988 owing to a rise in the prices of imported goods, particularly food items. The inflation rate moderated to 14.9 per cent in 1989 but was still higher than the 5 to 10 per cent expected by the Government and was the highest recorded among the Pacific island countries for the year.

The Tonga economy recovered from a drought-induced 2 per cent fall in real GDP in 1988 and recorded an estimated 3.6 per cent growth in 1989, largely reflecting a strong rebound in agricultural output which was being diversified into non-traditional cash crops, such as vanilla and squash. In addition, the construction and manufacturing sectors recorded strong growth from an admittedly small base. The economy's prospects in 1990 worsened, however, particularly after the storms which struck the country in March 1990 and greatly damaged the banana crop. Indications early in the year were that the economy was growing fast. However, the effects of the storms and also of the Persian Gulf crisis were having an adverse impact on the performance of the economy in the latter part of the year.

III. SECTORAL PERFORMANCE

INTRODUCTION

As a result of continuing structural changes over the years, the developing countries of the ESCAP region have achieved varying degrees of transformation in their production structures in agriculture, industry and services. Except for the least developed and the smaller economies of the region, most of the other economies have significantly reduced the share of agriculture and increased that of industry and services in gross domestic product (GDP). The share of the industrial sector has risen significantly, although the service sector has been contributing the largest share of GDP in most countries. Thus, while agriculture was still the dominant sector in the least developed and other smaller economies, production in all the other economies has become more diversified into industry and the services.

A significant degree of diversification has also taken place within each sector in response to changing demand patterns and technological developments in most countries in the region. For example, agriculture has become more diversified from crop production to activities such as animal husbandry and fishery. Industrial production in many countries has been changing from simple manufactures to more complex products involving higher levels of technology. The service sector ranged from activities with extremely low productivity in the informal sector to activities with high productivity in the financial and professional fields.

In all sectors, especially the industrial and the service sectors, however, there exists considerable technological dualism with the most advanced and the most backward technologies coexisting in most countries. Within the service sector, many of the activities were purely labour based, and use only rudiments of technology. Low productivity and low value-added characterize them. These activities are generally unregulated by the government and are, therefore, designated as informal. However, the most recent technological advances in the field of informatics, telecommunications, satellite mapping and computer applications, have found their use in many branches of the service sector as well as in industry and agriculture in the region.

Notwithstanding the wide differences among countries in terms of intersectoral and intrasectoral composition of output and the level of technology used in production, the generally higher rates of growth in the industrial and the service sectors than in agriculture continued to change the output structure of all economies of the region dynamically (table I.9).

A. AGRICULTURE

1. An overview[1]

For most countries of the region, agriculture remained the most important sector, providing the main source of supply of food and raw materials, as well as of income and employment for the majority of the population. Governments continued therefore to emphasize agriculture's important role in the national economy, and in the process have made significant achievements in agricultural development during the past decade. An important characteristic of this development was the impressive contribution of productivity growth to overall agricultural growth. GDP originating in the agricultural sector in the region increased at an annual 5.4 per cent during the period 1980-1986. The agricultural labour force, however, grew at a much lower rate, recording only 1.3 per cent growth in 1981-1988 (table I.10). That implied an agricultural productivity growth of around 4 per cent a year. A move to more intensive farming to boost production became distinctly marked in the 1980s since extensive farming with the expansion of cultivated areas had

[1] Based on FAO production data adopted in table I.10 and I.11, which have a series of qualifications attached to them; see FAO, *Production Yearbook*, vol. 43 (1989), pp. 5-10.

Table I.9. Selected developing economies in the ESCAP region. Sectoral origin and growth[a] of gross domestic product, 1987-1990

		Sectoral shares			*Growth rates*			
		Agriculture	*Industry*	*Services*	*Agriculture*	*Industry*	*Services*	*GDP*
Afghanistan	1987	51.9	34.5	13.7	-19.0	1.5	0.5	-10.4
	1988	52.0	34.1	13.9	-6.7	-7.7	-5.3	-6.8
	1989	53.2	32.3	14.6	3.6	-4.3	6.1	1.2
Bangladesh	1987	39.8	16.3	43.9	0.4	8.1	6.4	4.2
	1988	38.4	16.7	44.9	-0.8	5.3	5.3	2.9
	1989	37.1	17.1	45.9	-1.1	4.8	4.7	2.5
Bhutan	1987	46.9	25.7	28.9	5.1	71.9	9.1	17.8
	1988	45.6	27.5	26.9	5.9	12.1	6.2	7.6
	1989	45.8	27.1	27.1	6.0	4.2	6.3	5.6
	1990							
China[b]	1987	33.7	52.3	14.0	4.5	13.0	...	10.2
	1988	32.4	52.8	14.8	2.3	17.4	...	11.1
	1989	...	...	...	...	...	...	3.7
Fiji	1987	24.2	18.2	61.1	-6.9	-10.4	-4.1	-6.3
	1988	23.8	16.2	63.2	-2.2	-11.5	3.0	-0.4
	1989	23.7	17.4	58.8	21.8	10.8	13.0	12.7
India	1987	31.1	29.4	39.5	1.2	2.5	7.0	3.8
	1988	33.0	28.7	38.3	17.4	7.7	6.9	10.4
	1989	...	...	...	0.5	7.5	5.5	4.5
	1990	...	...	...	1.5	8.0	6.0	5.0
Indonesia	1987	21.4	40.2	38.5	2.2	5.2	5.8	4.8
	1988	21.1	40.1	38.9	4.3	5.4	6.8	5.7
Iran, Islamic Republic of	1987	21.1	30.7	48.3	1.8	0.2	-5.3	-1.9
	1988	19.5	32.9	47.7	-12.9	0.8	-6.9	-5.7
Kiribati	1987	20.3	10.7	74.7	-12.7	-4.9	5.2	-0.6
	1988	32.7	9.2	62.8	101.8	6.6	5.2	25.0
Lao People's	1987	60.5	14.4	24.8	-9.5	-18.6	8.8	-6.6
Democratic Republic	1988	59.6	13.6	24.9	3.7	-0.6	5.6	5.3
	1989	56.8	15.7	25.6	3.9	26.2	12.4	9.0
Malaysia	1987	21.8	38.3	40.8	7.4	6.5	5.2	5.3
	1988	21.1	39.8	40.1	5.2	12.8	7.0	8.7
	1989	20.6	40.7	39.9	5.5	10.8	7.8	8.5
	1990	19.9	41.0	40.1	4.7	9.3	9.1	8.3
Maldives	1987	27.4	15.6	57.0	5.6	9.5	10.3	8.9
	1988	26.4	15.7	57.8	4.9	9.5	10.3	8.7
	1989	25.5	15.8	58.7	5.4	10.0	10.9	9.3
Myanmar	1987	48.6	12.2	39.2	-4.8	-5.2	-2.6	-4.0
	1988	47.8	11.7	40.5	-12.8	-15.3	-8.6	-11.4
	1989	49.6	12.6	37.8	11.3	15.6	0.3	7.4
Nepal[c]	1987	58.5	41.5	...	0.6	5.7	...	2.7
	1988	57.9	42.1	...	8.6	11.3	...	9.7
	1989	60.9	39.1	...	6.8	-5.7	...	1.5
Pakistan	1987	26.6	24.4	49.0	3.3	8.6	5.9	5.8
	1988	25.7	25.1	49.1	2.7	9.8	6.8	6.4
	1989	26.3	25.1	48.6	7.1	4.7	3.7	4.8
	1990	26.0	25.6	48.5	4.0	7.2	4.8	5.2
Philippines	1987	28.1	32.1	39.8	-1.5	7.9	6.6	4.6
	1988	27.3	32.7	40.0	3.5	8.5	6.8	6.4
	1989	26.9	33.1	40.1	4.1	7.2	6.1	5.8

(Continued on next page)

Table I.9 *(continued)*

		Sectoral shares			Growth rates			
		Agriculture	*Industry*	*Services*	*Agriculture*	*Industry*	*Services*	*GDP*
Republic of Korea	1987	9.9	45.1	44.9	-6.8	16.8	12.0	12.0
	1988	9.6	45.4	45.0	8.0	12.3	11.5	11.5
	1989	9.0	45.3	45.8	-0.7	5.8	8.0	6.1
	1990	...	...	...	1.8	2.9	...	8.8
Singapore	1987	0.5	36.0	71.9	-10.3	10.5	13.1	9.4
	1988	0.4	36.6	71.6	-12.2	13.1	10.6	11.1
	1989	0.4	36.3	72.5	-6.5	8.4	10.6	9.2
Sri Lanka	1987	23.6	27.3	49.1	-5.8	6.3	2.7	1.5
	1988	23.5	27.7	48.8	2.1	4.2	2.2	2.7
	1989	...	...	...	-1.1	4.4[d]	3.8	2.3
	1990	...	...	...	5.9	8.2[d]	4.1	4.9
Thailand	1987	17.4	31.7	50.9	-0.2	12.8	11.1	9.5
	1988	16.9	32.9	50.2	10.2	17.4	11.6	13.2
	1989	16.0	34.3	49.7	6.3	17.1	11.0	12.2
	1990	...	...	...	-2.0	10.3[c]	...	9.5
Tonga	1987	41.8	17.3	40.7	3.6	2.9	3.3	3.5
	1988	38.1	18.6	43.3	-10.8	5.6	4.4	-1.9
	1989	...	...	...	...	...	...	3.6

Sources: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries*, vol. 21 (July 1990); and national sources.

[a] At constant prices. [b] For China, aggregate growth is in terms of national income; distributions are in current prices and the service sector includes transport and trade only. [c] Industry including services. [d] Manufacturing only.

Table I.10. Selected developing economies in the ESCAP region. Growth in agricultural output and the labour force in the 1980s

(Percentage)

	Agricultural gross domestic product 1980-1986	*Agricultural labour force 1981-1988*
Asian and Pacific region	5.4	1.3
Bangladesh	3.2	2.0
Bhutan	...	1.8
Brunei Darussalam	...	3.4
China	8.2	1.3
Fiji	8.2	0.4
India	2.7	1.5
Indonesia	2.9	0.7
Malaysia	3.5	0.4
Myanmar	5.2	0.7
Nepal	5.8	2.2
Pakistan	2.3	2.0
Papua New Guinea	2.3	0.8
Philippines	2.1	1.5
Republic of Korea	7.4	-1.4
Singapore	-2.4	-3.1
Sri Lanka	3.2	1.3
Thailand	2.8	1.3

Source: FAO, *The State of Food and Agriculture, 1989* (Rome, 1989), p. 42.

already reached its limit in most countries and could no longer be sustained (see box I.8). Rates of growth in productivity, however, varied considerably across countries, ranging from 6.4 per cent in China to 1.1 per cent in India.

Agricultural production still showed sharp fluctuations in many countries in the most recent years, which reflected the continuing vulnerability of production to changes in weather conditions despite the efforts to expand and strengthen the sector's technological base. An unfavourable monsoon seriously affected agricultural production in 1987 in many countries. Production has recovered since then, but there have been considerable variations in production growth as the weather has had different effects on different crops in different countries. Among the major

agricultural producers in the region, Bangladesh, India, Indonesia, Malaysia, Pakistan and Viet Nam achieved reasonably high rates of growth in agricultural production in 1989, most of them showing improvements over their performance in 1988. Only in China, India and Thailand did production increase more slowly in 1989 than in 1988. Among the least developed and other economies of the region, Fiji, the Lao People's Democratic Republic and Solomon Islands also achieved high rates of production growth in 1989, far exceeding their records in the previous two years (table I.11).

In 1990, production increased at more moderate rates in most countries of the region. The rates of growth had slowed in most countries compared with 1989, except in China where the growth rate accelerated from the previous year. Among the major producing countries, Thailand experienced a production decline in 1990 largely because of a large drop in rice production owing to adverse weather conditions and some diversion of land from rice production to other crops owing to the country's increasing difficulties in selling its surplus rice in the export market. Among other countries which suffered a production decline in 1990 were, Mongolia, Nepal, Papua New Guinea, the Republic of Korea and Sri Lanka.

Growth in agricultural production in the region was still very

Box I.8. Sustainable agricultural development

Sustainable agricultural development depends on a complex interaction between demographic pressures, poverty and environmental conditions. Sustainable development requires prudent management and conservation of the natural resource base, and the orientation of technological and institutional changes to ensure the attainment and continued satisfaction of human needs for present and future generations. In the agriculture, forestry and fisheries sectors, land, water, plant and animal genetic resources should be conserved.[a]

In the Asian and Pacific region, sustainable agricultural development encompasses several issues. Given the demographic pressures and the constraints of land resources in many countries in the ESCAP region, agricultural development strategies have emphasized the extention of irrigation, the adoption of high-yielding varieties of cereal and other crops as well as the increased use of fertilizers and pesticides. Such strategies have definitely helped in increasing agricultural production, especially food grains production, through increased productivity per unit of land.

Doubts are now being expressed as to whether this process can be sustained any longer without taking effective measures for maintaining ecological stability. There is an increasing realization that fluctuations in agricultural production experienced periodically in many Asian countries are owing to natural calamities such as floods and droughts which are, in turn, caused by factors such as deforestation and lack of appropriate measures for soil and water conservation. Deforestation has become a serious problem because of the growing pressures for food, fuel, fodder and other needs of the population. Growing population, limited land resources and the consequent incidence of poverty are seen as major causes of deforestation. It is therefore necessary to evolve an agricultural development strategy that is less land intensive and ensures environmentally sound land use, including implementation of afforestation programmes.

Small and marginal farmers who are handicapped owing to lack of irrigation, poor soil conditions and inadequate resource base have to be encouraged and assisted to take up other activities such as animal husbandry, poultry raising and fishing so that their dependence on crop production and, hence, on land resources is reduced. This implies that greater attention has to be given to creating the requisite institutional and other rural infrastructure for promoting such activities. On the other hand, farmers who are engaged in crop production have to be motivated to adopt suitable practices that would ensure the use of land and water resources in a sustainable manner.

Public policies relating to pricing of agricultural inputs such as water, fertilizer, electricity, etc., have to be used in such manners as to prevent environmental degradation arising out of wasteful uses of these inputs. Public policies have also to give greater attention to the energy needs of the poor living in the rural areas whose energy needs do not usually feature in the commercial energy markets. Involvement of the local community in afforestation programmes can partly ensure access of the local poor to meet their basic needs of fuel wood, while expansion of biomass based energy systems would prove beneficial to the development process without causing any adverse impact on environmental conditions.

In brief, the concerns for sustainable agricultural development reflect the increasing scarcities of land, water, energy and other environmental resources. The agricultural research system has the capacity to evolve suitable technologies and practices to overcome these constraints. The much more difficult task, however, is to formulate appropriate policies and also create the necessary institutional framework in order to make the farmers realize the social scarcity of vital natural resources and adopt new methods to conserve the same.[b]

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[a] FAO, *The State of Food and Agriculture 1989* (Rome, 1989).

[b] For more details see ESCAP, *State of the Environment in Asia and the Pacific, 1990* (ST/ESCAP/917) and the Ministerial Declaration on Environmentally Sound and Sustainable Development in Asia and the Pacific (Bangkok, October 1990).

Table I.11. Selected developing economies in the ESCAP region. Growth in agricultural production, 1987-1990

	Agricultural production				*Food production*			
	1987	*1988*	*1989*	*1990*	*1987*	*1988*	*1989*	*1990*
Developing countries	2.1	4.2	3.3		1.6	4.0	3.4	...
Bangladesh	-1.6	-1.1	13.0	5.2	-0.3	0.1	13.8	5.3
Bhutan	11.1	-20.2	2.0	2.8	11.1	-20.2	2.0	2.8
China	5.5	2.4	2.1	4.1	4.0	2.5	2.6	3.7
Fiji	-21.0	3.4	16.0	1.5	-21.0	3.6	15.8	1.5
India	-0.9	12.4	5.2	2.1	-0.9	12.5	4.8	2.5
Indonesia	-0.0	4.8	5.0	2.0	0.4	4.4	5.2	2.0
Iran, Islamic Republic of	1.1	-6.1	-0.3	0.5	1.5	-6.3	-0.4	-0.1
Lao People's Democratic Republic	-3.0	-1.7	17.2	8.4	-3.6	-2.2	17.4	8.4
Malaysia	4.1	7.0	7.8	3.2	4.6	7.5	12.7	3.7
Maldives	1.1	1.2	1.4	2.5	1.1	1.2	1.4	2.5
Mongolia	-2.8	0.0	2.4	-2.3	-2.6	-0.9	2.5	-2.9
Mayanmar	0.5	-5.3	-10.1	6.5	1.1	-4.8	-10.5	7.1
Nepal	9.2	10.7	2.0	-3.9	10.4	11.1	1.9	-4.0
Pakistan	2.0	4.7	5.0	3.5	1.3	5.4	5.4	3.3
Papua New Guinea	3.1	1.9	4.9	-1.0	-0.5	2.3	4.1	-0.3
Philippines	-0.1	2.6	8.5	4.2	-0.0	2.8	8.4	6.3
Republic of Korea	-8.4	7.5	-1.6	-6.3	-8.4	8.0	-1.9	-6.3
Samoa	-1.5	-2.0	0.5	0.5	-1.6	-2.1	0.5	0.5
Solomon Islands	-2.1	7.1	12.9	0.6	-2.1	7.1	13.0	0.6
Sri Lanka	-9.8	4.1	-2.1	7.2	-11.8	4.0	0.2	7.0
Thailand	-0.0	8.8	4.9	-3.4	-0.1	10.2	4.2	-3.9
Tonga	-1.7	2.0	1.2	1.8	-1.7	2.0	1.2	1.8
Vanuatu	-3.8	-2.0	0.3	2.8	-3.8	-1.7	0.2	2.8
Viet Nam	4.2	2.2	7.7	4.4	4.1	1.7	7.4	3.9

Source: FAO, computer printout, 27 December 1990.

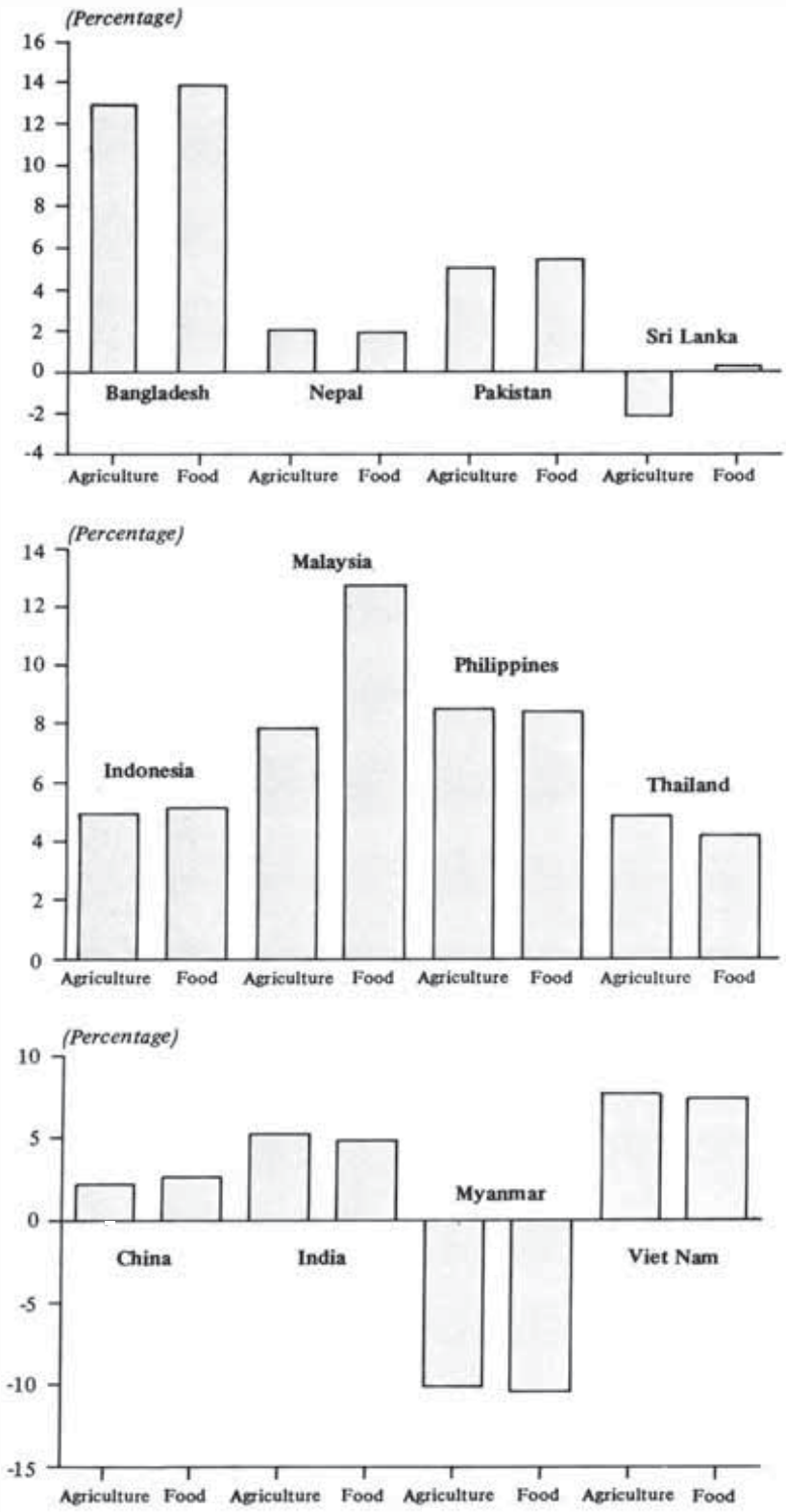
much influenced by growth in food production. Although diversification of activities within the sector has been under way in many countries, the rates of growth in food and overall agricultural growth rates were almost indistinguishable (figure I.7), except in a few cases where non-food commercial crops predominated. Malaysia and Sri Lanka were two examples. Another important aspect of agricultural performance in the ESCAP region in recent years was that the livestock and fishery products recorded higher rates of growth than the crops sector. This increased significantly the weight of the livestock and fishery products in total agricultural production in many countries. This was a favourable development in so far as a faster growth in these subsectors would provide supplementary incomes to the farmers and a greater stability to these incomes in the face of weather-induced fluctuations in crop production. They would also increase the supply of protein in the people's diet.

2. Review of recent performance[2]

Among the larger producers of agricultural products in the region, there was an overall improvement in agricultural production in China in 1989. The value of total agricultural output registered a growth of 3.3 per cent. Grain output reached a peak level of 407.6 million tons in 1989, surpassing the previous peak production of 403 million tons in 1987. Grain production was expected to reach a record level of 420 million tons in 1990. The production of cash crops showed some decline in 1989, but was expected to increase in 1990. An important aspect of agricultural growth in China in the recent period has been the faster growth of animal husbandry, fishery and the "sidelines" sectors. In contrast to the growth in the value of total farm products of only 2.1 per cent in 1989, animal husbandry products recorded a growth rate of 5.5 per cent, fishery products grew by 8 per cent and "sidelines" increased by 5.8 per cent. In 1990, the crop sector, however, was expected to achieve a higher growth rate than in 1989.

[2] This subsection is based on data available from national sources.

Figure I.7. Patterns of growth in food and agricultural production, 1989



Source: FAO, computer printout, 27 December 1990.

The growth performance of the agricultural sector in China in recent years has been very much influenced by the policies of reform in the rural areas. About 99 per cent of the farmers have been covered by the contract responsibility system which has provided the necessary incentive for increasing not only agricultural production, but also the use of agricultural machinery.

Despite the progress achieved thus far, China still faced certain problems in the agricultural sector. Demand for farm products has been growing much faster than the rise in production. The situation was often worsened by natural disasters which disrupted the momentum of agricultural growth. Thus in 1989, China had to import 10 million tons of grains even though production was at the high level of 407 million tons. Furthermore, although reforms have helped in increasing farm production, they have been to some extent responsible for the neglect of irrigation maintenance and other agricultural infrastructure. Increased public investment in agriculture, especially in irrigation facilities, and greater attention to the promotion and diffusion of agricultural technology to a larger number of farmers were found necessary. Recently the Government has refocused policies to tackle these issues.

A salient feature of recent agricultural growth in Indonesia was that rice production showed a continued increase since a breakthrough was achieved in the early 1980s. The country achieved near self-sufficiency in meeting food requirements. Rice imports declined from around 2 million tons in 1980 to negligible levels after 1985. Rice production in the most recent period increased from 28.3 million tons in 1988 to nearly 30.5 million tons in 1989, although production was

likely to show a marginal fall in 1990 owing to pest attacks on the crop. Apart from rice, Indonesia has also achieved modest to significant growth in the production of other crops such as cassava, maize, sweet potatoes, soybeans, cocoa, palm oil, coffee, tea, spices, tobacco, and natural rubber. There has also been an increase in the production of livestock products such as milk, meat and eggs.

Growth in agricultural output in the Philippines in 1990 was expected to be very marginal – around 0.5 per cent compared with the growth of 4.2 per cent recorded in 1989. A prolonged drought severely affected the crops sector which was expected to show a negative growth rate of around 5 per cent compared with the modest growth of 2.4 per cent achieved in 1989. While the maximum impact of the adverse weather conditions was mainly on the food crops, such as rice and corn, production of commercial crops, such as sugar-cane and banana, was also affected, though to a lesser extent than grain production. Production of coconuts was, however, expected to increase marginally by a little over 1 per cent in 1990 compared with the continuous decline experienced since 1987. A redeeming feature in the agricultural sector of the Philippines was that the other subsectors, such as livestock, poultry and fisheries, all showed steady and reasonably high growth rates over the last few years which, to a large extent, compensated for the depressed performance in the crop sector. These subsectors currently contributed around 35 per cent to the gross output of the entire agricultural sector.

Agricultural production in Thailand was expected to show a decline of about 2 per cent in 1990 as compared with the growth of 10.2 and 6.3 per cent in 1988 and 1989 respectively. This sharp reversal was mainly owing to unfavourable climatic conditions, floods and also pest attacks. The decline in production covered a number of major crops including rice, maize, tapioca, mung bean and sorghum. Rice production was estimated to have gone down by nearly 13.7 per cent in 1990 while maize production was estimated to have declined by about 16.8 per cent.

However, production of commercial crops, such as natural rubber, jute and sugar-cane, was likely to show some increase in 1990. The production of fish and livestock products such as poultry and pigs was also adversely affected owing to unfavourable conditions. Forestry production continued to decline rapidly as a result of the forest enclosures and logging ban and it was estimated that it would decline by 30 to 35 per cent in 1990.

The agricultural sector of Thailand has undergone significant diversification in recent years. Traditional crops, such as rice, have experienced reduced export demand, greater competition and falling prices. In contrast, new crops and higher value-added products such as orchids, cut flowers, fruits and vegetables have provided better returns to farmers. In this, the Government has played a generally supportive role, although the constraints posed by lack of irrigation facilities and limited market opportunities have often stood in the way.

Agricultural production in Malaysia has been less vulnerable to fluctuations in climatic conditions than in other countries of the region since permanent tree crops dominate the agricultural sector. The production performance in the plantation sector which consisted of crops such as palm oil and natural rubber, and also in the other subsectors such as animal husbandry, fishery and forestry, was expected to be exceptionally good during 1990. Despite lower prices of the commodities in the export market, the sector as a whole was expected to achieve growth rates at least as high as in the previous two years.

Viet Nam has achieved considerable progress in the agricultural sector during recent years. Food grains production, in terms of rice equivalent, increased from 19.6 million tons in 1988 to 21.4 million tons in 1989. There was a clear breakthrough in 1989, when the country moved from the stage of food shortage and food imports to a level of grain production to provide surpluses to create food reserves and to export 1.5 million tons of rice. Food production in 1990 was unlikely, however, to exceed the level achieved in 1989. In 1989, vegetable production increased by 5.7 per cent while livestock products increased by 6.3 per cent. Fish production in 1989 reached a level of 935,000 tons as against the normal annual catch of 700,000 tons.

The rapid growth in agricultural production witnessed in Viet Nam could be attributed mainly to the reforms undertaken in recent years, especially the introduction of the household contract system similar to the pattern in China. Yet, the agricultural sector was faced with a number of constraints. The household contract system needed improvements in several directions to provide sufficient incentives to the farmers to increase production. There was also a need to improve infrastructural facilities including irrigation, the supply of inputs such as fertilizers, pesticides and credit, and the strengthening of research and extension services.

The performance of the agricultural sector in India in recent years has been characterized by sharp fluctuations in produc-

tion, a considerable degree of crop imbalances and continuing regional disparities. Adverse weather conditions affected agricultural production in three out of the past five years. Yet, the average rate of growth in agricultural output during the seventh plan period (1985-1990) was close to the orginal target of 4 per cent a year. Food grain production in 1989 was estimated at 173 million tons, registering a growth of about 1.5 per cent over the 1988 production level of 170.5 million tons. It was expected to reach a new peak of 175 million tons in 1990.

The growth in agricultural production in India during the 1980s has largely been stimulated by an increase in the use of key inputs like irrigation and fertilizers. During the period 1980-1988 fertilizer consumption showed an average rate of growth of 8.9 per cent a year. The total amount of agricultural credit nearly doubled from 68 billion rupees to 133 billion rupees between 1985 and 1989.

There was evidence of a steady, though slow, diversification of the agricultural sector. The gross value of output from the animal husbandry sector constituted a little over 25 per cent of the total value of output of the agricultural sector, excluding the contribution of animal draught power which was also quite significant. As a result of the various developmental programmes undertaken in recent years, there has been a significant increase in milk and egg production. The diversification of agriculture has been the result of a well co-ordinated approach to dairy and poultry development activities. An integrated dairy development programme, commonly known as Operation Flood, has been implemented vigorously during the 1980s. This programme provided the linkage between the producers and the consumers through the organization of dairy co-operative societies of milk producers in the villages. Over 60,000 dairy co-operative societies were organized in 173 milk sheds spread all over the country involving over a million farmer members to procure an average of 8.3 million litres of milk per day in 1989. The milk was being marketed in over 535 cities and towns in the country. A technology mission for dairy development has also been constituted to give policy directions for the further development of the dairy industry in India. More recently an agricultural policy resolution was adopted which reflected the importance attached to agricultural development in the overall development strategy.

The gross output in the agricultural sector in Pakistan recorded a growth rate of 4 per cent in 1990. Although it was much less than the growth rate of 7.1 per cent achieved in the previous year, it was close to the secular growth recorded in the past. The output in the crop sector increased by 3.1 per cent while that in the livestock sector grew at a much higher rate of 6.1 per cent. However, the growth in the output of fisheries and forestry sectors was much lower, 2.3 and 1.7 per cent respectively. Among the major crops, an increase in production had taken place in wheat, rice, gram and cotton, while there was some decline in the production of maize and sugar-cane.

The agricultural development strategy in Pakistan consisted of several measures, such as the expansion of irrigation facilities, price support policies, subsidization of essential inputs, the supply of agricultural credit at concessional rates of interest and the provision of research and extension services. A major portion of the irrigation facilities was provided by the canal system which increased its coverage from 102.81 million acre feet (MAF) in 1985 to 117.14 MAF in 1990. Fertilizer consumption increased from 1.25 million tons to 1.89 million tons during the same period. As a result of these measures, there has been a steady increase in agricultural production. Food grain production increased from 16.7 million tons to nearly 20 million tons between 1985 and 1990. Among commercial crops, the production of sugar-cane increased from 32.14 million tons to 36.19 million tons between 1985 and 1990, while that of cotton recorded a very sharp increase from 1 million ton to nearly 1.5 million tons during the same period. There has also been a significant increase in production in the livestock subsector. Milk production increased by over 40 per cent between 1985 and 1990 while production of poultry nearly doubled during the period.

In Sri Lanka, there was a sharp recovery in agricultural production in 1990 after a period of fluctuations in output during the period 1986-1989. Overall agricultural output was expected to increase by about 5.9 per cent in 1990, the highest growth achieved after the peak of 8.7 per cent recorded in 1985. Paddy production during the main *maha* season (October-March) was estimated to have increased by 23 per cent over the corresponding period of the previous year, while production during the *yala* season (April-September) was expected to show a rise of about 11 per cent. The growth in value added in paddy production was expected to be around 16 per cent which, however, would be no higher than the level achieved in 1988.

Tea production from January to July 1990 increased by 24.7 per cent over the same period of

the previous year. Owing to falling prices in the second half of the year, growth in production in the whole year was likely to be around 12 to 13 per cent only. Production of rubber showed a decline of 1.5 per cent during the first seven months of 1990, mainly owing to depressed prices and consequent undertapping. Even if there were an improvement in tapping rates during the second half of the year, production might remain more or less at the same level as in the previous year. Production of coconuts in the first six months of 1990 showed only a marginal growth of 0.8 per cent and there might not be any appreciable increase in the latter half of the year.

The outlook for the production of other agricultural crops was mixed. While there might be some increases in the production of chillies, onions, ground-nuts, cashew, cloves, pepper and coffee, the production of potatoes and sugar-cane was likely to show a decline. Fish production was also likely to decline owing to civil disturbances in the major producing areas along the northern and eastern coasts. Despite the fairly high rate of growth in agricultural production in 1990, an important area of concern was the decline in fertilizer use by 8 per cent in the first half of 1990, mainly owing to the increase in fertilizer prices. Given the need to maintain the tempo of agricultural growth, non-price factors such as expansion of irrigation facilities should play a greater role in promoting fertilizer use.

Agricultural production in Bangladesh improved substantially in 1990, compared with the poor growth performance in 1988 and 1989 when production was hit by floods. Total production of cereals increased to nearly 19 million tons in 1990 – an increase of 14.6 per cent over the previous year. This was possible mainly owing to the sharp rise by 34.2 per cent in rice production during the *aman* season and an increase of 11.5 per cent during the *boro* season, both of which more than compensated for the decline in production during the *aus* season caused by a drought at the beginning of the season. There was a large fall in wheat production by as much as 21.7 per cent. There were perceptible improvements in the production of other crops such as jute, oil-seeds, sugar-cane, potatoes and lentils in 1990.

The agricultural development strategy pursued in Bangladesh in recent years had some important features. A medium-term agricultural adjustment programme has been implemented, the main features of which were expanded irrigation facilities, effective delivery of seed, fertilizer and credit, a bigger role for the private sector in the supply of agricultural inputs, and price support to farmers. The total area under irrigation increased from 6.12 million acres in 1985 to 7.65 million acres in 1990, while the area covered by flood control and drainage facilities rose from 6.4 million acres to 8.0 million acres during the same period. Similarly, fertilizer use increased by 60 per cent between 1982 and 1987 after the abolition of the monopoly of the Agricultural Development Corporation in fertilizer trade. An important aspect of this policy package was the priority given to the expansion of the area under rice cultivation during the winter season through expanded irrigation facilities, as a result of which there was a steady increase in the area under winter crops at an annual rate of 15 per cent after 1986.

After a period of continuous decline in output from 1987 to 1989, the net output of the agricultural sector in Myanmar was expected to show a strong recovery with a growth rate of 13.3 per cent in 1990. Many favourable factors contributed to the significant rise in agricultural production. Important among these was the change in production and marketing of crops, and improved returns following the decontrol of crop prices and favourable weather conditions. There was an emphasis on the expansion of irrigation facilities and an improvement in the provision of extension services and other agricultural inputs.

Food grain production in Nepal was estimated to have reached a level of 5.7 million tons in 1989, registering a growth rate of 5.5 per cent over 1988. Production of cash crops such as sugar-cane, oil-seeds, jute and tobacco was estimated to have risen by 5.7 per cent in 1989. On account of the trade and transit difficulties with India as well as the uncertainty of jute prices, the area under jute cultivation declined by 5 per cent in 1989 while jute production showed a much sharper decline of 11 per cent. The increased production of sugar-cane and tobacco contributed to the 5.7 per cent growth in overall production of cash crops.

Until the mid-1980s, Nepal had become a net exporter of food grains, but recently a disproportionate increase in demand has resulted in its being only 85 to 90 per cent self-sufficient in food grains. Greater attention was needed for agricultural extension activities as well as for the timely availability of inputs, such as seeds and fertilizers to the farmers. Although a small country, Nepal has a variety of agro-climatic conditions for growing several kinds of horticultural crops. This potential has, however, not been exploited fully owing to the difficult terrain, lack of storage, processing, and

packing facilities and also inadequate transport facilities. If these constraints could be overcome, Nepal could achieve higher levels of agricultural production through diversification into horticulture and livestock activities.

Despite the heavy damage caused to rural infrastructure as a result of a prolonged war, the agricultural sector in the Islamic Republic of Iran registered a reasonably high rate of growth of 3.5 per cent a year in output during the period 1979-1988, compared with a negative growth of 0.1 per cent in total GDP during the same period. Agricultural production in 1989, however, was mixed. While there was a 22 per cent decline in wheat production, rice production increased by 8.8 per cent. Among the cash crops, production of cotton and oilseeds substantially increased, but there was a sharp decline in the production of sugar-beet and a marginal decrease in that of sugar-cane.

B. INDUSTRY

1. An overview

The pace of industrialization accelerated in many countries of the ESCAP region during the latter part of the 1980s, owing in part to domestic policy reforms and in part to external conditions favouring the flow of foreign direct investment into the countries in the region. In domestic policies, the general tenor was liberalization involving removal or relaxation of controls and licensing requirements, less protection from foreign competition and more emphasis on the role of the private sector in industrial development, including privatization of the existing public enterprises (see box I.9).

In 1987-1988 the rates of industrial growth reached 15 to 20 per cent in a number of countries

Box I.9. Privatization of public enterprises: issues and policies

"Privatization" has engaged the attention of policy makers in many countries during the 1980s. The idea appealed to many developing countries as a policy instrument for overcoming some of their economic problems such as budgetary deficits and current account imbalances. It also became an important item in the policy agenda in many developing countries as part of the conditions for international aid and other financial assistance. The implementation of the privatization process in developing countries has, however, raised several issues of crucial importance.

An objective assessment of the issues requires an analysis of both the rationale behind the creation of public enterprises and of the present enthusiasm shown for privatization. The basic logic behind the creation of public enterprises, especially in the early stages of the development process, rested on the inability of the private sector to raise adequate resources for financing the creation or expansion of infrastructural facilities. In other words, the public enterprises were set up in the developing countries essentially to break the structural imbalances found in their economies in order to speed up the development process. Public enterprises were also supposed to help in achieving an efficient allocation of resources in the economy as a whole as part of a planned process. In certain countries, however, the domain of the public enterprises was extended, subsequently, beyond infrastructure to intermediate and basic goods industries and even to commercial activities. A major outcome of this process was that the public enterprises tended to become monopolies in certain lines of economic activities, some of which are also natural monopolies.

The demand for privatization has gained momentum because in many developing countries the public enterprises were found to be inefficient in their use of resources and to have incurred substantial losses which, in turn, caused a large drain on budgetary and other resources. The private sector, on the other hand, is expected to achieve production efficiency on the basis of competitive market forces. Such competitive markets in either products or factors to ensure both production and the efficient allocation of resources do not, however, often exist in developing countries. The inadequate development and imperfection of the capital markets, despite recent progress, is a glaring example. It is therefore difficult to conclude that privatization is either easy or *ipso facto* good for a developing economy.

From the point of view of the overall functioning of the economy, it would be too simplistic to assume that a mere transfer of ownership would result in significant gains in efficiency. If privatization involves the transfer of a public monopoly to the private sector with its monopoly power left intact, there is no guarantee a private monopoly would do any better than a public monopoly. If the goal is to achieve gains in efficiency, then appropriate methods of privatization have to be found depending upon the nature of the product or services and also on the nature of the market. Privatization cannot be considered as a cure for all the economic ills of developing countries which are related to market imperfections.

The experience of privatization in many developing countries in the region shows that technical and other problems which are encountered in the process have to be satisfactorily resolved. These difficulties include a lack of skilled personnel to evaluate the marketable assets of the public enterprises, a further aspect of which is the thinness of the domestic capital markets. Legal obstacles and protracted negotiations with the employees about the terms and conditions of their future employment in the private sector are some of the other difficulties encountered in attempts to privatize public enterprises. Even if the privatization process can be speeded up and proves to be successful, it would be realistic to believe that the public sector will continue to exist and also remain substantial in many developing countries. It is, therefore, necessary to intensify efforts for the modernization of the public enterprises in order to improve their performance and fulfil their economic and social goals.

in the region. Growth was concentrated mainly in the manufacturing sector within a composite industrial sector consisting of mining, manufacturing and the utilities in most countries (table I.12). With a few exceptions, most countries had rather limited mining activities. In some countries, mining activities have been shrinking in recent years although in other countries rather impressive rates of growth in the mining sector have been registered. Their impact on the overall industrial performance of the countries was rather limited owing to the relatively small weight of mining in total industrial production. In the field of utilities, electricity production has expanded at impressive rates in a number of countries, but most countries in the region were experiencing or anticipating shortages of power supply as a bottle-neck in their further economic and industrial growth among the other infrastructural constraints.

Recent industrial performance has been uneven among countries of the region. Economies in East and South-East Asia generally achieved much faster rates of industrial growth in recent years compared with the achievements of other countries. Most of the region's least developed and other small economies have performed rather poorly. However, during 1989 and 1990 even the fast-growing economies of the region experienced sharp deceleration in their industrial growth. A number of countries were experiencing labour shortages, wages and cost increases, and lower demand for as well as protectionist threats to their manufactures exports in foreign markets. Export growth, a main propeller of industrial growth spearheaded by manufacturing, was thus affected by both the domestic cost-price increases and sluggish external demand, and

Table I.12. Growth in mining, manufacturing and electricity production in selected countries in the ESCAP region, 1986-1990

(Percentage)

		Mining	*Manufacturing*	*Electricity*
Bangladesh	1986	21.8	7.9	8.4
	1987	16.4	0.6	26.8
	1988	23.6	2.8	8.1
	1989	7.7	5.4	10.5
	1990	...	8.4	...
China	1986	5.2	-22.1	9.5
	1987	...	68.8	10.0
	1988	...	4.7	8.5
	1989	...	6.1	7.8
	1990	...	...	...
India	1986	6.2	9.3	10.3
	1987	3.8	7.9	7.6
	1988	7.9	8.9	9.6
	1989	5.9	8.3	10.7
	1990	6.0	8.0	10.5
Indonesia	1986	5.4	9.3	19.1
	1987	0.4	10.6	15.1
	1988	-2.6	13.0	10.7
	1989	3.0	10.7	...
	1990	4.0	11.0	...
Iran, Islamic Republic of	1986	-14.7	-8.7	7.2
	1987	13.9	-9.7	12.7
	1988	6.7	-3.9	1.7
	1989	...	...	...
	1990	...	...	...
Malaysia	1986	15.6	7.2	9.5
	1987	-2.8	15.3	7.5
	1988	7.5	18.0	10.5
	1989	8.8	12.0	12.9
	1990	...	...	...
Myanmar	1986	...	-3.2	6.3
	1987	-13.8	-5.0	4.2
	1988	-20.1	-14.8	-3.2
	1989	14.5	12.3	19.0
	1990	...	...	...
Nepal	1986	...	18.9	26.9
	1987	...	29.2	24.4
	1988	...	4.5	2.6
	1989	...	-2.1	...
	1990	...	-13.0	...
Pakistan	1986	24.0	7.3	7.6
	1987	2.2	7.2	15.3
	1988	8.5	7.3	16.8
	1989	2.1	4.0	1.7
	1990	9.7	7.9	...
Philippines	1986	-11.0	0.8	20.2
	1987	-1.7	6.8	10.7
	1988	4.4	8.9	4.6
	1989	-2.7	6.9	7.1
	1990	1.8	2.8	4.5

(Continued on next page)

Table I.12 *(continued)*

(Percentage)

		Mining	*Manufacturing*	*Electricity*
Republic of Korea	1986	8.2	18.3	25.3
	1987	-1.3	18.8	12.3
	1988	-0.6	13.4	9.8
	1989	-6.7	3.7	10.1
	1990	...	3.5	...
Singapore	1986	–	8.4	7.0
	1987	–	17.2	11.8
	1988	–	18.4	10.0
	1989	–	9.9	7.5
	1990	–	7.0	–
Sri Lanka	1986	5.2	8.4	7.4
	1987	19.0	6.8	1.9
	1988	9.0	4.7	3.7
	1989	5.4	4.4	1.8
	1990	8.0	8.2	...
Thailand	1986	-2.0	9.6	13.1
	1987	7.2	13.5	8.9
	1988	11.5	15.3	12.3
	1989	9.4	15.0	13.1
	1990	–	9.5	–

Sources: United Nations, *Monthly Bulletin*, November 1990; Asian Development Bank, *Key Indicators*, July 1990; and national sources.

Notes: The growth rates given in the table are in most cases in terms of value added and in some cases it is based on the indices of production.

slow export growth, in turn, reduced the pace of industrial growth in a number of economies.

2. Review of recent performance

The pace of industrial growth in China slackened in 1989, mainly as a result of macro-economic policies to contain inflationary trends. The increase in the value of overall industrial production in 1989 was only of the order of 8.3 per cent compared with 20.8 per cent in 1988. The growth rate of the industrial sector, excluding the faster growing village-run and family-run enterprises, dropped in 1989 even lower to 6.8 per cent. The state-owned industrial enterprises recorded a growth rate of only 3.7 per cent which was mainly responsible for the overall slowdown. Growth in all other sectors was substantially higher. Production in the collective enterprises went up by 10.7 per cent and in village run-enterprises by 12.7 per cent. A remarkable feature was the high rate of growth of the private industrial sector by 24.1 per cent. Sino-foreign jointly run enterprises and the wholly-owned foreign enterprises recorded a very high growth rate of 44.7 per cent.

There has been a substantial change in the structure of industrial production in China in recent years. The growth in production of light industries has been higher than that of heavy industries, reflecting an approach of balanced growth between light and heavy industries. Growth in the production of luxury consumer goods showed a decline in 1989 after rapid growth in the past few years partly because of the austerity and balancing measures enforced by the Government. For 1990, the planned rate of industrial growth in China was 6 per cent. Starting a slow recovery early in 1990 from the bottom of a recession reached at the end of 1989, industrial growth accelerated to reach reportedly a monthly rate of 15 per cent in November 1990 and averaging 5.2 per cent for the first 11 months of the year, close to the 6 per cent annual target.

In 1989, industry faced the following main problems: prominent structural imbalances; a decline in the rates of economic return for many enterprises because of poor managerial capability, market sluggishness and serious stockpile of output, slow capital turnover, low labour productivity growth, poorer quality output and higher costs of production. To solve these problems, the Government in 1990 eased its policy of credit squeeze adopted earlier. The banking system made a sizeable amount of funds available to the large- and medium-scale key industries and commercial sectors to tide them over the trouble caused by market sluggishness. From March 1990, industrial production began to pick up gradually. The total industrial output value at comparable prices for the first nine months of the year increased by 3.1 per cent over the corresponding period of 1989. The output value of heavy and light industry increased by 5.1 and 10 per cent respectively over the same period of the previous year. As indicated above, growth further accelerated in the later months and the target industrial growth of 6 per cent for the whole year was expected to be fulfilled.

Growth in industrial production in the Republic of Korea fell sharply from 13.8 per cent in 1988 to 3.7 per cent in 1989, largely as a result of the decline in the growth of manufacturing.

Both heavy and light industries experienced sharply reduced rates of growth in 1989 and were not expected to show much improvement in 1990. There was, however, a strong growth in the construction sector as a result of a building boom, especially in housing and commercial buildings. The deceleration in manufacturing growth largely reflected the decline in export sales which had registered a 5 per cent fall in volume owing to a loss of competitiveness abroad occasioned by domestic cost-price increases, currency appreciation and lower external demand. In 1990, the export environment improved as a result of a halt in the further appreciation of the exchange rate and more stable industrial and wage relations. Merchandise export growth was expected to accelerate from 1.5 per cent in the first half of 1990 to 6 per cent in the second half with a feedback effect on manufacturing growth.

Economic growth in Indonesia in recent years has been driven by export-oriented investment, especially in the manufacturing sector. Growth in manufacturing output was maintained at the fairly high rate of 10.7 per cent in 1989 as compared with 13 per cent in 1988, and it was expected to be around 11 per cent in 1990. Indonesian manufactures have now become more competitive in world markets leading to a rapid growth in industrial exports. For example, the export values of textiles, clothing and footwear increased from $US 282 million to $US 2,251 million between 1983 and 1989, while the exports of wood manufactures rose from $US 746 million to $US 2,539 million during the same period. Iron and steel was another sector which advanced from an exclusively domestic market-oriented industry into a more competitive industry capable of penetrating export markets. The leading steel producers in Indonesia were planning for a substantial expansion of their production capacities. The surge in investment underlying the impressive industrial growth performance in Indonesia in 1988 and 1989 continued in 1990 as well. This was reflected by the steep rise in the value of both domestic and foreign direct investment projects approved by the National Investment Co-ordinating Board.

The sustained growth in the industrial sector could be attributed to the economic policy reforms carried out during the past few years. A new package of economic reforms was announced in 1990 which aimed at attracting private investors. The reforms focused primarily on reducing trade barriers by lowering or removing tariffs. Other measures of this package included a relaxation of licensing restrictions governing investments in a number of livestock rearing and fishing activities as well as the easing of export regulations for a number of agricultural commodities. These reforms clearly indicated the commitment to the progressive deregulation and liberalization of the country's economy started in 1986 to keep up the growth momentum achieved recently. The rapid expansion of industrial activities was, however, also likely to create some problems. For example, capacity constraints were likely to arise in certain sectors, while shortages of suitable production sites, trained labour and adequate infrastructure facilities could pose difficulties for the expansion of some industries.

Industrial growth in Malaysia has been maintained at fairly high rates over the last few years as a result of the various policy initiatives for diversification of the economy from a primarily agricultural base towards manufacturing. The growth in oil production has made a substantial contribution to overall industrial growth. The construction of a national gas pipeline network has significantly cut the use of oil in West Malaysia. The state-owned oil firm was planning to expand its activities by broadening the scope of exploration and has set up a separate exploration company which had begun to engage in oil exploration activities outside Malaysia as well. The growth in the manufacturing sector in 1990 would reach double digits. Strong domestic demand, the continuing large inflow of foreign direct investment, increased outlays on infrastructure, including highways and the gas utilization projects in Peninsular Malaysia, and other construction activities provided the stimulus to growth. The most notable growth was evident in the manufacturing sectors of dairy products, bakeries, other foods, sawmills, furniture, glass, cement, and the assembly of motor vehicles and other transport equipment.

Growth in industrial output in the Philippines declined to around 3.6 per cent during the first half of 1990 compared with the average annual growth rate of 7.8 per cent recorded in 1987-1989. This was mainly owing to the steep decline in the growth of the manufacturing sector to 2.8 per cent in the first half of 1990 compared with 7.5 per cent per year achieved in 1987-1989. Apart from the slackening of overall consumer demand, the shortage of power was a major factor contributing to the depressed industrial activities and investment in 1990.

Industrial production in Thailand was expected to decelerate to about 10.8 per cent in 1990 compared with the achievement of more than 17 per cent

a year in the previous two years. This was mainly owing to the slow-down in the growth of the manufacturing sector which was anticipated to grow at about 9.5 per cent in 1990 compared with an average rate of growth of 14.6 per cent during the previous three years. Even then, the growth in the manufacturing sector remained relatively high in 1990 in a favourable domestic market condition owing to the people's increased purchasing power and government policies. The construction sector has been performing exceptionally well over the last few years in both the public and private sectors in areas of housing and commercial buildings. The boom in the construction sector has been induced by continued investment and rapid expansion of the economy as a whole. The rapid expansion of the industrial sector, however, generated constraints on labour supply and infrastructure. This also created inflationary pressures as industrial production was running almost at full capacity and workers pressed their demand for higher wages.

Industrial growth in Singapore declined sharply to 9.9 per cent in 1989 from a high average rate of growth of 17.8 per cent in 1987-1988, and was expected to decelerate further to 7 per cent in 1990. The slow-down was mainly owing to the fall in the growth of export volume from 30 per cent in 1988 to 8.1 per cent in 1989 and to an estimated 6.2 per cent in 1990. The major concern of the Singapore economy was the labour shortage which threatened export competitiveness and also induced inflation. It was expected to ease somewhat in the medium term with the relaxation of controls on foreign labour. In the short term, a continued increase in productivity had to compensate for the cost increase. The relative export competitiveness of Singapore was not, however, likely to be seriously impaired since other countries, especially the NIEs, were also experiencing a similar cost escalation.

The industrial sector in Viet Nam has registered rapid growth during the 1980s. Industrial output growth rate increased from a low of 0.6 per cent a year in 1976-1980 to 9.5 per cent in 1981-1985. The rate of growth, however, decelerated to 5.9 per cent in 1986-1989. Consumer goods industries had shown a high growth rate of 7.5 per cent in 1986-1989. Production in the centrally-run industries increased by 13.3 per cent during the first six months of 1990 over the corresponding period of 1989. This growth, however, was neutralized to some extent by the poor performance of local state-owned and privately-owned industries where production fell by 5.3 and 7.9 per cent respectively during the period. Among the centrally-run industries, the growth performance in 1990 was exceptionally good in areas such as crude oil production, electricity, cement, metallurgy, electronic components and chemical products. However, there was a decline in production in certain capital goods industries, such as machinery, power generators and diesel engines.

Viet Nam has undertaken several measures in recent years to reorganize and rehabilitate its industrial structure with a view to improving efficiency of production. The centrally-run industries partially adopted a new system of management and some units gradually stabilized and improved their production performance. Viet Nam was, however, still facing a number of problems which constrained the growth of its industrial production. Important among these were outdated technology and machinery, lack of capital for modernization and inadequate infrastructural facilities. Public investment in both heavy and light industries has been declining in the second half of the 1980s as state enterprises have had to live with fiscal austerity and adjust themselves to the new schemes of self-financing. The transition gave rise to problems similar to those in other countries which have attempted such large policy shifts.

The growth of industrial production in India in 1989 was estimated at 8.3 per cent compared with 8.8 per cent in 1988. During 1989, the mining and quarrying ouput increased by 5.9 per cent, while that of the manufacturing sector rose by 8.3 per cent and the electricity sector by 10.7 per cent. The performance of the basic infrastructure sectors during 1989 presented a mixed picture. While there was a significant improvement in electricity generation and petroleum and petroleum products, there was a deceleration in the growth of coal production and also of revenue earning goods traffic on the railways.

Among manufacturing industries, the growth of consumer durable goods industries slowed down to 1.9 per cent, mainly owing to demand constraints, while non-durable goods industries showed a higher growth rate. There was considerable deceleration in the growth of basic industries and also intermediate goods industries mainly owing to the shortage of raw materials. However, there was an acceleration in the growth of capital goods industries, despite competition from imports resulting from liberalization of industrial and trade policies. During the first half of 1990, significant improvement in industrial production was noticeable. Electricity generation had increased by 10 per cent and coal production had shown a rise of 4.3 per cent

while crude oil production increased by 1.5 per cent. The growth in revenue earning goods traffic on the railways increased by 6.5 per cent in the first half of 1990 compared with 3.3 per cent recorded for the whole of 1989.

The private sector was likely to play a greater role in future industrialization efforts in India. On the one hand, some pruning of the public sector by privatizing loss-making enterprises was likely, while, on the other hand, the private sector could be allowed to operate in sectors which were hitherto mainly reserved for the public sector. This was evident from a major policy shift in 1990 by which sectors such as power generation, steel-making and transport were opened up for the private sector, both foreign and Indian companies. Some other major changes were also envisaged in the new industrial policy announced in 1990 to accelerate the pace of industrial growth.

The manufacturing sector in Pakistan achieved a substantially high growth rate of 7.9 per cent in 1990 compared with about 4 per cent in 1989. The significant improvement in growth was attributed to the buoyancy demonstrated by the large-scale manufacturing sector which grew by 7.7 per cent in 1990 compared with a poor growth rate of 2.4 per cent in 1989. In contrast, the small-scale manufacturing sector recorded a growth rate of 8.4 per cent in 1990. Among the large industries, the production of cotton yarn showed a high growth of around 20.5 per cent followed by steel billets by nearly 17.7 per cent, while the production performance in other industries displayed moderate growth rates. There was, however, some decline in production in sectors such as jute goods by 8.6 per cent, paper by 7.2 per cent and pig iron/hot metal by nearly 3.5 per cent.

The new industrial policy announced in 1990 attached considerable importance to the promotion of small- and medium-scale industries in the rural and semi-urban areas. For this purpose, a comprehensive rural industrial complex scheme was announced along with a general package of fiscal, financial and other types of incentives. One significant aspect of this strategy was that government organizations could acquire necessary technology from abroad for its transmission to rural entrepreneurs at nominal prices. These institutions were also expected to provide required technical assistance and marketing expertise for rural industrial projects. Another important aspect was that private sector companies, including foreign companies, were allowed to establish plants for power generation. This was expected to augment sufficiently the supply of electricity to facilitate faster industrial growth.

The growth in mining and quarrying, an important sector in Sri Lanka, was expected to be around 8 per cent in 1990 compared with 5.4 per cent in 1989. The main contribution to this growth came from the output of gems which showed an increase of about 30 per cent in the first six months of 1990 compared with the corresponding period of 1989. The manufacturing sector was likely to show an increase of 8.2 per cent in 1990 compared with the low growth rates of 4.7 and 4.4 per cent recorded in 1988 and 1989 respectively. The major contribution to this growth came from the export-processing industries of tea, rubber and coconut as well as the expansion of production in other export-oriented factory industries such as garments and wearing apparel.

A disturbing feature about the industrial growth in Sri Lanka was that the public sector manufacturing units had shown a poor performance during recent years. However, the clothing industry was the driving force behind the private sector's spectacular growth which was facilitated by the continuous rise in garment exports. Clothing accounted for 62 per cent of Sri Lanka's manufactures exports and constituted 31 per cent of its total exports in 1989. It was, however, doubtful whether this momentum could be kept up in the coming years as competition from other garment-exporting countries would increase and quotas and other protectionist measures adopted by the industrialized countries might be further tightened. The sugar industry in Sri Lanka was in bad shape with a capacity utilization of only around 35 per cent. Domestic sugar production met only about 10 per cent of domestic consumption, thereby necessitating imports. Value-added in the construction sector was likely to decline by about 2 per cent in 1990 compared with a marginal increase of 0.8 per cent in 1989. There has been a substantial contraction in the public sector investment programme over the last five years as a result of which the construction sector recorded an average rate of growth of only 1.3 per cent during this period. There is likely to be further deceleration in public sector investment in 1990 owing to budgetary resource constraints.

Industrial production in Bangladesh remained depressed during the past two years owing to damage caused by the floods to production and infrastructure facilities on the one hand, and the subdued consumer demand resulting from stagnant agricultural production on the other. However, there was a recovery in industrial production in 1990 following the sharp rise in agricultural production. Overall manufacturing output was estimated to have risen by 8.4

per cent in 1990 compared with 5.4 per cent in the previous year. Excepting tea and chemicals, all other industry groups contributed to the growth in the manufacturing sector during 1990. A number of industrial policy reforms have been carried out in Bangladesh since the early 1980s in order to create a suitable climate for both domestic and foreign entrepreneurs to make investments. Despite these measures however, industrial investment and growth remained subdued as they very much depended on agricultural growth, and infrastructural facilities, which needed improvements.

There was a strong recovery in industrial production in Myanmar in 1989. The index of mineral production (base 1985/86=100) which had sharply declined from 81.6 in 1987 to 64.1 in 1988 recovered to reach 75.9 in 1989. The index of the processing and manufacturing sector which had also earlier declined from 89.5 in 1987 to 78.4 in 1988 showed a good recovery and increased to 88.2 in 1989, with almost all the commodity groups of the manufacturing sector contributing more or less equally to the overall growth in the processing and manufacturing sector.

There has been a very sharp deterioration in manufacturing output in Nepal during the past few years. After recording a peak growth rate of 29.2 per cent in 1986, growth in the index of industrial production decelerated to 4.5 per cent in 1988 which was followed by a negative growth rate of 2.1 per cent in 1989. Industrial production was expected to decline further by around 13 per cent in 1990. Important among the commodities which showed a decline in production were cement, cotton textiles, bricks and tiles, mainly owing to shortage of raw materials.

However, industrial restructuring has gathered momentum in Nepal, as in many other least developed countries, with the launching of economic recovery programmes in the mid-1980s. The characteristic features of the policy shifts for this purpose have been the dismantling of macro-economic controls on industry along with the divestiture of state-owned enterprises. The implementation of the divestiture policy in Nepal has, however, not been an easy one owing to many pitfalls and constraints.[3] Nepal was also making efforts to accelerate its industrialization process through joint venture projects with foreign participation. To date, around 86 industrial projects with foreign financial participation were concluded, out of which 52 units had already commenced production while the remaining ones were under different phases of execution. However, it has been observed that the entrepreneurs were keener to invest in industries which enjoyed tariff and other fiscal concessions and were likely to yield quick returns rather than in industries which could utilize indigenous raw materials and domestic labour. The setting-up of industrial units for manufacturing products such as synthetic textiles, stainless steel items, television and other electronic goods was heavily dependent upon imported materials and skilled labour. Industries of these types could be difficult to sustain because of their import requirements unless exports increased commensurably. Nepal could better promote domestic resource-based small and medium-sized industries, such as carpet-making, wood-carving and other handicraft items, as they would help in maximizing domestic value-added by encouraging the use of domestic raw materials and labour and by developing local entrepreneurship.

Production of crude petroleum played a very important role in influencing the overall economic growth in the Islamic Republic of Iran. Owing to the heavy damage caused to the oil installations by war, oil production fell to a low of less than 1.5 million barrels a day in 1980 and 1981, which was about a quarter of the rate of production sustained during the mid-1970s. However, beginning from 1982, there was a gradual recovery in oil production reaching a level of 2.9 million barrels a day in 1989, an increase of 14.4 per cent over the rate of production achieved in 1988. Production was expected to reach a level of 3.1 million barrels per day in 1990.

After a four-year period of continuous decline in industrial production, the index of production of large-scale manufacturing establishments in the Islamic Republic of Iran was estimated to have shown an increase of about 2.6 per cent in 1989, mainly owing to the increase in production of chemical products, wooden products and basic metals. The signs of increased industrial activities continued during 1990 as well, especially owing to the introduction of a new system of foreign exchange allocation to industries. The recovery in the field of heavy industries was, however, rather slow, the capacity utilization showing only a marginal increase from 25 per cent in 1989 to 30 per cent in 1990. However, there was a giant leap in production in the petrochemical industries. The output of petrochemical products, which had never before exceeded 400 tons, reached the 2 million ton mark in 1989, mainly owing to a heavy investment of 80 billion rials. It was expected that the momentum would be

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[3] For more details, see UNCTAD, *The Least Developed Countries, 1989 Report* (United Nations publication, Sales No. E.90.II.D.4).

kept up during 1990 with production projected to reach a level of 4 million tons.

C. SERVICES

1. An overview

The service sector has come to play an increasingly important role in the process of economic development in many countries of the region. Service industries provide a wide range of intermediate inputs necessary to the growth of the commodity-producing sectors of the economy. Service industries are often the largest employers in a number of economies in the ESCAP region. In addition, for many economies of the region the service sector is a primary foreign exchange earner. The sector has also achieved the highest rates of growth among all sectors over the past decade, although both the accuracy of the estimates as well as the sources of this buoyancy have yet to be satisfactorily investigated.

The service sector is marked by extensive diversity. Among the heterogeneous range of service activities are those geared to trade and commerce (particularly wholesale and retail trade), recreation and leisure pursuits (cinemas, hotels and restaurants etc.), transport and communications, construction, finance, insurance, real estate, professional and business services, social, personal and community services (health care, schools, libraries etc.), and public administration and defence.

There is a sharp duality the service sector between the relatively formal, technology-intensive and high value-added activities on the one hand, and labour-intensive, low value-added, services on the other. A number of services which fell in the second category are unregulated by the State and termed as informal. Such activities are low skilled and display low levels of productivity. Nevertheless, they provide employment and at least subsistence levels of income to those segments of the urban population, especially rural migrants, who are marginalized from the formal sectors of the urban economy. As a result, such informal activities are observed as being a major feature of the urban economies of most developing nations. Among the diverse set of activities found within the informal service sector are those of the roadside vendors, food stalls, barbers, domestic servants, travelling salesmen, unregistered transporters, prostitutes and shoeshine boys, to name but a few. Informal services being unregulated, and sometimes illegal, fall outside the purview of official statistics. This leads to difficulties in estimating the scale of contributions of informal services (see box I.10).

Certain aspects of the service sector, especially its formal branch, could be seen to be closely interlinked to, and supporting, the commodity manufacturing sectors of agriculture and industry. An efficient and well-developed infrastructure of banking, transport, storage, communications, and public administrative services are recognized as being positive inputs necessary for the continued growth of the commodities sectors. Recent technological advances in the fields of informatics, telecommunications, satellite mapping and computer applications have further underlined the utility of the service sector to both agriculture and industry.

2. Service sector growth

The service sector has expanded at fairly rapid rates in all economies of the ESCAP region, usually exceeding overall GDP growth rates during the past decade (see table I.13). Consequently, the share of the service sector in GDP has grown in most countries within the region over the past decade (table I.9 above). Economies which have experienced rapid growth in their service sector over the past decade are the NIEs, Brunei Darussalam, Bhutan, China and Maldives. In many cases the growth in the service sector was associated with the overall growth in GDP over this period. Service sector growth may not always be desirable if it is associated with insufficient growth of the commodities sector, or if the services are concentrated in activities which are either non-productive or circulatory in nature. For example, an expansion in trade and commerce or in the scale of public administration, would not be sustainable or desirable if there was no concomitant growth in agriculture and industry which could raise aggregate demand and levels of income to absorb the services.

Growth rates of diverse activities within the service sector (see table I.14) indicated a varying pattern across the region. In the case of Maldives the phenomenal rise in tourism brought about a 24.1 per cent annual growth in the trade service sector (which incorporated much of the tourism industry). By 1987 tourism alone generated 30 per cent of GDP and employed 5 per cent of the labour force.[4]

Brunei Darussalam spent a substantial proportion of its new oil wealth in expanding the existing transport and communications infrastructure and building up social and community services (in spite of the fact that its GDP contracted during the decade owing

[4] ESCAP, "Tourism management development," *ESCAP Tourism Review*, No. 2, Report of a Workshop held at Bangkok, 16-20 May 1988 (ST/ESCAP/646).

Box I.10. The informal sector

Informal sector activities are widely prevalent in many developing economies of the ESCAP region and account for a substantial share of employment, nationally and in the urban sector. However, they have not received the attention of policy makers commensurate either with their current or potential importance in the economy. One possible reason for this neglect is the high degree of mobility of those engaged in such activities either as a direct outcome of their occupation (rickshaw drivers, food and goods hawkers, roadside vendors etc.), or because of their need to search for clients in high income and commercial neighbourhoods, and therefore the apparent lack of their visibility.

The visibility of the informal sector to economic planners and policy makers is often low and its economic and social characteristics and dimensions are neither well-documented nor well-known. Employment within the informal sector is not covered by legislated provisions regarding minimum wages, social security, labour, health and safety standards. The formation of skills in the sector takes place without access to formal training and is often handed down from generation to generation. There are no barriers to entry either for labour or for enterprises.

Most informal units operate in unregulated and generally competitive markets. Enterprises are characterized as having a high labour absorptive capacity, using flexible and adapted technologies, and have the ability to grow without significant state support. Since productivity in the sector is low, most people engaged in the informal sector reside in low-income localities and constitute the poor and marginalized segments of the urban society. However, the sector possesses extensive entrepreneurial ability (reflected in patterns of flexible specialization), which needs to be tapped and promoted further. These characteristics of the informal sector provide an increasingly important area of policy concern for employment generation and poverty alleviation strategies, and for the adoption of policies to strengthen its potential and to provide those engaged in it an adequate quality of life.

Policy formulation for the informal sector remains greatly handicapped by the lack of systematic data. Given that it falls outside the purview of state control and regulatory measures, there are hardly any official estimates of the contribution of the informal sector to national income or employment. The recent policy and research interest in the informal sector has, however, led to attempts at measuring the scale of the informal sector in terms of its contribution to the economy, especially its share in the total labour force. While results obtained from case studies with considerable difference in objectives, time periods covered and definitions used, are not strictly comparable, they do give some indication of the relative scale of the activities.

The primate city in a number of the countries in the ESCAP region accounts for the bulk of the urban population. Estimates of the share of the informal sectors in total employment in these cities and also at the national levels have been made for some countries in the region. A crude overview of the scale of the informal sector can be reached from these estimates. Enterprises that

Size of the informal sector in selected countries in the ESCAP region

	In leading cities – early 1980s	*At national level – mid-1980s*
	(percentages of total employment)	
Bangladesh		
Dhaka	65	52.4
India		
Calcutta	54	...
Bombay	...	...
Madras	60	...
Delhi	...	...
Indonesia		
Jakarta	65	68.7
Pakistan		
Urban areas in Sindh and Punjab	76	63.6
Philippines		
Metro Manila	50	60.3
Thailand		
Bangkok	49	34.1

Sources: A.T.M. Nurul Amin, "Macro-economic perspectives on the growth of the informal sector in selected countries of Asia" (ILO/ARTEP, 1989); World Bank, *Pakistan: Employment Issues and Prospects*, Report No. 7523-PAK (1989).

Distribution of informal service sector employment by activities for selected countries in the ESCAP region

		Service sector industries			
		Trade and commerce	*Transport*	*Finance*	*Social and community services*
Bangladesh	1974	62.3	55.2	5.4	40.8
Indonesia	1983	90.2	44.6	7.6	63.2
Pakistan	1984-1985	98.8	74.1	40.9	50.5
Thailand	1987	55.3	39.2	–	23.3

Sources: A.T. M. Nurul Amin (ILO-ARTEP, 1989); World Bank, Report No.7523-PAK (1989).

employ less than 10 or 20 persons (depending upon the relevant national legal stipulation on minimum levels of employment necessary for the registration of enterprises) are used in these estimates. For the national level estimates the criteria of informality are self-employment and the use of unpaid family workers in the labour force.

As shown in the above table, the informal sector in some of the large economies of the ESCAP region employs over half of the total labour force in the cities as well as nationally. Comparison with data available for a decade ago indicates that the informal sector is expanding in terms of the overall share of employment in most countries with the possible exception of Thailand.

Informal sector employment is concentrated mostly in the services, in particular in wholesale and retail trade and commerce. In Indonesia and Pakistan, at least 90 per cent of the labour force engaged in trade and commerce were to be found in unregistered and unregulated informal sector units. The vast majority of these were one person owner-operated retail concerns. In contrast, financial services (which also incorporate real estate) were almost wholly located within the formal sector of the urban economy. Transport, social and community services had a significant share of employment in the unregulated informal sector in Bangladesh, Indonesia and Pakistan.

The very scale of the informal sector indicates the need to pay attention to issues relating to informal activities. Usually policies aimed at assisting informal units are geared towards easing the credit constraints faced by informal entrepreneurs, providing small-scale industrial estates for the location of informal units and assisting in skills development through vocational training programmes. Information on the evaluation of the success of such programmes is not easily available, although in India, Pakistan and Thailand some encouraging results have been obtained. Informal enterprises often fear the Government for reasons of taxes and labour legislation and, therefore, need to be convinced that government assistance can be of net benefit to them.

to the fall in oil prices). Consequently the transport and communications subsector grew at an average annual rate of 18.0 per cent while other services expanded at a rate of 14.3 per cent a year between 1981 and 1989.

In the NIEs of Singapore and the Republic of Korea as well as the high growth economies in the ASEAN subregion – Indonesia, Malaysia and Thailand – financial and allied services displayed high growth rates, often exceeding 10

Table I.13. Average annual growth rates of the service sector and in GDP, 1981-1989

(Percentage)

	Service sector	*GDP*
Developed economies		
Australia[a]	3.65	3.46
Japan[a]	3.75	4.02
New Zealand[b]	2.47	2.79
Newly industrializing economies and China		
Hong Kong[a c]	8.67	7.66
Republic of Korea	9.05	9.35
Singapore	8.66	7.00
Taiwan Province of China	9.09	8.08
China[d]	14.47	9.20
ASEAN		
Brunei Darussalam[a]	7.72	-1.96
Indonesia[a]	6.31	5.72
Malaysia	4.71	5.42
Philippines	2.29	1.76
Thailand	7.82	7.57
South Asia and the Islamic Republic of Iran		
India[a]	6.34	5.59
Pakistan[c]	6.89	6.31
Sri Lanka[a c]	4.98	4.28
Iran, Islamic Republic of[f]	6.35	7.62
Least developed countries		
Afghanistan	1.88	-0.22
Bangladesh	5.02	4.13
Bhutan[a]	7.47	8.16
Kiribati[a]	0.18	1.78
Lao People's Democratic Republic[g]	6.54	5.58
Myanmar	1.26	1.78
Maldives[g]	7.33	11.01
Nepal	6.69	5.88
Vanuatu[h]	1.66	1.66
Pacific islands		
Fiji	2.56	2.10
Papua New Guinea[a]	0.96	2.14
Solomon Islands[i]	3.85	2.31
Tonga[j]	4.13	3.03

Sources: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries*, vol. 21, July 1990; Organisation for Economic Co-operation and Development, *National Accounts* 1976-1988; and national sources.

[a] Average 1981-1988. [b] Average 1981-1986. [c] Gross domestic product deflators were used to deflate data from nominal to real terms. [d] Net material product deflators were used to deflate data from nominal to real terms. [e] Average 1982-1989. [f] Average 1981-1984. [g] Average 1985-1989. [h] Average 1984-1987. [i] Average 1981-1987. [j] Average 1984-1988.

per cent a year during the decade. This revealed new service demands reflecting their emergence at relatively high income levels with a significant volume of aggregate domestic income flowing into banking and real estate. More sophisticated financial markets appeared with merchant banking, discount houses and expanded securities trading. In some economies (for example, Hong Kong, Malaysia and Singapore) foreign financial institutions increased their involvement in financial markets in recognition of the expanding production and trade base of these economies. In addition, the trade and transport sectors, particularly in the NIEs, displayed rates of growth of nearly 10 per cent, slightly greater than overall GDP growth rates during the period, reflecting further expanding incomes and consumer demand in these economies.

Trade and transport grew in China at double digit rates over the decade as the economy shifted to a less centrally planned

Table I.14. Average annual growth rates in individual service sectors, 1981-1989

	Transport and communication	*Trade*	*Ownership of dwellings*	*Finance and real estate*	*Public administration*	*Others*	*Total service sector*
Developed economies							
Australia[a]	4.91	2.64	...	4.26	2.20	3.78	3.65
Japan[a]	2.85	3.74	...	5.29	1.83	3.62	3.75
New Zealand[b]	4.55	1.12	...	4.41	0.63	2.98	2.47
Newly industrializing economies and China							
Hong Kong[a c]	10.67	10.85	7.38	5.95	...	10.08	8.67
Republic of Korea	9.03	9.64	...	11.75	2.32	8.23	9.05
Singapore	8.94	6.18	...	11.83	...	5.73	8.66
Taiwan, Province of China	8.88	9.70	...	11.10	6.32	8.69	9.09
China[d]	11.16	16.70	...	...	...	...	14.47
ASEAN							
Brunei Darussalam[a]	17.99	5.44	3.38	4.49	...	14.25	7.72
Indonesia[a]	6.28	5.92	6.87	11.68	6.72	6.31	6.31
Malaysia	7.21	4.03	...	6.48	6.80	-10.51	4.71
Philippines	2.03	3.76	...	0.89	3.96	0.46	2.29
Thailand	8.12	8.22	4.68	12.66	5.11	8.16	7.82
South Asia and the Islamic Republic of Iran							
India[a]	7.10	5.89	...	6.49	7.57	5.37	6.34
Pakistan[c]	6.36	7.69	8.78	5.89	5.51	6.53	6.89
Sri Lanka[a c]	4.74	4.48	2.67	9.20	10.51	1.41	4.98
Iran, Islamic Republic of[f]	26.03	4.20	...	-0.30	-4.35	-0.22	6.35
Least developed countries							
Afghanistan	0.43	2.80	...	...	...	1.97	1.88
Bangladesh	5.06	1.19	...	7.71	16.53	5.08	5.02
Bhutan[a]	12.79	1.10	...	12.04		8.13	7.47
Kiribati[a]	1.41	0.18	2.05	36.56	-2.67	12.44	0.18
Lao People's Democratic Republic[g]	11.80	8.57	...	4.70	1.02	21.60	6.54
Myanmar	4.39	0.79	...	-4.05	3.63	2.12	1.26
Maldives[g]	7.88	24.12	...	...	...	4.25	7.33
Nepal	3.60	8.95	...	6.01	9.55	7.59	6.69
Vanuatu[h]	0.28	-0.12	...	5.10	3.94	2.36	1.66
Pacific islands							
Fiji	5.27	4.33	...	1.65	...	-0.24	2.56
Papua New Guinea[a c]	4.02	4.17	...	-0.81	15.64	-5.27	0.96
Solomon Islands[i]	4.00	3.48	...	4.13	...	...	3.85
Tonga[j]	1.18	4.84	...	3.77	...	4.97	4.13

Sources: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries*, vol. 21, July 1990; Organisation for Economic Co-operation and Development, *National Accounts 1976-1988*; and national sources.

[a] Average 1981-1988. [b] Average 1981-1986. [c] Gross domestic product deflators were used to deflate data from nominal to real terms. [d] Net material product deflators were used to deflate data from nominal to real terms. [e] Average 1982-1989. [f] Average 1981-1984. [g] Average 1985-1989. [h] Average 1984-1987. [i] Average 1981-1987. [j] Average 1984-1988.

orientation and encouraged small-scale private transactions of products and allowed greater liberalization in internal movements.

In spite of the war with Iraq, the Islamic Republic of Iran experienced a rapid growth of 26 per cent a year in its transport and communications sector. At the same time other service sectors either contracted or did not grow very fast, reflecting the overall impact of the war on the economy. Sri Lanka found its public administration sector growing at 10.5 per cent over the decade largely as a result of greater expenditure incurred in defence to counter various insurgency movements. In Pakistan the trade sector grew more rapidly during the 1980s than the overall GDP growth rate, bringing into question the economic and product base of the high growth track record of the decade. In Bangladesh, while the trade sector grew only nominally, possibly owing to unsubstantive growth in aggregate consumption demand, the public administration sector of services expanded at a rapid 16.5 per cent over the decade. In Afghanistan the internal war ensured that the service sectors of trade and transport and communications (sectors that are usually the first casualties of war) grew only marginally. Trade and public administration each expanded at a brisk pace of close to 10 per cent a year in Nepal.

In the Pacific island economies, despite the general trend of sluggish growth during the 1980s, trade and transport industries displayed rates of growth of around 4 per cent, slightly above GDP growth rates. This was an outcome of overseas development assistance fueling trade, and some expansion in tourism within the region. Public administration also expanded rapidly in Papua New Guinea, reflecting the Government's increasing resolve to provide administrative and public services beyond the capital city.

Substantive structural changes were apparent in the service subsectors of economies in the region. In most economies, the communications sector experienced considerable advances during the decade with the advent of information technology, the technological breakthrough of the 1980s. Cellular telephones, facsimiles, increased use of satellite-based technologies and computer-based information networking, became the norm in the NIEs and much of the ASEAN subregion. In Malaysia, for example, the postal and telecommunications sector, originally a government monopoly, was privatized in 1987 in order to speed up the process of technology adoption and increase its competitiveness in the face of new areas of private telecommunications service.

Greater policy orientation towards the productive aspects of the service sector was needed in the region. This was particularly so in the areas of telecommunications where technology developments have been rapid and need to be absorbed if the manufacturing sector in the region is to compete effectively in international markets. Transport continued to be a bottle-neck in much of the region and required further policy attention, particularly in the development of new and the maintenance of existing transport infrastructure. Areas of particular concern were the railways and urban mass transit. The relatively higher income economies of the ESCAP region have begun to liberalize financial and allied services in order to encourage capital market operations and raise investible funds. The potential in this area is large, even for countries which have had low rates of domestic savings and where informal financial markets play significant roles. Finally, among the NIEs and in some of the ASEAN economies, community and social services are likely to acquire greater prominence as incomes and living standards rise and community services are considered as requisites to be provided by the government.

IV. EXTERNAL TRADE AND PAYMENTS

A. MERCHANDISE TRADE

1. The region's trade dynamism

(a) The locus of dynamism

Much of the ESCAP region's economic dynamism, as reflected in the above world average rate of economic growth, has been attributed to its trade dynamism. Between 1980 and 1988, the region almost doubled the value of its exports from $US 315.4 billion to $US 629.7 billion. The developing economies did a little better. Their earnings went up from $US 157.6 billion to $US 323.1 billion while those of the three developed countries went up from $US 157.9 billion to $US 306.5 billion. In 1989, the total exports from the region rose further to $US 669.6 billion, the developed and the developing economies exporting $US 321.0 billion and $US 348.6 billion respectively. Indeed, the economies of the region experienced accelerated rates of trade and economic growth during the second half of the 1980s. All countries, however, did not share equally in these expansions.

Among major exporters in 1989, Japan exported $US 275.2 billion, which was $US 99.5 billion or 56.6 per cent more than in 1985 (table I.15). Hong Kong exported $US 73.1 billion, the Republic of Korea $US 62.4 billion, Singapore $US 44.7 billion and Thailand $US 20.0 billion in 1989, twice or more than they were exporting in 1985.[1] China with $US 51.6 billion, Australia with $US 37.0 billion and Malaysia with $US 25 billion exported 89, 61 and 59 per cent more in 1989 than in 1985. India expanded its exports by 77 per cent to $US 15.6 billion and Pakistan by almost 71 per cent to $US 4.7 billion. The Philippines also expanded its exports by 70 per cent to $US 7.7 billion and New Zealand by 54 per cent to $US 8.9 billion. Exports in Indonesia, which had until recently been very dependent on oil and natural gas exports, declined during 1986 and 1987, but rose in 1988 to just above the 1985 level. However, the export structure changed tremendously with the share of oil and gas falling from 68 per cent of the $US 18.6 billion of exports in 1985 to only 40 per cent of the $US 19.2 billion total in 1988.

While the successes achieved in export trade as noted above would justify the dynamism attributed to the region, there remained a considerable number of other countries and territories with rather large populations which lacked the touch of dynamism. If the dollar values of export earnings are placed at a 40 per cent discount, the percentage by which the United States dollar is estimated to have declined during the period in terms of other currencies on a trade weighted basis, the countries in the lower half of table I.15 tend to lose any semblance of dynamism.

Imports grew in tandem with exports, even faster in most countries most of the time. Thus, both exports and imports rose vigorously in countries which also recorded successful rates of economic growth. Countries which had achieved less success in trade were also less successful in achieving economic growth. Hence the perception that rapid economic growth in the region has been "export-driven", "export-led", or perhaps more appropriately, trade-driven.

Without implying a unidirectional causality as the concepts of export-led growth would suggest, the close relationship between trade and economic growth in economies in the region with a trade turnover of 60 per cent or more of GDP,[2] may be obvious. Others which lagged behind aspired to emulate the successful experience, with policies emphasizing export promotion and cautious but definitive steps towards import liberalization.[3] Their tasks may be a lot more difficult now than those of economies whose successes inspire them as times are different. Given the balance of the challenges and opportunities that the world economy may offer them (see chapter I above), their chances of success would depend on their ability to adjust the domestic production structures and institu-

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[1] Thailand's exports almost trebled from $US 7.1 billion in 1985.

[2] *Survey*, 1989, part one, chap. IV, p. 51.

[3] *Ibid.*, pp. 59-62.

Table I.15. Economies in the ESCAP region. Value of trade, 1985 and 1989

(Millions of US dollars)

	1985		1989		1989 values at 40 per cent discount	
	Exports	*Imports*	*Exports*	*Imports*	*Exports*	*Imports*
Japan	175 683	129 480	275 173	210 840	196 552	150 600
Hong Kong	30 039	29 567	73 140	72 153	52 243	51 538
Republic of Korea	30 283	31 136	62 375	61 448	44 553	43 891
China	27 343	42 491	51 631	58 561	36 879	41 829
Singapore	22 813	26 285	44 678	49 676	31 913	35 483
Australia	22 883	23 450	36 989	40 030	26 421	28 593
Malaysia	15 764	12 602	25 080	22 558	17 914	16 113
Thailand	7 122	9 244	20 059	25 768	14 328	18 406
Indonesia[a]	18 587	10 259	19 218	13 249	13 727	9 464
India	8 750	15 585	15 523	19 215	11 088	13 725
New Zealand	5 736	6 080	8 867	8 776	6 334	6 269
Philippines	4 544	5 261	7 747	10 732	5 534	7 666
Pakistan	2 719	5 892	4 642	7 119	3 316	5 085
Sri Lanka	1 191	1 874	1 554	2 109	1 110	1 506
Bangladesh	927	2 170	1 305	3 524	932	2 517
Papua New Guinea	891	865	1 281	1 335	915	954
Myanmar	330	283	215	191	153	136
Fiji	236	442	386	633	276	452
Nepal	161	463	156	580	111	414
Solomon Islands[a]	70	69	81	98	58	70
Maldives[a]	23	53	40	106	29	76
Samoa	15	51	12	67	9	48
Tonga	5	41	9	54	6	39

Source: *United Nations, Monthly Bulletin of Statistics*, vol. XLIV, No. 11 (November 1990) (ST/ESA/STAT/SER.Q/215).

Notes: Economies listed by the rank of export values in 1989 from the highest to the lowest.

[a] Data for 1988.

tional mechanisms to the changing external environment and opportunities. Market opportunities need to remain more open to economies which are still to generate sufficient internal dynamisms of their own. However, the inconclusive status of the Uruguay Round of multilateral trade negotiations since December 1990 cast serious doubts about the prospects of the developing economies of the ESCAP region being able to sustain their trade-oriented growth processes.

(b) The dynamics of price and quantity

The quantity and price behaviour of exports and imports can explain, to a certain extent, the differences in the successes achieved by countries. Although the available information is rather partial, a few general remarks can still be made on the basis of data that are available (table I.16). With a few exceptions, export volumes have expanded for most countries in the region. Prices of exports have also increased. However, the rates of increase in the composite unit value index of exports varied, which reflected, among other things, the differences in the commodity composition of individual countries trade. The weight of primary products in trade and the pattern of price movements of individual commodities (see figure I.8) would explain a large part of the differences in movements in the unit value indices. The prices of imports relative to those of exports or the terms of trade have made a crucial difference in the trade and balance-of-payments performance of individual countries.

Countries such as Australia, Bangladesh, New Zealand, Pakistan and the Philippines suffered serious terms-of-trade losses during the period 1985-1986 which some of them have still not fully recovered. Terms-of-trade losses have been a factor in the rather unsatisfactory trade and balance-of-payments performance of these countries. In contrast, terms-of-trade gains for countries such as Japan, the Republic of Korea and Thailand, among others, may explain their superior trade and balance-of-payments performance. Apart from differences in the commodity composition of trade, the terms-of-trade movements in recent years have also reflected the movements in currency exchange rates.

Table I.16. Selected economies in the ESCAP region. Quantum and unit value indices of exports and imports, and the terms of trade, 1985-1989

(1980 = 100)

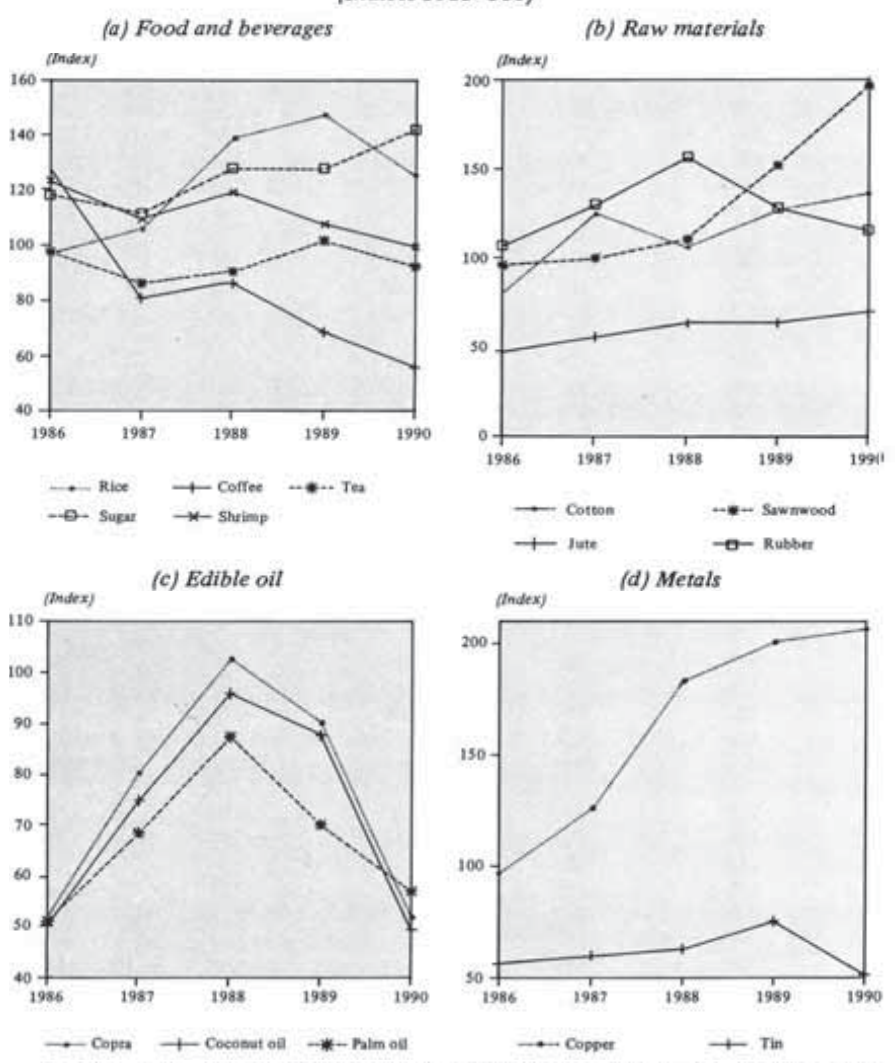
		1985	1986	1987	1988	1989
Australia						
Quantum index:	Exports	125	130	146	138	142[a]
	Imports	134	128	131	154	187
Unit value index:	Exports	129	130	135	152	160
	Imports	144	157	166	162	161
Terms of trade		89.6	82.8	81.3	93.8	99.4
Bangladesh						
Unit value index:	Exports	180	154	143	167	172[a]
	Imports	177	198	220	205	203[a]
Terms of trade		101.7	77.8	65.0	81.5	84.7
Hong Kong						
Quantum index:	Exports	164	189	249	315	348
	Imports	146	164	217	275	299
Unit value index:	Exports	146	149	154	159	167
	Imports	142	149	155	162	168
Terms of trade		102.8	100.0	99.4	98.1	99.4
Japan						
Quantum index:	Exports	142	141	141	147	153
	Imports	110	120	131	153	165
Unit value index:	Exports	101	85	80	79	84
	Imports	89	56	52	49	55
Terms of trade		113.5	151.8	153.8	161.2	152.7
New Zealand						
Quantum index:	Exports	135	129	133	138	148[a]
	Imports	122	121	133	124	133[a]
Unit value index:	Exports	166	158	168	178	199[a]
	Imports	172	168	161	159	171[a]
Terms of trade		96.5	94.0	104.3	111.9	116.4
Pakistan						
Quantum index:	Exports	110	146	160	176	184
	Imports	116	112	115	150	156
Unit value index:	Exports	123	128	155	166	180
	Imports	171	153	165	184	216
Terms of trade		71.9	83.7	93.9	90.2	83.3
Philippines						
Quantum index:	Exports	94	115	116	131	145
	Imports	62	80	98	118	152
Unit value index:	Exports	85	72	84	100	98
	Imports	104	83	85	94	93
Terms of trade		81.7	88.0	98.8	106.4	105.4
Republic of Korea						
Quantum index:	Exports	181	205	139	282	265
	Imports	155	168	131	230	269
Unit value index:	Exports	96	97	112	122	134
	Imports	90	84	101	101	103
Terms of trade		106.7	115.5	110.9	120.8	130.1
Sri Lanka						
Quantum index:	Exports	126	135	137	141	...
	Imports	95	107	119	121	...
Unit value index:	Exports	154	176	207	242	...
	Imports	147	158	182	227	...
Terms of trade		104.8	111.4	113.7	106.6	...
Thailand						
Quantum index:	Exports	142	117	137	163	285[a]
	Imports	109	106	130	168	214[a]
Unit value index:	Exports	103	104	111	130	133[a]
	Imports	127	94	100	111	173[a]
Terms of trade		81.1	110.6	111.0	117.1	76.9

Source: United Nations, *Monthly Bulletin of Statistics*, vol. XLIV, No. 11 (November 1990) (ST/ESA/STAT/SER.Q/215).

[a] Average for the first two quarters.

Figure I.8. Price movements of commodities exported by the developing economies of the ESCAP region, 1986-1990

(Indices 1985=100)



Source: IMF, *International Financial Statistics,* vol. XLIII, No. 12 (December 1990).

Hong Kong, Japan and the Republic of Korea provide good examples in this regard. Their exports were mostly manufactured goods. The rate of exchange of the Hong Kong dollar has remained pegged to the United States dollar since 1983. Hong Kong thus avoided the generic problem of exchange rate fluctuations as a source of terms-of-trade movement. During the period 1985-1989, Hong Kong experienced a remarkable stability in its terms of trade because of the stability of the exchange rate and the composition of its exports and imports which consisted mainly of manufactured and semi-manufactured goods. However, under the influence of a sharp appreciation of the yen since 1985, Japan has experienced substantial gains in terms of trade, the index reaching the highest point of 161 in 1988. Japan's export volumes did not increase at all in 1985-1987. Only in 1988 and 1989 was a 4 per cent annual growth in export volume indicated, whereas the import volumes have risen quite steeply since 1986. The terms-of-trade gains largely explain the slow reduction in Japan's trade and payment surpluses up to 1988. Further terms-of-trade gains stopped in 1989, in fact a 5.3 per cent loss brought the index down to the 1987 level. A 7.8 per cent import volume growth compared with a 4 per cent growth in export volume and the 5.3 per cent terms-of-trade loss resulted in a sharp drop in trade and payment surpluses in 1989.

The experience of the Republic of Korea is also similar to that of Japan. In the case of the Republic of Korea export volumes expanded faster than the import volume between 1986 and 1988. It also made terms-of-trade gains as its currency appreciated relative to the United States dollar, although the gain was not as pronounced as in the case of Japan. In 1989, the import quantities rose by about 17 per cent and export volumes fell by 6 per cent. This resulted in a sharp reduction in the country's trade surplus. This might have been worse had the terms of trade not improved by 10 percentage points during the year.

Both quantum growth and favourable prices sustained Thailand's high rates of export growth in 1987 and 1988 and the terms-of-trade gains contained the trade deficits despite high rates of quantitative imports growth. In 1989, growth in export values was lowered by a price decline despite high volume growth. The trade balance deteriorated despite a slower rate of growth in import volume than in export volume. New Zealand and Sri Lanka were able to recover their terms-of-trade losses and achieve export gains.

(c) Market dynamics

Of the $US 669.6 billion of exports from the region in 1989,

$US 271.7 billion or 40.8 per cent were placed within the region itself, the three developed countries taking 12.7 per cent and the developing countries 28.1 per cent. The United States took 25.9 per cent and the European Community (EC) 16.2 per cent. Together this absorbed 82.9 per cent of the region's 1989 exports. The share of the region's developing economies' exports to the region itself was 48.8 per cent with the three developed countries taking 17.5 per cent and the developing countries taking 31.3 per cent. The share of the United States was 21.2 per cent and that of EC 15.3 per cent – the three markets together accounting for 85.3 per cent of the total (table I.17).

The largest part of the region's trade has taken place within the region, although the United States market registered the most dynamic growth during the 1980s, taking 21.2 per cent of the developing economies' exports in 1989 compared with 15.6 per cent in 1980. The developing countries of the region have not been able to make any advance in export penetration in the EC market as indicated by a fall in the share of their exports to EC from 17.1 per cent in 1980 to 15.3 per cent in 1989. Further growth in these markets was uncertain for reasons outlined in chapter I.

The above considerations suggest that the economies of the ESCAP region should place more emphasis on intraregional trade to sustain their future growth momentum. The intraregional share of exports of all ESCAP countries rose marginally from 40.0 per cent in 1980 to 40.8 per cent in 1989. The share of the three developed countries in the region's exports declined from 16.0 per cent in 1980 to 12.7 per cent in 1989. Their share in the developing economies' exports declined from 24.2 to 17.5 per cent. The share of Japan in the region's total exports fell from 13 per cent in 1980 to 9.8 per cent in 1989. The share of the developing countries' exports to Japan declined from 21.9 per cent in 1980 to 15.6 per cent in 1989. However, some countries, notably the Republic of Korea and Thailand, have improved their share of exports going to Japan. The decline in Japan's share in other developing countries' exports (ASEAN's exports from 26.8 to 18.4 per cent, China's from 22.2 to 15.8 per cent and India's from 9.2 to 8.4 per cent) may have resulted from the shift in the composition of the developing countries' exports in favour of manufactures, for which the United States and Europe have provided larger outlets thus far.

The share of exports of developing countries to other developing countries of the region went up from 23.4 per cent in 1980 to 31.3 per cent in 1989. However, a large number of developing countries, including Bangladesh, India, the Philippines, Singapore, Sri Lanka and Thailand, had a smaller share of their exports going to the other developing economies in 1989. Intra-ASEAN exports increased marginally from 16.7 per cent in 1980 to 17.4 per cent in 1989, which largely reflected Singapore-Malaysia and Singapore-Indonesia trade. The share of exports from the Philippines and Thailand to other ASEAN countries declined.

The share of exports from China and Hong Kong to the other developing countries went up from 36.7 per cent to 51.5 per cent and from 18.9 to 37.1 per cent between 1980 and 1989. This growth, however, largely reflected the two-way trade between China and Hong Kong. The share of China's exports to Hong Kong rose from 24 per cent in 1980 to 42.5 per cent in 1989, while that of Hong Kong's exports to China went up from 6.3 to 25.7 per cent. Hong Kong's exports to five ASEAN countries accounted for a smaller share, 6.6 per cent, of its exports in 1989 compared with 11.1 per cent in 1980. Similarly, China's exports to ASEAN countries constituted 5.8 per cent of its exports in 1989 compared with 6.6 per cent in 1980. The weight of the China-Hong Kong trade in intraregional trade flows is evident from the fact that $US 53.8 billion of the total $US 108 billion or 49.8 per cent of exports within the developing ESCAP region in 1989, were exports from China and Hong Kong. Exports from Malaysia and Singapore accounted for another $US 26.7 billion or about 25 per cent. Thus exports from these four economies accounted for more than 74 per cent of the total. Many of the smaller countries of the region also marketed major proportions of their exports within the region. The totality of their exports, however, carried less significant weight in interregional trade and exports from each of these countries were also concentrated with one or two major partners. Trade of the Pacific island countries, for example, was mostly concentrated with Australia and New Zealand and, in some cases, with Japan.

The skewed nature of trade relations among countries of the region is thus evident. A more balanced growth in intraregional trade, however, is possible; the potential exists. A reduction in political tensions and the recent moves towards normalization of political, economic and trade relationships between countries, such as between China on the one hand and Indonesia, the Republic of Korea, Singapore and Viet Nam on the other, as well as between Cambo-

Table I.17. Destination of exports from the ESCAP region, 1980 and 1989[a]

(Percentage)

From \ To	ESCAP region		ESCAP developed countries		ESCAP developing countries		ASEAN		China		Hong Kong		Republic of Korea		Singapore		Other ESCAP developing countries		United States		EC		Japan	
	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989	1980	1989
ESCAP region	40.0	40.8	16.0	12.7	24.0	28.1	10.3	9.7	2.7	4.8	4.2	6.7	2.4	3.7	4.0	3.8	4.4	3.2	18.9	25.9	15.7	16.2	13.0	9.8
ESCAP developed countries	32.5	32.2	7.9	7.5	24.7	24.7	9.6	9.3	3.8	3.0	3.3	4.0	3.8	5.8	2.9	3.3	4.1	2.6	22.3	30.9	14.3	17.0	4.2	3.5
Australia	53.4	57.4	31.4	31.5	22.0	25.9	8.0	9.6	3.6	2.5	1.5	3.6	2.2	5.1	2.4	3.7	6.7	5.1	11.7	10.7	13.9	13.7	26.6	26.4
Japan	28.5	28.1	3.1	3.3	25.3	24.8	10.0	9.4	3.9	3.1	3.7	4.2	4.1	6.0	3.0	3.4	3.6	2.1	24.5	34.2	14.0	17.5	0.0	0.0
New Zealand	45.4	54.0	25.8	36.3	19.6	17.7	6.3	5.5	3.0	2.0	1.5	1.7	1.1	3.3	1.5	1.1	7.9	5.2	13.3	13.2	23.5	17.2	13.2	17.4
ESCAP developing countries	47.6	48.8	24.2	17.5	23.4	31.3	10.9	10.1	1.5	6.4	5.2	9.1	1.1	1.7	5.1	4.2	4.7	3.8	15.6	21.2	17.1	15.3	21.9	15.6
East Asia	39.6	48.9	16.3	15.6	23.2	33.3	8.2	6.3	2.3	10.0	9.3	13.6	0.4	1.0	2.8	2.9	3.0	2.4	19.4	23.2	17.3	12.4	14.4	14.0
China	60.3	68.1	23.6	16.6	36.7	51.5	6.6	5.8	0.0	0.0	24.0	42.5	0.0	0.0	2.3	3.2	6.1	3.1	5.4	7.7	13.0	9.1	22.2	15.8
Hong Kong	26.2	45.3	7.3	8.2	18.9	37.1	11.1	6.6	6.3	25.7	0.0	0.0	1.2	2.6	4.4	3.0	0.3	2.2	26.1	25.3	22.9	15.2	4.6	6.2
Republic of Korea	33.1	37.2	18.8	23.5	14.2	13.7	6.5	6.2	0.0	0.0	4.7	5.5	0.0	0.0	1.5	2.5	3.0	1.9	26.4	33.6	15.5	11.9	17.4	21.6
ASEAN	57.2	52.1	29.7	21.0	27.5	31.1	16.7	17.4	1.0	2.4	3.6	4.3	1.6	2.9	8.4	7.0	4.5	4.0	16.9	21.6	13.4	14.5	26.8	18.4
Indonesia	66.4	65.4	51.3	44.1	15.1	21.2	12.6	10.9	0.0	2.4	0.7	2.4	1.3	4.1	11.3	8.2	0.4	1.3	19.6	15.8	6.5	10.6	49.3	42.2
Malaysia	56.5	57.0	24.7	18.5	31.8	38.5	22.4	25.2	1.7	1.9	1.9	3.1	2.0	5.0	19.1	19.8	3.9	3.4	16.4	18.7	17.6	15.4	22.8	16.0
Philippines	43.6	36.4	28.4	22.2	15.2	14.2	6.5	6.8	0.8	0.6	3.3	3.9	3.5	1.9	1.9	2.8	1.1	1.0	27.5	37.8	17.5	17.0	26.6	20.4
Singapore	55.9	49.8	13.9	11.8	42.1	38.0	20.7	20.6	1.6	2.7	7.7	6.3	1.5	1.9	0.0	0.0	10.5	6.4	12.5	23.3	12.8	13.5	8.0	8.6
Thailand	43.3	42.4	15.1	18.6	28.2	23.8	16.2	11.6	1.9	2.9	5.1	3.9	0.8	1.6	7.7	7.2	4.2	3.8	12.7	21.2	26.0	19.0	15.1	16.5
South Asia	28.6	24.7	9.8	10.0	18.9	14.8	3.6	4.2	2.6	1.4	2.8	1.9	0.7	1.1	1.8	1.7	9.2	6.1	10.4	13.8	22.0	21.9	8.1	8.3
Bangladesh	39.7	22.4	7.6	6.6	32.2	15.8	9.1	5.4	3.9	2.6	2.1	1.1	1.3	0.1	7.5	5.0	15.7	6.5	9.2	28.4	17.5	24.3	3.9	4.3
India	24.1	22.1	11.0	10.0	13.1	12.1	3.6	4.0	0.3	0.7	2.0	1.2	0.8	0.7	1.5	1.4	6.5	5.5	11.5	11.8	23.0	19.3	9.2	8.4
Nepal	60.3	31.7	12.7	0.8	47.6	30.9	6.3	3.6	0.0	2.2	1.3	0.2	0.5	0.3	4.9	3.5	39.5	24.6	75.5	21.5	43.7	39.1	1.4	0.7
Pakistan	41.4	35.5	8.5	12.2	32.9	23.4	2.4	5.0	8.5	3.6	6.5	5.0	0.6	3.1	1.4	1.6	15.0	6.6	5.3	12.5	19.8	28.4	7.8	10.5
Sri Lanka	23.3	20.8	4.9	7.2	18.4	13.5	1.9	4.0	4.8	0.2	1.0	1.2	0.0	0.1	1.1	2.4	10.6	8.0	11.2	26.0	20.9	25.5	3.2	5.8
Other ESCAP developing countries	50.0	59.1	36.1	25.7	13.8	33.4	4.5	10.1	0.4	1.0	0.7	2.8	1.2	2.1	2.7	3.2	7.0	17.4	4.8	5.2	25.3	47.6	34.3	24.0
Afghanistan	8.4	1.4	0.1	0.3	8.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	1.0	0.7	0.6	15.0	10.4	0.1	0.2
Brunei Darussalam	85.0	77.5	72.1	51.6	12.9	25.8	12.8	14.8	0.0	0.0	0.0	0.0	0.0	11.0	6.5	3.5	0.0	0.0	8.6	3.8	0.0	14.4	70.9	50.7
Fiji	48.0	45.8	25.7	21.2	22.3	24.6	8.1	8.4	2.4	1.9	0.2	0.4	0.3	0.1	0.3	0.7	11.4	13.8	10.3	4.9	25.7	31.0	7.8	3.0
Iran, Islamic Republic of	41.2	65.4	27.4	21.3	13.8	44.1	1.7	11.2	0.4	0.6	0.2	0.0	1.8	0.0	1.4	4.8	9.8	32.3	3.1	0.1	32.4	72.6	26.7	21.1
Lao People's Democratic Republic	56.5	57.8	21.7	7.6	34.8	50.2	17.4	37.7	0.0	11.7	15.4	0.6	0.0	0.0	7.5	0.0	2.0	0.2	4.3	0.8	4.3	3.2	21.7	0.2
Maldives	50.0	71.2	25.0	1.5	25.0	69.7	0.0	62.4	0.0	0.2	0.0	0.5	0.0	0.0	0.0	6.2	25.0	6.6	0.0	21.2	12.5	6.5	30.0	1.5
Myanmar	58.3	61.7	9.9	9.0	43.4	52.6	27.2	23.0	1.2	9.9	7.6	6.7	0.2	3.4	14.3	10.1	12.3	9.6	0.5	1.6	12.3	8.7	9.9	9.0
Papua New Guinea	58.0	63.1	52.2	48.1	5.8	15.0	1.1	6.0	1.7	0.1	0.6	1.3	0.8	6.9	0.5	0.4	1.8	0.6	4.7	2.7	36.9	32.3	37.2	40.9
Samoa	39.4	55.6	32.4	44.0	7.0	11.6	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.4	0.0	0.0	7.0	10.8	6.0	7.9	41.6	28.6	4.8	1.1
Solomon Islands	31.9	54.6	29.6	40.8	2.2	23.8	0.0	13.0	1.7	0.0	0.0	0.7	0.0	6.0	1.4	0.9	0.5	4.1	20.5	7.2	31.1	22.2	26.3	35.6
Tonga	32.1	72.6	53.9	60.2	18.3	12.4	12.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	11.9	0.0	6.1	12.3	13.9	25.3	3.7	1.2	0.0	10.5
Vanuatu	5.4	8.7	3.7	6.4	1.6	2.3	1.4	0.1	0.0	0.1	0.2	0.0	0.1	1.0	1.4	0.0	0.0	1.1	33.7	22.4	37.5	26.7	3.5	4.4
Viet Nam	59.6	78.7	29.8	44.3	30.9	34.4	11.5	14.3	0.0	0.0	12.9	18.8	2.8	0.0	10.4	0.0	3.5	1.3	0.0	0.0	10.3	8.8	28.2	42.3

Source: IMF, *Direction of Trade Statistics Yearbook, 1990* (Washington, D.C., 1990).

[a] In percentages of total exports to the world.

dia, the Lao People's Democratic Republic and Viet Nam and the ASEAN countries, would go a long way in further expanding and strengthening trade and economic relationships within the region. The diversification in the region in terms of the levels of development, resource availability and consumption patterns, all indicate the large potential for expansion of intraregional trade. A more politically active exploration of the potential, strengthening of the trading infrastructure and the removal of financial obstacles to trade expansion in the region are necessary for a better realization of the potential.

2. Slower growth in 1989-1990

The ESCAP region's trade value growth, as economic growth, slowed considerably in 1989 and 1990 from the fast rates of expansion in 1987 and 1988. Imports expanded faster in many countries causing unfavourable changes in the trade balance. Export growth slowed to 8.7 per cent in 1989 from 19.7 per cent in 1988; growth in imports also slowed to 14.3 from 25.6 per cent. For the developing economies of the region export growth decelerated from 22.8 to 12.7 per cent and import growth from 26.7 to 14.6 per cent (table I.18).

The region's three developed countries only made a 4.6 per cent gain in exports in 1989 compared with 16.7 per cent in 1988, while their imports increased by 13.9 per cent compared with 24.1 per cent in 1988. Among the three, Australia made an 11.7 per cent gain in exports in 1989. The growth in exports of Japan and New Zealand was limited to 3.9 and 0.7 per cent respectively. Imports of the three countries increased by 20.4 per cent in Australia, 12.5 per cent in Japan and 20.1 per cent in New Zealand during the year. A further slow-down of the trade of all three countries in 1990 was indicated. A rise of 6.3 per cent in Australia's exports and a 3.4 per cent fall in its imports, and a 0.7 per cent in New Zealand's exports and 15.5 per cent in its imports in the first quarter were early signs. Also a 1.4 per cent fall in Japan's exports and a 5.7 per cent rise in its imports in the first half of the year over the corresponding periods of the previous year indicated an absolute decline in Japan's exports for the first time in many years.

Among the developing economies of the region, the highest deceleration in trade occurred in the three East Asian economies of China, Hong Kong and the Republic of Korea. China's exports increased at the rate of 8.4 per cent in 1989 compared with 20.5 per cent in 1988. China's imports, however, fell even more sharply from a 27.6 per cent growth in 1988 to 5.8 per cent in 1989. This slow-down in China's trading activities was the result of its austere policies and difficult external economic relations with some countries after the political events of June 1989. With some relaxation of domestic policies and improvements in external commercial relations, exports in 1990 were rising faster at a 15.3 per cent rate during the first half of the year compared with 5.8 per cent during the same period of 1989. Imports, however, fell by 17.7 per cent over the level of the first half of the previous year.

Hong Kong's exports increased at 15.8 per cent in 1989 compared with 30.3 per cent in 1988, while its imports increased by 12.9 per cent compared with 31.8 per cent in the previous year. This slow-down was also related to difficulties in trade with China. China's economic slow-down in 1989 affected Hong Kong's trade. Growth in the United States and the European markets also slowed considerably. The Republic of Korea experienced the most dramatic deceleration of export growth in 1989. Its exports expanded at a rate of about 3 per cent only compared with a 28.4 per cent rate of growth in 1988. A volume decline of 6 per cent occurred, which was somewhat compensated by terms-of-trade gains. Domestic cost increases, currency appreciation, and also protectionist pressures abroad, were responsible for the outcome. The country's imports, however, increased at a rate of 18.6 per cent in 1989, lower than the 26.3 per cent growth in 1988 but well ahead of its export growth.

In 1990, only a 7.7 per cent export growth in Hong Kong and 1.6 per cent in the Republic of Korea during the first half of the year indicated further deceleration from the 23.8 per cent export growth in Hong Kong and 7.5 per cent export growth in the Republic of Korea in the first half of 1989. Imports in Hong Kong and the Republic of Korea rose at rates of 5.4 and 8.0 per cent during the first half of 1990 compared with 25.0 and 20.5 per cent respectively during the corresponding period of 1989. Export growth was expected to accelerate in the second half of the year, but their trade balances would deteriorate, the Republic of Korea facing a deficit for the first time since 1986.

Countries in South-East Asia also experienced a deceleration in trade growth in 1989 and 1990. Brunei Darussalam, Indonesia and Malaysia, however, improved their export performance in 1989 over 1988, with exports growth rates of 4.4 per cent compared with 2.8 per cent, 15.3 per cent compared with 12.1 per cent and

Table I.18. Total value and annual rates of change in dollar value of exports and imports

(Value in millions of US dollars and annual percentage change)

	Exports					Imports				
	Value	(Annual rates of changes)				Value	(Annual rates of changes)			
					First half					First half
	1989	1980-89	1988	1989	1989	1990	1989	1980-89	1988	1989	1989	1990
ESCAP countries	669 624.0	8.7	19.7	8.7	...	...	625 087.3	7.2	25.6	14.3	...	...
ESCAP developed countries	321 029.0	8.3	16.7	4.6	...	...	259 646.0	5.1	24.1	13.9	...	...
Australia	36 989.0	5.9	25.2	11.7	11.7	6.3[a]	40 030.0	7.8	23.2	20.4	28.2	-3.4
Japan	275 173.0	8.7	15.6	3.9	8.3	-1.4	210 840.0	4.6	25.3	12.5	11.5	5.7
New Zealand	8 867.0	5.6	22.5	0.7	10.0	0.7[a]	8 776.0	5.4	1.3	20.1	9.1	15.5[a]
ESCAP developing countries	348 595.0	9.0	22.8	12.7	...	...	365 441.3	8.9	26.7	14.6	...	...
East Asia	187 146.0	14.5	26.8	9.1	12.9	7.6	192 162.0	12.9	28.7	12.3	23.9	-0.8
China	51 631.0	12.2	20.5	8.4	5.8	15.3	58 561.0	13.0	27.6	5.8	26.2	-17.7
Hong Kong	73 140.0	15.7	30.3	15.8	23.8	7.7	72 153.0	13.9	31.8	12.9	25.0	5.4
Republic of Korea	62 375.0	15.2	28.4	2.8	7.5	1.6	61 448.0	11.9	26.3	18.6	20.5	8.0
South-East Asia	122 394.1	5.6	25.8	17.0	...	...	127 541.7	7.7	32.0	21.9	...	...
Brunei Darussalam	1 931.4	-9.0	2.8	4.4	...	...	1 493.9	11.4	-2.5	19.2	...	...
Indonesia	22 158.7	-0.9	12.1	15.3	7.4	14.7[a]	16 573.0	4.8	7.1	25.1	23.8	15.6[a]
Malaysia	25 080.0	6.4	15.8	20.7	11.9	20.2[a]	22 558.0	7.1	30.6	36.0	26.2	37.5[a]
Philippines	7 747.0	3.3	26.4	10.1	13.9	10.8[a]	10 732.0	2.9	28.2	22.9	25.7	27.3[a]
Singapore	44 678.0	9.7	37.0	13.7	16.0	14.2	49 676.0	8.6	34.7	13.2	17.4	18.8
Thailand	20 059.0	13.3	36.8	25.7	31.9	8.8[a]	25 768.0	12.1	56.1	27.0	36.1	23.4[a]
Viet Nam	740.0	18.9	25.1	61.6	...	...	740.8	-1.9	18.8	15.4	...	...
South Asia	35 158.0	3.4	-2.1	21.0	...	...	38 033.0	1.2	9.1	4.4	...	...
India	15 523.0	7.1	13.7	17.8	19.0	17.4[a]	19 215.0	3.5	13.2	1.4	0.4	19.9[a]
Iran, Islamic Republic of	13 439.0	-0.5	-21.9	35.6	...	...	9 590.0	-3.2	-1.5	10.9	...	...
Pakistan	4 642.0	6.7	9.9	3.2	4.4	15.3	7 119.0	3.2	13.1	8.0	13.2	3.3
Sri Lanka	1 554.0	4.5	12.6	6.0	-1.2	18.8	2 109.0	0.4	9.8	-5.3	-1.5	8.3
Least developed countries	2 143.1	0.2	2.9	-8.3	...	...	5 526.5	5.0	6.6	10.0	...	...
Afghanistan	238.0	-11.4	-15.5	6.0	-43.9	-2.7[a]	798.0	4.2	-9.6	-11.3	-10.5	10.1[a]
Bangladesh	1 305.0	6.5	12.8	-3.1	-23.5	31.1[a]	3 524.0	6.7	12.8	29.1	16.8	20.8[a]
Bhutan	63.0	15.9	-22.3	32.2	...	...	106.7	8.8	-32.3	41.8	...	...
Kiribati	...	8.0	175.3	...	...	...	...	1.4	32.7	...	...	...
Lao People's Democratic Republic	98.1	17.3	48.9	2.5	...	...	122.0	-0.1	33.8	10.3	...	...
Maldives	56.0	24.3	30.4	40.1	47.2	-9.4[a]	137.9	23.9	21.8	30.1	...	...
Myanmar	215.0	-8.3	-36.9	55.5	-12.9	27.8[a]	191.0	-6.6	-9.3	-21.7	-30.4	75.0[a]
Nepal	156.0	7.7	24.3	-19.7	...	...	580.0	6.0	15.4	-15.7	...	...
Samoa	12.0	-3.8	23.0	-15.9	-8.5	49.4	67.0	0.7	21.0	-10.7	27.3	-4.3
Vanuatu	...	-6.8	14.2	87.0	...	...	...	0.0	1.4	...	...	...
Pacific islands	1 753.7	1.8	14.9	-4.5	...	...	2 178.1	2.7	14.1	19.8	...	...
Cook Islands	2.8	-1.1	-47.4	-33.1	-66.6	212.5[a]	49.7	9.1	8.2	22.6	3.9	9.6[a]
Fiji	386.0	0.3	11.7	12.5	48.0	-38.4	633.0	1.3	19.8	39.4	82.1	-10.4
Papua New Guinea	1 281.0	2.4	15.5	-8.4	4.0	-43.9[a]	1 335.0	3.0	10.5	14.0	15.5	-35.5[a]
Solomon Islands	74.9	-0.2	25.4	-8.1	...	...	106.3	3.6	42.1	9.4	...	...
Tonga	9.0	1.3	14.3	12.5	...	...	54.1	5.3	15.0	-2.0	...	...

Sources: United Nations, *Monthly Bulletin of Statistics*, vol. XLIV, No. 11 (November 1990); United Nations, *Statistical Indicators for Asia and the Pacific*, vol. XX, No. 3 (September 1990); IMF, *Direction of Trade Statistics Yearbook, 1990* (Washington D.C., 1990); IMF, *International Financial Statistics*, vol. XLIII, No. 12 (December 1990); ADB, *Key Indicators of Developing Asian and Pacific Countries*, vol. XXI (July 1990); and national sources.

Note: Kiribati: value in 1988 and growth in 1980-1988.

[a] January-March.

20.7 per cent compared with 15.8 per cent respectively in the previous year. All the three countries benefited from the higher average price of oil, which constituted a significant proportion of their total exports. All three countries, however, also experienced sharply accelerated rates of growth in imports. Imports in Brunei Darussalam increased by 19.2 per cent in 1989 from a minus 2.5 per cent in 1988. Imports in Indonesia increased by 25.1 per cent compared with 7.1 per cent in 1988 and import growth in Malaysia accelerated to 36.0 per cent from an already high 30.6 per cent in 1988. High levels of investment, consumption and economic activities in these countries were responsible for high rates of import growth.

Growth of exports in the Philippines decelerated to 10.1 per cent in 1989 from 26.4 per cent in 1988. Import growth also decelerated from 28.2 to 22.9 per cent. However, import was growing twice as fast as growth in exports, resulting in a widening of the country's trade and payment deficits. Exports and imports in Singapore in 1989 expanded at rates of 13.7 and 13.2 per cent compared with 37 and 34.7 per cent in 1988. Exports in Thailand in 1989 increased at the rate of 25.7 per cent compared with 36.8 per cent in 1988. Import growth also decelerated from the exceptionally high rate of 56.1 per cent in 1988 to 27 per cent.

In Viet Nam exports increased by 61.6 per cent in 1989 compared with 25.1 per cent in 1988. Imports increased at the rates of 18.8 per cent in 1988 and 15.4 per cent in 1989. The high rates of export growth in Viet Nam reflected the country's efforts to open up its economy to the outside and to increase participation in international trade. The 1989 export growth also reflected the country's success in producing a sizeable surplus of rice, enabling an export of 1.5 million tons.

In 1990, the South-East Asian countries showed similar patterns of trade growth as in 1989. Brunei Darussalam, Indonesia and Malaysia were to benefit from the higher oil prices which received a boost from the Persian Gulf crisis. The other South-East Asian countries were experiencing slower export growth and accelerated import growth. For example, exports in the Philippines and Thailand were growing at the rate of about 11 and 9 per cent early in 1990 compared with 13.9 and 31.9 per cent in the first half of 1989. Imports, on the other hand, were rising at 27.3 and 23.4 per cent compared with more than 25 per cent in both cases in the first half of 1989.

In South Asia, most countries experienced complex domestic and external situations. Nevertheless, in India growth in exports in 1989, contrary to most trends in the region, accelerated to 17.8 per cent compared with 13.7 per cent in 1988. Import growth decelerated from a 13.2 per cent in 1988 to 1.4 per cent in 1989. The experience of Pakistan and Sri Lanka appeared to be in line with the other countries of the region. Exports in Pakistan increased at a rate of 3.2 per cent in 1989 compared with 9.9 per cent in 1988 and exports in Sri Lanka increased at a rate of 6 per cent compared with 12.6 per cent in the previous year. However, both the countries experienced deceleration in import growth, from 13.1 per cent in 1988 to 8 per cent in 1989 in Pakistan and from 9.8 per cent in 1988 to a fall of 5.3 per cent in Sri Lanka.

The Islamic Republic of Iran experienced a sharp increase in exports by 35.6 per cent in 1989, after a 21.9 per cent decline in 1988. The country's imports also increased by 10.9 per cent in 1989, reversing a trend of earlier declines. The rise in the prices of oil, the country's major export, and government action to reactivate the war-damaged economy were reflected in these trade results.

Early in 1990, South Asian countries achieved rather high percentage rates of growth in their exports while their imports were growing more slowly. These countries were seeking to reduce the structural deficits in their trade and payment balances and these early trends were moving in the desired direction. They were, however, unlikely to sustain their early gains as all of them are heavily dependent on oil imports.

The trade and balance-of-payments situations of the least developed countries of the region and the Pacific island economies continued to display basic weaknesses. Rates of growth in exports and imports fluctuated highly from year to year. There were no sustained gains over any prolonged period for most of the countries. In 1989, Bhutan, Maldives, Myanmar and Vanuatu had high rates of export gains. They, however, came on extremely narrow bases and after large declines for Bhutan and Myanmar in the previous year. In particular, the Lao People's Democratic Republic experienced lower rates of export growth of 2.5 per cent, compared with 48.9 per cent in 1988. Afghanistan's exports declined by 15.5 per cent. On the other hand, Bangladesh and Samoa experienced a fall in their exports by 3.1 and 15.9 per cent respectively, compared with their growth of 12.8 and 21.0 per cent in 1988. Other than Afghanistan, Myanmar, Nepal and Samoa, whose imports fell in 1989, the other countries

experienced high rates of import growth.

Data for the early months of 1990 did not indicate any basic changes from the previous patterns. However, the international situation arising out of the Persian Gulf crisis and the expected world-wide economic slow-down would worsen their situation further. A number of these countries, which also depend on additional earnings from employment of large segments of their workers overseas, were experiencing a fall in remittances, which had provided strong support to their balance of payments since the mid-1970s.

Among the Pacific island economies, Fiji and Tonga made some sustained gains in exports in 1988 and 1989. In Fiji exports grew by 12.5 per cent in 1989 after an 11.7 per cent growth in 1988 and in Tonga exports grew by 12.5 per cent after 14.3 per cent growth in 1988. Cook Islands, Papua New Guinea and Solomon Islands experienced decline in their exports. Imports, on the other hand, increased at substantially higher rates, except in Tonga which experienced a 2 per cent fall. Low prices of commodities such as coffee, coconut products and palm oil and a fall in mining output in Papua New Guinea were responsible for the export shortfall of the other Pacific island economies, while better prices of sugar helped exports in Fiji.

B. BALANCE OF PAYMENTS

1. The current account balance

The balance-of-payments outcome for most countries in the region is crucially dependent on the balance of merchandise imports and exports, which forms the largest component. Trade in services is generally limited to shipping and transport services and tourism. In shipping and transport most countries incur large net deficits while surpluses are earned in travel and tourism, which for some countries are very substantial (see box I.11).

Countries in the region, with large foreign investments and/or foreign debt incur large net deficits on income accounts. Small positive earnings on this account are mainly from earnings on the official assets held and invested abroad by the central banks. Their outgoings on this account, which reflect payments of royalty and dividends on direct foreign investment and also interest payments on external debt, far exceed the incomings. Most countries notably China, Indonesia, Malaysia, the Philippines, the Republic of Korea, Singapore and Thailand incur large deficits on this account. Singapore, because of its well-developed service network, as well as its role as an entrepôt trade centre in the region, has enjoyed an overall surplus on services and income accounts which has enabled that country to more than fully offset its usually deficit merchandise trade balance. Other countries such as China, Fiji, Maldives, Nepal, the Philippines, the Republic of Korea and Thailand also enjoyed some surpluses in recent years largely owing to their relatively large earnings from tourism.

A further mitigating factor in helping the balance of payments of a number of countries in the region has been the inflow of private transfers constituted mostly of remittances from the workers who were temporarily living and working abroad, particularly in the Persian Gulf region, and also by their nationals who had permanently migrated abroad. Bangladesh, India, Pakistan, the Philippines, the Republic of Korea, Sri Lanka and Thailand have received relatively large sums on this account. Among smaller countries, Nepal in South Asia and Tonga, Samoa and Vanuatu in the South Pacific have also received a relatively large proportion of their total foreign exchange earnings from this source.

In 1989, the trade balance worsened in relation to that of 1988 for Bangladesh, China, Fiji, the Philippines, Singapore and Thailand with the deficits increasing (table I.19). For Nepal, Pakistan and Sri Lanka, a reduction in the deficits was effected. In India the trade balance was also estimated to have shown some improvement in 1989. The surpluses of Malaysia and the Republic of Korea were sharply reduced while that of Indonesia increased. The surplus in Papua New Guinea was turned into a deficit. Most of the other least developed and island economies saw a deterioration of their trade balance with deficits rising. The differences in rates of growth in imports and exports discussed in section A above resulted in these balance of trade outcomes.

The services and income balance also worsened for China, Nepal, the Philippines and the Republic of Korea, with reductions of surpluses in all cases, while Fiji, Singapore and Thailand had somewhat larger surpluses. Bangladesh, India, Indonesia, Malaysia, Pakistan incurred larger deficits while those in Papua New Guinea and Sri Lanka were somewhat reduced. Among other smaller countries, Maldives, Samoa and Vanuatu improved their surpluses while Solomon Islands incurred a larger deficit. Private transfers also declined in 1989 in Bangladesh, China, Nepal, the Philippines, the Republic of Korea and Thailand.[4] They increased

[4] IMF data appear to classify remittances largely as labour income rather than transfers for the Philippines and Thailand and as transfers for Bangladesh, India, Pakistan and Sri Lanka. That affects the comparability of the statements on income and transfers.

Box I.11. Trade in services and the balance of payments of developing countries in the ESCAP region

There are problems of defining what constitutes trade in services, and also of appropriate data to measure the magnitudes of such trade. The current account balance-of-payment statistics of the International Monetary Fund (IMF) include data on transactions in goods, services and incomes. However, the criteria for inclusion of items are not always clear. For example, incomes accrued on capital resident abroad are often treated as part of the invisibles or the trade in services, whereas incomes accrued to labour similarly resident abroad are excluded and shown in a separate category as private transfers, for which no justification is provided.[a]

In spite of these statistical problems, the available data show some interesting patterns in trade in services. The total value of world trade in services in 1988 was estimated at $US 1,207 billion, which constituted 30 per cent of the total trade in goods and services.[b] This total included transport (4.9 per cent), tourism (4.6 per cent) and investment income (13.9 per cent), among others. A major source of expansion recently in the value of trade in services, defined this way, has been investment income, the share of which in the value of total trade in goods and services rose from 7.2 per cent in 1975 to 13.9 per cent in 1988. During this period, the share of the services total rose from 25.8 to 30.2 per cent, that of transport fell from 7.0 to 4.9 per cent, and that of tourism rose marginally to 4.6 from 4.4 per cent after a decline during the intervening years. The accelerated flow of investment income detected in the trade and balance-of-payment data reflected the upsurge since the mid-1970s in international movements of capital as loans and investments with incomes accrued to the lenders and the investors. The upsurge in world tourism is reflected in tourism sustaining its share in the total value of trade in goods and services which more than quadrupled between 1975 and 1988. The decline in the share of transport perhaps reflected the scale economies and technical efficiencies achieved in the world transport industry.

The developing countries in the ESCAP region accounted for, on a rough estimate, about 5 per cent of the value of trade in services compared with about 12 per cent of their share in total world merchandise trade. Exports and imports of services, the major components of which are identified below, account for substantial proportions of their total foreign exchange earnings and expenditure (see table below). The expenditure generally exceeds earnings resulting in negative net balances (see table I.20). Some of the smaller countries especially in the South Pacific, but also China, the Philippines and the Republic of Korea, have balances in their favour. The favourable situation in the Philippines and the Republic of Korea, however, is partly due to foreign military expenditure in those two countries. The service balance in Singapore is clearly in its favour.

The major components of service trade are shipping and transport that include freight and insurance on ocean shipments, other transport and passenger services, tourism and other travel, investment income, construction, management, technical and other services, and a residual category of other services. This residual category includes items covering official expenditure such as on diplomatic missions, property incomes, and for some countries, foreign military expenditure and some elements of labour income.

The data for a selected number of countries in the region (see table below) show that, with the exception of Singapore, all other countries in the region incur net deficits on account of shipping and transport, although China and the Republic of Korea earn almost as much as they spend on these services. Only small deficits are incurred by them on this account. India, Malaysia and Thailand also have expanded their earnings from shipping and transport services in recent years, although they still incur large dificits on this account. Both earnings and expenditure of other countries on this score are relatively small but their deficits are proportionately higher than for other countries. For example, Bangladesh earned 22.5 million special drawing rights (SDR) and spent SDR 263.9 million, Pakistan earned SDR 249 million and spent SDR 585 million, and Sri Lanka earned SDR 91.3 million and spent SDR 252.8 million on account of shipping and transport services.

Of the services trade for the countries in the region, travel and tourism have flourished the most. Most countries earn substantial surpluses which help to offset the deficits in the merchandise and other services accounts. Earnings from travel and tourism have expanded rapidly and are currently high, particularly in China, the Republic of Korea, Singapore and Thailand. India, Indonesia and Malaysia have also considerably increased their earnings from tourism in recent years. The Philippines and Sri Lanka, which also have significant tourism industries, have not done very well in recent years and their earnings have tended to fall.

The largest single source of deficits in the invisible transaction for countries in the region is on account of investment income. With the exception of Singapore, all other countries incur substantial deficits on this score, which have tended to increase further in recent years particularly in countries with large stocks of foreign direct investment and/or foreign debts, notably India, Indonesia, Malaysia and Thailand. India earned SDR 439 million and paid out SDR 1,315 million, Indonesia earned SDR 379 million and spent 3,341 million, Malaysia earned SDR 674 million and spent 2,078 million and Thailand earned SDR 274 million but spent 1,562 million in 1988.

Transactions in services such as construction, management, technical and other services account for the major proportions of the earnings for most countries. With the excep-

(continued overleaf)

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[a] Reference to *Survey*, 1985, part two, p. 148.

[b] In 1989, the value of trade in services rose to $US 1,340 billion, 30 % of total goods and services. See Bank for International Settlements, *60th Annual Report* (1990), p. 63.

to some extent in Indonesia, Pakistan and Sri Lanka. An improved inflow was also experienced by Samoa, Solomon Islands and Vanuatu in the South Pacific, while that of Tonga slightly declined.

The overall balance on goods, services and private transfers, or the current account balance of payments, thus deteriorated in 1989 for Bangladesh, China, Malaysia, Papua New Guinea, the Philippines and Thailand. Indonesia, Nepal, Pakistan and Sri Lanka, however, succeeded somewhat in reducing their deficits (table I.19). Singapore improved its surplus balance on current

(continued from preceding page)

tion of Indonesia and Malaysia, most other countries earn a net credit on these services. The residual category of other services is small, except for the Philippines and the Republic of Korea which earn large credits out of the foreign military expenditure on their territories, and for these countries and Thailand the data also include some parts of labour income.

Singapore clearly emerges as a net creditor on account of the totality of services transactions and also on each individual account as identified above. The Republic of Korea, the other newly industrializing economy listed in the table, also has an overall surplus on services although the surplus disappears if the earnings from foreign military expenditure in the country are excluded from the credits. However, the country earns a sizeable net credit on travel and tourism, which considerably offsets the deficits in shipping and transport and on investment income. The earnings on account of construction, management, technical and other services almost balance expenditure in the Republic of Korea leaving a small surplus. Interestingly, all other countries earned net credits on account of these services in 1988.

It is clear, therefore, that in labour-intensive services such as tourism, construction and others, the countries of the region have been doing relatively well, a reflection of their comparative advantages in those areas. The major sources of their difficulties on account of invisible transactions are the categories designated as investment income, and shipping and transport which are relatively capital-intensive activities. Shipping and transport services are a large source of deficits, particularly for the smaller countries of the region.

Selected developing economies in the ESCAP region. Trade in services, 1988

(In millions of special drawing rights)

	Credit						Debit					
	Total	*Shipping and transport*	*Travel and tourism*	*Investment income*	*Construction, management, technical and other services*	*Others*	*Total*	*Shipping and transport*	*Travel and tourism*	*Investment income*	*Construction, management, technical and other services*	*Others*
Bangladesh	247.4 (20.5)	22.5	10.0	40.6	140.6	33.7	-602.5 (22.9)	-263.9	-73.9	-143.9	-31.8	-89.0
China[a]	4 186.0 (13.5)	1 235.0	1 309.0	755.0	690.0	197.0	-2 843.0 (9.2)	-1 380.0	-299.0	-921.0	-127.0	-116.0
India[b]	3 191.0 (26.8)	493.0	983.0	439.0	1 195.0	81.0	-4 717.0 (26.1)	-2 000.0	-257.0	-1 315.0	-987.0	-158.0
Indonesia	1 381.0 (8.7)	33.0	957.0	379.0	12.0	0.0	-6 831.0 (40.2)	-1 309.0	-442.0	-3 341.0	-1 665.0	-74.0
Republic of Korea	8 381.0 (15.9)	2 269.0	2 319.0	766.0	1 892.0	1 135.0	-7 432.0 (14.1)	-2 335.0	-899.0	-2 264.0	-1 713.0	-221.0
Malaysia	2 602.0 (14.4)	913.0	571.0	674.0	372.0	72.0	-5 518.0 (32.7)	-1 518.0	-1 012.0	-2 078.0	-769.0	-141.0
Pakistan	672.0 (17.0)	249.0	100.0	55.0	173.0	95.0	-1 784.0 (25.5)	-585.0	-262.0	-690.0	-108.0	-139.0
Philippines	2 685.0 (33.7)	167.0	301.0	220.0	1 045.0	952.0	-2 741.0 (31.1)	-555.0	-57.0	-1 751.0	-351.0	-27.0
Singapore	9 125.0 (24.4)	2 464.0	1 785.0	2 199.0	2 597.0	80.0	-5 973.0 (15.6)	-1 919.0	-692.0	-1 533.0	-1 783.0	-46.0
Sri Lanka	299.0 (21.4)	91.3	46.2	51.0	94.0	16.5	-585.8 (28.1)	-252.8	-49.3	-179.3	-89.0	-15.4
Thailand	4 387.0 (27.2)	716.0	2 320.0	274.0	292.0	785.0	-4 265.0 (24.3)	-1 809.0	-448.0	-1 562.0	-240.0	-206.0

Source: International Monetary Fund, *Balance of Payments Statistics*, vol. 40, Yearbook, Part I, 1989.

Notes: The figures in parentheses are percentages of total exports and imports respectively of goods and services.

[a] For 1987. [b] For 1986.

Table I.19. Selected developing economies in the ESCAP region. Balance of payments: principal components, 1987-1990

(Millions of US dollars)

		Trade balance	Services and income balance	Private transfers	Balance on goods, services and private transfer	Foreign exchange reserves (end of period)
Afghanistan	1987	-365.8	-112.8	–	-478.6	279.7
	1988	-278.0	-38.6	–	-316.6	261.1
	1989	-220.6	-84.0	–	-304.6	243.7
Bangladesh	1987	-1 368.7	-371.3	788.3	-951.7	843.1
	1988	-1 443.5	-474.5	827.2	-1 090.8	1 046.1
	1989	-1 985.9	-507.4	806.8	-1 686.5	501.5
China	1987	-1 661.0	1 737.0	249.0	325.0	16 305.0
	1988	-5 315.0	1 094.0	416.0	-3 805.0	18 541.0
	1989	-5 620.0	922.0	238.0	-4 460.0	17 960.0
Fiji	1987	-25.4	12.8	-20.8	-33.4	132.2
	1988	-48.5	68.2	-3.6	16.1	233.4
	1989	-160.9	119.4	-14.6	-56.1	211.6
India	1986	-5 438.0	-1 780.0	2 223.0	-4 995.0	6 396.0
	1987	-5 777.0	-2 422.0	2 636.0	-5 563.0	6 454.0
	1988 (i-iii)[a]	-4 166.0	-2 572.0	1 805.0	-4 933.0	4 515.0
Indonesia	1987	4 674.0	-7 029.0	86.0	-2 269.0	5 592.0
	1988	5 678.0	-7 329.0	99.0	-1 552.0	5 048.0
	1989	6 664.0	-8 111.0	167.0	-1 280.0	5 454.0
	1990 (i)[b]	1 326.0	-2 114.0	51.0	-737.0	5 239.0
Malaysia	1987	5 836.0	-3 338.0	69.0	2 567.0	7 435.0
	1988	5 546.0	-3 880.0	70.0	1 736.0	6 527.0
	1989	3 899.0	-4 150.0	-17.0	-268.0	7 783.0
Maldives	1986	-35.7	22.3	0.6	-12.8	6.9
	1987	-38.6	30.7	-1.2	-9.1	8.2
	1988	-49.9	42.1	-0.6	-8.4	21.6
Nepal	1987	-350.2	86.6	67.2	-196.4	178.2
	1988	-477.3	78.0	59.1	-340.2	220.3
	1989	-415.2	71.9	52.0	-291.3	211.6
Pakistan	1987	-2 316.0	-1 104.0	2 440.0	-980.0	502.0
	1988	-2 692.0	-1 447.0	2 101.0	-2 038.0	395.0
	1989	-2 453.0	-1 480.0	2 221.0	-1 712.0	521.0
Papua New Guinea	1987	114.3	-428.7	-104.5	-418.9	436.8
	1988	212.6	-520.4	-124.6	-432.4	393.5
	1989	-40.6	-491.3	-130.2	-662.1	384.4
Philippines	1987	-1 017.0	0.0	376.0	-641.0	968.0
	1988	-1 085.0	-80.0	500.0	-665.0	1 003.0
	1989	-2 598.0	303.0	473.0	-1 822.0	1 417.0
	1990 (i)[b]	-877.0	250.0	84.0	-543.0	789.0
Republic of Korea	1987	7 659.0	977.0	1 199.0	9 835.0	3 583.7
	1988	11 445.0	1 268.0	1 404.0	14 117.0	12 346.7
	1989	4 597.0	211.0	200.0	5 008.0	15 213.6
	1990 (i)[b]	-970.0	-63.0	27.0	-1 006.0	13 861.3
Samoa	1987	-44.0	1.5	36.4	-6.1	37.2
	1988	-53.4	8.7	35.5	-9.3	49.2
	1989	-55.6	12.8	38.2	-4.7	55.1
Singapore	1987	-2 446.0	2 904.0	-170.0	288.0	15 227.0
	1988	-2 345.0	3 928.0	-209.0	1 374.0	17 073.0
	1989	-2 474.0	5 135.0	-254.0	2 407.0	20 345.0

(Continued on next page)

Table I.19 *(continued)*

(Millions of US dollars)

		Trade balance	*Services and income balance*	*Private transfers*	*Balance on goods, services and private transfer*	*Foreign exchange reserves (end of period)*
Solomon Islands	1987	-6.2	-32.9	-0.1	-39.2	36.8
	1988	-19.7	-39.5	-1.4	-60.6	39.6
	1989	-19.7	-48.7	1.2	-67.2	26.2
Sri Lanka	1987	-472.1	-346.5	312.8	-505.8	279.0
	1988	-540.4	-380.2	320.0	-600.6	222.0
	1989	-454.0	-326.6	328.5	-452.1	244.0
Thailand	1987	-424.0	-166.0	100.0	-490.0	4 007.0
	1988	-2 075.0	184.0	47.0	-1 844.0	6 097.0
	1989	-2 948.0	251.0	46.0	-2 651.0	9 515.0
Tonga	1986	-26.4	1.0	23.2	-2.2	22.5
	1987	-28.1	5.1	22.4	-0.6	28.9
	1988	-37.6	-0.7	21.3	-17.1	30.5
Vanuatu	1986	-38.0	6.6	7.2	-24.2	21.4
	1987	-43.4	-0.1	5.8	-37.7	40.2
	1988	-42.5	4.5	9.8	-28.2	40.7

Source: IMF, *International Financial Statistics*, vol. XLIII, No. 11 (November 1990).

Note: Exports and imports f.o.b.

[a] The first three quarters of the year. [b] The first quarter of the year.

account in 1989 while that of the Republic of Korea was sharply reduced.

Most countries in the region, however, had comfortable reserves of foreign exchange in relation to their import needs. The majority experienced reserve gains in 1989 owing to substantial capital and other financial inflows during the year, although a few of them also experienced losses.

2. Capital flows and financing the current account deficits

For the relatively large countries of the region, foreign direct investment, and other long-term capital flows, mostly from bilateral and multilateral official sources, have been the major means of financing the current account deficits. Official grants have provided the principal means of financing the deficits in the least developed and other smaller economies of the region. However in many of the least developed countries, loans, though on concessional terms, are growing in importance while the importance of grants is decreasing. As a result, the debt problems of the least developed countries are becoming more serious (see box I.12). In Bangladesh and Nepal, two of the region's larger least developed countries, the share of grant transfers substantially decreased in 1989 whereas that of other non-concessional long-term capital increased. They experienced substantial losses of their reserves in 1989.

The Philippines received a larger amount of official transfers in 1989 while that of Papua New Guinea remained almost unchanged. In Papua New Guinea and the Philippines, direct foreign investment inflow, although lower than in 1988, played a more significant role than other forms of capital flow (table I.20). Indonesia, Malaysia, the Republic of Korea, Singapore and Thailand had a larger inflow of foreign direct investment in 1989 although China experienced a decline. Indeed there was also a decline in the inflow of other long-term capital in China and a large outflow of short-term capital. China thus experienced a large loss of reserves although its reserve levels still stood quite high.

Indonesia received a substantial increase in the inflow of other long-term capital consisting of both foreign direct investment and credit, but a small short-term outflow was recorded. Its foreign exchange reserves increased, recovering substantially the previous year's loss. Malaysia was repaying its outstanding external debt with the help of surpluses of trade and payment balances which had been built up since 1987.

Box I.12. The debt crisis and the least developed countries of the ESCAP region

In 1989 the least developed countries owed $US 70 billion of the total $US 1.3 trillion external debt of all developing countries. Debt service payments of the least developed countries demanded approximately $US 4 billion annually. The debt stock doubled during the period 1982-1989 when the developing countries' debt became a serious international problem. Among the least developed countries in the ESCAP region the largest debt was owed by Bangladesh and amounted to $US 10.5 billion in 1989, approximately 15 per cent of the total debt of the least developed countries. The second largest was that of Myanmar with a debt stock of $US 4.6 billion. Most other least developed countries in the region owed $US 1.5 billion or less.

Although the underlying debt problems facing the least developed countries are not too different from those faced by other developing countries, the various elements of the international economic environment affect them rather differently. Thus, loans with variable interest rates, which constituted 66 per cent in total public debt of the severely indebted countries, are relatively unimportant for the least developed countries. For example, they constituted less than 1 per cent of the external debt in Bangladesh, Bhutan, Myanmar and Nepal.[a]

However, since much of the debt of the least developed countries in the Asian and Pacific region is owed to official agencies at concessional terms, the decline in official development assistance (ODA) flows has affected them much more severely. A rising trend in such flows had the effect of an indirect rescheduling process: as credits reached maturity, they could, in part, be repaid out of the inflow of new assistance funds. Unlike the developing countries, as a whole, the least developed countries are still net recipients of foreign finance, predominantly in the form of ODA. In nominal United States dollar terms, net ODA disbursements have increased over the past years in the Lao People's Democratic Republic, Maldives, Myanmar, Nepal, Samoa and Tuvalu. However, the rise in ODA disbursements has slowed down and their volume has fluctuated considerably in the case of Bangladesh, Bhutan, Kiribati and Vanuatu. This has serious repercussions on the balance-of-payments situation of these countries and their ability to cope with debt servicing. Moreover, some of the least developed countries in the region have to resort to borrowing in international markets as ODA flows have proved inadequate.

None of the least developed countries in the Asian and Pacific region is included in the group of debt-distressed countries, unlike Africa where the majority of the least developed countries belong to that category. However, the least developed countries of the Asian and Pacific region do have a serious and growing external indebtedness problem, which they have tried to contain through prudent macroeconomic policies. Nevertheless, in several least developed countries of the region debt stocks are moving close to their gross national product (GNP), while in the Lao People's Democratic Republic the debt stock has already exceeded GNP. Bangladesh, Nepal and Samoa at the end of the decade had debt stocks of around 50 per cent of their GNP (see table below).

Debt service ratio, the conventional measure of the ability of countries to sustain their debt, has reached 25 per cent in the Lao People's Democratic Republic and in Myanmar. Several least developed countries, notably Bangladesh and Nepal, have however been able to upgrade their exports into manufactures, while Bhutan, Maldives and Vanuatu are successfully tapping into international tourism markets to generate a steady flow of foreign exchange. The problem lies in the vulnerability of these countries to sharp and sudden changes in international markets for both goods and services.

In the Lao People's Democratic Republic, for instance, the debt service ratio has been fluctuating widely. The introduction of the new economic management system in 1986 paved the way for foreign direct investment and loans for large infrastructure projects. Loans have been taken from the multilateral financial institutions to finance several large hydropower plants, road rehabilitation and agricultural diversification schemes. Borrowings have doubled between 1985 and 1989 and the debt to GNP ratio jumped from 43 to 134 per cent in just one year between 1986 and 1987. In Myanmar the debt service ratio was as high as 75 per cent in 1987; this development was due to the combined impact of the rapidly growing debt services outflow and the drop in export revenues in the years 1985-1987. The situation improved somewhat after the country attained the least developed country status in 1988 and benefited from bilateral debt forgiveness.

In Bangladesh debt service payments nearly doubled in only five years. The debt service ratio has been fluctuating partly in reflection of the volatility of exports. In 1988 the debt service ratio decreased to 15 per cent, largely as a result of an export push into textiles and shrimp. In 1989 the ratio saw a marked increase to 24 per cent.

In Bhutan large-scale loans have come into the picture only recently; they jumped from $US 9 million in 1985 to $US 21 million in 1986, largely as a result of a single large expenditure: the purchase of an aircraft to upgrade the national carrier. In only three years, from 1985 to 1988, the debt/GNP ratio jumped from only 5 to 26 per cent. The debt service ratio was estimated at 5 per cent in 1986.[b]

Maldives has succeeded in lowering its debt service ratio from a high of 38 per cent in 1986 to 5.5 per cent in 1989; the debt-to-GNP ratio has also declined. The country's

[a] World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990), table 25.

[b] United Nations Conference on Trade and Development, *The Least Developed Countries: A statistical profile* (UNCLDC 11/9) 1990.

(continued overleaf)

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good performance was due to tourism revenues as Maldives benefited from the diversion of tourism from competitors such as the Philippines and Sri Lanka. The economy has also been expanding its manufactures, especially into textiles and fish canneries. The Pacific least developed countries display cautionary borrowing policies and have low debt service ratios.

A major problem facing the least developed countries in the ESCAP region, whose debt is largely from multilateral institutions, is that unlike bilateral debt, these debts cannot be cancelled or rescheduled. For example, roughly three quarters of the debts of Nepal and half of those of Bangladesh are owed to multilateral institutions. The Toronto economic summit in 1988 offered a special arrangement to sub-Saharan countries, extending the repayment period up to 25 years, reducing interest rates, and partially cancelling principal and interest. This amounts to a retroactive restructuring of the debt to International Development Association soft loan conditions. Member countries of the Lomé Conventions, which enjoy special arrangements with the European Community could obtain debt relief from some of the creditor countries by virtue of their membership of the Convention. In the ESCAP region, only the four Pacific island least developed countries, viz. Kiribati, Samoa, Tuvalu and Vanuatu, are covered. Also during the period 1989-1990, several bilateral creditors, notably Belgium, France, Germany and the United States of America, cancelled part of or the entire principal of debts owed by sub-Saharan African countries. Least developed countries in Asia and the Pacific have not been able to benefit from similar concerted supportive action. Although the Paris Declaration and Programme of Action for the least developed countries for the 1990s has called upon bilateral lenders to apply the terms of the Toronto Summit to all least developed countries, the position relating to multilateral loans has, however, remained inflexible.

Selected least developed economies of the ESCAP region. Debt situation, 1985-1989

		Debt stock[a] *(millions of US dollars)*	*Debt service ratio*	*Debt/gross national product*[a]	*Concessional debt*[b]	*Multilateral debt*[b]
			(percentage)			
Afghanistan	1985	...	6.6	...	...	...
	1987	...	8.4	...	...	...
Bangladesh	1985	6 015	13.5	37.7	96.3	46.6
	1987	8 877	18.3	50.8	98.4	47.0
	1989	9 775	24.0	47.6	99.8	52.1
Bhutan	1985	8.8	...	4.7	...	...
	1987	40.7	5[c]	16.2	...	...
Lao People's Democratic Republic	1985	466	4.2	43.2	99.2	13.8
	1987	719	28.8	133.7	99.3	13.7
	1989	947	...	189.5	97.4	15.9
Maldives	1985	85	10.2	162.1	44.8	18.8
	1987	73	6.8	115.7	73.9	37.2
	1989	71	5.5	64.1	78.8	39.9
Myanmar	1985	2 983	46.0	43.9	83.8	23.3
	1987	4 326	74.6	42.9	86.6	20.9
	1989	4 144	...	25.4	92.7	26.0
Nepal	1985	568	5.3	22.4	91.9	80.2
	1987	938	9.4	34.2	89.6	74.7
	1989	1 292	16.0	47.1	94.5	77.6
Samoa	1985	64	12.6	77.2	85.2	81.6
	1987	72	5.8	72.4	89.8	82.2
	1989	75	6.2	61.2	93.2	84.5
Vanuatu	1985	16	1.4	13.1	31.3	9.4
	1987	24	2.4	21.6	52.3	26.1
	1989	28	3.9	19.9	42.7	29.3

Sources: World Bank, *World Debt Tables 1989-1990,* First supplement; Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries,* vol. 21 (July 1990); and International Monetary Fund, *International Financial Statistics* (August 1990).

[a] Excluding International Monetary Fund drawings. [b] Percentage of total debt. [c] Estimated by United Nations Conference on Trade and Development.

Table I.20 Selected economies in the ESCAP region. Balance of payments and capital inflows, 1987-1990

(Millions of US dollars)

		Balance on goods and private transfer	Official transfers	Long-term capital: Direct[a] investment	Long-term capital: Others	Short-term capital	Error and omission	Overall[b] balance	Change in reserves
Afghanistan	1987	-478.6	311.7	–	113.6	-147.5	211.6	10.8	-21.2
	1988	-316.6	342.8	–	22.4	-26.5	-47.9	-25.8	18.6
	1989	-304.6	87.5	–	-196.0	122.7	270.4	-20.0	17.4
Bangladesh	1987	-951.7	713.9	3.1	593.3	-38.3	-123.8	196.5	-120.7
	1988	-1 090.8	804.4	1.8	619.4	-232.6	29.8	132.0	-193.6
	1989	-1 686.5	583.6	2.8	843.4	-29.3	-29.2	-315.2	405.1
China	1987	325.0	-25.0	2 720.0	3 032.0	212.0	-1 481.0	4 783.0	-4 768.0
	1988	-3 805.0	3.0	3 220.0	3 919.0	58.0	-1 021.0	2 374.0	-2 379.0
	1989	-4 460.0	143.0	2 433.0	2 807.0	-1 518.0	117.0	-478.0	476.0
Fiji	1987	-33.4	10.3	6.3	11.5	-30.2	8.0	-27.5	37.7
	1988	16.1	33.7	44.7	6.6	9.7	1.3	112.1	-106.2
	1989	-56.1	34.5	32.4	-31.1	-7.8	14.5	-13.6	20.7
India	1986	-4 995.0	399.0	–	4 496.0	-504.0	197.0	-407.0	263.0
	1987	-5 563.0	370.0	–	4 511.0	1 223.0	-408.0	133.0	-318.0
	1988 (i-iii)[c]	-4 933.0	330.0	–	4 539.0	238.0	-514.0	-340.0	439.0
Indonesia	1987	-2 269.0	171.0	358.0	2 152.0	970.0	-752.0	630.0	-876.0
	1988	-1 552.0	155.0	444.0	1 352.0	408.0	-920.0	-113.0	451.0
	1989	-1 280.0	172.0	509.0	2 507.0	-98.0	-1 361.0	449.0	-420.0
	1990 (i)[d]	-737.0	61.0	243.0	136.0	-1.0	-69.0	-367.0	208.0
Malaysia	1987	2 567.0	69.0	-525.0	-23.0	-989.0	20.0	1 119.0	-1 472.0
	1988	1 736.0	81.0	-247.0	-977.0	-1 113.0	89.0	-431.0	1 073.0
	1989	-268.0	94.0	1 691.0	-824.0	301.0	237.0	1 231.0	-1 258.0
Maldives	1986	-12.8	4.0	–	6.8	-7.3	11.3	2.0	-2.3
	1987	-9.1	9.4	–	-1.1	-9.2	11.3	1.3	-1.3
	1988	-8.4	10.7	–	-0.6	-2.0	10.9	10.6	-13.4
Nepal	1987	-196.4	73.1	–	127.1	63.6	-3.6	63.8	-71.9
	1988	-340.2	60.0	–	214.7	39.0	1.1	-25.4	-33.3
	1989	-291.3	48.0	–	213.3	-18.9	4.8	-44.1	7.6
Pakistan	1987	-980.0	418.0	242.0	170.0	-43.0	17.0	-176.0	-33.0
	1988	-2 038.0	615.0	299.0	946.0	302.0	23.0	147.0	-281.0
	1989	-1 712.0	509.0	176.0	1 355.0	-383.0	-355.0	-410.0	220.0
Papua New Guinea	1987	-418.9	204.3	115.4	52.3	9.3	39.5	1.9	-33.6
	1988	-432.4	217.7	118.8	-1.1	29.7	-7.2	-74.5	38.0
	1989	-662.1	217.3	221.9	-116.0	0.0	279.8	-59.1	5.3
Philippines	1987	-641.0	197.0	326.0	275.0	-246.0	-209.0	-298.0	96.0
	1988	-665.0	275.0	986.0	-381.0	-34.0	479.0	660.0	-1 000.0
	1989	-1 822.0	357.0	854.0	595.0	-72.0	388.0	300.0	-462.0
	1990 (i)[d]	-543.0	52.0	102.0	-284.0	144.0	131.0	-398.0	376.0
Republic of Korea	1987	9 835.0	19.0	305.0	-8 777.0	-462.0	1 184.0	2 104.0	-2 263.0
	1988	14 117.0	44.0	238.0	-3 645.0	-847.0	-591.0	9 316.0	-3 684.0
	1989	5 008.0	48.0	424.0	-4 328.0	1 278.0	690.0	3 120.0	-2 867.0
	1990 (i)[d]	-1 006.0	7.0	112.0	-629.0	577.0	-252.0	-1 191.0	1 194.0
Samoa	1987	-6.1	13.5	–	3.4	0.4	-2.6	8.6	-14.7
	1988	-9.3	13.2	–	1.0	-0.1	5.3	10.1	-13.1
	1989	-4.7	13.2	–	1.3	-0.5	1.4	10.7	-12.8
Singapore	1987	288.0	-64.0	2 770.0	-204.0	-2 096.0	400.0	1 094.0	-2 288.0
	1988	1 374.0	-68.0	2 656.0	-158.0	-1 914.0	-230.0	1 660.0	-1 846.0
	1989	2 407.0	-69.0	3 932.0	-323.0	-1 686.0	-1 524.0	2 737.0	-3 273.0

(Continued on next page)

Table I.20 *(continued)*

(Millions of US dollars)

		Balance on goods and private transfer	Official transfers	Long-term capital		Short-term capital	Error and omission	Overall[b] balance	Change in reserves
				Direct[a] investment	Others				
Solomon Islands	1987	-39.2	19.4	8.8	9.7	-8.3	3.1	-6.5	-8.5
	1988	-60.6	32.7	3.4	20.2	14.7	-15.5	-5.1	-4.6
	1989	-67.2	37.3	5.7	12.8	0.5	-2.6	-13.5	14.5
Sri Lanka	1987	-505.8	179.9	58.2	210.0	126.7	-122.5	-53.5	3.5
	1988	-600.6	206.1	43.6	225.7	-7.0	37.5	-94.7	139.8
	1989	-452.1	187.3	17.6	176.9	149.6	-79.4	-0.1	-16.0
Thailand	1987	-490.0	125.0	528.0	72.0	462.0	248.0	945.0	-1 276.0
	1988	-1 844.0	189.0	1 612.0	-255.0	2 497.0	397.0	2 596.0	-2 516.0
	1989	-2 651.0	197.0	3 116.0	1 130.0	2 293.0	946.0	5 031.0	-4 870.0
Tonga	1986	-2.2	3.1	0.1	-1.0	0.2	-2.9	-2.7	8.5
	1987	-0.6	6.4	0.2	0.7	-0.6	1.5	7.5	-13.9
	1988	-17.1	5.7	0.1	3.7	1.2	4.4	-2.1	0.5
Vanuatu	1986	-24.2	21.3	2.0	11.9	-0.9	-5.3	4.8	-10.8
	1987	-37.7	32.3	12.9	15.9	-9.5	-15.1	-1.2	-18.8
	1988	-28.2	30.8	10.8	16.1	-17.2	-17.3	-5.0	-0.5

Source: IMF, *International Financial Statistics*, vol. XLIII, No. 11 (November 1990).

[a] Including direct investment and portfolio investment not included elsewhere. [b] Including expectional financing and liabilities constituting foreign authorities reserves. [c] The first three quarters of the year. [d] The first quarter of the year.

Net outflows of both short- and long-term capital were indicative of debt repayment and also placement of the surpluses in external capital markets. With the sizeable inflow of foreign direct investment in 1989, there was an increase in the country's foreign exchange reserves although the current account incurred a small deficit. The Republic of Korea also continued to repay its external debt and to invest abroad as reflected in the outflow of long-term capital from the country. However, a large inflow of short-term capital added to its already high level of reserves in 1989. Both Singapore and Thailand, with the largest inflow of foreign direct investments in the region, could make sizeable addition to reserves, although Thailand had a larger deficit in her current account balance. While Singapore's reserve level was the highest in the region at the end 1989, Thailand's was the fourth largest after China and the Republic of Korea.

India's current account deficit in fiscal 1989 was of the order of $US 6.7, billion somewhat higher than in the previous year. The country received $US 2.1 billion in official long-term credit and an equal amount was raised from the market. The deposits and miscellaneous capital receipts of non-resident Indians provided almost $US 3 billion. After a $US 1.2 billion repayment of previous International Monetary Fund (IMF) drawings, the country ended up with an overall deficit of $US 0.68 billion and an equivalent amount of reserve losses. Sri Lanka experienced a reduced inflow of capital in the form of reduced official transfers, foreign direct investment as well as other long-term flows. However, the country brought in a relatively large amount of short-term capital to offset the shortfalls, and with a reduced deficit in the current account, was able to make a small addition to reserves after a relatively large reduction in 1988.

In 1990 the balance of payments of most countries in the region are likely to worsen for a number of reasons. Economic growth and consumer demand in the United States were weakening even before the Persian Gulf crisis, with output growth rates averaging just above 1 per cent during the second and third quarters. The crisis worsened the situation further. The Canadian economy was already in a recession by the third quarter of 1990. Economic growth in Europe was also slowing down. The unified German economy was expected to achieve in 1990 about half the rate of growth of the Federal Republic of Germany in 1989. Among others, the economy of that of United Kingdom of Great

Box I.13. Impact of the Persian Gulf crisis on the balance of payments of developing countries in the ESCAP region

The Persian Gulf crisis would be one of the principal factors for the deterioration in the balance of payments of many developing countries in the ESCAP region in 1990. Its direct effect stemmed from the decline in remittances and exports, and the increase in the price of oil. It was estimated that the aggregate direct costs of the Persian Gulf crisis on the balance of payments of eight severely affected developing countries in the ESCAP region was over $US 7.0 billion in 1990. While the United Nations trade embargo on Iraq accounted for a loss in exports of less than $US 1 billion, the loss in remittances totaled nearly $US 1.5 billion. However, the major impact on the external account comes largely from the increase in the price of oil. Assuming that the price of oil averages $US 25 per barrel for the whole of 1990, the net oil-importing countries stand to lose nearly $US 7 billion. Against these losses the gains of the five net oil-exporting developing countries in the region (Brunei Darussalam, China, Indonesia, the Islamic Republic of Iran and Malaysia) will amount to nearly $US 8 billion. Besides, the cost of repatriation of thousands of workers of ESCAP members from the Persian Gulf region was adding millions of dollars, further burdening the balance of payments especially of Bangladesh, India, Pakistan, the Philippines and Sri Lanka, countries already running large balance-of-payment deficits.

Among the oil-importing countries, the Republic of Korea and Thailand were able to cope relatively well with the crisis in 1990. Bangladesh and the Philippines were the worst affected. Pakistan and Sri Lanka also were in a difficult financial position. Both had large deficits in their current accounts in 1988 and relatively low levels of gross international reserves, which were equivalent to less than two months of import coverage. The estimated additional costs arising from the loss of exports and remittances and the higher costs of oil imports are $US 354 million for Bangladesh, $US 635 million for the Philippines, $US 656 million for Pakistan, and $US 239 million for Sri Lanka (see table below). The loss of remittances has much more serious implications for Bangladesh, Pakistan and Sri Lanka, where remittances contributed 60, 46 and 24 per cent respectively of their total foreign exchange earnings in 1988. The least developed and the Pacific island countries would also be in the most seriously affected category largely owing to their heavy oil-import dependence and higher import costs.

The most seriously affected countries found it extremely difficult to finance the expected increase in their current account deficits in 1990. Access to foreign loans is restricted since some of the most adversely affected countries have relatively huge external debts outstanding and high debt service ratios. The Philippines had an external debt of $US 28.5 billion in 1989 and a debt service ratio of 27.9 per cent while the external debt of Sri Lanka as a percentage of gross national product in 1988 was one of the highest in the region. The debt service as a percentage of exports in 1988 already exceeded 20 per cent in Bangladesh, Pakistan and the Philippines; aid cutbacks have also loomed large for some countries.

The other developing countries will also encounter problems but will be in a better position to cope, in the short term, by virtue of their relatively more comfortable reserve holdings and, in the medium term, by re-enforcing energy conservation measures and other structural adjustments with which they had already achieved large measures of success in the past. However, the consequences of the hostilities that broke out in January 1991, especially if they became prolonged and more widespread, could be much more damaging and would make those sustained in 1990 appear very small in comparison.

Direct losses/gains from Persian Gulf crisis, 1990

(In millions of US dollars)

	Loss of remittances[a]	*Loss of exports*[b]	*Loss/gain increase in price of oil*[c]	*Total*
Oil exporters				
Brunei Darussalam	...	...	356	356
China	...	-206	1 415	1 209
Indonesia	...	-42	1 841	1 799
Iran, Islamic Republic of	...	-13	3 717	3 704
Malaysia	...	-92	789	697
Oil importers				
Bangladesh	-230	-24	-100	-354
India	-641	-376	-1 164	-2 181
Pakistan	-237	-40	-379	-656
Papua New Guinea	...	...	-38	-38
Philippines	-82	-8	-545	-635
Republic of Korea	-108	-342	-1 881	-2 331
Sri Lanka	-90	-58	-91	-239
Thailand	-98	-81	-575	-754

[a] Total stoppage of all remittances from Kuwait and Iraq. [b] Total stoppage of all exports to Kuwait and Iraq owing to the United Nations trade embargo. [c] Assuming an average price of oil of $US 25 per barrel.

Britain and Northern Ireland were also experiencing sharp deceleration in growth in 1990. Although economic growth in Japan remained high in spite of the Persian Gulf crisis, the adverse effects of the sharp stock market fall and higher interest rates on investment and consumer demand, Japan was likely to experience a slow down in its trade growth as data for the first half of the year indicated. These are major markets for exports from the region and therefore demand for exports, and the export earnings of most countries could fall.

Prices of primary commodities remained weak in 1989 through 1990. Prices of coconut products, palm oil, coffee, tea, rice, rubber and shrimp – major agricultural exports from the region – were lower in 1990 than in 1989 which was already lower than the 1988 levels. Even sugar prices fell after a recovery from their critical levels in 1987. Only cotton, jute and maize showed some sustained but weak recovery. The oil price rise was not apparently giving the expected boost to primary commodity prices as a result of their enhanced cost competitiveness *vis-à-vis* substitutes. Although commodities carried less weight in the export trade of most countries in the region, the impact of low commodity prices could still be substantial on the balance of trade and payments. The inconclusive status of the Uruguay Round of multilateral trade negotiations has given rise to fears of further trade losses through a rise in protectionism, although it may not affect the trade and balance-of-payment outcomes for 1990.

The Persian Gulf crisis and the rise in the level of oil prices were major concerns for the world economy and for the region. Apart from the impact of the weakening of world economic growth and demand for exports, the oil price rise will have the most direct impact on the balance of payments of countries in the region (see box I.13). The extent of the impact will depend on the actual level of oil prices that finally prevails. Assuming that oil prices finally settled down in the region of $US 25 to $US 30 per barrel, oil imports would cost at least 50 per cent more in a full year to the oil-importing countries in the region, even if demand growth for oil and oil products was contained and the quantity of imports stabilized at the existing levels.[5] Bangladesh, India, Pakistan, the Philippines, Sri Lanka and Thailand, in addition to higher costs of oil and loss of export trade, would also suffer a loss of the remittances from their workers living and working in the Persian Gulf region, the annual flows of which are above $US 2 billion for India and Pakistan each, around $US 800 million for Bangladesh, $US 1.3 billion for the Philippines and $US 900 million for Thailand. The large deficits in the balance of payments of these countries in 1989 could only worsen further. Remittances constitute even higher proportions of the foreign exchange earnings for some of the smaller countries than for these larger recipients. The net oil exporters, Brunei Darussalam, Indonesia, Malaysia and the Islamic Republic of Iran would be able to improve their balance of payments, permitting Indonesia and the Islamic Republic of Iran to reduce substantially their current deficits, and probably permitting Malaysia to develop a surplus as against a small deficit in 1989.

Thus, although balance-of-payments data for 1990 were still unavailable, the emerging trade situation, the fall in remittances, and also the decline in tourism would worsen the balance-of-payments results for most countries with the possible exceptions of the net oil exporters. The Republic of Korea was facing a deficit after four years of running surpluses in its trade and payment balances. China, on the other hand, was expected to develop a sizeable surplus reversing an approximate $US 4.5 billion deficit in 1989.

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5 For some estimates see document No. E/ESCAP/749. (Impact of some recent international developments on the economies of Asia and the Pacific and the development prospects.)

V. ASPECTS OF SOCIAL DEVELOPMENT

INTRODUCTION

Both as productive agents and as beneficiaries, people are at the centre of development. The task of development policy is to facilitate as best as possible the achievement of this dual role of the people in the development process. While it is true that underlying trends in labour productivity are the key to any improvement in standards of living, labour productivity is only a necessary and not a sufficient condition for improvement. The rise in productivity to be translated into a general improvement in people's welfare, requires explicit attention to the social distributive aspects of development, which has unfortunately not been forthcoming in an adequate measure in many developing countries of the ESCAP region.[1]

The two aspects are often treated as dichotomous and mutually exclusive choices. Experience has shown that such a choice is not only unnecessary, but also counterproductive. Development policies emphasizing material production but neglecting social development activities have generally missed a valuable opportunity for enhancing productivity. Raising the capabilities of the individual human agent through well-designed social policies not only enhances the individual's consumption and welfare level but also contributes to greater productive efficiency, unless there is a pronounced dissonance between the production and the distribution structure. For example, improvements in people's educational and health standards can directly contribute to their welfare while raising their efficiency and productivity levels. In turn, the increased levels of material production could contribute to people's welfare.

An unfortunate consequence of the dichotomy between viewing people as productive agents and as beneficiaries of development has manifested in the persistence of poverty on a staggering scale in the Asian and Pacific region. According to the estimates recently made by the World Bank, as many as 800 million people in the region had incomes below the poverty line. They accounted for about three fourths of the world's poor and more than a quarter of the region's total population. When contrasted with the region's impressive record of economic growth, especially in the 1980s which, for the developing world as a whole, is often termed as the "lost decade" for development, the dissonance between social and economic policies in the developing ESCAP region becomes strikingly clear.

The persistence of poverty in the Asian and Pacific region has been caused by many factors, among which rapid population growth in many of the region's developing countries is of primary importance. Another major cause of poverty in the region, on which considerable research was undertaken in the 1970s, but which has receded into relative obscurity because of its political sensitivity, is the question of redistribution of assets, especially land. In the meanwhile, attention is being increasingly focused on new factors, such as gender bias, environmental degradation and social marginalization.

The developing countries of the ESCAP region are showing increasing awareness of these issues. The problem of poverty in the region, unlike that in Africa, is not mainly that of providing short-term relief for food and other subsistence goods. It is more a problem of enhancing the capabilities of the poor to enable them to join the mainstream of economic life through greater access to and enhanced opportunities for education, health and employment. This could be achieved by undertaking medium- and long-term measures in these fields, through both formal and informal arrangements, involving not only the government, but also the community, the non-governmental organizations (NGOs) and the private sector. Education, in particular primary education and adult literacy, could become a valuable instrument for poverty alleviation.

Discussions of formal social security arrangements were tabooed in the development literature for a long time, on the grounds that such arrangements were a luxury

[1] An indication of this lack of balance is the considerable under-investment in social infrastructure, which is discussed in detail in chapter III, part two of this *Survey*.

which could be afforded only by the more affluent and developed nations. That taboo, however, has begun to be lifted, not only because many of the region's developing countries have achieved per capita incomes and levels of industrialization which are higher than those which the contemporary developed countries enjoyed when they introduced such arrangements, but also because perceptions about the need for having such arrangements, even in a rudimentary form, have strengthened on both efficiency and equity grounds. In addition, the erosion of informal social security arrangements that existed in many traditional societies has provided a further reason for the introduction of formal social security arrangements.

In this chapter some of the issues raised above are discussed in detail. Section A discusses the dimensions and causes of poverty in the developing ESCAP region. Section B looks at two sets of poverty alleviation strategies – education for all and social anti-poverty programmes. Section C discusses in some detail the status of current social security arrangements, both formal and traditional.

A. POVERTY IN A REGION OF HIGH GROWTH

1. Dimensions of the poverty problem

Alternative measures and indicators are used to gauge absolute and relative deprivation or poverty in society. Absolute poverty is defined as the condition in which individuals or households subsist under the threshold level of average annual income. Recently the World Bank has employed a poverty threshold of between $US 275 and $US 370 of income per person per year (in 1985 purchasing-power parity).[2] Absolute poverty has also been defined as a state where basic nutritional requirements are not being met. Relative poverty, on the other hand, is a measure of inequality, referring to segments of the population in the lowest deciles or quintiles of the income distribution scale, and/or the most disadvantaged in terms of access to food and other basic consumer goods, including public goods and services. Social indicators on longevity, measured in life expectancy at birth, infant mortality rates or literacy and health standards, are also used to indicate poverty and deprivation in relation to some explicitly or implicitly set norms. Some of these elements have also been combined to develop composite indices of the physical quality of life and, very recently, of human development to broaden further the concept of the quality of life.[3]

Regarding the quantitative dimension of poverty in the region, the World Bank in 1985 placed 800 million (280 million in East and South-East Asia and 520 million in South Asia) of the estimated 1.1 billion poor people in the world in the Asian region. Since 1985, however, most Asian countries have made significant economic progress which has tended to reduce the incidence of absolute poverty in many countries in the region.[4] Even so the latest estimates suggest at least 600 million absolutely poor people in the region, with the absolute number of the poor increasing in some countries although the proportion of the poor may have declined.

In terms of the quality criteria for defining poverty, undernourishment and malnourishment, conditions of insecure employment, squalid housing, ill health and illiteracy etc., as much as one third to a half of the population in many countries remains absolutely poor. Poverty is mostly concentrated among the landless and the marginal peasants, and workers in urban and rural informal sectors. Women and children are particularly badly affected (boxes I.14 and I.15).

Moreover, income inequality remains a serious problem in the region. Table I.21 reveals two phenomena: the dearth of distribution-related data and the sketchiness of those that are available. Available data do indicate the existence of strong income disparities in the region's developed and developing economies alike. Japan has the most egalitarian distribution among the three developed countries of the region. Newly industrializing economies (NIEs) such as Hong Kong and Singapore have almost as much inequality as Malaysia and the Philippines. In Thailand, the top quintile increased its income share from 49 per cent in 1976 to 56 per cent in 1988, while the share of the poorest quintile dropped from 6.1 per cent to 4.5 per cent over the same period.[5] In Sri Lanka, which once enjoyed the reputation of being a welfare-oriented developing economy, the

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[2] World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990), p. 27. The range was chosen to span the poverty lines estimated in recent studies for a number of countries with low average incomes.

[3] UNDP, *Human Development Report 1990* (New York, Oxford University Press, 1990).

[4] World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990), p. 43.

[5] Sopin Tongpan and others, "Deforestation and poverty: can commercial and social forestry break the vicious circle?", Thailand Development Research Institute, 1990 Year-End Conference, Research Report No. 2 (Bangkok, 1990), pp. 1 and 58.

Box I.14. The welfare and the development of the child: investing in the future

Nearly 15 million children in the world die annually from malnutrition, disease and deprivation, over half of them in Asia. According to the United Nations Children's Fund (UNICEF) data, Bangladesh, China, India, Indonesia and Pakistan together register over 7.1 million deaths per year. In Afghanistan, the Islamic Republic of Iran, Myanmar, Nepal and Viet Nam, more than 100,000 children under five die annually[a] (see table below).

The causes underlying these startling figures are manifold. Undernourished and malnourished children are highly vulnerable even to minor illness, infections and the hazards of unsanitary living conditions. In many developing countries of the region, more than half the children fail to receive the basic immunization vaccinations, although remarkable progress has been made in many countries. In most countries of the region, extensive areas of human settlements have the barest of physical and social infrastructure; even where such infrastructure exists access by the poor is very difficult.[b] Increasingly, AIDS and drug abuse by parent generations are taking their toll on newborn and young children. Children, especially the unborn and infants, are also the most vulnerable to the effects of environmental degradation.

In the decade of the 1980s, when severe structural adjustment needs brought about by a sharp deterioration in the external environment forced many developing countries to cut back on essential social expenditure, UNICEF with its pioneering publication *Adjustment with a Human Face*[c] drew attention to the impact of the structural adjustment measures on the child population and the wider implications to the development process since the child represented the future. The pioneering work of UNICEF in advocacy for the child has gathered considerable momentum over the years and has sensitized the work of both national and international agencies, including the International Monetary Fund (IMF) and the World Bank.

The United Nations is currently pursuing the ratification of the Convention on the Rights of the Child. Brought before the General Assembly in 1989, the Convention is conceived as a comprehensive code to unify previously scattered norms and goals. It sets minimum standards of protection for child survival, health and education and is designed to provide protection against exploitation at work, physical and sexual abuse, and the degradations of war.

The World Summit for Children, convened in New York in September 1990, was the culmination of efforts to refocus attention on the need for new approaches to deal with children's problems. In an unprecedented forum, seventy-one Heads of State deliberated on the state of deprivation of the majority of the world's children, those growing up in developing countries, as well as those living in the slums and ghettos of the developed world. They adopted a World Declaration on the Survival, Protection and Development of Children.[d]

[a] UNICEF, *The State of the World's Children 1990 and 1991* (New York, Oxford University Press).

[b] See this *Survey*, part two, chap. III.

[c] G.A. Cornia, R. Jolly, and F. Stewart, "Protecting the vulnerable and promoting growth", *Adjustment with a Human Face*, vol. 1 (Oxford, Clarendon Press, 1987), p. 37. Also see the review in *Survey*, 1987, p. 149.

[d] United Nations, *World Declaration on the Survival, Protection and Development of Children and Plan of Action for Implementing the World Declaration on the Survival, Protection and Development of Children in the 1990s* (New York, 30 September 1990).

(continued overleaf)

Incidence of child mortality, 1989

Country or area	*Under-five mortality rate (per thousand live births)*	*Number of under-five deaths (thousand)*
Afghanistan	296	230
Bangladesh	184	857
Bhutan	193	11
Cambodia	200	65
China	43	1 057
Hong Kong	8	1
India	145	3 780
Indonesia	100	499
Iran, Islamic Republic of	64	112
Lao People's Democratic Republic	156	28
Malaysia	30	17
Myanmar	91	110
Nepal	193	139
Pakistan	162	883
Papua New Guinea	83	11
Philippines	72	143
Republic of Korea	31	20
Singapore	12	1
Sri Lanka	36	13
Thailand	35	40
Viet Nam	84	169

Source: UNICEF, *The State of the World's Children 1991* (New York, Oxford University Press).

[a] UNICEF, *The State of the World's Children 1990 and 1991* (New York, Oxford University Press).

(continued from preceding page)

The Plan of Action for Implementing the World Declaration has identified seven goals to be fulfilled by the year 2000:

(a) Reduction of under-five mortality rates by one third or to 70 per 1,000 live births, whichever is less, between 1990 and the year 2000;

(b) Reduction of maternal mortality rates by half between 1990 and the year 2000;

(c) Reduction of malnutrition among under-fives by one half between 1990 and the year 2000;

(d) Universal access to safe drinking water and sanitation;

(e) Universal access to basic education and completion of primary education by at least 80 per cent of primary school-age children;

(f) Reduction in adult literacy to at least half its 1990 level with an emphasis on female literacy;

(g) Improved protection of children in especially difficult circumstances.

While these targets in themselves are well-accepted, and have in fact emanated from various sectoral declarations, such as the World Health Organization (WHO) Global Strategy for Health for All by the Year 2000 and the Call to Action of the World Conference on Education for All, the real innovation of the Declaration on Children lies in the moral obligation it imposes on governments and the process of consciousness raising. The Plan of Action emphasizes: "as the most vulnerable segment of human society, children have a particular stake in sustained economic growth and alleviation of poverty, without which their well-being cannot be secured".

Currently, developing country governments as a group are devoting half of their total annual expenditure to debt servicing and the military.[e] Therefore, one recommendation at the Summit was to design debt swaps in exchange for investment in social development schemes benefiting children. Donors are urged to focus development assistance on primary health care, basic education and water and sanitation programmes. In dealing with the issue of sources of funding for the Plan of Action, it has been extensively argued that a redeployment of military expenditure to the social sectors would suffice to end absolute poverty within 10 years.[f]

In the ESCAP region, the sensitization process though slow is gathering momentum. In the South Asian Association for Regional Co-operation (SAARC) member countries, where female illiteracy and deprivation are exceptionally high, the 1988 Summit declared 1990 as the Year of the Girl Child.[g] Each SAARC member country has adopted an action plan combining advocacy and action: advocacy aimed at increasing awareness on the socio-economic status of the female child, and action plans towards enforcing existing provisions and introducing new programmes to rectify the disadvantages of the girl child. Other countries in the region have also expressed similar concerns and chalked out national programmes for better care of their child population.

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[e] UNICEF, *The State of the World's Children 1991* (New York, Oxford University Press, 1991), p.1.

[f] World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990), p. 69; and United Nations Development Programme, *Human Development Report* (New York, Oxford University Press, 1990).

[g] UNICEF, "Inter-Country Stategy Meeting for The SAARC Year of The Girl Child" (Islamabad, 1990).

lowest quintile received a maximum of 5.5 per cent of the total income, while the highest income quintile had roughly half of total income.

2. Causes of poverty

(a) Increasing population pressures

(i) Population size and growth

Of the 5.3 billion people of the world in 1990, 3.0 billion or approximately 57 per cent lived in the Asian and Pacific region. During the decade of the 1980s, the population of the region increased by 491 million persons, with annual increments nearly equal to that of the population of Thailand at the time. According to United Nations projections, during the 1990s, population of the region will expand by 548 million persons, which will mark a historical high as the rate of increase is expected to fall thereafter.

Population size in countries of the region varied enormously. Six of the 10 most populous countries of the world, Bangladesh, China, India, Indonesia, Japan and Pakistan, with a total of 2.5 billion people, belong to the ESCAP region. Many of the world's smallest countries are also found in Asia and the Pacific. Nine out of 44 regional member and associate members of ESCAP had populations of less than a million; in the Pacific – Kiribati, the Republic of the Marshall Islands, Tonga and Tuvalu – had populations of less than 100,000 each and Nauru, Niue and Samoa had less than 10,000. Extreme population sizes, whether very large or very small, create unique problems. In the large countries, uneven spatial distribution of population places enormous pressure on physical and social resources and infrastructure, and exacerbates management costs.

The annual rate of population growth in the region averaged 1.8 per cent during the period 1975-1990. The rate slowed considerably in many countries during the 1980s but is unlikely to decline further until about the end of the century. There were wide variations, obviously, among

Table I.21. Selected economies in the ESCAP region. Per capita and household incomes and distribution

	GNP per capita (US dollars)		GDP per capita of lowest 40 per cent of households (US dollars)	Percentage share of household income, by quintiles[a]					
	1980	1988	1987	Year	Lowest 20 per cent	Second quintile	Third quintile	Fourth quintile	Highest 20 per cent
Developed economies									
Australia	10 270	12 340	4 270	1985	4.4	11.1	17.5	24.8	42.2
Japan	9 870	21 020	8 630	1979	8.7	13.2	17.5	23.1	37.5
New Zealand	6 910	10 000	3 080	1981/82	5.1	10.8	16.2	23.2	44.7
Developing economies									
China	290	330	...		...	...	...	...	...
Hong Kong	5 210	9 220	3 270	1980	5.4	10.8	15.2	21.6	47.0
India	220	340	120	1983	8.1	12.3	16.3	22.0	41.4
Indonesia	480	440	160	1987	8.8	12.4	16.0	21.5	41.3
Iran, Islamic Republic of	...	...	...		...	...	...	...	...
Malaysia	1 680	1 940	510	1987	4.6	9.3	13.9	21.2	51.2
Pakistan	290	350	...	1984/85	7.8	11.2	15.0	20.6	45.6
Papua New Guinea	760	810	...		...	...	...	...	...
Philippines	700	630	120	1985	5.5	9.7	14.8	22.0	48.0
Republic of Korea	1,620	3,600			...	...	...	...	...
Singapore	4 570	9 070	1 200	1982/83	5.1	9.9	14.6	21.4	48.9
Sri Lanka	260	420	160	1985/86	4.8	8.5	12.1	18.4	56.1
Thailand	670	1 000	320		...	...	...	...	...
Least developed countries									
Afghanistan	...	250[b]	...		...	...	...	...	...
Bangladesh	140	170	70	1981/82	9.3	13.1	16.8	21.8	39.0
Bhutan	...	180	...		...	...	...	...	...
Lao People's Democratic Republic	...	180	...		...	...	...	...	...
Myanmar	180	260[c]	...		...	...	...	...	...
Nepal	130	180	...		...	...	...	...	...

Sources: World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990), and *World Tables 1987*, 4th edition.

[a] Years vary from 1985-1987. [b] 1985. [c] 1987.

the countries of the region, with growth rates ranging from under 1.0 per cent to over 3.0 per cent (table I.22). Although there were also variations within subregions, there was a general pattern of declining fertility and slower population growth as one moved from west to east in the region. The average annual population growth rate in South Asia during the period 1985-1990 was 2.3 per cent, while it was 1.9 per cent in South-East Asia and 1.3 per cent in East Asia, although there were significant exceptions to this general growth pattern.

Thus, China, Hong Kong, Indonesia, Singapore, Sri Lanka and Thailand achieved population growth rates of less than 2 per cent. In Bangladesh, the Islamic Republic of Iran, Malaysia, Mongolia, Nepal, the Philippines, Viet Nam and in most of the other least developed countries the population has been growing at more than 2 per cent. Hong Kong, the Republic of Korea, Singapore and Thailand achieved the most marked deceleration in population growth. Japan, New Zealand and the Republic of Korea reached "demographic inertia" with growth rates of 1 per cent or less. Fiji, Guam, Kiribati, Nauru and Samoa in the Pacific region have had low rates of population growth. Strong emigration flows have even resulted in negative population growth rates in the Cook Islands, Niue and Tonga. Especially high rates of population growth of 3 per cent or more have been registered in Brunei Darussalam, Maldives, Pakistan, Solomon Islands and Vanuatu. The differences in growth rates among countries were reflected by the total fertility rates of women. A fertility rate estimated at 2.1 that may ensure a net reproduction rate of 1 surviving daughter per woman and a stable population after two generations (in 50-70 years), is a long way off in most countries in the region. This suggests continued growth.

(ii) Age structure and dependency

Between 1980 and 1990, East Asian developing economies were experiencing a favourable shift in

the age structure of their population with the proportion of the population aged 0-14 dropping dramatically, and the cohort 15-39 increasing substantially. Such a shift in the age structure is favourable economically as it increases the size of the economically active population, and is less burdensome socially as it reduces dependency. However, aging was becoming a significant problem, which raised both economic and social concern. Fertility in South-East Asia has generally declined more recently than in East Asia so that the age structure in South-East Asia cannot be expected to have an economically and socially favourable composition until the end of the century. In South Asia fertility levels remained relatively high so that changes in the age structure will not come until the next century. For the countries in South Asia, with the notable

Table I.22. Selected economies in the ESCAP region. Population size and rates of growth

	Population				*Total fertility rate (per woman) 1985-1990[a]*
	Number (thousand) mid-1990[a]	*Growth rate (percentage)*			
		1975-1980[b]	*1980-1985[b]*	*1985-1990[a]*	
China	1 139 060	1.43	1.23	1.39	2.5
India	853 094	2.08	2.21	2.10	4.3
Indonesia	184 283	2.14	1.96	1.90	3.5
Japan	123 460	0.93	0.66	0.44	1.7
Pakistan	122 626	2.64	3.82	3.45	6.5
Bangladesh	115 593	2.83	2.73	2.67	5.5
Viet Nam	66 693	2.23	2.24	2.10	4.1
Philippines	62 413	2.53	2.63	2.48	4.3
Thailand	55 702	2.44	1.99	1.53	2.6
Iran, Islamic Republic of	54 607	3.08	4.05	2.70	5.2
Republic of Korea	42 793	1.55	1.48	1.00	1.7
Myanmar	41 675	2.11	2.09	2.10	4.0
Nepal	19 143	2.67	2.59	2.47	5.9
Malaysia	17 891	2.32	2.31	2.60	4.0
Sri Lanka	17 217	1.71	1.67	1.32	2.7
Australia	16 873	1.51	1.40	1.40	1.9
Afghanistan	16 557	0.87	-2.02	2.63	6.9
Hong Kong	5 851	2.73	1.59	1.36	1.4
Lao People's Democratic Republic	4 139	1.16	2.29	2.80	6.7
Papua New Guinea	3 874	2.70	2.58	2.30	5.3
New Zealand	3 392	0.17	0.84	0.90	2.0
Singapore	2 723	1.30	1.16	1.30	1.8
Mongolia	2 190	2.82	2.75	2.70	5.0
Bhutan	1 516	1.70	1.80	2.15	5.5
Fiji	764	1.77	1.87	1.80	3.2
Solomon Islands	320	3.01	3.61	3.30	...
Brunei Darussalam	266	3.41	3.80	3.40	...
Maldives	215	3.12	3.32	3.20	...
Samoa	168	0.70	0.97	0.70	...
Vanuatu	158	3.89	3.87	3.00	...
Guam	118	2.14	1.37	0.90	...
Tonga	95	2.00	2.35	-0.20	...
Kiribati	66	1.86	1.60	1.10	...
Republic of the Marshall Islands	39	...	...	2.3	
Territory of American Samoa	38	1.34	1.63	0.90	...
Cook Islands	18	-1.32	1.72	-0.20	...
Tuvalu	9	4.16	1.60	2.10	...
Nauru	9	1.52	1.23	1.50	...
Niue	3	-5.08	-0.16	-1.13	...

Sources: *World Population Prospects 1988* (United Nations publication, Sales No. E.88.XIII.7), and *World Population Chart 1990 (revised)*, (United Nations publication, Sales No. E.90.XIII.4/Rev.).

Note: Countries listed in order of their 1990 estimated population size from the largest to the smallest.

[a] Projections. [b] Estimates.

exception of Sri Lanka, and possibly India, dependency ratios were far above the average developing country standard of 70 per cent (table I.23). For every 100 persons in the working age group, there were as many as 75 to 94 persons in the dependent age groups (i.e., younger than 15 or older than 65). The Philippines too had a high dependency ratio which, however, is projected to improve by the year 2000. The developed countries, the newly industrializing economies and China had the lowest dependency ratios of 50 per cent or less, mirroring the low rates of population growth.

Obviously, the high dependency ratios directly reflected the large share of children in the total populations. At least 40 per cent of the populations in many South-East and South Asian countries were less than 15 years old. In Bangladesh, the Islamic Republic of Iran, the Lao People's Democratic Republic and Nepal, for example, more than 42 per cent of the population were children and adolescents under 15. In Pakistan, this group constituted 46 per cent. Old age as a dependency problem has reached serious proportions in the developed countries, such as Japan, and is also emerging in some of the East and South-East Asian countries with low birth rates and high levels of life expectancy.

High dependency rates place enormous pressure on food provision and the education system, especially primary schools. The number of youth too, is increasing in most countries, with grave implications for employment as the subsistence sector, which more readily absorbed casual labour, is being replaced by the formal sector, requiring new means of training and employment opportunities. In many of the large populous countries, population growth and pressures have probably impeded socio-economic progress by overtaking food supplies, efforts to expand employment, health, education and other social services. This has also aggravated poverty problems. The stark income disparities witnessed in many countries of the region added a further dimension to poverty.

(b) Other causes of poverty

Apart from density and high population growth rates pressing against limited resources, earlier discussions of poverty in the region emphasized the uneven distribution

Table I.23. Selected economies in the ESCAP region. Sex ratio and dependency ratio of population

	Sex ratio (/100 female)		*Dependency ratio total*	
	1985[a]	*1990*[b]	*1985*[a]	*1990*[b]
Afghanistan	106.1	105.9	80.1	81.0
Australia	99.5	99.6	50.9	49.6
Bangladesh	106.4	106.3	95.4	87.9
Bhutan	106.7	107.2	76.5	75.6
China	106.2	106.0	53.9	47.2
Fiji	101.1	100.9	68.7	68.3
Hong Kong	105.7	106.5	44.3	44.5
India	107.2	107.0	72.1	69.5
Indonesia	99.2	99.4	73.0	63.7
Iran, Islamic Republic of	103.0	103.5	86.7	89.1
Japan	96.7	96.7	46.7	43.3
Lao People's Democratic Republic	101.1	101.0	83.6	84.1
Malaysia	101.4	101.6	71.1	66.7
Mongolia	100.4	100.6	81.4	82.3
Myanmar	98.7	99.0	75.5	70.3
Nepal	105.1	105.4	82.7	82.8
New Zealand	98.2	98.2	53.5	50.2
Pakistan	109.3	108.6	90.1	93.7
Papua New Guinea	108.8	107.8	78.6	80.2
Philippines	100.8	101.0	80.2	76.9
Republic of Korea	100.4	100.4	52.1	45.4
Singapore	103.8	103.4	42.1	39.6
Sri Lanka	102.1	100.7	63.3	60.5
Thailand	100.7	100.7	67.0	57.6
Viet Nam	95.0	96.0	82.1	77.5

Source: *World Population Prospects 1988* (United Nations publication, Sales No. E.88.XIII.7).

[a] Estimates. [b] Projections.

of assets, especially land, as the basic cause of poverty.[6] Recent research has identified a number of other factors, including structural adjustments, gender composition of households, environmental degradation and social marginalization.

[6] ILO, *Poverty and Landlessness in Rural Asia* (Geneva, 1977).

The structural adjustment policies pursued by many developing country governments have aggravated poverty problems. The impact on the poor has not yet been sufficiently studied, but available evidence indicates that the burden of economic stabilization and restructuring has fallen on the provision of public goods and social services which are most necessary for the poorest social groups who cannot substitute or supplement the provision of their basic needs from alternative, i.e., private sources.[7]

[7] The case of Sri Lanka is often cited as an example where structural adjustment has had a direct influence on increased poverty and greater inequality.

Box I.15. The feminization of poverty

Of the world's poor people, 70 per cent are women.[a] A number of factors have contributed to the growing impoverishment of women and of households consisting predominantly of women. Women farmers grow at least half of the world's food. They have, however, been increasingly marginalized as cash cropping and new technologies replace subsistence farming and traditional patterns of division of labour. Environmental degradation and climate changes have had further adverse effects on the food output on marginal lands where most women farmers work and earn their livelihood.

The number of households headed and managed by women has been increasing as a result of a number of socio-economic changes, especially migration, which is predominantly male-oriented. In Thailand, for example, 20 per cent of all households are currently headed by women.[b] In Bangladesh, 15 per cent of all rural households and as many as 25 per cent of landless rural households are headed by women.[c] These households, on average, have significantly lower levels of income and standards of living than households headed by men. This is largely attributable to the gender differential in wages and salaries and in the availability of other economic opportunities that significantly favour men.[d]

Women's status in terms of access to entitlement-generating qualifications and assets is inferior to those of men. Given the prevalence of higher illiteracy among women, they do not often avail themselves of their legal rights and entitlements to productive resources.

Recent changes in the external economic environment and domestic policy measures adopted in response are likely to have contributed to the increasing feminization of poverty. The impact of austerity measures to implement structural adjustment programmes falls on poorer households. Such households not only have a higher female ratio but also suffer from bias against women in work sharing and food consumption.[e] Being a vulnerable group, women are the first to be affected by industrial retrenchment or technologically-induced displacements, such as happened in the electronics and garment industries in Malaysia and the Philippines when production operations were automated. Being less educated and having fewer skills they are also unable to adapt as flexibly as men to changing labour market situations.

The burden of coping with the loss of income and the reduction or abolition of food subsidies is usually borne by women through cutting corners to generate more real income for the household or by shifting the family diet to less nutritious foods, which often affects the female child more seriously. A rise in the incidence of stunted growth and wasting of children in child labour in low-income households has been a further consequence of cuts in food subsidies or significant price increases of basic foods.[f]

The burden of women's responsibilities as mothers and daughters who are expected by social norms to care for the young, the elderly and the ill, is increased as social services, such as school meals, kindergartens, programmes for the disabled or elderly, are slashed by austerity programmes. It is estimated that 75 per cent of all health care and much informal education and training take place at the household level as a woman's responsibility. In terms of time budgets, women's work-day, already more extensive than that of men, is obviously prolonged as community services become scarce or unavailable and the need to increase income-generating activities intensifies. One example, among many, is the fuel price increases which compel women and children to spend more time gathering fuelwood as a substitute for kerosene or gas for cooking.[g] Increasing deforestation has the same effect on time budgets.

[a] United Nations, *The Feminization of Poverty* (New York, Department of Public Information, 1990), p. 1.

[b] Suteera Thomson, "Gender issues in Thailand development" (Bangkok, Gender and Development Research Institute, July 1990), p. 5.

[c] *Report of a Commonwealth Expert Group on Women and Structural Adjustment: Engendering Adjustment for the 1990s* (London, Commonwealth Secretariat, 1989), p. 41.

[d] See *Survey*, 1988, p. 117 ff., especially p. 123.

[e] See this *Survey*, part two, chap. 3.

[f] United Nations Children's Fund, *The State of the World's Children 1990* (Oxford, Oxford University Press, 1990).

[g] In a conventional setting in rural India, a woman may spend almost four hours a day in the winter season gathering fuel. See data in S. Dasgupta and A.K. Maiti, *The Rural Energy Crisis, Poverty and Women's Roles in Five Indian Villages* (International Labour Organisation, 1986).

Poverty worsens along gender and age lines. The feminization of poverty has become a recent topic, and it has been shown that female-managed households[8] are among the poorest income strata. The evidence reveals that, globally, 70 per cent of the world's poverty stricken population consists of women, many of them elderly. In Asia, families managed by widowed, divorced, abandoned or single women, constitute 16 to 20 per cent of all households[9] (see box I.15).

Environmental degradation in the region is related to poverty as both cause and effect. On the one hand, soil erosion, recurrent flooding, landslides and land toxicity drive peasants from the land, thus creating poverty for new groups of people. On the other hand, a swelling population puts pressure on the available resources and drives the poor and marginalized people to use the environment in a degrading manner in their desperate search for food and energy.[10]

Furthermore, poverty is experienced along lines of caste and ethnicity, and, in most countries, occurs in spatially delineated areas such as urban and rural poverty ghettos.[11] In most countries, poverty also has a seasonal quality, especially in areas dependent on rainfed agriculture such as the rice cultures of South and South-East Asia and southern China.

In addition, beyond the measurable aspects of poverty, such as income and nutritional intake, a crucial determinant of poverty is the vulnerability or fragility of the individuals and households. It has been observed that "people's suffering from poverty in situations of variability depends not merely on actual shortfalls, but also on the possibility of shortfalls and the sense of vulnerability".[12] An often neglected group of vulnerable people, whose numbers have grown sharply in the last two decades in Asia is that of refugees. Poverty is often mistaken as a state rather than a process; thus, despite all concerns over existent states of poverty, there has been a failure to analyse the mechanisms and transmission of poverty.[13]

B. POVERTY ALLEVIATION STRATEGIES

It has been widely recognized that poverty alleviation programmes need to be specifically designed to include and address the poorest among the poor, since many schemes have in fact reached only the upper and middle segments of the population: those in a position to organize and articulate their interests. Those who are too few, too remote or too weak to formulate their needs tend to be disregarded or not addressed.[14] Recent research has confirmed that "the 10 to 20 per cent of the poorest households in low-income countries are beyond the reach of most externally supported projects and government programmes".[15]

Another approach is to emphasize activities that impart skills and improve productive opportunities particularly for those who are most deprived of assets other than their own labour. Educational and health opportunities play a crucial role in this process and it is possible to bring about improvements in these fields

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[8] The current discussion on the feminization of poverty usually speaks of "female-headed households". As Naila Kabeer has pointed out, however, there are many households which are not statistically defined as female-headed although the wife is the major income provider and/or the major decision maker, for example in cases of protracted illness, or irresponsibility, of the male head of household or in situations of male or female labour migration. She therefore proposes the term "female-managed" households which would in fact constitute a larger group than only the strictly defined female-headed households. See Naila Kabeer, *Monitoring Poverty as if Gender Mattered: A Methodology for Rural Bangladesh*, Institute of Development Studies, Discussion Paper No. 255 (February 1989).

[9] United Nations, Department of Public Information, *The Feminization of Poverty* (New York, 1990), pp. 1 and 2.

[10] For detailed analysis, see Gita Sen, Caren Grown, *Development, Crises, and Alternative Visions* (New York, Monthly Review Press, 1987), pp. 50-59.

[11] World Bank, *The World Bank's Support for the Alleviation of Poverty* (Washington, D.C., 1988).

[12] A. Sen, *Levels of Poverty: Policy and Change*, World Bank Staff Working Paper No. 401 (Washington, D.C., July 1980), p. 8.

[13] Kabeer, *op. cit.*, p. 8 who refers to N. Fergany, *Monitoring the Condition of the Poor in the Third World: Some Aspects of Measurement*, ILO/WEP Research Working Paper 52 (Geneva, ILO, 1981). See also World Bank, *World Development Report 1990* (Washington, D.C., Oxford University Press, 1990), p. 35 for a case study on the fluctuation over time of poor households in central India.

[14] See for instance Robert Chambers' plaidoyer for redefining project design and evaluation procedures becoming sensitized to the needs of those not visible in the mainstream development process when he describes the biases to which planners easily succumb, *Rural Development, Puting the last First* (Longman Scientific Publishers, Harloew and New York, 1988).

[15] Michael Lipton, *The Poor and the Poorest: Some Interim Findings*, World Bank Discussion Paper 25 (Washington, D.C., 1988) quoted in the World Bank, *The World Bank's Support for the Alleviation of Poverty* (Washington, D.C., 1988), p. 15.

over the existing state, for example, by shifting government expenditure among or within sectors (from military expenditure to health or from higher to primary education). The next two subsections discuss the role of education and public support programmes in the alleviation of poverty in the region.

1. Education for all: a vital need for poverty alleviation

(a) Review of progress

Schooling is critical to the opening up of minds, to inculcate social values and attitudes, develop skills, create critical faculties and provide individuals with the tools necessary for advanced levels of creative activity and for higher productivity. The unfortunate fact is that currently, approximately one third of the adult population in the ESCAP region (table I.24) are illiterate and suffer from the deprivation of education, the most valuable human acquisition. The rate of adult literacy achieved and the number of the illiterate population vary considerably among countries in the region. An estimated 640 million illiterate adults will be joined by another 54 million children and adolescents, who either never attend or drop out of school.[16] These 700 million illiterates in the region form the bulk of the 800 million poor people. The correlation between poverty and illiteracy is very high. To remove illiteracy and to lay the foundation for the future growth of society and the individual, effective primary education is of utmost importance. However, even at the level of nominal enrolment of the relevant age group, many developing countries in the region are still far from achieving universal primary education, a target which has proved increasingly elusive for many countries of the region.

A major hindrance to achieving the goals of universal primary education for all by the year 2000 is the current emphasis on austerity in public spending as part of programmes of stabilization and structural adjustment. As a result, the non-governmental sector – NGOs and community-based groups as well as the private sector – are expected to generate supplementary resources for education. In the ESCAP region, the participation of non-governmental organizations in financing education, especially non-formal education, and that of the industrial sector in providing support for skill formation and apprenticeship schemes have been suggested as ways for enhancing resources for education.

The total primary school age population (as defined by the respective national regulations on schooling) increased, for the Asia and Pacific region, from 350 million in 1980 to 365 million children in 1990.[17] In most developing countries in the ESCAP region absolute numbers of schoolchildren are on the rise, concomitant with improved proportions of cohort enrolment (table I.25). In Bangladesh, Indonesia, the Islamic Republic of Iran, the Lao People's Democratic Republic and Pakistan, primary student numbers roughly doubled between 1970 and the mid- or late-1980s. Some of the least developed countries achieved phenomenal student number increases: primary school enrolment catapulted from 9,000 to 30,000 in Bhutan, from 600 to 30,000 in Maldives, and from 390,000 to 1.8 million in Nepal in a 25-year period.

The situation of the populous countries of South and South-East Asia contrasts with that in some of the NIEs and China, where the deceleration in population growth has already lessened the numbers of entrants into the school system so that absolute primary student numbers have decreased despite improving enrolment ratios. Similar trends may appear in some of the other countries. An easing of pressure on the education system is anticipated from the projection that the primary school population of the region peaked in 1990; some decline in numbers is expected over the coming decade.

All developing countries in the ESCAP region displayed increasing numbers and ratios of enrolment in secondary and tertiary education. In Indonesia and Maldives, for example, the number of students in secondary school doubled in less than a decade. Tertiary level student numbers have also seen high growth rates; the total student population at this level in the ESCAP region is estimated at approximately 16 million.[18] Regrettably, it contrasts sharply with the illiterate population in the ESCAP region, as for every university-level student there are almost 40,000 illiterates.

Coverage in terms of physical school infrastructure and in trained teaching staff improved vastly over the past decade, although high pupil-to-teacher ratios continued to hamper the delivery of education, especially in the least

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[16] ESCAP/UNESCO, *Education for All in Asia and the Pacific – A Regional Review*, Background Document SD/PASEA/2 (October 1990), p. 14. The data refer to 26 countries and territories in the ESCAP region for which data are available.

[17] *Ibid.*, p. 2.

[18] UNESCO, *Statistical Yearbook 1989*. This refers to data on 30 countries in the ESCAP region for 1986/87 for all types of tertiary education.

Table I.24. Selected developing economies in the ESCAP region. Incidence of adult literacy

	Adult literacy rates (percentage of those 15 year and older)										*Number of adult illiterates 1990[a] (thousands)*	*Out-of-school children 1986-1988 (millions)*
	1970			*1980*			*1985*			*1990a*		
	Male	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*	*Total*		
Afghanistan	13	2	8	26	6	16	39	8	24	29.4	8 289	3.4
Bangladesh	36	12	24	43	20	32	43	22	33	35.3	43 630	19.0
Bhutan	...	...	...	...	...	...	...	...	...	38.4	542	0.3
Cambodia	...	23	...	78	39	59	85	65	75	...	...	...
China	...	...	...	...	...	...	82	56	69	73.5	195 540	40
Fiji[b]	...	...	...	84	74	79	...	...	...	87.1	58	...
Hong Kong	90	64	77	94	77	86	95	81	88	90.2	391	0.1
India	47	20	34	55	29	42	57	29	43	48.3	280 109	10.0
Indonesia	66	42	54	77	58	68	83	65	74	77.1	24 440	17.0
Iran, Islamic Republic of	40	17	29	55	30	43	62	39	51	54.0	13 679	2.5
Lao People's Democratic Republic	37	28	33	51	36	44	92	76	84	60.0	834	0.3
Malaysia	71	48	60	79	61	70	81	66	74	78.7	2 358	0.9
Mongolia	87	74	81	93	86	90	95	90	93	96.2	72	0.0
Myanmar	85	57	71	...	...	...	...	...	...	80.6	4 882	4.2
Nepal	23	3	13	34	6	20	39	12	26	25.6	8 526	2.2
Pakistan	30	11	21	39	18	29	40	19	30	34.9	43 987	23.0
Papua New Guinea	39	24	32	48	30	39	55	35	45	52.0	1 048	0.6
Philippines	84	81	83	90	88	89	86	85	86	89.9	3 762	1.5
Republic of Korea	94	81	88	96	88	92	96	91	...	96.7	1 057	0.2
Singapore	92	55	74	88	70	79	93	79	86	90.7	168	0.0
Sri Lanka	85	69	77	87	76	82	91	83	87	88.6	1 294	0.6
Thailand	86	72	79	93	83	88	94	88	91	93.3	2 514	5.2
Vanuatu[b]	...	...	...	57	48	53	...	...	...	...	...	...
Viet Nam	...	...	...	...	...	...	88	80	...	90.0	3 648	5.5

Sources: UNDP, *Human Development Report 1990* (New York, Oxford University Press, 1990); UNICEF, *The State of the World's Children 1984, 1986* and *1990,* (Oxford University Press); UNESCO, Office of Statistics; national statistical publications; and UNESCO Principal Regional Office for Asia and the Pacific estimates and projections as assessed in March 1990.

[a] Estimates. [b] 1980-1983.

Table I.25. Selected developing economies in the ESCAP region. Indicators of educational achievement

	Enrolment ratio 1987			Primary pupil to teacher ratio 1985-1988	Drop-out rate[a] 1985-1987	Estimates for primary drop-out 1990
	Primary	Secondary	Tertiary			
Afghanistan	...	...	...	37	37	76
Bangladesh	59	18	5	59	80	2 593
Bhutan	24	4	...	37	...	17
China	132	43	2	24	32	3 537
Hong Kong	106	74	...	27	2	6
India	98	39	...	46	...	12 390
Indonesia	118	46	...	28	20	1 392
Iran, Islamic Republic of	114	48	5	26	17	302
Lao People's Democratic Republic	111	23	2	25	86	147
Malaysia	102	50	7	22	3	9
Mongolia	...	...	...	32	...	6
Myanmar	...	...	...	45	73	824
Nepal	82	26	5	35	73	355
Pakistan	52	19	5	41	51	1 128
Papua New Guinea	70	12	2	31	33	31
Philippines	106	68	38	32	25	657
Republic of Korea	101	88	36	...	1	101
Singapore	...	...	...	27	5	2
Sri Lanka	104	66	4	32	12	45
Thailand	95	28	20	20	36	508
Viet Nam	102	42	...	34	50	387

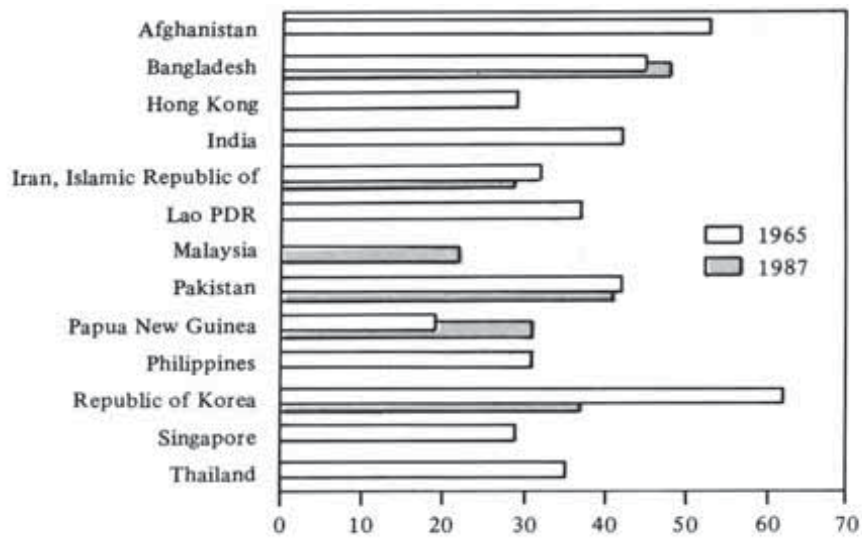
Source: UNDP, *Human Development Report 1990* (New York, Oxford University Press, 1990); UNESCO, Principal Regional Office for Asia and the Pacific estimates and projections as assessed in March 1990; and World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990).

[a] Percentage of grade 1 enrolment not completing primary school.

developed and the South Asian countries (figure I.9). School buildings, many of them constructed during colonial periods or in early periods of independence, are now obsolete or dilapidated in many countries. Rehabilitation and extensive construction are needed especially in the large and populous developing countries.[19]

Gross numerical figures, such as those on enrolment, often overstate actual achievements in education. High drop-out rates especially at the initial enrolment stage effectively lower the enrolment ratios much below those indicated by gross enrolment ratios. Studies have shown that if a child drops out of school before reaching the fifth grade, there is a strong chance that he or she will grow up to be illiterate. Countries which succeeded in meeting targets of universal primary education did

Figure I.9. Primary pupil/teacher ratio, 1965 and 1987



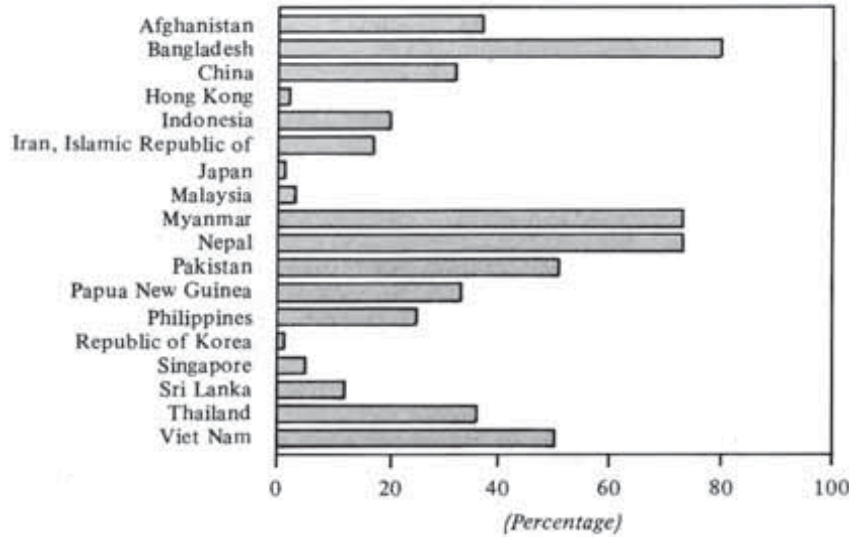
[19] For a discussion of the issues relating to the availability and efficiency of and access to the educational infrastructure in the region see part two of this *Survey*.

so only by lowering the quality of education substantially.

Drop-out rates, measured in the percentage of children who enrol in first grade but do not complete primary school, were in the range of 25 to 51 per cent in Afghanistan, China, Pakistan, Papua New Guinea, the Philippines, Thailand and Viet Nam, and in many of these countries, the trend is increasing rather than decreasing. In some large developing Asian countries, drop out rates exceeded 70 per cent (figure I.10). This translated into 12.4 million children in India, 3.5 million in China, 2.6 million in Bangladesh, 1.4 million in Indonesia and 1.1 million in Pakistan who left school after only one or two years of primary education (table I.24, p. 101). Illiteracy will thus persist into the next century, as children are not, or only perfunctorally, exposed to any kind of literacy and numeracy education .

Education is distributed unevenly: in terms of gender (figure I.11); spatially, between urban and rural areas, and within these areas between affluent and poor neighbourhoods and districts, between densely- and sparsely-populated areas; and ethnically, between ethnic and caste groups. Migrants and refugees, inhabitants of war- or civil strife-stricken areas, street and working children are seriously underserved groups (box I.16).[20] In view of the growing sensitization to gender issues, statistics are becoming available that document the gender literacy gap, but it is still virtually impossible to document other disparities in the ESCAP region on a regionally comparable basis.

Figure I.10. Drop-out rates in primary education, 1985-1987



The gender gap is very clearly a function of cultural attitudes and of socio-economic conditions; where choices have to be made on the ground of limited income or other resources, girls are disadvantaged in comparison with boys world-wide.[21] Rural-urban disparities (figure I.12) in educational attainment are a problem throughout the region. Studies on selected countries in the ESCAP region have revealed that there was a marked gradation in literacy levels: in Afghanistan, Bangladesh, Indonesia and Sri Lanka, literacy levels were best among urban males, and worst for rural females; and in the Philippines, female illiteracy rates were higher in urban than in rural areas, probably owing to the large share of squatter and poverty-level families in the urban areas.[22]

(b) Educational policies[23]

In March 1990, policy makers adopted the World Declaration

[20] See *World Declaration on Education for All and Framework for Action to Meet Basic Learning Needs*, adopted by the World Conference on Education for All, Jomtien, Thailand, 1990 (New York, Inter-Agency Commission for the World Conference on Education for All, April 1990).

[21] For a detailed analysis of the complex issue of intrafamily distribution of "entitlements", see Amartya Sen and S. Sengupta, "Malnutrition of rural children and the sex bias", *Economic and Political Weekly*, vol. 18, 1983; Amartya Sen, "Family and food: sex bias in poverty", in Amartya Sen, *Resources, Values, and Development* (Oxford, Basil Blackwell Publisher, 1984); and more recently Amartya Sen, "Gender and co-operative conflicts" in Irene Tinker, ed., *Persistent Inequalities: Women and World Development* (New York/Oxford, Oxford University Press, 1990). See also Angus Deaton, "The allocation of goods within the household: adults, children and gender", *Living Standards Measurement Study*, Working Paper No. 39 (World Bank, Washington, D.C., 1987).

[22] "Focus on literacy in the ESCAP region", *Social Development Newsletter*, Nos. 17 & 18 (ESCAP, Bangkok 1989), p. 8.

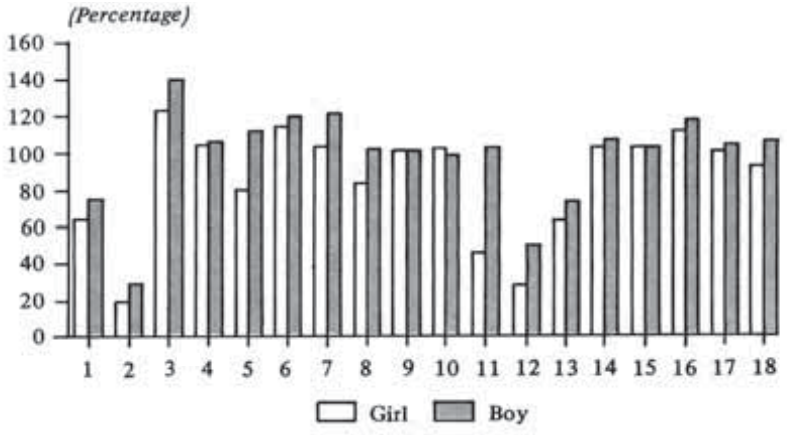
[23] A comprehensive overview on issues in education development is given in Margaret Hardiman, and James Midgley, *The Social Dimensions of Development* (London School of Economics and Political Science, Aldershot, John Wiley and Sons, 1989). See also the chapter on education in Warren C. Baum and Stokes M. Tolbert, *Investing in Development*, Lessons of World Bank Experience, World Bank (New York, Oxford University Press, 1985).

on Education for All and the Framework for Action to Meet Basic Learning Needs. The goals unanimously adopted include achieving an adult literacy rate of 50 per cent globally and universal primary school enrolment by the year 2000. In implementing these targets, policy makers must study institutional issues, allocation of funds to the education sector *vis-à-vis* the question of educational costs, and the question of quality education.

Education at the lower level is compulsory in most of the Asia and Pacific region. However, a number of countries and areas of the region have not yet made primary education compulsory. They include Bhutan, Fiji, Maldives, Pakistan, Papua New Guinea, Samoa, Singapore, Solomon Islands and Vanuatu. In countries or areas where education is compulsory, the duration of schooling varies. In Bangladesh, the Islamic Republic of Iran, the Lao People's Democratic Republic, Myanmar, Nepal and Viet Nam compulsory primary education is for five years; in Indonesia, the Philippines, the Republic of Korea, Thailand and Tonga six to seven years; and in Afghanistan, Australia, Brunei Darussalam, China, Cook Islands, Guam, Hong Kong, India, Japan, Kiribati, Malaysia, Mongolia, Nauru, New Zealand, Niue, Sri Lanka, Tokelau and Tuvalu eight or more years. Countries with higher durations of

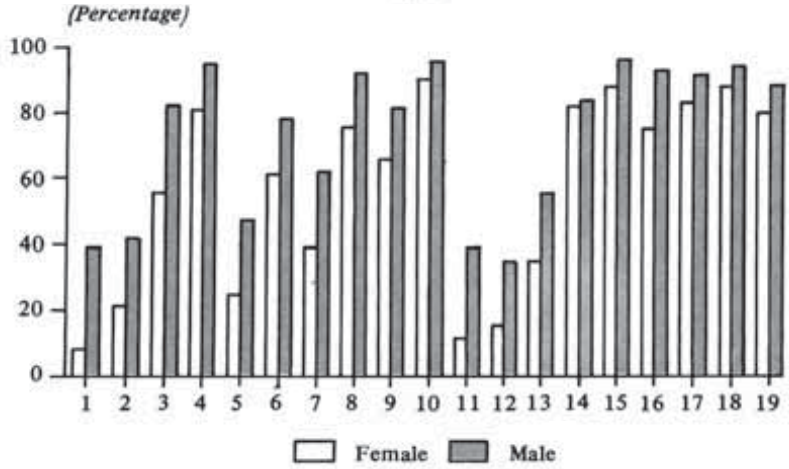
Figure I.11. Indicators of gender differences in education

(a) Gross primary school enrolment: boys and girls 1986-1988 average



1. Bangladesh
2. Bhutan
3. China
4. Hong Kong
5. India
6. Indonesia
7. Iran, Islamic Republic of
8. Lao People's Democratic Republic
9. Malaysia
10. Mongolia
11. Nepal
12. Pakistan
13. Papua New Guinea
14. Philippines
15. Republic of Korea
16. Singapore
17. Sri Lanka
18. Viet Nam

(b) Adult literacy rates: male and female 1985



1. Afghanistan
2. Bangladesh
3. China
4. Hong Kong
5. India
6. Indonesia
7. Iran, Islamic Republic of
8. Lao People's Democratic Republic
9. Malaysia
10. Mongolia
11. Nepal
12. Pakistan
13. Papua New Guinea
14. Philippines
15. Republic of Korea
16. Singapore
17. Sri Lanka
18. Thailand
19. Viet Nam

Sources: UNICEF, *The State of the World's Children 1990* (Oxford, Oxford University Press, 1990); and UNDP, *Human Development Report 1990* (New York, Oxford University Press, 1990).

compulsory education are the industrialized and newly industrializing economies of the region. Others are countries with a strong social commitment arising from a socialist or social-democratic orientation (for example, China, India and Sri Lanka). The South Pacific countries have a longer period of compulsory education because they are generally aligned with the systems in Australia and New Zealand.

Even in countries where primary education is obligatory, there are vast differences in actual implementation. In India, for example, the education sector is under state, as opposed to federal, jurisdiction, and although education is compulsory in many States, it is not universal. In many countries with compulsory education, children are exempt

Box I.16. Resettling the refugees: a growing area of social concern in Asia

Refugees and displaced persons[a] are among the most distressed human beings. Because of war or warlike situations or political, ethnic or religious troubles, refugee movements have considerably increased globally over the past 15 years. If displaced persons are included, the estimates would be even higher, rising up to 20 million persons world-wide.[b]

A large proportion of the world's refugees have been located in or originated from the developing ESCAP region. Two major regional conflicts within the region have contributed the bulk of the refugees during the last two decades. Consequently there is a high geographical concentration in neighbouring countries. Of the 6.3 million refugees estimated in Asia in early 1987, about 90 per cent lived in the Islamic Republic of Iran and Pakistan. The 3.3 million refugees registered in Pakistan was the largest concentration in a single recipient country. During the past 14 years, over 2 million people are estimated to have left Cambodia, the Lao People's Democratic Republic and Viet Nam. Thailand currently houses approximately 325,000 refugees and displaced persons, in addition to providing semi-permanent shelter and exit camps for those being resettled to third countries. Hong Kong, Malaysia and the Philippines are among the other large recipients of refugees.

In the wake of the Persian Gulf war, a new group of displaced persons has been emerging. A high proportion of the 3.3 million migrant workers from Bangladesh, India, Indonesia, Pakistan, the Philippines, the Republic of Korea, Sri Lanka, and Thailand who found contract employment in the oil-exporting countries of Western Asia have already lost or are threatened with the loss of incomes and accumulated assets as a result of the Persian Gulf crisis and the outbreak of the war.

A high proportion of the refugees are women and orphans. Although conditions vary from country to country, refugees have to bear extremely trying living conditions, crowded and primitive shelters with only the minimum standards of nutrition, health, sanitation and education, for unforeseeable periods of time. Indeed, large refugee groups in Asia have been living in refugee camps for 10 and more years in a situation which is basically subhuman and intolerable even for a short period. An entire generation has been born in refugee camps and never lived in their country of origin.

Refugees must come to terms with the loss of the means of livelihood and the pressure of total dependence on refugee agencies and host countries. These socio-economic difficulties are coupled with the psychological burden of losing or leaving behind family members, the trauma of flight and the severance of social and cultural ties. Disabled people, single parent households and orphans constitute major groups among refugee and displaced populations and are in need of special support.

Although the 1951 United Nations Convention relating to the status of refugees stipulates that refugees shall have the same treatment as nationals with respect to elementary education, refugee children are acutely underserved because of the limited resources of aid agencies and host countries. Thus, less than 10 per cent of the world's 7 million refugee children[c] are enroled in schools, as countries accommodating large refugee populations have a shortage of trained teachers and of appropirate training materials.

Refugee and displaced populations, though a highly vulnerable social and economic group, do not receive much attention, except for their most immediate problems. Although they are subjected to conditions of stark poverty and other social and economic deprivations and abuses, they are excluded from most national poverty alleviation programmes since they are considered a transient population and since some of them receive primary assistance from international agencies.

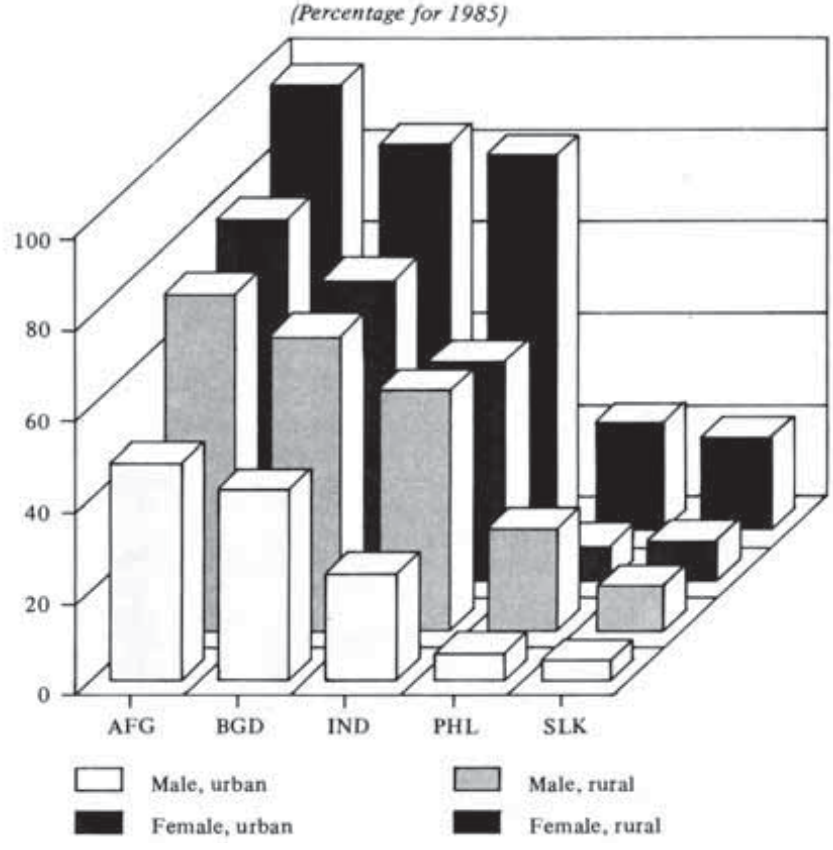
A solution to the refugee and displaced persons' plight is dependent on factors totally outside their control. The only genuinely "durable solution" to the refugee exodus is finding an end to the causes of conflicts and/or persecution that have forced millions of people to seek refuge in other countries. That, primarily, involves the development of the economy and improvement in living conditions in the refugees' country of origin, a task that often cannot be undertaken by that country alone.

[a] Refugees are those people recognized by the United Nations High Commissioner for Refugees as having had to leave their home country because of a well-founded fear of persecution on racial, religious, national, social or political grounds (1951 Convention relating to the Status of Refugees). Displaced persons, on the other hand, are people within or outside their home country who have left their homes because of persecution or war and warlike situations but who are not recognized as conventional refugees.

[b] United Nations High Commissioner for Refugees, Public Information Service, *Refugees*, No. 77 (July/August 1990), p. 31.

[c] United Nations High Commissioner for Refugees, Public Information Service, *Refugees*, No. 78 (September 1990), p. 36.

Figure I.12. Urban/rural illiteracy in selected countries



Urban/rural illiteracy in Afghanistan (AFG), Bangladesh (BGD), India (IND), Philippines (PHL), and Sri Lanka (SLK)

Source: "Focus on literacy in the ESCAP region", *Social Development Newsletter*, No. 17/18 (ESCAP, Bangkok, July 1989).

if there is no suitable school within a reasonable distance from home.[24] Moreover, low enrolment ratios and high drop-out rates illustrate that despite the adoption of compulsory education, many children do not complete the minimum years of education. Even those who do may show considerable discrepancies in actual educational attainment.

The spread of education to the poor is not confined merely to the issue of literacy. Basic education needs to be focused on three components: literacy, numeracy and the ability to communicate. This has implications for measuring literacy as well as for policy measures that look at formal and informal schooling, adult education approaches, and the content of curricula. One aspect of the urban-rural gap in education could be described as a formation bias: the fact that the focus of school curricula and the styles of teaching correspond to the interests of urban populations and of industrialized forms of production. This may relate to the subject matter as well as the teaching materials selected which tend to draw teaching examples from urban and industry-based situations rather than from village and agriculture-related scenes. More importantly, the opportunity costs of school attendance and acquisition of knowledge are perceived as high. It is, therefore, necessary that the world of school and education be more closely related to the world of work. There is a serious need for reviewing curricula and revising textbooks to bring them more in line with the immediate needs of beneficiaries and to avoid various biases, including cultural, gender, locational and environmental, which currently abound.

A major handicap in the spread of primary education is the lack of primary schools in which teaching is done in the local language. This is a problem in countries with a large number of distinct dialects or languages. However, while school access will initially be facilitated for children from ethnic minorities if regional dialects or languages are used as the medium of instruction, subsequent mobility and exchange of knowledge might be jeopardized at the higher educational levels. Having sufficient and appropriately qualified teachers for such teaching also poses a further problem.[25]

The general learning atmosphere in a society plays a major role in overall educational and scientific achievement. The availability of information in general, access to books and periodicals, the availability and standard of library facilities, the quality of the media etc. are complementary and supportive of educational facilities. Sustaining

[24] UNESCO, *Statistical Yearbook 1989*, pp. 3-13.

[25] For a brief discussion on the problems of teaching in ethnic minority versus dominant languages, see "Focus on literacy in the ESCAP region", *Social Development Newsletter*, Nos. 17 & 18, July 1989, p. 7.

post-school literacy, for example, hinges closely on the general availability of reading materials. Libraries which are either non-existent or severely understocked in many schools, need to be established and strengthened. The popularization of science and technology also helps to create an intellectually stimulating and inquisitive environment. The role of non-governmental organizations (NGOs), such as the people's science movements in Kerala, India, could greatly help the poor and illiterate to overcome their fatalism and susceptibility to superstitious beliefs and to accept newer techniques.

Some of the lag in this area could be overcome by the increasingly expanded network of audio-visuals, particularly television and video. Educational programmes could be introduced to supplement formal teaching as well as to upgrade teacher training by publicizing both advanced research, new techniques of imparting knowledge and pedagogical theories etc. Papua New Guinea, the Philippines and Thailand are countries that have acquired a considerable reputation in this field. Generally, however, the educative potential of television and video programmes in the Asian and Pacific countries is greatly underutilized. Exposure to modern technology, including the use of computers on a limited scale, could also help in the spread of both literacy and useful technologies.

At the other end of the education scale, adult education deserves greater acknowledgement as being crucial for improving the educational standards in the developing countries of Asia and the Pacific. The mere fact that surveys on adult education participation were last conducted in the mid-1970s to early 1980s indicates the neglect of this issue. While more than 25 per cent of the adult population tend to enrol in adult education programmes in the Nordic countries, for instance, rates are at less than 2 per cent in many developing countries in the ESCAP region. The Philippines is an exception where roughly 25 per cent of the population were involved in adult education programmes throughout the 1980s.[26]

2. Anti-poverty social support programme

In the context of poverty relief, social security programmes take on a larger meaning than the usual employment-based strategies. In conditions of famine and abject destitution, social security must be seen in the context of food and nutritional support strategies aimed at ensuring the physical survival of the most vulnerable of the poor, in particular the children, the elderly and the women. On a long-term and sustainable basis, anti-poverty social security strategies have to include income-generating measures that build up the asset base of poor households and strengthen their ability to face short- to medium-term shortfalls in incomes.

Ultimately, where poverty is largely related to gross inequities in the distribution of scarce resources, particularly land in rural areas, redistributive strategies leading to a more egalitarian spread of assets may be the only true solution. However, asset redistribution policies face severe barriers from the well-endowed elites and, for political considerations, are least likely to be implemented. Where land redistribution has been attempted, the results have, on the whole, been poor largely because of the opposition of the landed elites and their ability to influence the state and to scuttle reforms. According to one study only 1.5 per cent of the total cultivated land in India had, by the mid-1980s, been acquired through the land ceiling reforms instituted in the early 1950s.[27] As a result a very small proportion of the land poor were assisted through the land redistribution programme. In Bangladesh and Pakistan the land ceilings were maintained at a high level so that the net excess of land for redistribution was miniscule. The land that was redistributed was of marginal quality and provided beneficiaries with little support.

However, other forms of anti-poverty income/employment generating programmes have been devised and implemented in many countries in the region, some of which are discussed below.

(a) Food security

The provision of basic foodgrains via a system of rationing has been the core of government initiated anti-famine programmes. The holding of public stocks of foodgrains and their distribution through an elaborate rationing system goes back to periods of war economy and was particularly elaborate during the Second World War. More recently, buffer stocks of foodgrains, in addition to providing targeted food security to particularly vulnerable and politically volatile sections of the population, have been used by governments to influence and

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[26] World Conference on Education for All – Meeting Basic Learning Needs: a New Vision for the 1990s, Jomtien, Thailand, 1990. Also see H.S. Bhola, *World Trends and Issues in Adult Education* (UNESCO, Jesie Kingsley Publishers, London 1989).

[27] D. Bandyopadhyay, "Land reforms in India: an analysis", *Economic and Political Weekly*, vol. 21, Nos. 25-26, June 1986.

stabilize market prices of foodgrains and agricultural products. Despite stated aims targeted food security strategies have not always covered the very poor and often reflect the underlying biases in favour of relatively more affluent sections of the population.

In India, except for the state of Kerala, buffer stocks of foodgrains are maintained solely for urban populations. They played a major role in providing some degree of generalized security during the drought years of the mid-1960s. Following the rapid increase in foodgrain production during and after the "Green Revolution" period, substantive volumes of buffer stocks were built up in India. The existence of such large stocks of foodgrains had a positive impact in discouraging hoarding by urban consumers and traders when foodgrain production fell for example, by 18 per cent in 1979/80 and thus ensured that prices did not rise dramatically.[28] However, it has been argued that while India is capable of offering "generalized security in times of crisis" it is unable to provide a systematic level of security for the urban and rural poor at all other times, largely because of the nature of its agricultural and foodgrain price strategies.[29]

In contrast, the State of Kerala in India had a rationed public foodgrain distribution system uniformly across urban and rural areas that covered up to 97 per cent of its total population.[30] Sri Lanka also had, until 1979, a foodgrain rationing system whereby either free or highly subsidized foodgrains were universally provided across the population. Since 1979 the rationing system was replaced by a targeted scheme for the poor consisting of food stamps of nominal values which were "redeemable in exchange for foodgrains and sold in designated outlets at unsubsidized prices" Rapid rates of inflation since the early 1980s have, however, reduced the real value of the food stamps.[31] Although the public rationing system, which ensured a minimum level of food security, played a major role in reducing morbidity rates both in Kerala and Sri Lanka, more recent evidence from Sri Lanka suggests that the replacement of the rationing programme with food stamps may have had a negative impact on the health standards of the poor, particularly children.[32]

In Bangladesh, the foodgrain rationing scheme is largely of an urban nature, although it also caters for a small segment of the rural population. Even in urban areas only 50 per cent of the total urban population are covered through the rationing scheme, with the urban poor, and the relatively recent migrants into urban centres in particular being largely left out of the food security net.[33] While the food rationing programme provided generalized support by lowering market prices of foodgrains as in 1979 and 1984, it is argued that by avoiding a targeted strategy aimed at the very poor, it gave no relief to those who suffered food shortages even in normal times.[34]

(b) Food for work and public works programmes

In contrast to foodgrain rationing schemes, food for work and public works strategies aim to provide food security through wage employment measures. They have been of particular importance in rural surroundings, especially for the landless and those with marginal land holdings, by providing wage payment in the form of foodgrains for employment on public works schemes. By ensuring work as a necessary basis for support these strategies attempt to do away with the negative aspects of dependency that arise from charitable assistance and grants. In addition much of the section of the rural labour force to which such programmes are targeted is largely unemployed or underemployed, particularly during off-peak cultivating periods.

The Food For Work (FFW) programme in India was expanded into the National Rural Employment Programme (NREP) in 1980 and the Rural Landless Employment Generation Programme (RLEGP) in 1983. The RLEGP aimed at providing guaranteed employment per year up to a ceiling of 100 days to one member of every landless rural household within the country. However, according to one estimate, the employment guarantee schemes within the NREP and the RLEGP were only likely to have reduced absolute unemployment by 9 per cent by 1986. To completely do away with unemployment, financial allocations to such employment

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28 B.M. Bhatia, *A Study in India's Food Policy*, Asian and Pacific Development Centre, Kuala Lumpur, 1983.

29 S.R. Osmani, "Social security in South Asia", The Development Economics Research Programmes, Suntory-Toyota International Centre for Economics and Related Disciplines, DEP No. 18 (London School of Economics, 1988), p. 59.

30 *Ibid.*, p. 61.

31 *Ibid.*, p. 63.

32 D. Sahn, "Changes in living standards of the poor in Sri Lanka during a period of macro-economic restructuring", *World Development*, vol. 15, No. 6, 1987.

33 Osmani, *op. cit.*

34 *Ibid.*, p. 59.

shemes would have to be substantial and would have required up to 25 per cent of the total expenditure under the seventh plan (1985-1990).[35]

The Employment Guarantee Scheme (EGS) of Maharashtra State in India is felt to have had a better degree of success than the national schemes. While the scheme ensures employment to all those who want work in rural areas, it ensures targeting for the poor by providing only unskilled manual work paid on a piece-rated basis at a wage rate well below the prevailing agricultural wage rate. The EGS scheme was paid for through taxes raised from the urban sector, particularly Bombay, where residents were willing to subsidize schemes that could effectively reduce the pace of rural to urban migration and thereby reduce the pressure on limited urban services. Studies have shown that the EGS provided a larger share of household income to participants, and more days of employment, than NREP or RLEGP. Furthermore, by keeping wage rates very low it led to a process of self-selection ensuring that only those in greatest need sought such employment.[36]

The FFW scheme in Bangladesh began in the mid-1970s using wheat stocks made available through aid programmes. According to one study, the recipients of work were largely the rural landless (who accounted for 70 per cent of those employed under FFW); annual wages were raised by as much 10 per cent as a result of FFW and there was a noticeable improvement in household foodgrain consumption.[37] However, FFW in Bangladesh was only able to generate sufficient work to reduce the underemployment rate of the rural labour force by 5 per cent in 1983-1984.[38] In large part the further expansion of the scheme in Bangladesh was constrained by insufficient stocks of food and by inadequate administrative and infrastructural capacities for handling larger volumes of employment and food stocks.

Despite the low level of support and coverage provided by FFW programmes in the South Asian region, and also despite the high degree of leakages inherent within such schemes, they are capable of generating a marginal, though not insignificant, improvement in household incomes for the rural poor. Financial and administrative constraints do, however, limit their ability to provide universal coverage. Nevertheless, as the Maharashtra scheme has shown, effective targeting of the very poor may be a more meaningful way of utilizing scarce resources.

(c) Self-employment schemes

Employment guarantee schemes are often felt to be unproductive in net terms in that they do not build up a poor household's capacity to self-generate incomes over time, can be seen only as a one-time measure, and often lead to a very inefficient use of resources in building up infrastructure. Critics have noted that the same roads get built every year partly because the quality of construction within FFW is so poor. An alternative to raising incomes through employment guarantee projects is to provide the means through which poor households can raise incomes through self-employment. In particular, credit strategies are felt to be an important manner of reducing the capital constraint faced by the rural poor in entering new or expanding areas of self employment. This strategy particularly takes note of the imperfections that operate within the rural credit markets and the prohibitively high rates at which credit is made available through informal money-lenders and other sources. Success with such approaches has been mixed.

One notable success in the credit support strategies aimed at income generation has been the work of the Grameen Bank in rural Bangladesh. This part NGO/part state institution has provided credit at formal market rates of interest to landless households across a proportion of villages in the country. Beneficiaries are uniformly poor, have no more than 0.5 acres of cultivable land and over half are women. Loanees decide for themselves the purposes for which credit is to be taken, but have to form themselves into a loan group in order to apply to the Bank. The group-based system ensures loan repayment through a process of peer pressure. It is reported that "the per capita real income of loanee households increased by 32 per cent over a period of two and a half years (starting from 1980) while at the national level per capita income rose by only 2.6 per cent".[39] In particular employment opportunities were generated for women, and through the group loans scheme a certain degree of co-operative organization was achieved. From a small beginning, Grameen Bank's coverage across Bangladesh has by now expanded to an estimated 29 per cent of the villages in the country.

A far more ambitious, and consequently less successful, programme have been the integrated

35 *Ibid.*, p. 46.

36 *Ibid.*, pp. 47-54, for a detailed discussion on these programmes.

37 *Ibid.*, p. 43.

38 *Ibid.*, p. 43.

39 *Ibid.*, p. 25.

rural development programmes (IRDP) of Bangladesh and India. The programme in India, which began in 1979-1980, is run nationally through the District Rural Development Organization (DRDO) and is said to cover all villages in the country. The DRDO identifies households that are on or below the poverty line. Such households are given a loan-cum-subsidy of, currently, approximately 6,000 rupees. Of this sum, 50 per cent is a loan to be repaid over a period of three years. Recipient households are expected to use the facility to acquire some income generating assets, most commonly, milch cattle (which reportedly accounted for between 60 and 80 per cent of all assets acquired during the earlier years of the scheme, but by 1985/86 the share of cattle in total assets had fallen to 37 per cent)[40] or sewing machines.

The programme's success has been limited largely because it has not adopted an adequately "integrated" approach. Households acquiring milch cattle, for example, often do not have access to veterinary services, adequate stocks of fodder or a storage and marketing infrastructure to retail dairy products. In addition, given that the demand for milch cattle expanded rapidly as a result of the IRDP, milch cattle prices shot up and a number of households were only able to obtain animals of an inferior, and thus less productive, breed. Consequently, on repayment of loans, a number of households were found to have made no net gains as a result of the IRDP, barring a small improvement in diet and nutritional standards. Evaluation exercises conducted on the IRDP have found that up to a fifth of the beneficiaries could not be categorized as falling below the poverty line in the first place and that some 20 per cent of total IRDP funds had been lost in leakages.[41] Furthermore, one nation-wide review of the IRDP programme found that no more than 5 per cent of recipient households (who were also not the very poor) had been able to raise their incomes above the poverty line.[42] India, as well as many other countries in South and South-East Asia, has a number of other anti-poverty national or regional programmes, all of which, however, cannot be covered in this discussion.[43]

C. FORMAL AND TRADITIONAL SOCIAL SECURITY MEASURES

1. The needs and the approaches

The provision of some level of social security by the government has been a central plank of welfare systems in the developed world. Until recently, however, it was considered injudicious for developing countries to undertake extensive social welfare programmes. However, this perception has undergone a significant change, primarily as a result of an increasing realization that the objectives of growth and its distribution are inseparable. There are two specific reasons why interest in social security issues has heightened in recent years. First, the increasing industrialization and modernization of many developing countries, along with the attendant risks of industrial and urban life, have brought out the need for social security nets for industrial workers and urban residents. Second, the attrition and erosion of traditional and informal social security systems, has made it difficult to meet the emerging needs of vulnerable groups of society, especially those relating to food and health.

In most developed economies social security programmes have been geared to assist those who suffer a short- to medium-term shortfall in current incomes because of unemployment; the old aged who are no longer part of the productive labour force; low income (and often single parent) families in need of residential and family support to sustain minimum living standards; pregnant women and young mothers who are unable to earn incomes during pre- and post-natal periods; those who suffer from work-related injuries or accidents; and, often for much of the population, emergency health needs. Within the developing ESCAP region social security programmes, at the formal and legislative level, seek to cover one or a combination of the following: unemployment benefits, old age pension or provident fund schemes and invalidity benefits, sickness and maternity support, work injury benefits, and family allowances (consisting of child support and rental subsidies).

However, social security packages in operation in the formal sector have traditionally been a part of employment-linked benefits provided under legislative cover. Labour laws, however, inherently cover only those found within the organized and formal sectors of the labour market.

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40 *Ibid.*, p. 33.

41 S. Bagchee, "Poverty alleviation programmes in the Seventh Plan – an appraisal", *Economic and Political Weekly*, vol. 22, No. 4, January 1987; and N.J. Kurian, "IRDP: How relevant is it?", *Economic and Political Weekly*, vol. 22, No. 52, December 1987.

42 Kurian, *ibid.*

43 For a review, see *Economic Bulletin for Asia and the Pacific*, vol. XXXVI, No. 1, June 1985 (United Nations publication, Sales No. E.86.II.F. 9).

These consist of the relatively more affluent and privileged segments of the labour force and are almost exclusively urban based.

Although there are no formal security arrangements for large segments of the urban and rural poor, especially those in greatest need of social assistance, there is an increasing realization of the need for government interventions to alleviate poverty by designing appropriate anti-poverty strategies and schemes, which have included food security, employment/income generating programmes, asset redistribution strategies and emergency health and allied expenditure support as discussed in section B.2, unlike other social security schemes, they are not in the nature of institutionalized arrangements and are rather *ad hoc* in nature.

Informal social assistance arrangements, operated from within the community, often along traditional lines, as well as through NGO-based efforts, are also essentially social anti-poverty nets. Even though non-formal and without direct involvement of the government, they do fall into the genre of social security arrangements, and continue to serve important and extensive needs, despite gradual erosion of some of the traditional arrangements with the advancement of urbanization and modernization.

2. Formal social security programmes

Table I.26 lists types of social security programmes that have been legislated and are technically in operation in a number of economies in the ESCAP region as of 1987. Work injury programmes, old age, survivor's and invalidity benefits are to be found in most countries of the region. Sickness and maternity programmes are not as commonly prevalent and are particularly absent from most of the least developed countries. Unemployment benefits are only provided in the region's developed countries, and in China and Hong Kong, while family allowances are available in the developed countries and in the Islamic Republic of Iran.

The level of benefits and extent of participation in any given scheme varies sharply within the region. Even in the two leading forms of social security or social insurance found within the region – disability grants for workers arising out of injuries incurred at the work place and old age (or provident fund) benefits for those who have attained retirement – the level of financial support and the extent of coverage under these schemes are far from uniform.

Work injury programmes, often known as workmen's compensation schemes, are usually the initial package of social security legislation found in most countries. At the legislated level financial coverage can be high. Taking Australia as an example of the region's developed economies, as of 1987, those suffering from permanent or temporary disability arising from work obtained grants of upto 100 per cent of their earnings with no maximum cut-off in financial benefits in some of the States. All employed persons were covered regardless of the size of the work place (although coverage for the self-employed was not uniform). All Australian residents who had attained the age of 65 years (for women the qualifying age was 60) were eligible for old age pensions on a means tested basis. The volume of pension provided was, as of 1987, in the order of $A 112.15 per week for single people and $A 187 for couples ($US 73 and $US 121.74 respectively), and was funded solely by the State.[44]

Among the developing economies of the region, the NIEs of Hong Kong and Singapore provided some of the most generous social security packages in the form of old age pensions and disability grants. In Hong Kong permanent disability grants ranged from a minimum of $HK 114,000 ($US 14,590) in 1987 prices) to a maximum of $HK 341,000 ($US 43,650) in 1987. All wage earners and salaried employees were technically covered and all residents were eligible for some level of public assistance. Old age allowance was available for all residents who had attained the age of 70 years or above with a means tested old age supplement provided to those in their sixties. The level of old age pension was $HK 255 per month ($US 32.64) with supplements of up to a further $HK 255 per month available depending upon means. Public assistance of $HK 510 per month ($US 165.28 as of 1987 rates) for single persons plus additional payments for each family member was available for those whose incomes and savings fell below a prescribed minimum.

In Singapore, permanent disability arising out of work gave entitlement to a grant of from 6 to 12 years' earnings with a minimum of $S 20,000 and a maximum of $S 60,000 ($US 9,140 to $US 27,420)[45] Temporary disability grants in Singapore were 100 per cent of earnings for the first 14 days

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[44] United States, Department of Health and Human Services, Social Security Administration, *Social Security Programs Throughout the World – 1987*, Research Report No. 61.

[45] As of 1987.

Table I.26. Selected economies in the ESCAP region. Types of formal social security programmes, 1987

	Old age, survivors and invalidity	*Sickness and maternity*	*Work injury*	*Unemployment*	*Family allowances*
Developed economies					
Australia	X	X	X	X	X
Japan	X	X	X	X	X
New Zealand	X	X	X	X	X
NIEs and China					
Hong Kong	X	X	X	X	
Republic of Korea		X	X		
Singapore	X		X		
China	X	X	X	X	
ASEAN					
Indonesia	X	X	X		
Malaysia	X		X		
Philippines	X	X	X		
Thailand			X		
South Asia and the Islamic Republic of Iran					
India	X	X	X		
Pakistan	X	X	X		
Sri Lanka	X		X		
Iran, Islamic Republic of	X	X	X		X
LDCs[a]					
Afghanistan			X		
Bangladesh					
Kiribati	X		X		
Myanmar		X	X		
Nepal	X		X		
Samoa	X		X		
Pacific Islands					
Fiji	X		X		
Papua New Guinea	X		X		
Solomon Islands	X		X		

Sources: United States, Department of Health and Human Services, *Social Security Programs Throughout the World – 1987,* Research Report No. 61.

[a] Least developed countries.

of injury, after which it fell to 33.3 per cent of earnings with a maximum of $S 195 ($US 89) per month. All manual workers and those whose incomes fell below $S 1,250 per month were eligible. Domestic help, casual workers and family employees were, however, excluded from the workmen's compensation scheme. All employed persons and public employees were eligible for old age benefits in the form of provident funds on reaching the age of 55 years. These were paid in a lump sum on the basis of total provident fund contributions made by employee and employer during working life plus a compound interest of roughly 4.3 per cent on the capital. In addition extensive in- and out-patient medical care benefits were provided, financed through the "Medisave" health insurance programme where both workers and employers made monthly contributions of 3 per cent of wages with a further subsidy from the Government.

In the Republic of Korea temporary disability benefits came to 60 per cent of average earnings and were payable for a maximum period of two years. All employees of industrial firms with more than 10 workers, and in some industries 5 workers or more, were eligible, with special schemes in operation for public sector employees. A compulsory health insurance programme covered all residents

and was based upon monthly contributions by employers and employees.[46]

Among the other ASEAN countries, temporary disability grants in Malaysia came to 70 per cent of earnings for the period of the disability, and applied to all those engaged in firms with five or more workers. Those earning over $M 1,000 per month (or $US 384 as of 1987) were excluded from the programme. Old age provident fund benefits were paid at the age of 55 and were based upon monthly contributions according to wage class category, with monthly contributions of 9 per cent of earnings for employees and 11 per cent of payroll by employers. Incidentally, these provident fund contribution rates in Malaysia were far higher than that for formal sector workers in other members of ASEAN. Indonesia provided 100 per cent of earnings as a temporary disability grant for the first 120 days, after which the level of benefits fell to 50 per cent. Coverage, however, was restricted to public sector employees, those engaged in specific industries, and all employees working in establishments with 25 or more workers or monthly payrolls of 1 million rupiah or more, in effect, the large scale sector. Old-age benefits were in the form of provident funds paid in a lump sum on reaching the age of 55. The level of payment was determined on the basis of an individual's income with monthly provident fund contributions of 1 per cent of the insured person's earnings and 1.5 per cent of the employer's payroll. Only the large-scale enterprises were technically covered by the legislation.

In the Philippines, temporary disability grants in 1987 ranged from a minimum of 7.5 pesos per day ($US 0.375) to a maximum of 75 pesos ($US 3.75) for a maximum of 240 days. In Thailand for that year temporary disability grants were similar to those observed in the Philippines, ranging from a minimum of 250 baht a month to a maximum of 3,000 baht a month ($US 9.5 to $US 114 monthly) for a maximum of one year. In the Philippines all employed persons, barring family workers, domestic servants and the self-employed were technically covered; whereas Thailand's earlier legislation applied only to those engaged in enterprises with 20 or more workers.[47] In addition a number of industries were exempt from the legislation. While Thailand had not introduced a provident fund and old-age benefits programme, in the Philippines all employed persons (barring family workers and domestic servants) with annual earnings exceeding 1,800 pesos ($US 0.90 in 1987) were eligible to a minimum monthly pension of 200 pesos ($US 0.10) plus family supplements.

In contrast to the ASEAN countries, China, in line with its strong ideological concerns for social welfare, provided a substantial system of social security. Of the major types of social security programmes in operation in China were labour insurance, social welfare, social relief, disaster relief and public health care provisions.[48]

Labour insurance *(laodong baoxian)*, which is akin to the social welfare programmes of the developed economies, consisted of a comprehensive package of unemployment benefits, old-age pensions, disability grants, sickness and maternity benefits, child care support and subsidized health care facilities. Labour insurance was, however, restricted in its coverage to certain segments of the formal urban labour market, largely catering for state sector employees. According to one estimate 23 per cent of the labour force was covered under labour insurance.[49] The system was operated primarily through the work units. A monthly old-age pension of between 60 and 75 per cent of the last working month's standard wage was paid to all employed males on retirement age (60 years) and salaried and non-salaried women (for whom the retiring ages were 55 and 50 respectively). Old-age benefits are largely subsidized by the State with only contract-based employees contributing towards their pensions. Temporary disability grants provided 100 per cent of the standard wage during the duration of the temporary disability. Once the disability was diagnosed as permanent, 80 to 90 per cent of the standard wage was provided with a minimum monthly pension of 40 yuan renminbi ($US 10.76 in 1987). Substantial medical benefits were also extended by the State although the employees had to finance 33 per cent of hospital boarding costs.[50]

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[46] United States, Department of Health and Human Services, *Social Security Programs Throughout the World – 1987*, Research Report No. 61.

[47] A more substantive social security legislation was passed by the Thai parliament in late 1990 and is likely to come into force in 1991.

[48] The public health care system of China is discussed in some detail in chapter III, part two of this *Survey*.

[49] E. Ahmad, A. Hussain and N. Stern, "Social security in China: a historical perspective", The Development Economics Research Programme, Suntory-Toyota International Centre for Economics and Related Disciplines, China Programme No. 4 (London School of Economics, September 1989).

[50] United States, Department of Health and Human Services, Social Security Administration, *Social Security Programs Throughout the World – 1987*, Research Report No. 61.

The increase in the share of the retired as a proportion of those employed from 3.3 per cent in 1978 to 13.2 per cent in 1985 added substantially to the costs of maintaining the labour insurance system of social security in China. This has led to problems in financing labour insurance which have been further compounded by the process of economic and industrial reforms. With the autonomy given to the state enterprises, the functioning and financing of labour insurance within an enterprise is the responsibility of that enterprise. This implies that units that recorded a loss would be unable to provide the same level of coverage to their work-force, creating dualities in levels and quality of care within the labour insurance system. With the shift to a more market-orientated system reforms in the financing and management of the labour insurance system are called for if it is to provide a meaningful level of social security to the urban labour force.

Social welfare *(shehui fuli)* provided a number of social facilities such as kindergartens, recreational centres, orphanages, homes for the mentally ill and the disabled, as well as hardship and bereavement allowances to cater for unforeseen contingencies. In urban areas social welfare was part of the larger labour insurance scheme, while in rural localities it was often tied to work units or village organizations. Social relief was aimed at the rural poor. As a criteria for receiving assistance recipients should not have relatives to support them and should be unable to earn a livelihood. The social relief programme provided the so-called five guarantees (or *wubao)* of food, shelter, health care, clothing and funeral expenses. The elderly who lack family support are the leading recipients of social relief. Thirty-seven million persons, or 6.4 per cent of the rural population, were aided through this programme in 1987.[51] It has been noted, however, that only a fraction of the rural poor (36) per cent in 1986) were covered through the social relief measures.[52] The cost of the programme was borne locally through collectives which also determined the exact volume of support provided. The reforms of recent years, and in particular the introduction of the household responsibility system, has led to changes in the extent of support under social relief. In some areas it is reported to have totally broken down.[53] The aging of the population and the single child policy has added further pressure to the problem of increasing numbers of elderly in need of support. Adequate social assistance appears to be a necessary condition for the success of population control policy as otherwise individual and poor rural households would look towards male offspring to provide care at old age.

The disaster relief programme aimed to provide a cover against the consequences of natural disasters to all of the rural population in China and was substantially greater in size than social relief. Much of disaster relief consisted of the provision of foodgrains to affected households. Increasingly, expenditure was being allocated to damage-preventive measures prior to disasters occurring. The collective system of agriculture provided some pooling of risks for rural households in the face of uncertainties arising out of natural causes and effects of seasonality. With the introduction of the household responsibility system such a sharing of risks was basically eliminated leaving individual households far more exposed in the face of natural disasters and seasonal pressures.

In South Asia, Sri Lanka stood out with more extensive disability benefit provisions incorporated in its labour legislations than in other South Asian countries. Employees obtained between 36 to 100 per cent of wages (the actual level inversely related to the wage scale) for the period of temporary disability. However, the level of maximum benefits available at 184 rupees per month in 1987 ($US 6.4) were low. Old-age benefits in the form of lump sum provident fund payments were among the highest in the South Asian region, with monthly provident fund contributions on the part of workers of 8 per cent of earnings, and by employers, of 12 per cent of the payroll. Sri Lanka also had an extensive and widespread medical care programme subsidized by the State, and plantation workers had to be provided medical care at the expense of their employers. This was of significance in lowering health costs for the poor.

In India and Pakistan, disability grants applied solely to those workers engaged in units employing more than 10 (in the case of Pakistan) or 20 (in India) wage employees, that is, in the formal and organized sectors of the economy. In India temporary disability grants were as much as 70 per cent of earnings for the period of the disability. In Pakistan, however, temporary disability grants were much lower, in the order of 25 per cent or less, varied according to ailments and were available for no more than five years. In addition a somewhat more generous social insurance law, with temporary disability grants of as much as 100 per cent of earnings, applied

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51 *Ibid.*

52 *Ibid.*

53 *Ibid.*

to employees in selected industrial areas of the country. Employees in relatively large-scale and established firms in India had a contributory provident fund programme which matured at the age of 55 in the form of a lump sum payment. All contributions emanated from employer and employee with no subsidy on the part of the State. Pakistan had a somewhat different employee-based old-age pension scheme covering those workers engaged in registered (and thereby employing more than 10 workers) enterprises. Minimum monthly pensions for the year 1988/89 were, however, low at 349 rupees (approximately $US 20.25), and well below the minimum monthly wage.[54]

Among the least developed economies of the region, employee-based provident fund schemes operated in Kiribati, Nepal and Samoa. Except in Nepal, where the scheme was restricted solely to those engaged in the government and public sectors, there was no element of government assistance in funding, the contributions coming from employers and employees. Temporary disability grants were technically available in Kiribati, Myanmar, Nepal and Samoa. The extent of financial coverage varied (being relatively high in the smaller Pacific island countries) and was restricted to the formal sectors. In Fiji and Papua New Guinea, social security programmes existed in the form of provident fund systems based solely upon employer and employee contributions with lump sum payments being made on reaching the age of 55. Work injury programmes covered all employees with levels of coverage ranging from 66.6 per cent of weekly earnings in Fiji to 100 per cent of earnings in Papua New Guinea. Maximum benefits under the temporary disability schemes in both countries were $F 16,000 (or $US 13,728) annually in Fiji and $K 35 ($US 35.7) weekly in Papua New Guinea.[55]

The discussion above has outlined the legislative provision in the two most common areas of welfare programmes in the region: provident funds and old age benefits, and workmen's compensation or disability grants. The extent of legislative coverage cannot provide any indication of the degree to which the laws are effective and enforced. An effective administration of social security legislation requires an efficient, responsive, well trained, and most importantly, honest social security bureaucracy, which may often be lacking. In addition, where those in need of social security are ineffective in demanding social assistance and where public institutions necessary for exerting pressure on the State by specific socio-economic groups (such as trade unions, residents' associations, parliamentary and legal bodies) are limited, legislated social security coverage may not be sufficient in ensuring an effective social security net.

Furthermore, social security laws being largely linked to labour legislation relating to registered enterprises are applicable only to the formal sector of the economy. The informal sector usually accounts for the bulk of the labour force in most of the economies of the region,[56] and certainly so for the relatively lower income economies. In the case of Pakistan, a recent estimate of the scale of the informal sector suggests that 75 per cent of the urban labour force is engaged in informal units and thereby lies beyond the scope of the formal social security legislation. It has also been seen that the informal sector preponderantly consists of the poorest segments of the urban and rural community and thereby those in greatest need of social assistance.

Finally, as the discussion above indicates, with the exception of the relatively more advanced economies of the NIEs and some in the ASEAN subregion, the level of financial assistance provided through the social security measures was usually extremely low. Thus even where formal social assistance was available it was insufficient to meet an individual's or a household's needs and forced such individuals to seek additional sources of support for immediate needs. These factors, therefore, emphasize the need to look at social security in a wider and less formal or legislated context, and particularly as a part of social anti-poverty strategies.

3. Traditional systems of social security

The combination of growing numbers of the poor and limited state financial resources (further reduced as a result of global economic recessionary pressures and the increasing share of non-productive military and debt-financing expenditure incurred by the State), has created an impetus to look at traditional and non-formal (or non-governmental) systems of social security as a viable avenue for providing a safety net.

Traditional systems of social security can be based upon "moral economy" arguments and along lines of village, kinship and/or caste groups, ethnic grounds or part of religious dictates or

54 *Ibid.*

55 *Ibid.*

56 See this *Survey*, part one, chapter III.

norms.[57] They also mirror local cultural and social values regarding the provision of assistance to the elderly, the young, and the poor. In addition, philanthropic measures in many societies reflect both a guilt complex as regards affluence on the part of the wealthy and the realization that some degree of social assistance is necessary to offset the possibility of a radical realignment of power brought about by the poor in the face of harsh inequalities.

Traditional and non-governmental systems of social assistance and social charity remain, however, relatively under-researched. Anthropological studies on pre-capitalist village communities have emphasized that the sharing of common resources is a central aspect of social organization, particularly where exchange relations are not mediated through market forces. This implies that individual households have access to social resources held by the village in the form of productive assets, such as land and other means of production, and to the fruits of such production. Such a system of common property therefore lends itself to simple arrangements for insurance against hunger operated through village-based institutions.

In Java, Indonesia, it is reported that under the *bawon* system, harvesting activities are open to all who want to participate, with all participants receiving some share of the final output. As has been noted, this system ensures "work and income sharing (and) food security for villagers with little or no control of agricultural resources".[58] A similar system of sharing of harvesting labour and the subsequent output is reported for the coastal regions of the Philippines through the *hanusan* system.[59] Traditional practices of sharing of output by fishing communities have also been observed in Malaysia and Sri Lanka. Households which lack male fishermen or are temporarily in distress (particularly with men who are ill and thus unable to participate in fishing) are provided a share of the catch.[60] Such an arrangement acknowledges that work is "a traditional social right and duty".

The *jajmani* system in India has been described as a patron-client relationship, whereby insurance against hunger is provided to low caste households by high caste families to which the former are "tied". The patron extends foodgrains and other consumption items (clothing, wedding expenses, some health costs) while the client in return provides labour services of various kinds.[61] A more refined form of such a tied social relationship arising out of production conditions is the system of interlinked contracts in agriculture observed in parts of India and Pakistan. Landlords extend consumption credit and land for cultivation, and in times of distress, foodgrains, to tenants who in turn provide labour services to the landlord. At times of peak labour activity landlords have a prior claim to the labour of their tenants and at rates lower than prevailing agricultural wages.[62]

Such patron-client relationships are very much a function of feudal-based uneven agrarian power relationships that ensure patronage. In an increasingly monetized agricultural sector such relationships are prone to disintegrate in the face of technological and market developments. Furthermore, patron-client relationships or even moral economy systems are unlikely to flourish in urban settings where commodity exchange relationships dominate social relations.

Traditional systems of social security for urban areas have been either in the form of philanthropic charity and NGO measures of poverty alleviation and income generation, or in the context of social, cultural and religious traditions. Charity is a central tenet in most religions. The giving of alms to monks is part of the daily routine of pious Buddhist households. Similarly, giving *zakat*, the poor tax, is a religious obligation for well-to-do followers of Islam which also enjoins them to share food with hungry neighbours. In the field of education and support to young orphans or destitute children, mosque and temple schools have

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[57] S.L. Popkin, *The Rational Peasant: The Political Economy of Rural Society in Vietnam* (University of California Press, 1979), among others has argued against the notion of village-based moral economy *norms* stating that household-based strategies of insurance (what has been termed "self-insurance") are of far greater significance than any social measures at collective sharing of risks.

[58] Jean-Philippe Platteau, "Traditional systems of social security and hunger insurance: some lessons from the evidence pertaining to third world village societies", The Development Economics Research Programme, Suntory-Toyota International Centre for Economics and Related Disciplines, DEP No. 15 (London School of Economics, September 1988).

[59] *Ibid.*

[60] *Ibid.*

[61] B. Agarwal, "Social security and the family in rural India", the Development Economics Research Programme, Suntory-Toyota International Centre for Economics and Related Disciplines, DEP No. 21 (London School of Economics, September 1989).

[62] P. Bardhan, "Interlocking factor markets and agrarian development: a review of issues", *Oxford Economic Papers*, vol. 32, No. 1 (March 1980).

played an important role in providing support.

Pakistan is one of the few countries to have attempted to institutionalize religious dictates on charity in a formal sense. Along with state support in the setting and running of mosque schools, the Koranic taxes of *zakat* (for urban areas) and *ushr* (for rural households) have been introduced since the mid-1980s. The *zakat,* of 2.5 per cent of an individual's assets, is raised by the Federal State and distributed to needy households by local-level *zakat* committees. According to one study there is extensive leakage within the system of *zakat* distribution. Beneficiaries are often not the very poor, and the level of support extended (often as low as 50 rupees per month) provides little if any income supplement to the destitute.[63]

Community-based systems of informal social assistance have also been observed in urban communities tied by strong bonds of kinship. However, as has been pointed out such bonds often break in the face of shifts in urban housing patterns that lead to the disintegration of kinship groups. This, for example, has been observed across low income squatter settlements of Karachi, Pakistan, where older traditional and ethnically homogeneous communities have substantive community-based support networks (for funeral expenses, sharing of health costs and family support and forms of hunger insurance), while newer ethnically heterogeneous and somewhat wealthier squatter communities lack such arrangements.[64] However, it is the relatively traditional and historically bonded communities that have faced the greatest pressures in the face of unimpeded urban growth.

One important traditional "institution" found in both urban and rural areas that has served a function of providing social insurance is that of informal savings and loans associations. Known as "committee", *chit* or *bisi* funds in much of South Asia or as *roscas* in the Philippines, such informal community-based savings associations provide an important source of funds to be called upon at periods of distress by member households.[65] Usually run by women and through households, they also provide a basis for some degree of community organization and support for highly impoverished households within the community. This kind of arrangement can, however, be subject to abuse by dishonest operators.

Finally, there has been growing recognition of the work of NGOs in providing social charity and assisting in income-generating activities for the urban and rural poor. A number of NGOs operating in Karachi, Pakistan, for example, have income-generation schemes as a central component of their programme. Among these are home school teachers providing informal classes to local children at nominal rates; home-based vegetable gardens often using waste resources to produce nutritional supplements to household diets; women's work centres and household-based putting-out systems in the textiles trade.[66] Similar experiences of poverty alleviation methods based upon income-generation programmes can be found for other NGOs in the region.

In summary, the magnitude of poverty in the developing ESCAP region necessitates concern for an adequate social security net for the poor. Formalized employment-linked social security legislation provides some degree of assistance to the urban and formal sectors of the labour force only. Furthermore, the extent to which current legislation on social security is actually implemented and enforced is an open question. Clearly the extent and quality of coverage is markedly greater for the economically better endowed economies of the region, particularly the NIEs and some of the members of ASEAN. These economies also have a substantially smaller proportion falling below the poverty line. China, despite limited resources, has built up an enviable social security system reflecting its concern with issues of equity and poverty. However, commentators have expressed fears that social security programmes are likely to be adversely affected in the current reform process. For the South Asian and least developed economies formal social security packages of the kind found in developed economies have little significance. In the face of stark poverty, income generation and poverty alleviation strategies are needed. The experience with food aid and food-for-work programmes has been mixed. While they have undoubtedly had some positive impact there is clearly scope for improvement. Growing resource constraints have led many to argue that traditional and non-governmental forms of social assistance should be encouraged. Clearly, there is much to be learned from such non-formal institutions

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63 S. Zahid, "The *zakat* and *ushr* system in Pakistan", Study conducted for the World Bank, unpublished (August 1989).

64 K. Nadvi, "Review of major private charities and social anti-poverty arrangements in Karachi, Pakistan", Study conducted for the World Bank, unpublished (July 1989).

65 For such arrangements and forms of committees in Pakistan see Nadvi, *op. cit.*, and Asian Development Bank, *Asian Development Outlook 1990.*

66 Nadvi, *op. cit.*

of social support. However, it is highly unlikely that such programmes can be expanded to the scale and level of coverage necessary for poverty issues to be adequately tackled. Ultimately governments have to re-evaluate their priorities and recognize the need to place poverty considerations at the top of the policy agenda. This is of even greater importance in the face of rapidly changing global economic conditions and the social costs of restructuring programmes that are being widely implemented.

Part Two

INFRASTRUCTURE DEVELOPMENT IN THE DEVELOPING ESCAP REGION: NEEDS, ISSUES AND POLICY OPTIONS

I. RATIONALE, SCOPE AND CONTENT OF THE STUDY

A. BACKGROUND AND RATIONALE

Infrastructure development is an essential part of economic development as it affects the growth and efficiency of all sectors of the economy. An increase in the supply of electricity, an expansion of transport and communications facilities, a bettertrained and healthier labour force all lower the unit costs of production and raise the productive capacity of the economy as a whole. Shortages in the availability of any of the key facilities and services can have a multiplier effect on the aggregate output of the economy, causing inflationary pressures and a slow-down in the growth of the economy. This crucial and strategic role of infrastructure facilities underlines their economic significance. It is generally recognized that the poor quality and limited supply of infrastructure facilities constitute a major source of high costs for all producers and consumers in many developing economies.

Infrastructure development, like development itself, is a continuous process. Many infrastructure facilities should be put in place before any significant economic development effort can be initiated. Many others need continuous extension and maintenance to avoid the development of bottle-necks which interrupt the supply of essential inputs to the productive sectors of the economy. Finally, some infrastructure facilities, such as telecommunications and power stations, may need to be rebuilt or replaced because of obsolescent technology or environmental hazards.

The vastly divergent economies of the Asian and Pacific region need to undertake large investments in infrastructure for one or more of the above reasons. Indeed, there is a perception that even many of the developed economies, especially the United States of America, suffer from serious underinvestment in infrastructure.

The nature of infrastructural problems faced by the developing countries across the region, of course, varies considerably. Most of the least developed and Pacific island countries lack the basic infrastructure facilities needed for a concerted development effort. In particular, they lack a well-integrated transport system linking the various parts of their countries and they have weak links with the outside world. The South Asian economies, along with China, do have a network of basic infrastructure facilities, some of which, such as the railways and irrigation systems, were established during the colonial period. However, the high rates of population growth and rapid urbanization in many South Asian countries are causing attrition and decay of existing infrastructure facilities, which are proving extremely inadequate for meeting the rapidly growing needs of population expansion and urban concentration.

The South-East Asian economies and East Asian newly industrializing economies (NIEs), which have generally well-developed physical infrastructure facilities face a different set of problems. Being major exporters of manufactures, they need to maintain their competitive edge by investing in the expansion and modernization of their infrastructure in order to reduce unit costs of production. They need to provide not only better transport and urban housing facilities, but also to invest heavily in telecommunications, ports and shipping and civil aviation. In addition, they have to make a large investment in improving their human resources, especially in order to raise the quality of their scientific and technological personnel and research and development activities, which could provide their exports with a cutting edge in today's world of globalized production.

Without heavy investment in and continuing efforts to raise the efficiency of their infrastructure facilities, it is unlikely that the developing countries of the ESCAP region will be able to maintain the record of high growth rates that they have achieved, on the average, in the last two decades. For while it is possible to sustain high rates of growth without significant additions to or improvements in infrastructure in the short run, it is impossible to have sustained, uninterrupted and structurally balanced growth in the long run without paying adequate and constant attention to infrastructure development (see box II.1).

The Asian and Pacific developing economies are replete with examples of inadequate expenditure

on infrastructure and their adverse effects. For example, consumers and industries are suffering grievously from inadequate investment in energy projects in a number of countries in South Asia and in the Philippines. The "brownouts" in the Philippines and "load sheddings" in India and Pakistan occurred frequently in 1990, paralyzing many business operations for four to six working hours a day. In Bangkok, the worsening traffic congestion is translating into huge economic losses for the economy. Fuel consumption by vehicles stuck in traffic jams alone is estimated

Box II.1. Infrastructure and economic development: a comparison of the

Modern economic growth has been accompanied by a large investment in physical infrastructure. Although there are few systematic studies on the relationship between economic growth and investment in infrastructure during the development process, there is little doubt that the two are closely related. However, the pattern of infrastructure development varies considerably among countries. The differences are due to not only geographical and natural resource factors, but also differences in human resource endowments and technological innovations. In addition, the development policies and strategies followed are important determinants of infrastructure development through their impact on resource mobilization and efficient resource allocation.

Among the major physical infrastructure facilities, three (electric power, railways and roads) have in the past accounted for about 80 to 90 per cent of total infrastructure investment, although their relative weights vary considerably over time and among countries. The demand for the services of these infrastructure facilities also varies according to the stage of development. In countries where development efforts have not yet reached a threshold level, demand for infrastructure services is very limited and its growth rate is less than the rate of growth of output. Once development reaches a threshold level with non-agricultural, especially industrial, output reaching a significant proportion, and urban growth exceeding population growth, infrastructure needs can begin to grow with leaps and bounds, usually at a much higher rate than output growth. Most developing countries report an elasticity of demand for infrastructure services, especially for power and transport, well above unity. As structural change stabilizes with development, the elasticity of demand for infrastructure declines and can fall below unity again. Thus, in relative terms, infrastructure needs are much greater during the early phases of economic development than in the later phases.

A comparative study of infrastructure development in Japan during the period 1900-1940 and in India during the period 1950-1983, undertaken by a Japanese institute provides an interesting comparison about the similarities and differences in infrastructure development during a roughly comparable period of development of the two economies having differing initial endowments, institutional structures, technological choices and development strategies.[a]

In spite of the difficulties in the availability of comparable data over long periods of time and relating to broad economic categories, both countries show an interesting pattern of relationship between infrastructure and economic development. In Japan, the share of infrastructure investment in total investment varied from about 17 per cent in 1900 to about 38 per cent in 1925 and an average of 25-30 per cent is observed in 1900-1940. In India, the proportion ranged from about 13 per cent in 1950 to 26 per cent in 1962-1963 and an average of about 20 per cent is observed during the period 1950-1983. Thus, India invested about 5 to 10 per cent less of its gross domestic product (GDP) in infrastructure than Japan did in a comparable period of its development.[b]

The underinvestment in infrastructure in India was not, however, because of low investment/GDP ratios. In fact, the investment/GDP ratio in India was almost as high as that of Japan in the comparable period. What was mainly responsible for India's lower infrastructure investment/GDP ratio was that a large part of public investment was devoted to the development of the manufacturing sector, especially heavy industries, which reduced the allocation for infrastructure development. If the proportion of public sector investment devoted to manufacturing industries was added to infrastructure investment, the ratio would be about 30 per cent of total investment, which is almost the same level as that in Japan.

An interesting feature of the investment for infrastructure development observed in Japan during the period 1900-1940 was its cyclical adjustment pattern. During the upswing, infrastructure investment considerably lagged behind expansion in output and other investment, while during the downswing its pace did not decelerate as sharply as that of other macro-economic variables. This anti-cyclical nature of infrastructural investment not only imparted a certain degree of macro-economic stability in the short run, but also provided continued investment in infrastructure to ensure long-term

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[a] Naoki Ono, *Infrastructure Investment in Economic Development – An Empirical Study of Japan and Its Comparison with India* (Tokyo, International Development Center of Japan, December 1987).

[b] It is significant that many studies in India have attributed the slower growth of India's industrial sector after the 1960s and the high incremental capital output ratio to underinvestment in infrastructure. See I.J. Ahluwalia, *Industrial Growth in India* (Oxford University Press, 1985), and S. Chakravarty, *Development Planning: The Indian Experience* (Delhi, Oxford University Press, 1988).

at 36 million baht daily, not including the heavy economic losses associated with the wastage of time of those caught up in them. Traffic congestion has also spawned the use of mobile telephones at high social cost.

Two other considerations warrant greater attention to the problems of infrastructure development in the context of the recent development experience of the developing ESCAP region. The high rates of real gross domestic product (GDP) growth achieved by the region's developing countries hide considerable differences in the quality-of-life improvements that have resulted concomitantly. In general, the developing countries in the ESCAP region have paid less attention to social issues than to economic growth. Only of late, the realization has been growing that they need to pay explicit attention to ensuring that basic social needs, such as education, health, sanitation and water supply, are met for large sections of the population.

In order to remedy this deficiency in the development pattern of most developing countries of the region, greater emphasis has to be placed on social infrastructure. The access to social services is a related concern which has not received adequate attention. Even when large investments in social infrastructure have been undertaken, the access to services has been very unevenly distributed among the people with respect to their location, gender, class and income group.

A second problem related to the growth performance of the region, which raises concerns about infrastructure development, stems from environmental concerns. Environmental problems can emerge as a result of both over development and underdevelopment. They are often aggravated by the lack of ancillary infrastructure. The rapid rate of urbanization and industrialization, particularly in populous Asia, has resulted in severe urban congestion and blight of various kinds, chronic air and water pollution, and a noticeable decline in the quality of life.[1] In addition,

[1] J.P. Lea and J.M. Courtney, eds., *Cities in Conflict – Studies in the Planning and Management of Asian Cities* (Washington, D.C., World Bank, 1985).

experiences of India and Japan

growth.

The pattern also reflected the institutional management of infrastructure development in Japan. The Government and private agencies and institutions responsible for infrastructure development made their demand projections, set their annual or longer-term targets and made their preparatory arrangements on a regular basis. If, however, their demand forecasts turned out to be underestimates, increased demand had to be met through higher rates of utilization. The additional investment was undertaken after the expansionary boom. Since infrastructure investment was financed largely out of public funds, financing in recessionary periods as an anti-cyclical measure was easier. Thus in Japan adjustments in infrastructure investment were made, when necessary, on an ex-post expansion pattern or in response to emerging bottle-necks. In contrast, Indian planning paid more attention to a balanced growth pattern and was generally insensitive to the emergence of bottle-necks, which were solved mainly through physical controls and price distortions.

Another interesting difference between the experience in infrastructure development in India and Japan is in its sectoral composition. Both countries invested about 90 per cent of their physical infrastructure investment in power, railways and other transport. However, Japan tended to invest a much higher proportion of its infrastructural investment in railways, while India invested a higher proportion for power and this proportion rose substantially during the period of comparison.

The underinvestment in railways in India has led to a marked deterioration in its capacity. quality and reliability. The problems arise mainly from the large subsidies borne by the railways, which amounted to 16.5 billion rupees (approximately $US 1 billion) in 1988/89, about 82 per cent of which is on account of passenger services owing to a policy of tariff restraint.[c] During the period 1965/66-1988/89, the index for average railways earnings from passenger traffic rose from 100 to 410, while that of earnings from freight rose from 100 to 610. The investment needed by Indian Railways for capacity expansion, technological upgrading and development in the next 10 years is estimated at over $US 50 billion (365 billion rupees in the eighth plan period and 500 billion rupees in the ninth plan period).

Although the power sector has absorbed a much higher proportion of infrastructure development in India than in the comparable period in Japan – partly for historical and partly for technological reasons – India continues to suffer from serious power shortages. This is due to not only underinvestment in infrastructure as a whole, but also a result of the interdependence among physical infrastructure investments. The lower allocation to railways and other transport has raised the transport costs of hauling coal to the coal-fired power stations and has contributed to the frequent power failures and lower efficiency of power plants in India. In many areas of India, there is excess capacity in power plants, despite a generalized excess demand. Among the reasons for such underutilization of capacity are inadequate transport facilities for coal and other fuels. Thus the imbalance in investment against railways has resulted in the inefficient use of overall resources.

[c] *Railway Board: Status Paper on Indian Railways – Some Issues and Options* (New Delhi, Government of India, March 1990).

large-scale depletion of forest resources for extensive cultivation, commercial exploitation and fuelwood use, and the excessive application of chemical pesticides and other toxic inputs, have also contributed to environmental degradation. Many of the yield-augmenting strategies in agriculture have had a cumulatively adverse impact on the preservation of watersheds and soil fertility, and on the quality and capability of the ecosystem to assimilate wastes and residues, and biological diversity.[2]

In the development and operation of physical infrastructure facilities, therefore, special attention needs to be paid to minimizing their adverse environmental impact, which is often considerable. For example, it is well known that large-scale hydroelectric power generation, while producing "clean" electricity has harmful effects on the natural environment.[3] Other examples of infrastructure facilities and services with adverse environmental effects include various transport modes, waste disposal systems, and irrigation through water storage or ground-water tubewells.

The issue of infrastructure development is not new and several learned reviews of the subject exist in the literature. However, in the 1990s, the question has acquired a new urgency, significance and orientation for the developing economies of the Asian and Pacific region. As they restructure their economies to meet the emerging global challenges and opportunities and endeavour to find their niches in the changing pattern of comparative advantage, there is a need to assess the adequacy of the available infrastructure facilities. It is also necessary to examine the financing, management, technology and other factors related to the development of needed infrastructure. The speedy development of appropriate infrastructure in a cost-effective and efficient manner is a crying need for complementing the process of economic and industrial restructuring under way in the developing ESCAP region.

B. DEFINITION AND SCOPE OF INFRASTRUCTURE

The concept of infrastructure has undergone several changes during the last half century. Indeed its evolution has been closely linked with the continuing debate on the content and nature of economic development itself. In the 1940s and 1950s when the concept was first formulated in the context of Eastern European economies and later of the developing economies of Asia, Africa and Latin America, it was postulated as a prerequisite for initiating the development process in an economy.[4] It was conceived as a set of physical facilities without which an integrated, interdependent economy could not function effectively. It set the limit for self-sustained growth in the economy. The concept was also linked to that of the absorptive capacity of an economy for external aid. It was pointed out that in the absence of adequate infrastructure facilities an economy could not make good use of external assistance.

These perceptions led to massive investments, often largely financed by external assistance, in physical infrastructure facilities, such as roads, bridges, ports, irrigation dams, electric power and communications, as a prelude to the development and industrialization of a country. Most development plans, as well as foreign assistance programmes, in the 1950s and 1960s placed primary emphasis on the building of physical infrastructure facilities and on project aid and project lending.

However, it was soon apparent that physical infrastructure was, at most, only a necessary and by no means a sufficient condition for development. Although the creation of infrastructure facilitated the establishment of other industries, the viability of those industries depended on other factors, including entrepreneurial abilities and a conducive domestic policy environment. The establishment of import-substituting industries often created pressures for the availability of infrastructure services at subsidized rates. This, in turn, eroded the financial viability of infrastructural facilities, which often suffered from deterioration and lack of maintenance. This was further aggravated by the reluctance of foreign aid agencies, which had helped to build such facilities, to give assistance for maintenance or improvements.

The emphasis on physical infrastructure derived from the following perceived characteristics of such facilities:

(a) They are indirectly productive in nature. Most physical infrastructure facilities perform an intermediate function, for example, power supply, transport services or communications which are used

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[2] For a detailed survey of the state of the Asian and Pacific environment, see UNEP, *UNEP Asia-Pacific Report 1981 – The Resources of Development* (Bangkok, UNEP Regional Office for Asia and the Pacific, 1982); and ESCAP, *State of the Environment in Asia and the Pacific* (1985), 2 volumes, document No. ECU/MCEA/PM/4.

[3] J.A. Dixon, L.M. Talbot and G.J.M. Le Moigne, *Dams and the Environment – Considerations in World Bank Projects*, World Bank Technical Paper No. 110 (Washington, D.C., World Bank, 1989).

[4] P.N. Rosenstein-Rodan, "Problems of industrialization of Eastern and South-Eastern Europe," *Economic Journal*, June-September 1943, *53*, 202-211.

by a variety of industries producing directly consumable goods such as shoes, textiles and wheat;

(b) They are subject to technological indivisibilities, involving considerable economies of scale and lumpiness in investment.[5] They result in considerable planned underutilization, at least, in the initial years. Further, they typically have high initial fixed costs and low, often rising, variable recurrent costs;

(c) They have long gestation lags. This requires the ability of the economy to raise capital funds, either domestically or externally, considerably in advance of any flow of goods and services that they may produce. Often both the capital costs and debt-servicing requirements of these projects are high and they are financed by flotation of long-term bonds or borrowing in international capital markets. Such financing often requires government guarantees and negotiations;

(d) They are subject to considerable external economies or diseconomies through the interdependence of economic activities or even through the infrastructure facilities themselves.[6] For example, the establishment of a railway line can reduce the cost of haulage of coal, which in turn could reduce the cost of electricity generation. Railways thus create external economies for coal and electricity. Investments in human capital or social infrastructure also are generally perceived as creating external economies for directly productive activities. However, many infrastructure facilities also create some negative external effects, especially environmental. For example, airports and power generation create noise and air pollution, which have adverse effects on the health of citizens. The existence of externalities leads to a divergence between social and private calculations of costs and benefits of infrastructure. In cases where net social benefits exceed net social costs, which is very often perceived to be the case, there is likely to be underinvestment in infrastructure.

Dissatisfaction with economic growth theories which gave primary importance to increased physical capital necessitated the modification of the concept of infrastructure to include investment in human capital. Thus education, health, sanitation, water and other amenities of life began to be perceived as having many of the characteristics of physical infrastructure. Investment in them needed to be undertaken concomitantly with, if not ahead of, other development expenditure.

Two considerations seem to underlie the current concern relating to social infrastructure. The first is the perception that investment in social infrastructure helps to augment the productivity of human labour. The second arises from the feeling that the fruits of growth have been unequally distributed in most developing countries and therefore there is a need to ensure the availability of certain basic social services to all sections of the population, regardless of location, gender or class. This has raised the question of access to infrastructure facilities, including some physical infrastructure facilities, such as electricity and transport, on an equitable basis.

Yet another category of infrastructure facilities which has received increasing attention in recent years is that of institutional infrastructure. This category, which could include all aspects of governance and self-governance, including defence and general administration, is too broad to be encompassed by a purely economic treatment. However, a narrower definition of this category to include institutions which affect the smooth functioning of the economy does deserve attention. In particular, the role of financial institutions, management of public enterprises as well as other regulatory mechanisms, and non-governmental institutions is being increasingly recognized as a prerequisite for sustained development.

In this *Survey* the main focus of attention is on physical and social infrastructure in the developing ESCAP region. Physical infrastructure includes: (a) energy supply networks, (b) transport and communications, and (c) agricultural infrastructure. Social infrastructure includes: (a) health, (b) education, (c) water supply and (d) housing. While explicit attention to institutional problems was not feasible in the present study, they have been discussed, where appropriate, in some detail.

It is obvious that any categorization of infrastructure is subject to a considerable degree of arbitrariness and fails to avoid the large extent of overlap that exists. Thus, for example, energy and transport, although used largely as inputs in the production process, also serve to provide basic social needs and are consumed by households directly. The question of access to and equity in the distribution of energy and transport services are as important as in the case of education and health. Similarly, construction of university campuses, hospitals and water supply facilities, although treated as part of social infrastructure, have important physical infrastructure characteristics. The categoriza-

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[5] One of the earliest recognition of this characteristic was made in Allyn Young, "Increasing returns and economic progress", *Economic Journal*, December 1928, *38*, 527-542.

[6] T. Scitovsky, "Two concepts of external economies," *Journal of Political Economy*, April 1954, *62*, 143-151.

tion adopted in this study is based on the primary objective for which the infrastructure is intended.

The rest of the study is organized in the following way. The remainder of this chapter takes up two issues of general relevance to infrastructure development. The first is the role of government and the second deals with problems of measurement in analysing infrastructure development. Chapters II and III are devoted to a discussion of the progress in and the problems of physical and social infrastructure development, respectively, in the developing ESCAP region. A broad overview of developments in different types of physical and social infrastructure in the context of the region's developmental diversity is given, and the problems faced in their development are raised. Chapter IV addresses financial, management and institutional issues of infrastructure development. Chapter V discusses the special needs and problems of infrastructure development in the least developed and Pacific island countries. It also deals with policy issues relating to technology choice, environmental protection and regional co-operation in the context of infrastructure development. Chapter VI summarizes and discusses some policy conclusions of the study.

C. THE ROLE OF THE GOVERNMENT IN INFRASTRUCTURE DEVELOPMENT

The discussion in the previous section on the salient characteristics of infrastructure makes it very clear that the government has a leading role to play in infrastructure development. Indeed, in the initial stages of economic development it seemed inconceivable that any private entrepreneur would even consider it a viable proposition to invest in infrastructure development. However, the situation has been changing over time and many countries, unable to finance infrastructure needs through public funds, have encouraged the private sector, often through foreign joint ventures, to participate in the construction and management of infrastructure facilities. So far this has happened only to a very limited extent and in only a few countries of the region. Infrastructure development remains by and large an activity dominated by the public sector.

It may, therefore, be necessary to spell out the reasons which account for the leading role of the government in the development of infrastructure. In the case of physical infrastructure, the main argument for state intervention is on grounds of "market failure", involving the divergence between social benefits and private gains, which could arise from a number of factors. For example, physical infrastructure projects may be on such a financial, physical or geographical scale that private entrepreneurs may find them too costly to undertake. Alternatively, these projects may carry high risk and/or may have long gestation periods; if the capital market is not sufficiently developed for the private sector to be able to cover the risk or raise the necessary finance, such projects may not be undertaken. Yet another reason for market failure may arise because of the absence of an adequate mechanism through which the private enterprise can charge the consumer an appropriate price for the product. Any of these circumstances could lead to underinvestment in infrastructure below the socially desirable level. This makes it imperative for the government to undertake such investments directly and to finance them through appropriate fiscal means.

With regard to social infrastructure, where in addition to productivity enhancement, the objectives of social welfare and equity are of importance, the involvement of the government becomes paramount. These services partly involve investment in "human capital" and partly involve the reallocation of resources to improve social welfare. The first objective is not different from that involved in investment in physical infrastructure and may need the government's participation only to the extent that "market failure" in undertaking such investment can be established. However, to achieve the second objective government intervention is inevitably called for. For instance, the case of providing free primary education by the government to all its citizens is well-established since no private institution can be expected to provide it on a comprehensive basis.

The case for providing certain other basic services at a minimum level by the government is equally strong. For example, it is well known that severe malnutrition of children under five leads to life-long impairment of cognitive skills and physical performance. If children can be protected from these harmful effects, not only would this raise their long-term productive potential, but it would also save society's resources for their subsequent health care. A state-aided programme for ensuring the nutritional needs of the under-fives could therefore be justified on grounds of divergence between private gain and social benefit, which would fail to attract any private investment for this purpose.

The role of the government in providing social infrastructure is also motivated by concerns for equity-related objectives. Markets do not distribute the benefits of economic growth equitably; therefore, the coverage of social infrastructure must be defined by the government to ensure that the

distribution of benefits across regions, rural and urban population, classes, genders etc., is more equitable. It is thought that this can only be achieved through a wider provision of social services and at prices that do not exclude consumption by the underprivileged groups and regions. This argument in favour of a strong redistributive role of the government through the provision of basic social necessities at nominal or low cost also reflects the non-availability of effective fiscal instruments to achieve the redistributive goal. While in theory it may be argued that market mechanisms should be used to allocate resources efficiently and to determine prices and that the fiscal machinery should be used to redistribute incomes on equity considerations, in practice it is seldom possible to maintain this separation.

However, it is being increasingly recognized that the case for state intervention in investment and provision of services in various categories of physical and social infrastructure is not inexorable. Even where the ultimate control must by the very nature of the service, remain in the hands of the government, large parts of such infrastructure (for example, buildings, installations, equipment) can often be supplied by the private sector or subcontracted to private enterprises.

In specific areas of physical and social infrastructure private sector participation has been rapidly increasing over the last two decades. For instance, with the development of world capital markets substantial volumes of finance to undertake large "indivisible" infrastructural projects can be mobilized by private enterprises. The risks associated with such long-life projects can also be more widely distributed through securities markets.

In a number of countries public works and utilities which were originally set up and managed by governments or local authorities (for example, supply of gas and electricity, and telecommunications) have been sold to the private sector. Even in these situations, however, the government's role does not totally disappear but takes a more qualitative and important form of ensuring that the monopoly power that is necessarily associated with the large size of such undertakings is not used against the public interest.

These considerations underscore the fact that the role of the public sector in infrastructure development can vary with changing economic conditions. It is for these reasons that there will always be the need to explore constantly possibilities of institutional reforms to increase the efficiency of infrastructural facilities. These possibilities are discussed elsewhere in the *Survey*.

It is important to point out that the current concern about "government failure" in managing economic enterprises and the strong advocacy for privatization in developing countries, specifically recognizes the development of infrastructure as (for some, the only) legitimate role of government participation in economic activity. Indeed, as has been pointed out:

"Government failure may have consisted as much in failing to provide the infrastructure in which government has a large comparative advantage as it has in providing poorly things in which it does not have a comparative advantage".[7]

Further, public investment in infrastructure, unlike that in other economic activities, seems to "crowd-in", rather than "crowd-out" private investments. There is evidence that infrastructural investments favourably affect private investments.[8] While centralized planning is generally discredited in its performance as a tool of investment planning, its usefulness is re-emerging "in the confines of public sector investment in infrastructure".[9]

In the debate on the public versus the private sector there has been a misplaced emphasis on the extent of the government's involvement in economic activities. However, what seems to be more important is the quality and strategic nature of government intervention. The government's role in providing institutional infrastructure to capture the externalities in the area of information processing, adaptation and acquisition of technology can be of great value to the developing countries of the region. In developed countries these functions are normally performed by large corporations, whose revenues exceed the GDPs of many developing economies. In Japan and the East Asian NIEs, particularly the Republic of Korea, the government has played this crucial catalytic role in internalizing the external economies normally associated with infrastructure development, in addition to playing a surrogate for non-existent or weak capital markets.[10]

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[7] Anne O. Krueger, "Government failures in development", *The Journal of Economic Perspectives*, vol. 4, No. 3, Summer 1990.

[8] Mario T. Blejer and Mohsin S. Khan, "Government policy and private investment in developing countries", *IMF Staff Papers*, vol. 31, No. 2, June 1984, p. 379.

[9] Bela Balassa, *Indicative Planning in Developing Countries*, Working Papers, Development Economics (World Bank, May 1990), WPS 439.

[10] M. Datta-Chaudhuri, "Industrialization and foreign trade: the development experiences of South Korea and the Philippines." In E. Lee, ed., *Export-Led Industrialization and Development* (Bangkok and Geneva, ARTEP-ILO, 1981a); and L. Westphal, "Industrial policy in an export-propelled economy: lessons from South Korea's experiences", *Journal of Economic Perspectives*, vol. 4, Summer 1990, pp. 41-59.

However, the creation of infrastructure facilities and their efficient utilization and management are two separate functions. While the government has a distinct comparative advantage over the private sector in the first, its performance in the second role has generally been unimpressive. The softness of the budget constraint faced by state-managed infrastructure facilities, arising from the knowledge that any losses will be picked up by the government, often introduces inertia and lack of efficiency.[11] In contrast, the threat of entry and the fear of exit, keeps private enterprises on their toes and proves to be an unmatched mechanism for ensuring cost and quality consciousness among the producers. The introduction of market discipline, through some degree of private sector participation, in the management of infrastructure facilities is, therefore, clearly a desirable change of direction.

The role of the government in relation to infrastructure development in the region in the 1990s could be increasing towards greater involvement in social infrastructure to meet the objectives of poverty alleviation, equity and environmental protection. In the field of physical infrastructure greater involvement in information processing research and development activities to enhance the flexibility of domestic production structure would also be desirable.

D. MEASUREMENT OF INFRASTRUCTURE DEVELOPMENT

The measurement of infrastructure development poses a number of problems, both conceptual and statistical. As was discussed in section B, the concept of infrastructure has an inherent ambiguity and has undergone several changes since it first came into use in the 1940s. The main problem in operationalizing the concept is to define precisely its scope and inclusiveness.

1. Coverage of infrastructure

As pointed out earlier, this study concentrates on two categories of infrastructure, physical (or economic) and social (or human) – a distinction which by itself is far from clear-cut. Within these two broad categories and their component subcategories, it is useful to distinguish betweeen infrastructural facilities and infrastructural output or services. The services, in general, are non-tradeable, while the facilities, once established, are immobile. For example, the infrastructure facilities for power consist of the generation, transmission and distribution of commercial sources of energy. Hydroelectric dams, thermal and nuclear power stations, gas and petroleum pipeline and transmission lines and distribution networks would be included in such infrastructure facilities. Actual supply of energy inputs to industrial users and consumers would constitute the output or services of this infrastructure.

The aggregate expenditure on infrastructure facilities gives an estimate of the stock of infrastructure of a certain type at a given time, and increments in that stock during a unit of time give the amount of investment. The output or services which can be generated during a period of time gives an estimate of capacity of such infrastructure. Thus investment in power generation in a given year would be the aggregate investment on the infrastructure facilities in the power sector and the number of kilowatt hours of energy equivalent generated will be the output.

Similarly, the network of roads, bridges, railways, airways and waterways would come under transport infrastructure. The network of post, telegraph and telecommunication and audio-visual media would constitute the communications infrastructure. The facilities associated with transport and communications infrastructure include, railway stations and servicing facilities, aerodromes and airports, ports and harbour, radio and television transmission and receiving stations. Given these facilities, transport and communication services require certain equipment such as railway rolling stock for goods and passenger transport, a fleet of aeroplanes as well as alternative technologies for road transport services as embodied in different vehicles (trucks, buses, cars, two and three wheeled motorized as well as non-motorized (animal or human drawn) modes of transport). Equipment is also needed by the users (such as telephones, radios or television sets) to make use of communication facilities.

Irrigation canals and drainage and channel systems and water distribution arrangements constitute physical agricultural infrastructure whereas agricultural extension facilities to provide knowledge about new agrarian techniques may be regarded as part of the institutional infrastructure for agriculture.

Health infrastructural facilities may be taken to include village, block, district, town and city clinics, health centres and hospitals along with the necessary diagnostic treatment and surgical facilities. Epidemic prevention apparatus is also included here. Preventive, diagnostic and curative services with access questions arise in this connection.

[11] For a discussion of these problems, see J. Kornai, "The soft budget constraint", *Kyklos*, 1986b, 39:1, 3-30.

2. Indicators of infrastructure development

Three main types of indicators of infrastructure are often used to quantify the availability of infrastructure facilities and outputs or services:

(a) Indicators of investment allocation. Two types of investment allocation indicators can be used: (i) the proportion of total investment outlay in an economy devoted to infrastructure investment, broken down by categories and subcategories, and (ii) the proportion of government investment expenditure devoted to infrastructure development;

(b) Indicators of the availability of infrastructure facilities (for example, length of road per square mile) or of services (for example, cargo or container throughput per year) or of inputs (for example, hospital beds or doctors per thousand population and teacher-pupil ratio);

(c) Indicators of outcome reflecting the overall effectiveness (or lack thereof) of infrastructural facilities: (i) life expectancy, (ii) mortality, especially of those below five years, and (iii) literacy rates.

These indicators, which are not always based on mutually consistent or comparable data sets, are often used to assess the performance of overall or individual infrastructure facilities across countries over time. Indeed, the analysis of infrastructure development on a country-wide basis suffers from considerable limitations of a conceptual and statistical nature. The data on infrastructure facilities, as well as on infrastructure outputs and services are not easily obtainable in a usable form for many countries.

3. Data availability

The nature and limitations of available data on infrastructure make it difficult to illustrate the concept and analyse the related issues. Serial statistics on the magnitude and source of investment in infrastructure is generally very scarce; besides, such information is largely based on estimation by the residual method, which results in compounding the errors of estimation. Although the relevant data from its public counterpart are more accessible and reliable, budget classifications as to the types or functions of expenditure tend to vary significantly among countries.[12] To ensure consistency and comparability to the extent possible, standardized data sources, principally from multilateral agencies and institutions, have been used and supplemented by national sources where appropriate. The additional information, however, is not always comparable and available over the desired time frame. This accounts for variations in the country and subject coverage of some tabular materials presented in the text.

Another aspect of the problem relates to the serious and well-known limitations concerning public sector data on the operations and maintenance of capital investment, and on gross fixed capital formation. The standard distinction between capital and current spending, a certain specified length (normally one year) in the lifespan of tangible assets, leads to cumulative bias towards investment in physical capital and, within this category of infrastructure, in the hard or capital-intensive systems and subsystems. The alternative classification of developmental and recurrent spending overcomes this bias by incorporating in the developmental budget such outlays which promote either human resource development or the productivity of physical investment. It nevertheless creates other difficult conceptual and operational problems of its own that could render the distinction between the two budgets highly arbitrary.

State-owned enterprises constitute an important component of public sector operations in many economies of the ESCAP region; many of these enterprises engage directly in the provision and management of infrastructure. However, there is little information on the criteria used in the classification of enterprises while the range of data on their activities is far from exhaustive. At the same time, there are considerable ambiguities in the nature and magnitude of savings and investments by public sector enterprises.[13]

These complexities and limitations imply at best a fair and approximate quantitative indication of the broad national and regional picture and parameters regarding infrastructure development, utilization and needs. Great caution thus needs to be exercised to guard against simplistic inter-spatial and inter-temporal generalizations on the basis of the statistical information contained in this study and, as noted previously, of the experiences of individual countries in the field of infrastructure including related issues and implications for development policy and planning.

[12] This and other problems of public finance data are highlighted in World Bank, *World Development Report 1988* (New York, Oxford University Press, 1988), pp. 45, 56 and 108.

[13] See *Survey*, 1984, pp. 132-133.

II. PHYSICAL INFRASTRUCTURE DEVELOPMENT IN THE ESCAP REGION

The main physical infrastructure facilities which have contributed to (or proved to be a bottle-neck in) the acceleration of growth are power generation, transport and communications and telecommunication facilities, as well as irrigation, agricultural extension services and related infrastructure in agriculture. These infrastructure facilities, which often require a huge investment have played an important role, among others, in giving and maintaining a competitive edge to many of the fast-growing economies of the region. They have enabled them to restructure their industrial sector, increase the productivity of their agriculture and enhance the efficiency of their service sectors.

At the same time, the output and services produced by these facilities also cater directly for consumer demand, which has expanded partly on account of growth in per capita income and partly as a result of increased concern for greater access to infrastructure facilities on the basis of equity. For example, there is growing pressure from the rural population in many parts of the region to introduce rural electrification programmes (see box II.2). This is seen not only as a means of enhancing the quality of life in the rural areas, but also as an effective instrument for increasing rural employment opportunities and stemming the tide of rural-urban migration.

A. INFRASTRUCTURE FOR ELECTRICITY

As part of the basic physical infrastructure needed during the course of the development of an economy, that relating to the generation, transmission and distribution of power has a unique place. It provides one of the most essential inputs in an industrial economy. The backward and forward linkages with the rest of the industrial economy are, perhaps, the strongest, so that potential bottle-necks can have a far-reaching impact on overall economic growth.

In the generation of electric power most countries in the region use one or more of a number of basic energy fuels, principally crude oil, coal, gas, hydropower, and geothermal and nuclear energy. Their use as a fuel in a particular country depends on their availability, ease of transport, relative prices, environmental effects and other factors.

Oil, coal and gas, which are by far the most widely used fuels for electricity generation, are exhaustible resources and in most developing countries of the region have to be, in large part, imported. Although in much of the 1980s their prices were depressed, the third oil shock is likely to raise the price of oil and other fossil fuels to new levels in the 1990s.[1]

[1] For a discussion of these issues see chap. I, part one of this *Survey*.

Oil and coal, though not natural gas, also have adverse environmental effects.[2] Although nuclear technology does offer possibilities of reducing the heavy dependence on oil in many of the region's developing countries, domestic concerns about the safety of the reactors, especially since the Chernobyl accident in the Union of Soviet Socialist Republics, and the irradiated waste, and developed countries' concerns about the possibility of nuclear arms proliferation have prevented any sizeable expansion from this source. However, although hydroelectric power itself is a safe and clean source of power generation, there are increasing concerns about the adverse environmental, ecological and population displacement effects of building large hydroelectric dams. In many countries the availability of suitable sites has already been exhausted. Geothermal energy, of which the Philippines is the only significant user in the Asian and Pacific region, depends on particular geological configurations. It also suffers from a number of disadvantages, including low heating capacity of power stations based on it and the danger of disturbing the ecological balance, which could result in earthquakes.

[2] The environmentally benign energy systems based on solar, wind, wave and biomass have contributed very modestly to power generation largely because of a lack of cost-effective commercial technologies.

1. Growth in demand

There is a strong relationship between growth in demand for energy and economic growth. However, the demand varies according to the stage of development of an economy. Many subsistence and low-income economies with low levels of industrialization do not experience large increases in demand for commercial energy. Their modest energy needs are met by traditional sources of energy, such as fuelwood, biomass and agricultural waste. The energy intensity increases as domestic production rises and industrialization and urbanization take place. This is largely what has been happening

Box II.2. Rural electrification: the social and economic impact on rural development

In most developing countries electricity generation is largely oriented to providing power for urban areas and industries, although in many cases more than 70 per cent of the population lives in rural areas. In recent years, however, concerted efforts have been made to redress the imbalance through rural electrification programmes. In many developing countries of the region, rural electrification schemes are implemented as part of programmes to promote rural development and to remove rural-urban inequalities. However, less than 10 per cent of electricity investment in the third world goes to rural areas, and in many countries that investment is less than 5 per cent.[a]

In the developing ESCAP region, except for Hong Kong, Singapore and Taiwan Province of China where universal electrification has been achieved, other countries have quite far to go. China, Malaysia and Thailand have made great strides in rural electrification with at least 40 per cent of the rural population being served by electricity.[b] Elsewhere in Asia, progress is slower; it is estimated that less than 10 per cent of the rural population in Bangladesh and Sri Lanka, among other countries, have access to electricity.[c]

The experience has shown that electrification has brought significant changes to the lives of rural people. Besides providing light, electricity enables the use of many appliances which lighten the work of both men and women and serve to raise living standards generally. Electric pumps provide a reliable, clean supply of water from a village well, which in turn helps to improve health. The extension of electricity coverage enables the broadcasting of educational programmes through radio and television to the rural areas, including lessons in preventive health care and farming techniques, and other non-formal education activities.

As with other infrastructure facilities, access can be a serious problem in rural electrification, particularly in poor villages, where only wealthy households can afford to pay the high initial costs of getting a power connection. A survey in India found that poor families took an average of ten years after initial electrification before they could afford to connect to the system. In general, however, rural electrification tends to have a levelling effect by increasing the opportunities for employment and income generation. First, rural electrification encourages the growth of rural industries. In Indonesia, for example, the availability of electricity has encouraged the development of household-based cottage industries, owing in part to the availability of lifeline electrical tariffs. Rural electrification also stimulates the establishment of various new enterprises, especially those providing repair services for electrical appliances. Equally important, access to electricity enables existing enterprises to use additional machines and work longer hours thereby increasing their productivity and output.

Second, rural electrification enhances agricultural productivity, especially on-farm food processing and irrigation. For example, electrification programmes in India and Pakistan are largely directed at developing irrigation in semi-arid parts of the country. Irrigation spreads rapidly in newly electrified areas and, together with the introduction of improved plant varieties and fertilizers, contributed to a significant improvement in agricultural yields. Rural electrification is most effective in promoting agricultural development when certain complementary inputs, such as electric pumps, financial assistance, and other extension services are available.

The investment costs of rural electrification programmes are generally high, since it often requires extending the network to cover isolated and highly dispersed areas. The relatively widespread subsidies to rural consumers of electricity present another difficult operational issue. Moreover, rural electrification alone is unlikely to generate development and diversification unless accompanied by a package of complementary facilities which include the provision of agricultural extension services and credit, irrigation, roads and communications facilities, among other ancillary requirements. Unless financial resources are available to provide such an integrated package of services, investment in rural electrification has not proved to be very cost-effective. Other investments such as improved roads, water supply and public health may be more important. This should be taken into account before additional investment is made. However, in general, rural electrification has many positive externalities which may be easily captured in making such investment decisions. The dissemination of technology and the promotion of entrepreneurship are among the external benefits of rural electrification.

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[a] Douglas V. Smith and others, "Report of the regional rural electrification survey to the Asian Development Bank", draft study (Manila, October 1983).

[b] M. Munasinghe, *Rural Electrification for Development: Policy Analysis and Applications* (Colorado, Westview Press, 1986), p. 6.

[c] *Ibid.*

in much of the developing Asian and Pacific region. With the rapid growth in urbanization and industrialization, the growth of demand for electricity is likely to rise, both in the more dynamic members of the Association of South-East Asian Nations (ASEAN) and the relatively less industrialized and urbanized low-income countries as they attempt to transform their economies structurally.

A significant impact of the changing pattern of industrialization in the Asian and Pacific economies has been through the relocation of labour- and energy-intensive industries from Japan and the newly industrializing economies (NIEs). If this process is to continue and spread widely in the region, substantial investment in physical infrastructure, especially power, will have to be undertaken. The industrial sector has to bear the brunt of the costs of energy shortages and power cuts, which is reflected in the loss of competitiveness through cost increases.

Table II.1 shows the production of electricity in the ESCAP region. The region's per capita consumption of electricity estimated at 413 kilowatt hours (kWh) in 1988 is one of the lowest in the world. There are, however wide variations. For example, consumption was very low, amounting to less than 100 kWh per capita in several countries, most of them belonging to the least developed group. Nepal had the lowest consumption rate at only 36 kWh per capita. The remaining least developed countries in the region did not fare better – their consumption ranging between 58 and 94 kWh per head in the same year. As noted above, this reflected not only their low level of industrialization, but also the fact that rural populations in these countries relied mainly on non-conventional sources to meet their energy needs.

It is interesting to observe that per capita consumption of electricity in two countries with large populations, India and Indonesia, were below the regional average. However, the most populous country, China, did relatively well. The per capita consumption rate of 496 kWh was in excess of the regional average.

Electricity consumption in the NIEs was considerably higher than in the rest of the developing ESCAP region. Hong Kong and Singapore (and Brunei Darussalam) achieved per capita consumption in excess of 4,000 kWh in 1988. Consumption in the Republic of

Table II.1. Selected developing economies in the ESCAP region. Consumption of electricity, 1970-1988

	Million kilowatt hours					*Annual percentage increase*			*Consumption per capita (kWh)*
	1970	*1975*	*1980*	*1985*	*1988*	*1970-1980*	*1970-1988*	*1980-1988*	*1988*
Afghanistan	396	705	970	1 060	1 109	9.4	5.9	1.7	71.6
Bangladesh	1 404[a]	1 627	2 653	4 870	6 866	6.6	9.2	12.6	64.4
Brunei Darussalam	138	230	375	904	1 030	10.5	11.8	13.5	4 291.7
China	107 000	187 000	300 708	411 770	539 229	10.9	9.4	7.6	495.9
Fiji	158	241	306	395	420	6.8	5.6	4.0	583.3
Hong Kong	5 097	7 374	12 341	18 185	24 068	9.2	9.0	8.7	4 222.5
India	61 212	85 908	119 190	183 299	238 530	6.9	7.8	9.1	299.4
Indonesia	2 300	4 230	7 140	29 978	37 010	12.0	16.7	22.8	211.2
Republic of Korea	9 597	20 880	39 979	62 716	85 462	15.3	12.9	10.0	2 034.8
Lao People's Democratic Republic	84	200	325	347	365	14.5	8.5	1.5	93.6
Malaysia	3 543	5 788	8 974	15 051	19 287	9.7	9.9	10.0	1 141.2
Mongolia	548	848	1 985	2 833	3 400	13.7	10.7	7.0	1 626.8
Myanmar	600	978	1 433	2 119	2 272	9.1	7.7	5.9	57.8
Nepal	76	161	257	435	641	13.0	12.6	12.1	35.6
Pakistan	8 727	10 694	15 277	27 531	36 940	5.8	8.3	11.7	350.5
Papua New Guinea	191	982	1 290	1 545	1 745	21.0	13.1	3.8	484.7
Philippines	8 666	13 670	18 032	22 909	24 538	7.6	6.0	3.9	418.0
Singapore	2 205	4 176	6 940	9 826	13 018	12.1	10.4	8.2	4 821.5
Sri Lanka	816	1 149	1 668	2 464	2 799	7.4	7.1	6.7	168.6
Thailand	4 507	9 008	15 743	24 882	34 374	13.3	11.9	10.3	629.6
Viet Nam	2 120	2 428	3 900	5 000	5 700	6.3	5.6	4.9	89.5
Total	219 385	358 277	559 486	828 119	1 078 803	9.8	9.3	8.6	412.5

Sources: United Nations, *Yearbook of World Energy Statistics*, 1981; and *Energy Statistics Yearbook*, 1988 (United Nations publication, Sales No. E/F.82.XVII.16 and E/F.90.XVII.4).

[a] For 1973.

Korea, although high by Asian standards at 2,035 kWh per capita, accounted for only half of the level attained in Hong Kong and Singapore.

An interesting aspect of the dispersion in per capita energy consumption is that, in general, countries with low per capita energy consumption rely to a lesser extent on thermal power. Most of the low-income and least developed countries, with the notable exception of Bangladesh, rely on hydropower as the main source of their electricity supply (table II.2). Nepal, the Lao People's Democratic Republic and Sri Lanka derive over 90 per cent of their electricity supplies from hydropower while in Afghanistan and Myanmar the proportion is 68 and 49 per cent, respectively. Pakistan and Viet Nam also derive about half of their electricity supplies from hydroelectric dams. India, Indonesia and China, the region's three most populous low-income countries also depend on hydroelectric power for up to a fifth of their total electricity production. The region's four high-income economies, Brunei Darussalam, Hong Kong, the Republic of Korea and Singapore depend on negligible amounts of hydroelectric power. The Republic of Korea, however, in 1988 relied on nuclear energy for about half of its electricity supply. Nuclear energy, however, remains a very capital- and skill-intensive mode of power generation. Apart from the Republic of Korea, which already had 11 nuclear power plants, other developing countries are likely to continue to depend largely on thermal power stations run mainly on fossil fuels.

2. Problems and progress in capacity expansion

A brief review of the problems faced in selected countries of the region gives an idea of the variety of problems faced in the development of infrastructure for electricity.

In China severe power cuts

Table II.2. Selected developing economies in the ESCAP region. Electricity production by type, 1980 and 1988

(Million kilowatt hours)

	1980 production			*1988 production*			*1980 ratio (%)*		*1988 ratio (%)*	
	Total	*Thermal*	*Hydro*	*Total*	*Thermal*	*Hydro*	*Thermal*	*Hydro*	*Thermal*	*Hydro*
Hong Kong	12 649	12 649	0	25 508	25 508	0	100	0	100	0
Mongolia	1 635	1 635	0	3 300	3 300	0	100	0	100	0
Brunei Darussalam	375	375	0	1 030	1 030	0	100	0	100	0
Singapore	6 940	6 940	0	13 018	13 018	0	100	0	100	0
Republic of Korea	39 979	37 995 [a]	1 984	85 462	81 896 [b]	3 566	95	5	96	4
Bangladesh	2 653	2 070	583	6 866	6 191	675	78	22	90	10
Thailand	14 985	11 285	3 700	33 964	30 185	3 779	75	25	89	11
Iran, Islamic Republic of	17 150	14 100	3 050	38 770	32 320	6 450	82	18	83	17
China	300 400	242 200	58 200	537 846	431 250	106 596	81	19	80	20
Indonesia	7 140	4 540	2 600	37 010	29 000	7 800	64	36	78	21
India	119 226	72 679 [c]	46 548	237 800	185 856 [d]	51 944	61	39	78	22
Papua New Guinea	1 290	890	400	1 745	1 300	445	69	31	74	26
Philippines	18 032	14 478 [e]	3 554	24 538	18 260 [f]	6 278	80	20	74	26
Malaysia	8 974	7 719	1 255	19 287	13 684	5 603	86	14	71	29
Viet Nam	3 900	3 200	700	5 700	3 500	2 200	82	18	61	39
Pakistan	15 277	6 558 [g]	8 719	36 940	20 185 [h]	16 755	43	57	55	45
Myanmar	1 433	559	874	2 272	1 151	1 121	39	61	51	49
Afghanistan	970	300	670	1 109	357	752	31	69	32	68
Fiji	306	306	0	420	90	330	100	0	21	79
Sri Lanka	1 668	189	1 479	2 799	202	2 597	11	89	7	93
Lao People's Democratic Republic	975	45	930	1 100	50	1 050	5	95	5	95
Nepal	221	38	183	589	26	563	17	83	4	96
Total	576 178	440 750	135 429	1 117 073	898 359	218 504	76	24	80	20

Sources: United Nations, *Yearbook of World Energy Statistics*, 1981, and *Energy Statistics Yearbook*, 1988 (United Nations publication, Sales No. E/F.82.XVII.16 and E/F.90.XVII.4).

[a] Including nuclear 9 per cent. [b] Including nuclear 47 per cent. [c] Including nuclear 3 per cent. [d] Including nuclear 2 per cent. [e] Including geothermal 11 per cent. [f] Including geothermal 19 per cent. [g] Including nuclear 1 per cent. [h] Including nuclear 2 per cent.

in the late 1980s are estimated to have cost 200 billion yuan renminbi or $US 54 billion, with as much as 20 per cent of potential industrial output estimated to have been lost because of the shortage of electricity.[3] In 1988, factories in the key industrial centres of Shanghai and Shenyang were at times operating only three to four days per week.

China's power crisis, however, stems from the problems faced in the haulage of coal of which it is the world's largest producer with an output of about 1 billion tons annually. The transport of coal from the country's north-eastern part, where the major coal mines are located, to its southern sea-coast where the major industrial centres and power plants are concentrated, ties up more than half of the railways and a third of the inland water transport facilities of the country. In order to meet the problems arising in its power industry, the Government of China unveiled in the second half of 1990, an investment plan amounting to 1 billion yuan renminbi ($US 212 million), which is aimed at boosting coal output by 54 million tons and increasing electricity output by a million kilowatt hours.

The high growth of power consumption in the Republic of Korea in recent years has raised the possibility of the emergence of power shortages in the near future. Cheap pricing policies, the industrial boom and insufficient attention given to energy conservation are among the main causes for the rapid increase in demand. In order to cope with the soaring demand, the country brought back into production 14 oil-fired plants that were moth-balled earlier because of high operating costs. Even at the low oil prices that prevailed in 1989, their costs were 50 per cent higher than the nuclear plants in the country. With the current increase in oil prices they are unlikely to remain in production for long.

The Republic of Korea has 11 nuclear plants producing 47 per cent of its power needs in 1988. In the face of the looming power crisis, the country has opted to add 5 more nuclear plants and over a score of conventional power stations in the coming decade. However, the country's growing and increasingly vocal environment movement opposes the establishment of new nuclear plants and this has resulted in considerable delays in their installation in order to ensure more stringent safety checks on reactor design.

The rapidly industrializing ASEAN countries have also been experiencing explosive growth in the demand for electricity with the consequent pressure on supplies. Power shortages have plagued almost all the countries, although the Philippines has been the hardest hit – largely because of supply constraints, rather than growth in demand, which has remained rather low in the 1980s.

Although Thailand has also experienced robust growth in demand for electricity, the problems faced by it are not only of inadequate expansion of capacity, but also of uneven supply. Power outages and voltage fluctuations frequently affect industrial production and most large firms keep stand-by generators for essential operations during power cuts to prevent damage to machinery and materials.[4] The Eastern Seaboard industrial complex has been plagued with power shortages since its start in early 1990.

Malaysia which has a relatively well-developed infrastructure among ASEAN countries has also experienced power shortages. Indonesia and Malaysia have had a very high growth in electricity consumption and as a result need capacity expansion if they are to succeed in their plans to continue to attract greater foreign direct investment in export-oriented industries, such as electronics, which need a continuous flow of electricity.

Continued robust manufacturing growth and increasing sophistication of consumption patterns in ASEAN countries are expected to sustain the high rates of electricity consumption well into the 1990s. Major efforts are therefore under way to respond to this likely development, and electrification investment in ASEAN which is estimated at $US 12 billion in 1988 is expected to reach $US 20 billion by the year 2000.[5]

The consumption of electricity in South Asia has been growing rapidly as in East Asia and ASEAN (table II.1). In India, although the power sector received 20 to 25 per cent of public investment, supplies of electricity did not keep pace with demand and shortages were common throughout the country. Power consumption increased at the rate of 9.1 per cent in 1980-1988, and the Central Electricity Authority has projected that demand would rise at between 9 and 10 per cent up to the year 1996/97.

In Pakistan, an annual growth rate of 11.2 per cent in power consumption is projected for the seventh plan period (1988-1993).

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[3] World Resources Institute, *World Resources 1988-89*, "Energy in China", box 7.1, p. 112.

[4] World Bank, *Thailand: Country Economic Memorandum*, vol. 1, Report No. 7445-TH (21 February 1989), p. 102.

[5] J. Sikes, "The scramble for electricity", *Far East Business*, vol. 22, No. 9 (September 1989), p. 30.

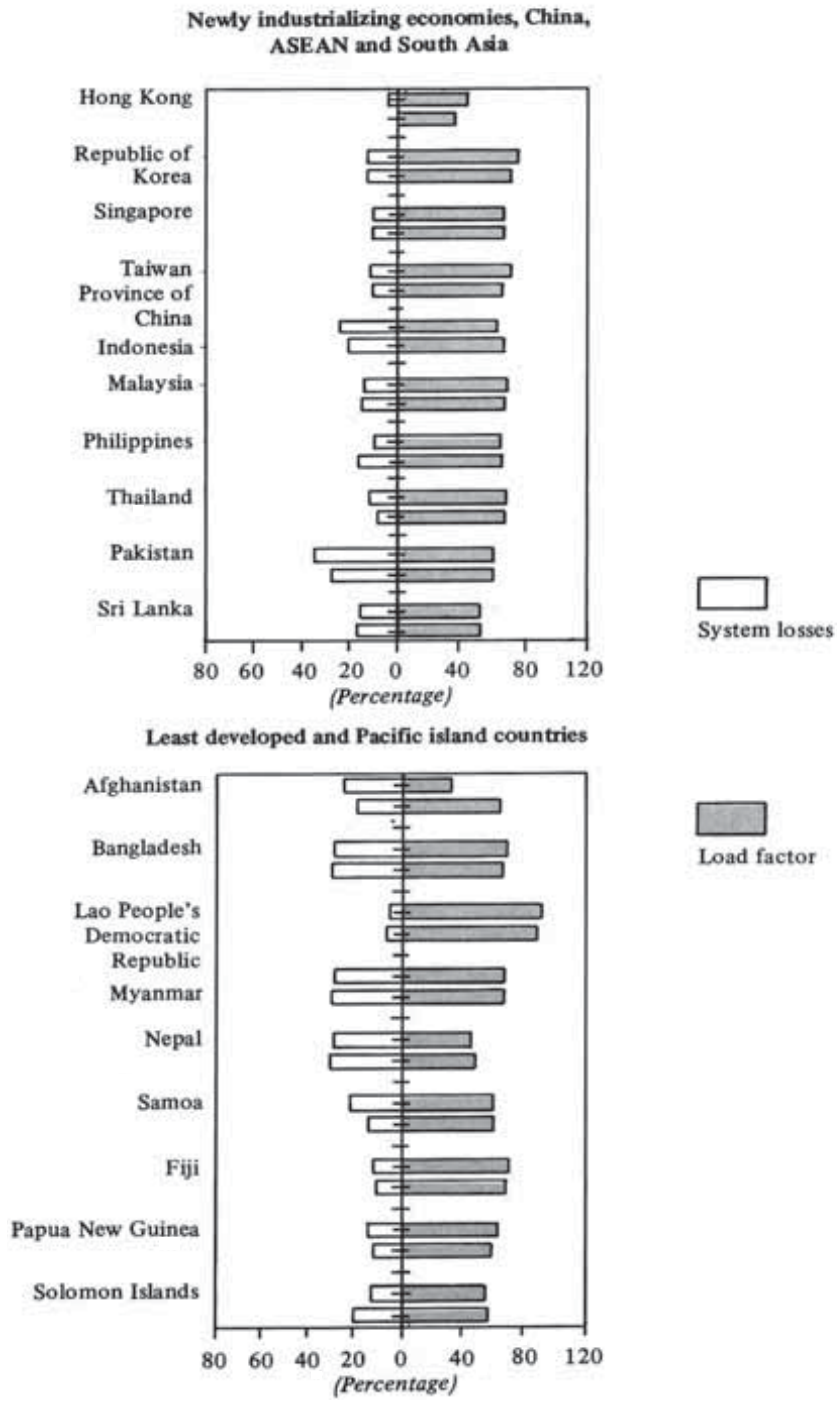
The Government embarked on a major initiative by adopting the Long-term Energy Strategy for the 1986-2010 period which consisted of integrated programmes covering resource development and energy investment, pricing, resource mobilization and demand management, and institutional development. The Government has also sought the help of the private sector to undertake investment in electricity generation.

3. Conservation measures

Given the constraints on the expansion of electricity supply, in terms of financial and other resources, measures to reduce the wastage and underutilization of existing facilities assume critical importance in raising actual per capita consumption of electricity in many countries of the region. Although some measures to enhance end-use efficiency, in particular industrial process or transport modes, and other improvements in appliances, transmission and distribution efficiency levels have already been undertaken, they are in the nature of one-off gains over the medium to long term when the stock of energy consuming equipment is changed. What is, however, needed are appropriate and innovative pricing and institutional mechanisms which would provide incentives to rationalize demand and enhance the efficient use of resources through continuing technological improvements.

As far as electricity-generating infrastructure is concerned, one important area for efficiency enhancement concerns excessive losses in the transmission and distribution systems which, with few exceptions, ranged from 13 per cent to as high as 30 per cent of generated power in Afghanistan, Bangladesh, Indonesia, Myanmar, Nepal and Pakistan in 1984 (figure II.1). A large part of such losses are of a technical nature although it is very difficult to establish appropriate yardsticks and targets as system losses depend greatly on generation plant and fuel mixes,

Figure II.1. System losses and load factor in electricity generation, 1979 and 1984



Sources: Asian Development Bank, *Asian Electric Power Utilities Data Book 1985;* and national sources.

load factors, consumer and other demand characteristics and associated costs. These vary widely among countries.

The available evidence shows that economic loss levels are around 4 to 8 per cent of gross power output, while the "best practice" losses are around 10 per cent.[6] A reduction of one half in countries with serious system losses could thus be equivalent to over a year's growth in their domestic power demand. Studies have revealed that loss reduction measures of a technical nature yield cost/benefit ratios of up to 10:1, and the pay-back period is often less than one year. Remedial measures to reduce non-technical losses, collection failure and outright pilferage in particular, may not be technically straightforward; they range from rehabilitation and public education to, less frequently, disconnection and prosecution.

The widespread practice of recovering all system losses from the paying consumer often constitutes an in-built disincentive to improving the efficiency of utility management. Greater efficiency in such management makes additional capacity available at lower cost than that associated with the building of a new generating facility.

B. TRANSPORT AND COMMUNICATIONS[7]

As is the case with electric power, the availability of transport and communications (including telecommunications) facilities and services is part of a country's essential infrastructure providing a useful intermediate to the production process. As with power, it is also an item of direct consumption which has spawned the growth of the tourist industry. In virtually all developing economies transport and communications receive emphasis in their development as part of national economic integration. Empirical evidence suggests that in the earlier or middle stage of development, demand for transport and communications tends to grow faster than national output; in addition, the modes and sophistication of demand also evolve over time. In many countries of the region, transport infrastructure development has not been able to keep pace with the growing volume, diversity (by necessity or choice) and sophistication of domestic demand. The development of four major transport and communications infrastructure facilities in the region have been selected for discussion below: land transport, shipping, air transport and telecommunications.

In most developing countries of the region, transport and communications account for the largest share of government capital expenditure on infrastructure. The share of government expenditure on transport and communications in total expenditure is given in table II.3. The table shows a general falling trend for almost all countries in the 1980s compared to the situation in the 1970s. One reason for the falling share of government spending in this sector is the increasing trend towards privatization, especially in road transport. Telecommunications, shipping and civil aviation are also areas where the private sector has made some significant inroads in many countries of the region.

1. Surface transport

The infrastructure relating to land transport plays an important role in facilitating the smooth flow of goods, passenger traffic and mail to all parts of a country in an affordable, convenient and flexible manner. The extension of the transport and communications infrastructure into the rural and isolated areas also helps to reduce rural-urban economic disparities and to strengthen linkages and integration of a country's market and production structure. Transport access to rural communities will promote economic and social activities in the countryside as well as facilitate implementation of other sectoral development programmes, such as agriculture, health and community development.

Maintaining an appropriate balance between road and rail traffic presents one important facet of a more general problem of the proper integration of various modes of transport. These include, in addition to roads and railways, other means of transport such as coastal shipping, ports, inland waterways and civil aviation. A further distinction is made between modern means of transport and traditional modes such as carts, paddle rickshaws and country boats. The latter continue to play a significant part in the road and inland waterways of some countries in the region. For instance in Bangladesh, traditional country boats play a major role in the country's inland water transport sector (see box II.3). Ideally, these various modes of

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[6] W.C. Baum and S.M. Tolbert, *Investing in Development – Lessons of World Bank Experience*, (New York, Oxford University Press, 1985), p. 157; and M. Munasinghe and J.J. Warford, *Electricity Pricing – Theory and Case Studies* (Baltimore, the Johns Hopkins University Press, 1982), pp. 100-101.

[7] Much of the information and data in this section is based on ESCAP, *Review of developments in transport and communications: surface transport in the ESCAP region* 1990 (E/ESCAP/STC.13/2), paper presented at the Committee on Shipping, Transport and Communications, thirteenth session, 17-21 December 1990.

Table II.3. Selected developing economies in the ESCAP region. Share of government expenditure on transport and communications in total expenditure

(Percentage)

Country or area	*Average 1970-1974*	*Average 1975-1979*	*Average 1980-1984*	*Average 1985-1988*
Bangladesh	16.3 [a]	13.2	13.4	8.4
Hong Kong	19.3	17.1	18.4	13.1
Fiji	11.6	12.1	10.1	8.2
India	9.4 [b]	7.7	8.4	7.3
Indonesia	4.6 [c]	15.1	14.3	7.8
Iran, Islamic Republic of	8.0	6.2	5.5	4.5 [d]
Malaysia	6.4 [c]	8.2	9.5 [e]	7.7
Maldives	...	27.9 [f]	22.0	14.8
Myanmar	4.9 [a]	4.9	6.6	10.0 [g]
Nepal	27.0 [c]	21.1	17.4	12.5
Pakistan	4.8 [a]	7.4	7.9	9.4 [d]
Papua New Guinea	...	11.6	8.2	8.4 [g]
Philippines	11.7 [c]	17.7	23.4	14.1 [g]
Republic of Korea	7.6 [h]	6.2	6.4	4.1
Samoa	...	...	23.4 [i]	...
Singapore	2.0 [c]	6.5	5.4	2.2 [g]
Solomon Islands	...	14.1	9.2	9.0
Sri Lanka	7.9 [j]	9.6	8.7	12.1 [g]
Thailand	11.0 [c]	9.7	8.6	7.4
Tonga	...	...	...	29.9 [k]
Vanuatu	...	...	15.9 [l]	13.8 [d]

Sources: International Monetary Fund tape *GFSDATA 92254F; Government Finance Statistics Yearbook* 1989; Asian Development Bank, *Key Indicator of Developing Asian and Pacific Countries*, (July, 1990); and national sources.

[a] Average 1973-1974. [b] 1974 only. [c] Average 1972-1974. [d] Average 1985-1986. [e] Average 1980-1981. [f] 1979 only. [g] Average 1985-1987. [h] Average 1971-1974. [i] 1984 only. [j] Average 1970-1971 and 1973-1974. [k] Average 1986-1988. [l] Average 1981-1984.

transport should be well integrated so that they complement each other.

(a) Railways

Railways remain by far the most important, though not the most dynamic, mode of overland transport in the Asian and Pacific region. In many countries, however, there is a noticeable shift towards other modes of transport. The shift, however, has not been uniform in both pace and direction as could be expected from the highly diverse growth and restructuring characteristics within the developing ESCAP region.

Comparable data for the second half of the 1980s indicate relatively high rates of railways growth in freight and, to a lesser extent, passenger traffic in China, Hong Kong, Indonesia, and Mongolia (table II.4). The sharpest expansion in cargo volume, averaging over 22 per cent a year between 1985 and 1989, was in Indonesia, largely because of an upsurge in coal transport in the island of Sumatra. Nevertheless, road transport still carries just over half of the cargo volume and up to 88 per cent of passenger traffic in Indonesia.

The total route length of general service railways in the ESCAP region is estimated at approximately 216,000 km; of this China accounts for one fourth and South Asia for over one third. During the five-year period, 1985-1989, railway route growth in the region was marginal, only 0.1 per cent, and, in fact, during the last two years (1988-1989) it declined slightly, largely because of a decline in Australia, where the Government has recently permitted the closure of loss-making branchlines, the rationalization of route networks and the better integration of rail with other transport modes (particularly with road transport).

However, some countries are experiencing a shortage of track capacity and may have to contemplate either an expansion of track length or the installation of high capacity, and automated track signalling in order to sustain their traffic growth. For example, China has stretched its track capacity to the limit in order to accommodate a sustained high rate of traffic growth in recent years despite its declining importance in national transport.

Many countries of the region have also undertaken the electrification of at least part of their railway network. During the past five years, both China and India have made substantial progress in the electrification of their railways. By 1989, India achieved the electrification of nearly 15 per cent of the total railway network as compared with 10 per cent in mid-1985. Similarly, by 1989, the Chinese Railways had electrified nearly 12 per cent of its total route length, as compared with 8 per cent at the end of 1985. However, comparatively little progress has been made by most countries in the region in terms of the adoption of automated signalling and safe-working technology, except in the Republic of Korea where the proportion of its track length protected by manual signalling/safe-working systems has been reduced from nearly 60 per cent in 1985 to only 39 per cent in 1989.

The railway systems in the

Asian and Pacific region, especially in countries spread across long distances, provide a cheap mode of long-distance transport of freight and passengers. In comparison to road transport, their energy consumption per ton/kilometre is about half that of road transport, although this ad-

Box II.3. Country boats in the inland water transport sector of Bangladesh

With a total length of 24,000 km, an extensive network of inland waterways covers nearly 7 per cent of the surface area of Bangladesh. The country also contains the world's largest deltaic area. The three main rivers of Bangladesh, the Ganges, the Brahmaputra and the Meghna, carry an annual water volume sufficient to submerge the entire country. Over the centuries, Bangladesh has had to cope with the very uneven seasonal distribution and year-to-year instability of water supplies, and has thus developed an intricate system of water control.[a]

The river and canal networks have traditionally played a pivotal role in transporting passengers and goods, such as rice, jute, other agricultural produce, and building materials. Bangladesh has between 6,100 and 8,300 km of navigable waterways, depending on the season.[b] According to some estimates, there are more than 3,000 registered vessels and as many as 700,000 non-registered country boats.[c] Inland water transport carries about two thirds of the freight traffic estimated at a volume of at least 15 million tons per year and one third of the passenger traffic.

However, because of increasing environmental degradation in the subregion, the river networks in Bangladesh are facing a serious problem of siltation. Bank erosion, widening of natural streams and the intrusion of salt water contribute to the deterioration of the waterways.[d] The smooth functioning of river traffic is further hampered by inadequate berthing facilities at inland ports.[e]

The smooth navigability of the waterways rests largely on regular dredging to maintain channel depths. However, there are frequently conflicts of interest, for while the usage of waterways for irrigation and fisheries requires shallow waters[f], navigation, especially by larger boats, calls for deeper channels. The Bangladesh waterway authorities are currently developing a master plan on waterway development which would incorporate large-scale flood-control plans with the maintenance and development of inland water transport. Programmes for the 1990s are focusing on improving channel conditions by dredging, the development of landing and shore facilities, and the expansion of fleets. Incentives are directed at the private sector, with the role of the public sector and waterways authorities restricted to regulatory functions.[g]

In the development of inland water transport, country boats have a major role to play, since they have proved highly versatile, and better able to serve remote areas where siltation constrains the movement of larger vessels. Of added significance is the fact that during floods these boats can navigate in shallow waters and provide rescue and relief to stranded populations.

Freight rates per ton mile tend to be lower for country boats than those charged by trucking and railway transport modes. Country boats are also preferable to road transport and to mechanized river traffic in terms of environmental and energy conservation aspects.[h]

Because of their basic technology, country boats provide employment and income to millions of rural people. They are mostly powered by large sails and by rowing, sculling or towing. Built locally by rural craftsmen, they provide a major source of employment. In addition, the available statistics indicate that 60 per cent of the total transport sector labour force is generated by the country boat sector. However, since government efforts in building the transport infrastructure over the past decades have tended to focus on road and railway expansion and the private sector has invested in large motor vehicles and mechanized boats, the country boats have commanded a diminishing share of total transport revenue with declining incomes to boat operators and crews.

One ingenious application of technology has been to equip country boats with the engines of irrigation pumps which are available to farmers at subsidized prices. However, this option has only been within reach of the more affluent among the boatmen. There is, therefore, a need to overcome the lack of capital and access to technical expertise on the part of rural boat operators by introducing more efficient and cost-effective technologies which are relatively easier to learn and adapt to local circumstances.

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[a] For a discussion of the history of water resources management in Bangladesh, especially as it pertains to irrigation, see James K. Boyce, *Agrarian Impasse in Bengal: Institutional Constraints to Technological Change* (Oxford, Oxford University Press, 1987), p. 163

[b] ESCAP, "Status of transport and communications development in the ESCAP region" (TRANS/PTCD/(2)/1) p. 16-18.

[c] ESCAP, *Report of the Study on the Viability and Cost-Effectiveness of Establishing a Regional Inland Water Transport Centre in Bangladesh, and of the Alternatives of Strengthening the Secretariat or Using a Network Approach*, October 1990; p. 31. *The Country Boat Bulletin*, No. 1 (1990), has a smaller estimate of at least 308,000 boats. The *Bulletin* is published under the auspices of the Country Boat Pilot Project, Dhaka.

[d] *Ibid.*

[e] Planning Commission, Ministry of Finance and Planning, *The Second Five Year Plan 1980-85* (Dhaka, 1983), p. 238.

[f] *Ibid.*

[g] Second United Nations Conference on the Least Developed Countries. *Country Presentation: Bangladesh* (UNCLDC II/CP.9), p. 34.

[h] *The Country Boat Bulletin*, No. 1 (1990).

Table II.4. Selected developing economies in the ESCAP region. Trends in railway freight and passenger traffic, and fleets, 1989

	Freight traffic		*Passenger traffic*		*Freight wagon fleet*		*Carriage fleet*		*Locomotive fleet*	
	Volume[a] 1989	*Change 1985-1989 (per cent)*	*Volume[b] 1989*	*Change 1985-1989 (per cent)*	*Number (units) 1989*	*Change 1985-1989 (per cent)*	*Number (units) 1989*	*Change 1985-1989 (per cent)*	*Number (units) 1989*	*Change 1985-1989 (per cent)*
Newly industrializing economies										
Hong Kong	69	7.3	2 402	7.8	...	...	...	...	12	0.0
Republic of Korea	13 605	2.6	27 390	4.9	14 807	-4.6	391	0.5	692	-0.1
Singapore										
Taiwan Province of China										
China	1 039 058	6.3	303 801	5.9	353 041	17.3	26 304	26.0	13 524[c]	11.4[c]
ASEAN										
Indonesia	3 044	22.4	8 594	4.2	12 878	4.7	1 093	31.7	571	2.7
Malaysia	1 361	7.5	1 701	4.8	4 273	-5.8	321	-6.4	120	-17.2
Philippines	...	...	250	14.4	921	-0.3	131	0.0	58	-4.9
Thailand	3 065	3.0	10 934	4.6	8 414	-2.6	1 135	2.2	286	0.7
South Asia										
India	230 131	6.0	263 731	3.9	334 344	-5.4	30 767	0.1	8 836	-12.6
Pakistan	8 033[c]	3.7[c]	18 541[c]	1.4[c]	40 320[c]	3.1[c]	2 663[c]	7.1[c]	792[c]	-13.5[c]
Sri Lanka	171	-7.3	1 677	-5.5	2 870	-15.4	1 182	-11.7	179	-16.4
Least developed countries										
Bangladesh	666	-4.9	4 338	-7.9	15 942	-3.5	1 500	12.6	307	6.6
Myanmar	316	-11.0	3 011	-2.7	8 141	-9.0	1 246	-6.5	385[c]	5.8[c]
Nepal	...	...	41[d]	-15.9[d]	...	...	18	-10.0	11	0.0

Source: ESCAP, "Review of developments in surface transport in the ESCAP region 1990" (E/ESCAP/STC.13/2), paper presented at the thirteenth session of the Committee on Shipping, Transport and Communications, Bangkok, 17-21 December 1990.

[a] Million net tons--km. [b] Million passengers-km. [c] 1985-1988. [d] Estimates.

vantage is less marked in passenger traffic. However, the investment in rail transport has not been adequate enough to modernize its infrastructure to make it competitive with other modes of transport in terms of convenience and speed. In addition, many railway systems in the region have faced acute financial problems because of their inability to increase freight tariffs and fares adequately to offset inflation and cost increases. This has further eroded their capacity to undertake improvements in and additions to their infrastructure.

In spite of these unfavourable factors, a number of countries in the region have tried to increase investment in the development of railways. In particular, China and India have committed substantial funds to modernizing their rolling stock and route infrastructure. High speed electric locomotives are replacing steam units, with the proportion of electric to steam locomotive rising from 12 to 17 per cent in India, and 5 to 7 per cent in China during the period 1985-1989. Both countries have continued with mainline electrification and the installation of fibre optics communication systems on parts of their route network; India has also continued extensive gauge standardization.[8] Track modernization and rehabilitation are also a focus of attention in Bangladesh, Indonesia, Malaysia, the Philippines, the Republic of Korea and Thailand, among others.

(b) Urban mass transit

While the level of urbanization of the ESCAP region is significantly lower than that of other developing regions, urban population in some parts of the region,

[8] In 1985-1989, for example, over 2,500 km of rail track were electrified in India. Further electrification is being implemented for another 1,040 route km at an estimated cost of $US 659 million in the next five years. In addition, coversion from metre to broad gauge railways is scheduled to cover 1,055 km at an estimated cost of $US 771 million in the early 1990s.

notably South and South-East Asia, have recently been growing at about double the rate of national populations in these areas. The rapid growth of the urban population has pushed road congestion to an intolerable level. The solution for a number of the region's most densely populated urban centres has been the construction of rapid mass transit railways, often operating at two minute intervals during peak hours, with the capacity to move upwards of 80,000 passengers per hour in one direction. An alternative has been to install light railways, with the capacity to move up to 40,000 passengers per hour per direction.

Currently, 18 cities in the region (half of them in Japan) have urban mass transit railways in operation. Another four have mass transit railways, and one a light railway under construction; another three are at the stage of awarding contracts for the construction of mass transit railways.

During the past five years urban mass transit railways have been built in Calcutta, Seoul and Singapore. Seoul achieved an annual level of 810 million passenger trips within two years of commencing operation in 1985 and Singapore more than doubled the number of passenger trips per day to about 460,000 within the first year of operation. In Hong Kong, the mass transit railway which commenced operation in 1979 was recently extended through the new Eastern Harbour crossing, and its busiest line is already close to saturation, handling 86,000 passenger journeys per hour per direction. A 23-km light railway came into service in the New Territories in Hong Kong during 1988 and this facility is generating about 180,000 passenger trips daily.

Mass transit railways are currently under construction in Guangzhou, Shanghai, Delhi and Tehran, and a light railway is under construction in Kuala Lumpur. In Bangkok, contracts are being awarded for construction (on a build/operate/transfer basis) of an elevated mass transit railway at a cost of $US 1.6 billion, and the Thai Cabinet has approved, in principle, another project to elevate 60 km of existing urban railway track. Other urban transit projects likely to get under way during the next five years are a mass transit railway for Madras and a light railway for Karachi.

(c) Road transport

In contrast to the slow growth in railway traffic and infrastructure investment, there has been a strong upsurge in road traffic and, to a lesser extent, in road construction and related infrastructure. The relatively stronger growth of road transport, partly at the expense of railways, has been due to a number of factors. First, the road transport system is more flexible; the advent of the light commercial vans has made it more so. Second, there has been an increase in passenger cars because of rising living standards. Third, the inadequacy of mass transit facilities has incresed the reliance on individual passenger cars.

Of 17 countries for which data were available, all except Myanmar experienced positive growth in the total number of road vehicles on their registers during the period 1983-1989, as may be observed in table II.5. By far the strongest growth was in China, with an average annual increase of 25.7 per cent, followed by the Republic of Korea with 19.6 per cent and India with 15.5 per cent over the same period. Thailand has also had a 10.9 per cent increase in vehicle registration, according to the recent data for the country.

Motorcycles, including mopeds and three-wheelers, comprise more than 50 per cent of the registered motor vehicle fleets of a majority of developing Asian countries, Thailand having the highest percentage (75 per cent in 1989). In China, in particular, the number of motorcycles on the vehicle register, although currently a small proportion (29 per cent) of the total fleet, is growing at a much faster rate (30 per cent a year between 1985 and 1988) than any other vehicle category.

Passenger cars comprise a relatively small share, typically in the range of 15-20 per cent, of vehicle fleets in the region, except in countries or areas of high per capita income (Australia, Hong Kong, Japan, New Zealand, the Republic of Korea and Singapore) where they account for between 40 and 65 per cent of all registered vehicles.

The share of buses in the total vehicle fleet is highest in Nepal, Myanmar and Bangladesh (34, 30 and 16 per cent, respectively), but is typically between 1 and 5 per cent for the majority of countries in the region. In terms of growth rates, the share of buses in China and India (where, historically, the railways have tended to dominate passenger transport), as well as in Indonesia and the Republic of Korea, is among the highest.

Despite the high growth of bus fleets in some countries, bus services have fallen short of demand in many places; facilities are frequently overstretched and inefficient while service standards and reliability leave much to be desired.[9] Bus services are one

[9] Armstrong-Wright and S. Thiriez, *Bus Services – Reducing Costs, Raising Standards*, World Bank Technical Paper No. 68, Urban Transport Series (Washington, D.C., World Bank, 1987).

Table II.5. Selected economies in the ESCAP region. Trends in total motor vehicle fleet

(Thousands) — *Calendar or fiscal year*

Country or area	*1983 1982/83*	*1984 1983/84*	*1985 1984/85*	*1986 1985/86*	*1987 1986/87*	*1988 1987/88*	*1989 1988/89*	*Percentage change per annum 1983-1989*
Bangladesh	123	126	130	133	137	139	...	2.5
India	6 719	7 759	9 006	10 481	12 347	14 484	15 969	15.5
Nepal	5.4	5.9	6.6	7.7	6.9	...	...	6.3
Pakistan	1 485	1 660	1 841	2 019	2 221	...	...	10.6
Sri Lanka	440	478	524	569	588	609	...	6.7
Indonesia	5 880	6 465	6 858	7 322	7 981	7 771	8 020	5.3
Malaysia	3 591	3 945	4 244	4 461	4 599	4 783	...	5.9
Myanmar	4.9	4.7	4.6	4.7	4.6	4.4	...	-2.1
Philippines	1 201	1 166	1 120	1 186	1 177	1 270	1 431	3.0
Singapore	476	491	487	474	471	492	521	1.5
Thailand	2 996	3 350	3 359	3 431	...	5 444	5 568	10.9
China	...	...	9 334	12 024	12 728	18 553	...	25.7
Hong Kong	267	259	263	267	289	316	345	4.4
Republic of Korea	1 314	1 589	1 825	2 122	2 536	3 102	3 848	19.6
Japan	44 559	46 363	48 241	50 223	52 646	55 137	57 937	4.5
Australia	8 590	8 833	9 118	10 817	10 931	11 097	11 412	4.8
New Zealand	2 325	2 366	2 412	2 437	...	...	...	1.6

Source: ESCAP, "Review of developments in transport and communications: surface transport in the ESCAP region 1990", (E/ESCAP/STC.13/2), paper presented to the Committee on Shipping, Transport and Communications, thirteenth session, 17-21 December 1990, Bangkok.

Notes: 1. Table shows the number of all types of vehicles on the registers of members.
2. Percentage change per annum is the average rate of change over the time span for which data are available.

of the few public utilities in which there is intensive competition between the public sector and other operators in many of the region's cities. In fact, in places where such competitive co-existence is permitted, albeit under certain regulatory regimes, privately operated buses are often larger in carrying capacity and frequently move a much larger volume of passenger traffic than their public-sector counterparts (table II.6). These operators achieve a higher fleet utilization ratio and hence lower average costs, often significantly, compared with the corresponding levels prevailing in public sector bus agencies. Significantly, many private operators are able to command higher fares for better services.

(i) Road infrastructure

Investment in ancillary infrastructure, especially roads, has not been sufficient to cope with such an explosion in vehicular traffic. With few exceptions, the length of total road networks has expanded rather slowly in most of the countries in the ESCAP region in the last two decades. For example, the rates of increase were less than two per cent a year in Afghanistan, China, Hong Kong, the Republic of Korea, and Sri Lanka (table II.7).

The region's road infrastructure is estimated to have grown at the rate of about 2.5 per cent a year during the period 1983-1986, but this growth largely reflects the strong growth in India, estimated at an annual average of 5 per cent during that period (see figure II.2). In most countries of the region, the increase in their road length, which accounts for two thirds of the total road length in the region, was less than 2 per cent. Of course, these figures mask significant variations in terms of road quality. A very small proportion of roads is of paved, all-weather trunk roads.

Road network densities within the region also vary widely, from 105 km of road per thousand sq km of land area in Australia and China to 2,921 km of road per thousand sq km of land area in Japan. India, with a population density of 247 persons per sq km and a road density of about 642 km per thousand sq km of land area, is relatively well supplied with roads, whereas Bangladesh, with 758 persons per sq km and only about 278 km of road per thousand sq km of land area, is seriously undersupplied with roads. An accelerated road building programme might also be desirable in China where the volume of freight traffic on the road system appears to have increased by a

Table II.6. Selected developing economies in the ESCAP region. Configurations of the bus service subsector in selected cities, 1985

	Population (millions)	Bus vehicles				Daily operations			Fare		
		Type	Capacity	Fleet	Ownership	Fleet utilization (per cent)	Passengers: Per vehicle[a]	Passengers: Total (millions)	Average cost[b] (US cents)	Per 5 km (US cents)	Type
Bangkok	8.2	Large	100	4 400	Public	81	1 250	4.5	1.9	7.0	Flat
		Large	100	550	Private	80	1 250	0.6	1.2	7.0	Flat
		Mini	15-30	12 000	Private	...	...	2.5	...	7.0	Flat
Bombay	8.8	Large[a]	100-130	2 325	Public	92	1 700	3.6	0.9	4.5	Graduated
Calcutta	11.0	Large[a]	100-130	1 100	Public	64	1 250	0.9	1.9	3.8	Graduated
		Large	100	2 200	Private	86	1 750	3.3	0.7	3.8	Graduated
		Small	35-50	950	Private	88	940	0.8	1.0	8.5	Graduated
Colombo	1.6	Large	100-120	5 800	Public	...	...	...	...	7.5	Graduated
		Small	30-60	7 000	Private	...	...	...	...	7.5	Graduated
Delhi		Large	100	4 860	Public	87	890	3.8	0.8	3.2	Graduated
Hong Kong	5.6	Large[a]	120	3 480	Private	81	2 565	3.9	2.2	13.0	Graduated
		Mini	14	4 350	Private	90	330	1.3	3.0	30.0	Graduated
Jakarta	8.0	Large[a]	100-130	1 940	Public	60	1 135	1.3	1.8	13.0	Flat
		Large	100	550	Private	76	1 200	0.5	0.9	13.0	Flat
		Mini	30	3 365	Private	80	480	1.3	1.2	13.0	Flat
		Van	15	2 000	Private	80	125	0.2	1.3	13.0	Flat
Karachi	6.4	Large	120	790	Public	40	1 400	0.4	2.8	4.0	Flat
		Large	100	1 320	Private	72	1 400	1.3	1.0	4.0	Flat
		Small	30-50	3 980	Private	80	400	1.3	1.3	4.0	Flat
Kuala Lumpur	1.1	Large	80	950	Private	80	820	0.6	2.3	17.0	...
		Mini	20	...	Private	...	...	...	...	30.0	...
Madras	5.5	Large	100	2 100	Public	87	1 690	3.1	0.8	5.0	Graduated
Manila	6.8	Large	100	503	Public	94	...	...	...	8.0	Graduated
		Small	60	3 000	Private	...	...	...	...	6.0	Graduated
Seoul	9.5	Large	100	8 300	Private	97	1 290	10.4	3.0	15.0	Flat
Singapore	2.6	Large[a]	100-120	3 030	Private	90	910	2.5	...	...	...

Source: A. Armstrong-Wright and S. Thiriez, *Bus Services: Reducing Costs, Raising Standards*, World Bank Technical Papers No. 68, Urban Transport Series (Washington, D.C., World Bank, 1987), pp. 79-80.

[a] Including double decker units. [b] Per operating vehicle.

factor of four during the past eight years, as compared with a factor of two for the volume of freight traffic carried by the other two major modes.[10]

(ii) Major road construction projects

Among the major road construction projects in the region at an advanced planning or implementation stage, the following need to be highlighted.

In Bangladesh, a decision is awaited on the proposed construction of the major Jamuna Bridge, which will be a 4.8 km structure linking the two parts of the country in northern Bangladesh, at an estimated cost of $US 565 million in 1989 prices, with funding to be provided principally by the World Bank and the Asian Development Bank (ADB). Also in Bangladesh, part of a $US 99.8 million loan by ADB is being used to improve about 730 km of feeder roads linking market centres throughout the country.

In Hong Kong, a plan has been recently announced to build one of the world's longest suspension bridges to connect a new airport proposed for construction on Lantau Island with Hong Kong Island and the New Territories. The bridge will be part of a comprehensive infrastructure programme to replace the existing airport

[10] ESCAP, "Review of developments in transport and communications" (E/ESCAP/STC.13/2), p. 15.

Table II.7. Selected developing economies in the ESCAP region. Number of passenger and commercial vehicles, and total road length, 1970, 1980 and 1988

	Passenger cars				Commercial vehicles				Length of roads			
	1970	1980	1988	Growth rate[a]	1970	1980	1988	Growth rate[a]	1970	1980	1988	Growth rate[a]
	(thousands)			1970-1988	(thousands)			1970-1988	(thousand km)			1970-1988
Newly industrializing economies												
Hong Kong	96.3	200.0	195.3	4.0	27.5	69.3	128.3	8.9	1.0	1.2	1.4	1.9
Republic of Korea	60.7	249.1	1 118.0	17.6	64.7	269.4	895.0	15.7	40.2	47.0	55.8	1.8
Singapore	147.1	164.5	251.4	3.0	37.5	84.5	117.4	6.5	1.9	2.4	2.8	2.2
China	71.7[b]	237.8	1 188.1[c]	22.2	563.8[b]	1 436.2	10 796.4[c]	23.5	716.0	888.0	1 000.0	1.9
ASEAN												
Indonesia	238.9	639.5	1 320.6	10.0	125.9	560.1	1 495.8	14.7	84.3	142.3	243.6	6.1
Malaysia	279.4	862.0	1 578.9[c]	10.7	72.6	204.8	351.9[c]	9.7	23.7	28.7	40.2	3.0
Philippines	279.2	466.4	356.7[d]	1.5	179.4	392.9	526.7[d]	7.0	85.6	151.9	157.3	3.4
Thailand	184.7	409.9	840.8	8.8	162.8	451.3	1 147.4	11.5	16.3	28.2	41.8	5.4
South Asia and the Islamic Republic of Iran												
India	627.2	1 116.7	1 895.1[c]	7.2	413.9	1 073.1	1 213.4[d]	7.0	909.0	1 194.0	1 620.5	3.3
Iran, Islamic Republic of	282.2	1 546.1[e]	1 737.2[f]	12.9	73.5	316.3[d]	104.5[f]	2.4	41.0	110.9[e]	139.4[f]	8.5[g]
Pakistan	176.2	331.6	667.8	7.7	62.1	223.9	527.1	12.6	32.5	96.4	111.4	7.1
Sri Lanka	87.7	120.9	155.2[d]	3.6	44.9	78.2	132.4[f]	7.5	21.3	25.3	25.5	1.1[h]
Least developed countries												
Afghanistan	36.2	31.7	32.5[i]	-0.9	24.4	28.7	31.7[i]	2.2	17.3	18.9	19.0[i]	0.8[j]
Bangladesh	24.7	45.1	41.7[c]	3.1	15.5	36.5	40.1	5.8	–	5.7[l]	11.2	8.8[k]
Myanmar	29.8	43.3	59.8[f]	4.8	31.0	44.7	51.9[f]	3.5	13.6	22.5	...	...
Nepal	8.8	14.2	...	4.9[m]	5.3	12.6	...	9.0[m]	–	4.9	7.0	4.6[k]
Pacific island countries												
Fiji	11.2	23.4	34.0	6.4	6.1	20.0	24.8	8.1	2.4	...	...	...
Papua New Guinea	17.5	18.5	...	0.6[m]	14.3	28.9	...	7.3[m]	11.5	19.7	19.8[e]	3.7[n]

Sources: United Nations, *Statistical Yearbook for Asia and the Pacific*, various issues; and national sources.

[a] Percentage average annual growth rate. [b] 1973. [c] 1987. [d] 1986. [e] 1983. [f] 1985. [g] 1970-1982. [h] 1970-1986. [i] 1982. [j] 1970-1982. [k] 1980-1988. [l] 1978. [m] 1970-1980. [n] 1970-1985.

and expand port facilities at an estimated total cost of $US 16.3 billion, 60 per cent of which it is proposed will be privately financed.

In Malaysia, work is continuing on the construction of the North-South Toll Expressway, which will replace Federal Highway 1 as part of Asian Highway route A-2. This project is privately financed and will be privately operaed under a concession granted by the federal Government.

In India, $US 198 million is being spent on the strengthening of pavements and widening of carriageways on a total of 665 km of national and state highways linking major industrial centres.

In Indonesia, about 1,900 km of national and provincial roads in Bali, Java, Kalimantan, Nusa Tenggara and Sulawesi are being improved under the 10th Road Sector project, at a cost of $US 120 million.

In Nepal, a second road improvement programme, funded by ADB, has been initiated at a cost of $US 50 million. Also funded by ADB is a $US 106 million second "farm to market" programme for Pakistan, to help upgrade 2,000 km of rural roads, as well as a $US 13 million project to provide for maintenance of roads in Fiji over a three-year period (1989-1991).

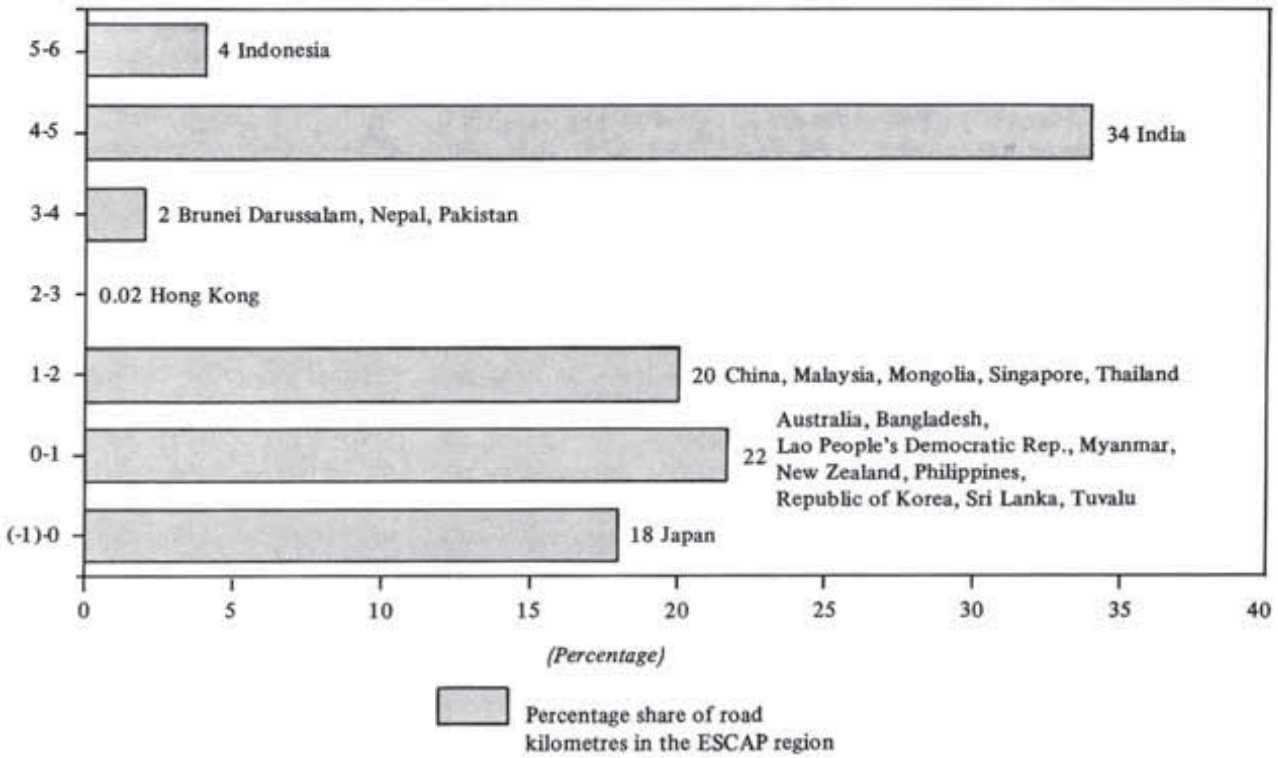
In Thailand, ADB has provided a $US 110 million loan for the upgrading of 1,200 km of highways under the second highway sector loan. Also in Thailand, construction of a second phase, 38.6 km extension of the Bangkok Expressway commenced in March 1990, with both construction and concession rights being granted to a private contractor. The cost of this project is estimated at $US 88 million.

2. Ports and shipping

The development of seaports plays an important role not only in a country's external trade but also in the provision of ship supplies and repairs, manufacturing

Figure II.2. Growth of road infrastructure in selected economies in the ESCAP region, 1983-1989

(Percentage rate of annual growth in road length)



Source: ESCAP, "Review of developments in transport and communications: surface transport in the ESCAP region 1990" (E/ESCAP/STC.13/2), paper presented to the Committee on Shipping, Transport and Communications, thirteenth session, 17-21 December 1990, Bangkok.

and packaging, storage and distribution. Such fixed facilities as breakwaters, berths, wharves and cranes require large and often long-gestation investment. General cargo ports, as distinct from specialized infrastructure designed to handle specific bulk cargoes, are usually owned and operated by public sector authorities. The cost of using port services can be high. Port-related charges account for 40-50 per cent of shipping costs, which range from 7 per cent of the prices (including insurance and freight costs) of simple manufactures up to 15-30 per cent for commodities of difficult handling characteristics.[11]

Notwithstanding resource constraints and the uncertainties associated with long-term prospects for maritime transport, significant investment continues to be made in port infrastructure development projects. This is aimed at both capacity upgrading and expansion, as well as enhancement of operational efficiency through the adoption of modern technology relating to shipping and for information processing to handle bulk and specialized cargoes.

Containerization poses perhaps one of the most challenging options in port development facing many developing economies in the region in the last two decades. This revolutionary capital-intensive technology was introduced in the 1960s by shipping companies in the developed countries as a solution to their persistent problems of high labour and other operating costs. Containerization necessitates the provision of costly specialized ships and land carriers, as well as ancillary port infrastructure and equipment for both shipping and unloading such cargo.

The fast spreading adoption of this new freight mode for sea-borne trade by industrialized countries resulted in an increasing volume of imports by the region's developing countries arriving in containers. At the same time, pressure was growing from overseas buyers to containerize as far as practicable the region's export commodities. In response, containerization technologies and

[11] W.C. Baum and S.M. Tolbert, *op. cit.*, pp. 247-248.

equipment were introduced from the mid-1970s, either through partial conversion of existing port infrastructure or through the building of specialized or dedicated terminals by most, if not all, developing countries in the region in the last 15 to 20 years.[12] The expansion in container traffic was consequently dramatic in the late 1970s. Starting from a very small base, annual growth averaged 80-115 per cent in Calcutta, Bombay and Bangkok in 1975-1978. Although many other ports developed less rapidly and the pace of containerization slowed down in the early 1980s, partly reflecting the global recession, the rise in container throughput in absolute terms remained impressive.

Container packing and stripping at port put additional pressure on over-burdened facilities, including limited space, while the location of some container freight and clearance stations proved unsuitable; delays arose as containers had to be moved on ill-equipped tracks or through heavily congested urban traffic. The lack of skilled personnel for operation and maintenance has led to considerable downtime for equipment; there is also the issue of appropriate embodied technology and compatibility in equipment over various upgrading and expansion phases. The planning and design for containerization became even more complicated for countries with more than one major port or with special geographical features requiring dispersed gateway trans-shipment points.

Pricing poses another problem. By and large, the structure of port charges for conventional cargo tends to be carried over to container shipment at least during the initial stages of upgrading and expansion. This is a convenient stopgap measure in the general efforts to evolve more rational pricing structures and mechanisms for container handling; these tend to be highly technical and complicated to develop and update. However, some levies and charges are needed to allow for the changes brought about by the new technology. Old storage fees were too low for the increasingly large volume of container shipment and resulted in severe container congestion and delays in shipping movements in several ports; the limited space was, in effect, serving as cheap parking lots for empty containers from shipping lines as well as containerized cargo of consignees who found rentals in regular warehouses expensive.

Port development continues with new or enhanced and integrated infrastructure coming on stream in the early 1990s in China, Hong Kong, India, Indonesia, the Republic of Korea, Singapore, Sri Lanka and Thailand, among other developing economies in the region. The Yangpu project in Hainan Island, for example, includes both port and industrial/manufacturing facilities; it is expected to cost $US 1.3 billion when completed in 1990. Major port expansion projects are under way in Calcutta, Cochin and Madras, and on the inland side, there are plans to set up 23 inland container clearance depots at important shipment centres in India. The Tughlakakab depot, currently under construction at a cost of $US 41 million, will be the world's largest unit with a capacity throughput of 300,000 twenty-foot equivalent units (TEUs) per annum. The Asan Bay port project in the Republic of Korea is designed, at an estimated cost of $US 1.4 billion, to set up 63 berths with a quay length of 14.5 km by the year 2011. Singapore's Pulau Brani project, costing $US 446 million, provides for 5 mainline and 3 feeder container berths with a 37 -hectare storage yard; handling capacity is expected to reach 3 million TEUs annually. In Thailand, construction of the major deep sea port of Laem Chabang is under way at the cost of $US 190 million to relieve the pressure on the port of Bangkok.

The growth in the capacity of the containership fleets of countries of the ESCAP region has increased much faster than that of port facilities. The containership capacity of the developing Asian countries within the region grew at a much faster rate (35.8 per cent, from 430,676 to 584,710 TEU slots) than that of the world fleet (26.8 per cent, from 2,382,399 to 3,021,289 TEU slots). This was largely the result of the introduction of an open registry in the Philippines, as well as of the fleet expansions of Evergreen and Yangming Lines, both of which have made a large investment in vessels of upwards of 3,000 TEUs.[13] When viewed against prevailing world trade growth forecasts of around 5.5 to 6 per cent a year for the period to 1994, the recent dramatic rise in the containership capacity on order gives rise to renewed concern about the possibility of serious over-tonnaging on several important container trade routes in the near future. The imbalance between the growth in the infrastructure for ports and

12 Details relating to selected port expansion and development programmes, and related enhancement of operational and managerial efficiency can be found in *Survey*, 1983, p. 124; *Survey 1984*, p. 70; and ESCAP, "Containerization of shipping services in the developing ESCAP region: progress, problems and issues", *Economic Bulletin for Asia and the Pacific*, vol. XXXIII, No. 1 (June 1982), pp. 83-91.

13 ESCAP, *Review of Developments in Transport and Communications* (E/ESCAP/STC.13/2), p. 45-47.

expansion in fleet capacities needs to be avoided. It provides an avenue for fruitful regional co-operation.

Many countries of the region with general service railways have given attention to developing systems which operate fleets of specialized container wagons. Many of these systems are experiencing heavy demand for specialized container wagons, as intermodal rail services expand in response to the upsurge international container traffic in the region. Recent major investment in container wagon capacity has been undertaken by the State Railway of Thailand which, during the past five years, has almost doubled the number of container wagons on its register (from 154 units in 1985 to 302 units in 1989) and by the railways of the Republic of Korea which expanded its fleet from 308 units in 1985 to 556 units in 1989. New investment in container wagon capacity is planned within the next five years by Malayan Railways (which will increase its fleet by 300 to more than 1,000 units) and by the Bangladesh Railways which has recently been developing its container services and will acquire 80 specialized wagons for the conveyance of 40 ft and high cube containers.[14]

3. Air transport

(a) Developments and trends

The Asian and Pacific region has experienced a dramatic growth in air transport activities during the last decade as a result of the emergence of this region as the fastest growing in the world in terms of economic performance and foreign trade. An efficient and economically viable air transport system is now considered an essential element in economic development. Adequate and efficient air transport services facilitate the conduct of public and private business and constitute a key factor in the development of tourism and foreign trade, particularly non-traditional exports.

The provision of adequate and efficient air services is of particular importance to developing island and land-locked countries whose economies are hampered by a lack of access to overland and/or sea transport. This also applies to developing areas within a country because of their often inadequate means of surface transport and remoteness from major market areas.

International passenger and freight traffic carried by the airlines of the Asian and Pacific region collectively grew at a significantly higher average rate, resulting in a marked increase in their relative share of the world air traffic. For instance, during the period 1978 to 1988, the airlines of Asia and the Pacific achieved an average annual growth of 10.4 per cent in passenger kilometres and 13.8 per cent in freight tonne-kilometres, compared with the world average of 7.1 and 9.3 per cent respectively. At the same time their share of global international traffic increased from 20.3 to 27.6 per cent of total international passenger kilometres and from 21 to 31.4 per cent in terms of freight tonne-kilometres, as illustrated in table II.8.

The relatively robust economic growth forecast for the region will complement a commensurate growth in aviation activities up to the turn of the century. The continued dynamic development of air services to meet the forecast demand will require the solution of a variety of problems. Effective action to address these problems clearly involves not only civil aviation authorities, airport administrations and airlines, but also government departments concerned with such matters as tourism, trade, transport in general, environment, resource control, finance and border control. In the private sector, responsibility may fall not only on air carriers, but also on other bodies interested in the promotion of air tourism and air freight. Accordingly, it is necessary that all interested agencies be involved, both public and private, and that co-operative action be encouraged.

(b) Airport development

The high rate of traffic growth at many airports in the region has placed a continuing demand on governments and airport authorities to expand capacity and to accommodate increasing numbers of wide-bodied aircraft. During the past decade, the region has emerged as the most active in the world in terms of expenditure on airport developments and on acquisition of aircraft.

It is estimated that $US 10 billion has been spent on airport development in the Asian and Pacific region during the last decade and a further $US 30 billion may be spent on construction of new or redevelopment of existing airports in this region in the next decade. However, the traffic growth has been so rapid that the provision of necessary facilities and services is not fast enough in some cases. Furthermore, it is not possible for all countries to mobilize the resources to invest in the required capital developments. Countries should take into consideration the economic benefits of tourism and trade by air and weigh it against the economic costs of not providing the necessary infrastructure to cater for the needs of the traffic demand when evaluating civil aviation projects. For instance, a study in Hong Kong revealed that the Hong Kong economy will suffer

[14] *Ibid.*, p. 48-49.

Table II.8. International scheduled traffic in 1978 and 1988 (by region of airline registration)

	World	*Asia and Pacific*	*Africa*	*Middle East*	*Europe*	*North America*	*Latin America and Caribbean*
Passenger km (millions)							
1978	384 381	78 036	18 673	20 694	163 301	78 240	25 887
Distribution (per cent)	100	20.3	4.9	5.4	42.4	20.3	6.7
1988	761 992	209 925	29 193	37 343	260 714	179 736	45 082
Distribution (per cent)	100	27.6	3.8	4.9	34.2	23.6	5.9
Average annual growth (per cent)	7.1	10.4	4.6	6.1	4.8	8.7	5.7
Freight ton-km (millions)							
1978	16 934	3 556	568	1 089	7 281	3 331	1 109
Distribution (per cent)	100	21.0	3.4	6.4	43.0	19.7	6.5
1988	41 121	12 909	1 060	2 306	15 184	7 726	1 936
Distribution (per cent)	100	31.4	2.6	5.6	36.9	18.8	4.7
Average annual growth (per cent)	9.3	13.8	6.4	7.8	7.6	8.8	5.7
Mail ton-km (millions)							
1978	1 347	176	35	23	547	528	38
Distribution (per cent)	100	13.1	2.6	1.7	40.6	39.2	2.8
1988	1 975	395	50	45	750	685	50
Distribution (per cent)	100	20.0	2.5	2.3	38.0	34.7	2.5
Average annual growth (per cent)	3.9	8.4	3.6	6.9	3.2	2.6	2.8
Total ton-km performed (millions)							
1978	53 444	10 998	2 305	2 988	22 614	10 961	3 528
Distribution (per cent)	100	20.6	4.3	5.6	42.4	20.5	6.6
1988	113 309	32 839	3 775	5 777	39 940	24 749	6 230
Distribution (per cent)	100	29.0	3.3	5.1	35.3	21.8	5.5
Average annual growth (per cent)	7.8	11.6	5.1	6.8	5.8	8.5	5.9
Weight load factor (per cent)							
1978	58	61	53	49	59	56	58
1988	64	69	53	57	66	61	60

Source: International Civil Aviation Organization, *Annual Report of the Council – 1987.*

significant losses if additional airport capacity is not provided by the mid-1990s. The accumulated economic costs to Hong Kong are estimated to be $HK 101 billion from 1997 to 2010.

Among some of the infrastructure projects in air transport, either completed or being considered in the region, the following deserve to be identified:

(a) Tokyo International Airport (Haneda) Offshore Development Project, which commenced in 1984, is expected to be completed in 1993 at a total cost of about $US 8 billion;

(b) New Kansai International Airport, Osaka, to be completed in 1993 at a cost of about $US 8 billion;

(c) Bangkok International Airport Development Project was completed in 1989 at a cost of about $US 200 million;

(d) Kai Tak International Airport Terminal Building Stage V was completed in 1988 at a cost of $US 35 million;

(e) Work on Hong Kong Airport Cargo Terminal II commenced in December 1988 and is expected to be completed in early 1991 at a cost of about $US 160 million;

(f) New Chek Lap Kok International Airport, Hong Kong estimated to cost $US 8 billion (including surface transport links and utilities);

(g) Upgrading and extension of facilities at Nadi International Airport, Fiji, commenced in 1987 and is expected to be completed in 1992 at a cost of $US 40 million;

(h) Redevelopment and provision of navigational aids at Henderson International Airport, Honiara, Solomon Islands, costing about $US 10 million.

4. Telecommunications

The development of telecommunications infrastructure is extremely important in order to take advantage of the opportunities created by the new developments in informatics and high technology which have revolutionized production processes in all sectors of the economy. The tasks that this category of infrastructure are now performing are far larger in scope than the instantaneous transmission of news and information. Its new

role is more as a means of keeping abreast of new technological developments and as a catalyst for facilitating industrial restructuring. The increasing globalization of production and integration of financial markets has further enhanced the importance of telecommunications (see box II.4).

Box II.4. Telecommunications infrastructure as a prerequisite for dynamic service sector development

In many developing countries of the ESCAP region, the service sector is playing a very dynamic role for two main reasons. First, the major services such as finance, trade and communications, which are developing rapidly through continuous technological upgrading, are having a strong impact on the rest of the economy because of their backward and forward linkages. Second, the globalization of the world economy, which has increased the internationally traded character of services mainly through the adoption of new technologies, has enhanced the growth potential of the service sector.

An essential requisite for the development of a dynamic service sector is the modernization of telecommunications facilities. Just as roads play an important role in the development of the manufacturing and other product sectors, telecommunications are now regarded as an essential prerequisite for the development of the service sector. An efficient telecommunications system is essential in enhancing the development of financial, trade, tourism, professional and other services. The lack of an efficient system not only hinders domestic communications but also isolates an economy from the rest of the world. The importance of telecommunications stems from its role as a producer input, making it an important determinant of efficiency not only in other services, but also in other sectors of the economy.

The growth in banking services, which until a decade ago employed labour-intensive methods, has increased vastly through "automated teller machine" (ATM) and other computerized services. Similarly, the introduction of the highly cost-saving *kanban* (or "just-in-time") system has been made possible in manufacturing assembly plants through the adequate provision and advancement of telecommunications. More significantly, the underdevelopment of telecommunications puts a developing country at a disadvantage since the developed countries and other trading partners are rapidly adopting new systems of international transactions, such as the electronic data interchange (EDI).

A modern telecommunications system is not only an important prerequisite for keeping up with the developed countries, it is also a vital ingredient of the international competitive advantage of an economy. This has been particularly true since recent advances in telematics (information technology) have substantially modified the ways in which modern economies function, as well as the manner in which different sectors co-operate or compete internationally. A developed telecommunications system can contribute to the emergence of a variety of new service industries, such as data processing, while enhancing the efficiency and scope of existing services. Information technology has made it possible to transport economically vast amounts of information through interacting telecommunications channels. This has removed distance between the producer and consumer of a service as a significant factor. The "infrastructure" role being played by a modern telecommunications system through its ability to deliver services to markets is a key factor in competitiveness in services. Thus efficient telecommunications can be a major factor in both the growth of the domestic service sector and in a country's international competitive position.

In order to remain competitive and efficient in the global network of telecommunications developing countries will have to change the institutional arrangements, as well as the technologies which are revolutionizing telecommunications. Traditionally, telecommunications services were provided by government-owned and government-operated public telecommunications organizations because such services were considered a natural public monopoly. However, in order to respond flexibly to the changing international environment, the national telecommunications networks will have to be transformed from a monopoly public service to a highly commercial sector. This would involve the restructuring of several public telecommunications organizations and the opening to competition of some of their previously exclusive operating responsibilities. Institutional and regulatory restructuring may take place along three possible lines:

(a) Separation of telecommunications from postal services;

(b) Separation of regulatory from operational functions;

(c) Diversification of sources of telecommunications services.

The above measures are taking place in both the developed and developing countries. For example, Malaysia has privatized its telecommunications services while Thailand has invited British Telecom to join a local company in expanding the telephone services. Even those countries which are not prepared to accept privatization or foreign participation in telecommunications services have agreed that the public telecommunications organizations should operate as commercial companies. This means that they must emphasize consumer service, cost awareness, financial discipline and productivity in staff performance.

Deregulation of the telecommunications services can also accelerate the technological revolution that is sweeping the industry. In the past few years, technological developments in the form of significant improvements in micro-electronics have made it possible for developing countries to make a quantum leap in modernizing their telecommunications. Unfortunately, the new technology comes at a very high cost. Consequently, developing countries which are under pressure to restrain the public debt may be unable to finance the heavy costs involved. An alternative may be to allow the private sector to participate in the development of telecommunications.

Of all the infrastructure facilities, telecommunications show perhaps the widest disparity among the developing economies of the region. On an aggregate basis, there are an average of three telephones per 100 persons in the region, compared with between 50 and 80 in the industrialized countries. The facilities range from about 36 lines in Hong Kong and Singapore to around 20 in the Republic of Korea and to less than 10 in Fiji and Malaysia (table II.9). Many other countries have about two telephones per 100 persons and an estimated 18 countries, including India and Pakistan, have a telephone density of 0.6 or less per 100 (or one line for 167 persons). It is estimated that an investment of up to $US 200 billion would be required to achieve the modest target of two lines per 100 people in this group of economies. The patterns of telephone infrastructure development exhibit several features in common with those associated with the sectoral facilities and services discussed above. Telephone services are heavily concentrated in the principal cities although access remains highly uneven within the urban area itself. The disparities, however, are particularly marked between urban and rural locations with the average telephone density being typically many times lower than that in the cities in a large number of the region's countries.

It has become increasingly apparent since the late 1970s that the region's telecommunications infrastructure had by and large not been able to keep up with the requirements of economic growth. In many cities, it would take from several months to a few years to obtain telephone services; the substantial pressure of pent-up demand is closely manifested by the very large number of new applications for telephones and of

Table II.9. Selected developing economies in the ESCAP region. Indicators of telephone services, 1977 and 1986

(Percentage)

	Telephone density[a]		*Telephones in service*[b]		*Telephones in demand*[c]	
	1977	*1986*	*1977*	*1986*	*1977*	*1986*
Newly industrializing economies						
Hong Kong	21.46	33.01	1.25	2.46	...	...
Republic of Korea	4.22	18.42	1.98	9.29	0.20	1.42
Singapore	13.87	31.94	0.46	1.12	0.08	0.11
China	0.36	0.62	3.77	7.06	0.16[d]	0.27
ASEAN						
Indonesia	0.17	0.31[e]	0.35	0.67[e]	0.13	0.17[e]
Malaysia	1.76	6.44	0.38	1.38	0.15	0.37
Philippines	0.82	0.88	0.57	0.82[f]	0.11	0.23
Thailand	0.59	1.66	0.37	1.00	0.09	0.40
South Asia and Islamic Republic of Iran						
India	0.26	0.42	2.10	4.06	0.18	1.40
Iran, Islamic Republic of	3.30[d]	2.97	1.38[d]	1.94	0.08[g]	0.38
Pakistan	0.30	0.53	0.29[h]	0.62	–	0.37
Sri Lanka	0.33	0.57	0.07	0.12	0.02	0.02
Least developed countries						
Afghanistan	0.13	...	0.03	...	...	...
Bangladesh	0.09	...	0.10	...	0.04	...
Lao People's Democratic Republic	0.16	0.17[f]	0.01	0.01[f]	...	...
Myanmar	0.10	0.12[i]	0.03	0.05[i]	...	...
Nepal	0.07	0.12	0.01	0.02	0.01	0.04
Pacific island countries						
Fiji	3.08	4.65	0.03	0.06	0.01	0.01
Papua New Guinea	0.63	0.85	0.04	0.06	...	...

Source: International Telecommunication Union, *Yearbook of Common Carrier Telecommunication Statistics*, 15th ed., Chronological Series, 1977-1986 (Geneva, ITU, 1988).

[a] Number of telephone sets per 100 persons. [b] All types of telephone sets connected to the public network, in million units. [c] Comprising new applications and waiting list for mainline telephones, in million units. [d] 1980. [e] 1982. [f] 1985. [g] 1979. [h] 1978. [i] 1983.

applicants already on the waiting list (table II.9). Several expansion and upgrading programmes to relieve the tightening bottle-necks have been under implementation throughout the region, where expenditure on telecommunications is expected to reach $US 100 billion during the next five years.[15]

The Republic of Korea, for example, had about 2 million telephones and thus a density of 4 lines per 100 persons in 1977. The subsequent expansion raised the number of telephones to over 9 million and density to around 18 in 1986; current plans call for a density of 40 per 100 people by the end of the 1990s. China also plans to raise telephone density to 28 per 100 persons with a total of 33.6 million lines by the year 2000 from 0.6 in density and just over 7 million telephones in 1986; the outlays are expected to reach $US 21.7 billion. In India, current proposals call for the quadrupling of the network from 5 to 20 million lines by the end of this century, with one or two telephones to be installed in every village. Indonesia and Thailand, with very low telephone density (of less than 2 lines per 100 persons) at present, will be expanding and upgrading their networks with an investment of $US 6 billion for 2 million new telephones in Bangkok and one million in the provinces. Contracts have been awarded for an extended network for 700,000 telephones in Indonesia.

The large volume of unsatisfied demand and willingness to pay for services, noted earlier, are well reflected in the rapid spread of cableless communication systems in many countries in the region in the last few years; equally significant is that these networks have been initiated and set up, under various regulatory arrangements, largely by the private sector. Basic advances in transmission technologies have lowered significantly the infrastructure costs of a mobile phone network, although the relevant charges for subscriber equipment, network access and services, ranging from about $US 1,300 to $US 4,000 for the telephone handset alone, are relatively expensive and thus are beyond the reach of most people. Nevertheless, mobile telephone customers are estimated to number around 95,000 in Hong Kong, and from 40,000 to 60,000 in several other East and South-East Asian economies; these are large volumes in relation to the fixed telephone subscribers in countries with low telephone density.

The rapid expansion of cellular telecommunications systems is only one of the manifestations of increased private-sector involvement in the provision of related facilities and services. Apart from technological advances, such a participation has been facilitated by two other developments. On the one hand, there is greater liberalization of this multi-product subsector in many developing countries in the region. On the other, the internationalization of capital has created more opportunities for network expansion by the developing countries and simultaneously, for equipment supply by international corporations whose business had been earlier stimulated by deregulation in their own countries.

The experience gained from greater liberalization in telecommunications in several developed and developing countries is highly illustrative.[16] It appears that private entrepreneurs have contributed to the lowering of costs, better services (through competition), the mobilization of finance and expertise, thus relieving some of the developmental and operational burden on public sector agencies, the upgrading and transfer of technology, and improving efficiency. Greater private sector participation has occurred most often in the supply of a wide range of telecommunications products and services – ranging from customer premise equipment, value-added network services or other add-on operations (through leased circuits), to the preparation of directories and maintenance of facilities (under sub-contract).[17]

C. AGRICULTURAL SUPPORT INFRASTRUCTURE

The green revolution which transformed Asian agriculture in the last two decades depended not only on modern inputs, but also on physical infrastructure, such as the provision of irrigation.[18] Mechanization, land development and soil conservation schemes along with transport and communication facilities have also played a role in bringing about high growth in the agricultural sector. As is well-known, the application of fertilizer input can be effective only if an adequate and continued supply of water is available through irrigation.

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15 M. Selwyn, "Mobile networks ring in new era", *Asian Business*, vol. 26, No. 11 (November 1990), p. 62.

16 G. Roth, *The Private Provision of Public Services in the Developing Countries*, (New York, Oxford University Press, 1987), pp. 158-194; Organisation for Economic Co-operation and Development, *Structural Adjustment and Economic Performance* (Paris, 1987), pp. 308-313; and Y. Sazanami, "Telecommunication and information services: Japan's recent experience" in L. Castle and C. Findlay eds., *Pacific Trade in Services* (Sydney, Allen and Urwin, 1988), pp. 209-277.

17 See chap. IV, part two of this *Survey*.

18 Y. Hayami and V.W. Ruttan, *Agricultural Development: An International Perspective* (Baltimore, The Johns Hopkins University Press, 1971); and World Bank, *World Development Report 1982* (New York, Oxford University Press, 1982), pp. 39-98.

Further, soft infrastructure, including research and extension, the provision of institutional credit and marketing services have enhanced agricultural productivity. In many countries, the government has played a leading, although by no means exclusive, role in the development of agricultural support facilities and services. The impact of the patterns of development of agricultural infrastructure has varied widely in the region.

1. Irrigation infrastructure

The irrigated land area in the developing ESCAP region, at around 132 million hectares, is equivalent to just under three fifths of the global total. It was expanding during the period 1976-1986 at an average overall rate of 1.6 per cent annually although the rate of growth has slowed down perceptibly in the 1980s for a variety of reasons. As pointed out in section A above, the possibilities of increasing the number of multi-purpose river dams as infrastructure for electricity and irrigation are fewer and are likely to be considerably limited during the 1990s owing to a variety of factors. Like power generation, the emphasis in irrigation will therefore shift towards improving the efficiency of the existing irrigation infrastructure.

The area under irrigation has grown at a relatively strong pace, averaging between 3.5 and 5 per cent a year in Bangladesh, Indonesia, the Lao People's Democratic Republic, Nepal and Thailand in 1978-1988 (table II.10). This upward trend was facilitated by the relatively low ratio of irrigated land in some countries. There is also the need for greater cropping intensity to overcome the adverse impact of the lower availability of agricultural land per head of the rural population particularly in the South Asian subregion; most countries of the subregion are also relying more heavily on fertilizer inputs than their counterparts elsewhere, except for China and Indonesia. The implementa-

Table II.10. Selected developing economies in the ESCAP region. Some indicators of agricultural inputs and endowment, 1978-1988

	Irrigation area (millions of hectares)	*Irrigation ratio (per cent)*		*Annual growth rate (1978-1988)*		*Agriculture sector*		
						Land per capita (hectare)		*Share of labour force*[a]
	1988	*1978*	*1988*	*Irrigation area*	*Fertilizer use per hectare*	*1978*	*1988*	*1988*
Newly industrializing economies								
Hong Kong	–	–	–	–	–	0.06	0.09	1.3
Republic of Korea	1.4	59.0	63.6	0.4	-0.0	0.15	0.21	26.8
Singapore	–	–	–	–	–	0.14	0.07	1.1
China	44.9	45.2	46.5	-0.1	8.9	0.18	0.13	68.9
ASEAN								
Indonesia	7.5	27.3	35.3	3.5	11.6	0.22	0.26	50.2
Malaysia	0.3	6.7	7.0	0.7	6.9	0.76	0.92	33.9
Philippines	1.5	14.7	18.8	2.9	4.3	0.34	0.28	47.7
Thailand	4.1	14.6	20.1	4.5	9.0	0.52	0.60	65.7
South Asia and Islamic Republic of Iran								
India	41.8	21.7	24.7	1.3	8.0	0.39	0.33	67.1
Islamic Republic of Iran	5.8	37.7	38.8	0.2	12.7	1.06	0.99	29.1
Pakistan	15.7	71.4	75.0	0.9	6.7	0.47	0.34	50.7
Sri Lanka	0.6	28.4	29.0	0.3	4.5	0.25	0.22	52.0
Least developed countries								
Afghanistan	2.7	32.3	33.0	0.2	–	0.49	0.96	56.0
Bangladesh	2.2	16.0	23.9	4.3	8.3	0.13	0.12	69.9
Bhutan	–	22.0	26.2	2.7	–	0.10	0.10	91.1
Lao People's Democratic Republic	0.1	9.0	13.3	4.4	7.2	0.33	0.32	72.4
Myanmar	1.0	9.8	9.9	0.2	2.3	0.56	0.52	48.0
Nepal	0.7	17.6	28.0	4.9	11.4	0.18	0.14	92.0

Source: Food and Agriculture Organization, *Production Yearbook*, vols. 34 and 43 (1981 and 1989), and *Fertilizer Yearbook*, vol. 39 (1989).

[a] As a percentage of the total labour force, 1988.

tion of new land development schemes, including the provision of ancillary support infrastructure, has helped to raise land availability in several East and South-East Asian countries, including Indonesia, Malaysia, the Republic of Korea and Thailand.

The evidence indicates that good water control has been the single most important factor in the high upward trend in agricultural productivity in Asia. Indeed, up to three quarters of the increase in food production in eight Asian countries is attributable to both expansion in the irrigation network and improvements in the management of infrastructure.[19] Relatively simple and small investment in agricultural infrastructure can often bring about considerable improvement. For example, the level of irrigation can be greatly enhanced by digging canals and maintaining ditches and water conduits.

Small-scale irrigation schemes and projects have much to recommend themselves over large dams besides costs per hectare, which are about one tenth those of the dams. Their decentralized nature and close association with farmers imply lower outlays of financial and human resources from the government. Such simple water harvesting and conservation techniques as the construction of earth-and-stone check dams across streams and small rivers, and of percolation tanks to capture rain water have in fact been the mainstay of traditional, collective and largely private structures of self-help rural infrastructure.

2. Research and extension services

Technological advances and their widespread adaptation have been an important stimulus to agricultural growth and diversification throughout history. Research is the principal source of new agricultural technologies, and it is now widely recognized that such advances have to be transferable to environments which are different in terms of not only climatic and physiological conditions, but also socio-cultural interactions and perceptions. These factors account for the notable increase in resources devoted to agricultural research in the developing countries, and the establishment of a global network of agricultural research centres through the Consultative Group on International Research co-sponsored in 1971 by an informal association of countries, multilateral agencies and private foundations.

As a whole, the share of the developing ESCAP region in total world spending on agricultural research almost doubled between 1959 and 1980 from just under 13 per cent to about 25 per cent. Expenditure on extension services increased from 10 to 15 per cent of the corresponding global total during the same period.[20] These trends indicate a considerable expansion in and emphasis on the important facilities and services associated with agricultural support infrastructure. However, there are subtle differences in this regard among countries of the region.

The available data indicate that India spends by far the largest amount on agricultural research and has the highest number of scientists. In terms of aggregate income, however, Fiji, Malaysia and Papua New Guinea tend to devote the biggest share, ranging from 0.60 to almost 0.90 per cent of GNP in 1980, to such research. The corresponding ratios averaged 0.35 to 0.50 in Bangladesh, India, Pakistan and Sri Lanka, and concentrated around 0.20-0.26 in most other East and South-East Asian countries (table II.11). The World Bank has suggested that a target of 2 per cent of agricultural GDP be devoted to agricultural research by 1995.[21]

Fiji, Malaysia and Papua New Guinea are major exporters of several commodities, relative to their economic base, such as rubber, palm oil and cocoa (Malaysia), coffee, cocoa, palm oil and copra (Papua New Guinea), and sugar (Fiji). Such orientation accounts in part for the higher share of GNP channelled to agricultural research in these countries; Malaysia has, in fact, made significant advances particularly in rubber agriculture and latex processing technologies, while research and extension services were the generator of cocoa and coffee cultivation in Papua New Guinea.

Generally, most countries have made considerable progress in building up their research capabilities and infrastructure which helps in the adaptation of imported technologies. Nevertheless, the continuing financial constraints pose difficult choices as regards the nature and priorities in agricultural research, despite the

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[19] P. Oram and others, "Investment and input requirements for accelerating food production in low-income countries by 1990", *Report No. 10*, (Washington, D.C., International Food Policy Research Institute, 1979), pp. 44-47; D.G. Johnson and T. Shishido, "Reducing malnutrition in developing countries: increasing rice production in South and South-East Asia", report of the trilateral North-South Food Task Force to the Trilateral Commission, Triangle Paper 16 (June 1978); and World Bank, *World Development Report 1982*.

[20] M.A. Judd, J.K. Boyce and R.E. Evanson, "Investing in agricultural supply: the determinants of agricultural research and extension investment", *Economic Development and Cultural Change*, vol. 35, No. 1 (October 1986), pp. 66-113.

[21] World Bank, *Agricultural Research*, Sector Policy Paper (Washington, D.C., 1981).

Table II.11. Selected developing economies in the ESCAP region. Expenditure on agriculture research and number of research scientists, 1980

	Research expenditure		Research scientist (persons)	GNP[a] per capita (US dollars)
	Total (millions of US dollars)	As percentage of GNP[a]		
Bangladesh	26.62	0.48	1 642	130
Fiji	2.35	0.88	22	1150
India	154.78	0.33	7 103	570
Indonesia	44.48	0.26	1 473	430
Malaysia	46.33	0.82	822	1 620
Nepal	2.80	0.20	226	141
Pakistan	25.28	0.41	2 834	300
Papua New Guinea	5.05	0.59	110	760
Philippines	16.25	0.20	1 050	690
Republic of Korea	29.03	0.23	960	1 520
Sri Lanka	4.34	0.41	422	270
Thailand	23.28	0.26	1 525	740

Source: P. Oram, "National agricultural research system in developing countries – Research needs and priorities for development assistance" in A.P. Smits, ed., *Food Security in Developing Countries*, proceedings of Kijkduin Seminar, The Hague, March 1985.

[a] Gross national product.

evidence that returns on agricultural research are very high.[22] It is obvious that a selective approach is needed as few countries could afford to do otherwise. A judicious balance has to be maintained between funding for research on problems specific to the country and relying largely on results from regional or international research centres. International collaboration and division of labour are among the more appealing options in this connection.

Recent advances in biotechnology have introduced another quantum jump in the productivity of agriculture and agri-processing; they can also be relied on to redress the imbalances caused by the green revolution, and provide a basis for long-term ecological sustainability. Almost all biotechnological research and development efforts are concentrated in the industrialized countries, however. Also, unlike some other frontier technologies in agricultural sciences, innovative and new biotechnologies tend to be a closely guarded secret reflecting, in part, substantial research outlays and the growing commercialization of university and other public research institutions in the developed world. The transfer of such technology increasingly tends to resemble a foreign direct investment in nature.[23]

Many of the region's developing economies have set up national biotechnological programmes in agriculture, among other fields, although financial resource constraints and the acute lack of qualified scientists and technicians have made it more difficult to sustain a critical mass of research and development in identified priority areas. In particular, the estimated number of biotechnological staff in Asian developing countries in 1983 was only 3,400 persons, compared with 23,000 in the United States of America and 8,000 in Japan.[24]

Certain structural and organizational changes are also needed to ensure a more efficient transition to a more complex field of research, requiring different know-how and ancillary facilities (for example, continuous power supply, timely availability of high-grade and hence delicate chemicals and reagents, many of which have to be imported). Training in biotechnology should be introduced, where appropriate, at the undergraduate level. The establishment of semi-public or the promotion of private biotechnological research and development centres can help minimize some of the above constraints; this policy option, in fact, has been pursued in many countries, particularly in East and South-East Asia.

Many agricultural research programmes have not paid adequate attention to, or are not well co-ordinated with, extension services; these serve to transmit the new or improved inputs and technologies to farmers and, equally important, obtain feedback to ensure closer or more relevant research responses to farmers' needs. Indeed, experience in the past two decades has indicated

22 Vernon F. Ruttan, *Agricultural Research Policy* (Minnesota, University of Minnesota Press, 1984).

23 N. Kumar, "Biotechnology revolution and the third world: an overview" in Research and Information System for the Non-Aligned and Other Developing Countries, *Biotechnology Revolution and the Third World* (New Delhi, RIS, 1988), pp. 7-8; and R. Dore, "Technology in a world of national frontiers", *World Development*, vol. 17, No. 11 (November 1989), pp. 1665-1675.

24 A. Sasson, "Promise in agriculture, food and energy" in Research and Information System for the Non-Aligned and Other Developing Countries, *Biotechnology Revolution and the Third World*, pp. 79-84.

that low-risk technologies tend to spread quickly and, other things being equal, build cumulatively on themselves as long as economic circumstances permit. The green revolution (in both rice and wheat agriculture), the success in plant cell, tissue and organ culture and the consequent increase in East and South-East Asian export of various species of orchids and flowers, among many other commodities for both the domestic and external markets, are good cases in point.

3. "Soft" infrastructure

It is clear that the design and implementation of an effective research-cum-extension (rather than parallel) programme is one of the most complex, unpredictable and problem-prone aspects of agricultural support infrastructure. The reasons range from, among other elements, the prevailing complex patterns of ownership, tenancy and land rights in small-scale agriculture, to socio-cultural and economic interactions and perceptions on the part of the concerned farmers or farming communities.[25] For example, the gender bias in agricultural extension work with men is now receiving due recognition and the important role of women as farmers is being accepted.[26] Other important conditions for successful extension work concern the timely and adequate supply of inputs (for example, improved seeds, fertilizers and pesticides, crop and animal protection services, and water resources) required by the newly adopted technologies. At the same time, adaptive farmers should also be accorded the necessary credit for their input purchases and marketing services or market access for the disposal of surplus produce.

Considerable progress has been made in many of the region's developing countries in the provision of ancillary facilities and services in these areas. The fall in food grain prices in real terms and the greater food self-sufficiency levels in large deficit countries provide testimony of achievement in extension services. However, marketing conditions remain difficult in many places, especially as far as transport and storage infrastructure is concerned, while the policy objective of maintaining low food prices tends to constitute a disincentive to further agricultural growth and diversification.

A variety of credit schemes, often with subsidized interest rates and other concessions in repayment scheduling, have generally improved farmers' access to credit. Several structural and operational difficulties remain, however. Rural conditions are, by and large, not conducive to the progressive or extensive penetration by formal financial intermediaries. A considerable part of the available credit resources tends to flow mostly to large and influential farmers, or may even be diverted to non-agricultural purposes. At the same time, subsidized interest rates limit further the amount of potential credit. The true cost of lending and loan recovery preferably should be reflected in credit charges, especially if more farmers are to be served.

In this connection, small, landless and upland farmers have few formal credit channels and remain largely dependent on informal money-lending sources with the attendant higher interest costs. This large segment of the rural population is affected by severe poverty and works in a physically more difficult environment; they deserve continuing attention from the government in public sector infrastructure programming not only on redistributive grounds. There may be significant efficiency gains as well. Although the initial extension cost of facilities and services is substantial, reflecting in part the relative underdevelopment of non-farm construction, households starved of investment, services and information may be expected to show higher overall marginal output in response to additional resource inputs than those previously better supplied;[27] the great expansion in the production and export of cassava and other upland and marginal crops in Thailand is one notable example. For upland farmers, in particular, the extra marketed surplus can be realized without displacing traditional mechanisms of food security.

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[25] World Bank, *World Development Report 1982*, pp. 72-74; and W.C. Baum and S.M. Tolbert, *op. cit.*, pp. 103-107.

[26] P. Daniel, R.H. Green and M. Lipton, "A strategy for the rural poor", *Journal of Development Planning*, No. 15 (United Nations publication, Sales No. E.85.II.A.6) pp. 123-124.

[27] *Ibid.*

III. SOCIAL INFRASTRUCTURE DEVELOPMENT: PROGRESS AND PROBLEMS

INTRODUCTION

Social infrastructure development or investments in human capital are much more difficult to define, analyze and measure than the development of physical infrastructure or investments in physical capital. The recent revival of interest in human capital owes its origin to the empirical finding that physical capital stock was not the main determinant of growth in an economy. The discovery, originally made by Solow and empirically verified by many others, that the neoclassical production function left a large unexplained residual when capital-intensity was used as an explanatory variable, has led to a continuing search to explain the "residual factor".[1] Investment in education and skill formation has been extensively used as the primary variable to explain the residual. However, other elements of human capital formation, especially health and nutrition have also received attention as factors contributing, directly or indirectly, to growth.

A major source of interest in social infrastructure derives from the recent realization of the importance of human resource development as a means of accelerating growth in the developing ESCAP region. The perception has gained ground that many dynamic Asian and Pacific developing economies owe their success largely to their efforts in improving their human resources and developing the skills necessary to adjust to changes in the world economy. The empirical evidence on whether human resource development has been a significant or a leading factor in explaining the growth of the NIEs and other dynamic economies of the Asian and Pacific region is far from conclusive.[2] However, evidence relating to high rates of return on investments in education, health and other social infrastructures has been strong and well documented.[3]

The interest in social infrastructure, however, stems not only from its contributory role in enhancing the rate of growth of an economy, but also from other considerations. The unease felt by development economists about their preoccupation with per capita income growth began to be increasingly evident in the 1970s as high growth rates failed to solve the basic economic problems or to achieve the main objectives of development. Poverty, illiteracy and ill-health persisted, while many aspects of the quality of life, such as housing, sanitation and access to basic amenities, began to deteriorate significantly, despite the achievement of high growth rates of GDP in many countries. The inability of public policy to translate satisfactory, even high, growth rates of GDP into acceptable levels of social development emerged as one of the major failures of the development experience in the 1960s and 1970s and gave rise to a minor counter-revolution against growth-oriented policies. However, growth itself was hardly to blame. It was the inequitable distribution and injudicious use of the fruits of growth that was responsible for the neglect of social development objectives. The trade-off between growth and social justice was often exaggerated, giving rise to studied indifference to and a cavalier attitude towards social justice.

It was in this context that the concern for basic needs and elimination of poverty attained centre stage in development thinking, if not in development policy. Development performance, at least in the medium term, increasingly came to be judged against achievements in terms of

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[1] R.M. Solow, "Technical progress, capital formation and economic growth", *American Economic Review*, vol. 52 (May 1962); E.F. Denison, *The Sources of Economic Growth in the United States and Alternatives Before Us*, Committee for Economic Development (New York, 1962).

[2] J.R. Behrman, *Human Resource Led Development? Review of Issues and Evidence* (ILO-ARTEP, 1990).

[3] R.M. Solow, 1962, *op. cit.*; K. Arrow, "The economic implications of learning by doing", *Review of Economic Studies*, vol. 29 (July 1962). For a critical review of the literature, see M. Blaug, "The empirical status of human capital theory: a slightly jaundiced survey", *The Journal of Economic Literature*, vol. 14, No. 3 (September 1976).

such measures as an increase in life expectancy, a decline in infant mortality, a reduction in numbers below a normative poverty line, access to health care, education and housing. This change in emphasis brought forth a more active pursuit of social objectives than was previously considered necessary or desirable.

Many of the investments in human capital formation share the characteristics of investments in physical infrastructure, such as the existence of technological externalities (the divergence between social and private costs and benefits), indivisibilities and public good nature. In addition, in the case of social infrastructure the equity aspects assume a prominent role, since access to the services is often specified by the location and nature of infrastructure facilities. The output of social infrastructure facilities, unlike those of physical infrastructure, is often intended for final consumption and access to their use, even when the service may be made available at nominal costs through subsidies, is often determined by many socio-cultural attributes of the user.[4] Expenditure on social infrastructure thus can be used to reduce social inequalities if investments are properly designed to raise the human capabilities of the weaker sections of the population.

The changing perceptions about development objectives and the recognition of the role of social infrastructure in fulfilling them, however, were difficult to translate into action in the 1980s, which saw a steady increase in the financial burdens of developing countries as a result of recessionary trends and other unfavourable elements in the external economic environment. Beset by serious external and domestic resource constraints the developing countries found it difficult to carry out programmes of infrastructure development, especially in the social sectors. In particular, countries which had to resort to borrowing from international financial institutions, had to undertake severe fiscal adjustment programmes which impinged directly on levels of expenditure in the social sector. Since, as explained in chapter I, private sector participation is generally low in all infrastructure investments and especially so in social infrastructure, the fiscal austerity in the 1980s had generally an unfavourable impact on the provision of social infrastructure in the region. The increasing awareness of the social costs of adjustment encouraged by the United Nations Children's Fund (UNICEF) and other social sector agencies of the United Nations system has, however, created a certain degree of sensitivity on the matter among aid donors and international financial institutions.

The present chapter attempts to analyse the issues relating to the availability of and access to social infrastructure facilities in the developing ESCAP region, using available statistical data – whose deficiency in both coverage and quality reflects the policy neglect that social infrastructure facilities generally suffer from. The chapter is organized in two sections. The first section attempts to examine the adequacy of and the progress achieved in the provision of social infrastructure in the region. This exercise is undertaken using various available indicators of overall and sectoral social infrastructure development. The second section addresses in some detail certain issues relating to distribution of and access to social infrastructure.

A. INDICATORS OF SOCIAL INFRASTRUCTURE PROVISION IN THE ESCAP REGION

While the problems of measurement of physical infrastructure are by no means small, they pale into insignificance in comparison with those encountered in measuring social infrastructure. Quantitative measures in terms of expenditure in various sectors, such as education, health, housing and other amenities are not easily available and generally are not comprehensive enough. Physical measures, such as the number of pupils per teacher or doctor per thousand people or square metres of housing per family, while available, hide the differences in the quality of services. Consequently, measurements of the impact of the availability of social services on the quality of life enjoyed by people are often resorted to. Thus a decline in the illiteracy rate is construed as an increase in educational facilities and a decline in the mortality rate is inferred as an increase in the provision of health services, while an increase in the length of life is assumed to be the result of an improvement in the overall quality of life brought about through an increase in the composite supply of social infrastructure facilities. Obviously, the indirect nature of these measures leaves a lot to be desired. However, they do indicate the broad orders of magnitude involved and should contribute to an informed discussion of their policy implications.

1. Expenditure on social services

A principal indicator of social infrastructure development is the proportion of government expenditure allocated to social infrastructure sectors. This is a relevant measure since much of the social in-

[4] These problems are also present in the case of physical infrastructure, but their incidence is generally less frequent and their effects more indirect.

frastructure developed in the region has been financed by the government sector. To the extent that the private sector plays an important role in the provision of social infrastructure facilities, especially in the NIEs and South-East Asian countries, the figures in figure II.3 are no doubt a considerable understatement.[5] The role of the private sector is discussed in greater detail elsewhere in the study.

For most countries of the region, figures relating to the proportion of government expenditure allocated to the social sectors are available, as indicated in figure II.3. However, a major deficiency of the figures is that they relate only to expenditure incurred by the central government. They do not reflect expenditure undertaken at other levels of government (provincial, state, municipal and local governments) in maintaining and developing social infrastructure.

In many countries of the region, for example, India, Indonesia, Pakistan, the Republic of Korea, and Thailand, provincial and local levels of government are extensively involved in providing social services. In India and Pakistan state and provincial governments have the primary constitutional responsibility for providing and financing health care, education, sanitation and water supply. In India, for example, whereas the central government expenditure on the social sectors was 31.45 billion rupees in 1984, the state governments spent almost four times as much at 124.6 billion rupees.[6] Similarly in Pakistan of the total expenditure on education in 1978 the federal government accounted for only 23.5 per cent, and for health care 49.6 per cent, the remainder being financed by the provincial governments.[7] Moreover, since defence and other heavy administrative expenditure is undertaken by the central government, the social sectors form a much higher proportion of the total expenditure of state and local governments, compared to that of the central government. In the cities of Hong Kong and Singapore as much as half of all government funding went to finance the social sectors during the late 1980s.

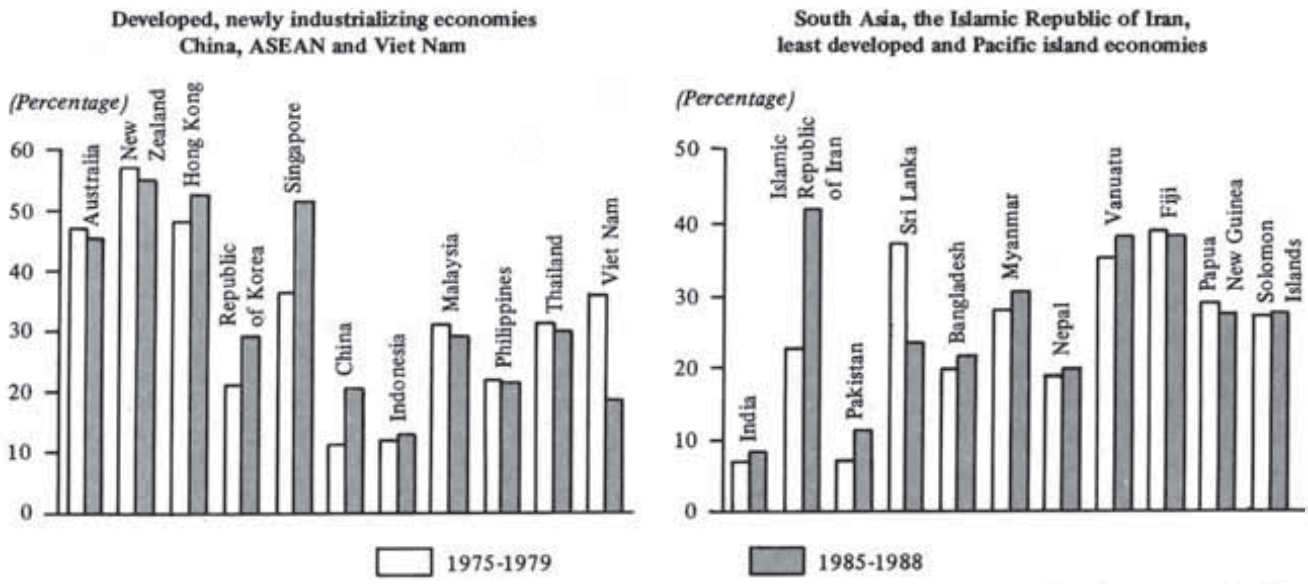
Given these caveats on the

[5] For example, 94 per cent of all primary school pupils in Hong Kong attended private schools. See *Meeting Basic Learning Needs: A Vision for the 1990* (New York, the Inter-Agency Commission for the World Conference on Education for All, April 1990), p. 105.

[6] International Monetary Fund, *Government Finance Statistics Yearbook* (1987), p. 478.

[7] *Ibid.*, pp. 713, 715.

Figure II.3. Selected economies in the ESCAP region. Share of total annual government expenditure allocated to social infrastructure, 1975-1979 and 1985-1988[a]



Source: International Monetary Fund, *Government Finance Statistics*, various issues; and Asian Development Bank, *Key Indicators of Asian and Pacific Countries*, various issues.

[a] Due to lack of annual data for the period 1985-1988 in some countries, the chart includes data for any period between 1985-1988 that has been reported.

nature of available data, expenditure on social infrastructure usually accounted for around 20 per cent of total government expenditure towards the end of the decade in many countries of the region. These percentages are, however, considerably lower – almost a third lower – than the percentages maintained by the region's three developed countries.

The share of government expenditure incurred on social infrastructure has risen substantially or has been maintained at earlier levels in most countries of the region between the late 1970s to the late 1980s. In keeping with the substantial increases in per capita incomes, NIEs have increased their relative allocations to the social sectors significantly during the decade. In particular, Singapore raised its share of state funding to the social sector from 36 per cent in 1975-1979 to 51 per cent by the late 1980s. Singapore and Hong Kong now spend as high a proportion of their total government expenditure on the social sectors as does Australia. The Republic of Korea also gave significantly higher allocations to the social sectors over this period; though its proportion remains low, comparable with some of the South-East Asian economies, for example, Malaysia and Thailand.

China and the Islamic Republic of Iran were among the countries which experienced the sharpest rise, doubling the ratio of total government resources allocated to the social sectors during the decade. The rapid shift in the case of the Islamic Republic of Iran was largely attributable to policy changes introduced after the revolution and sustained despite the war with Iraq.

With the exception of Singapore members of the Association of South-East Asian Nations (ASEAN) did not experience any significant improvement in relative allocations of government expenditure to the social sectors. Indeed in Malaysia, the Philippines and Thailand the share of total government funding to social infrastructure fell marginally during the 1980s, although in Malaysia and Thailand there was a rise in real spending. Malaysia and Thailand had already achieved considerably high levels of coverage of social infrastructure by the late 1980s. Indonesia and the Philippines remained the countries with the lowest public expenditure ratios for social infrastructure in the South-East Asian subregion. The sustained political uncertainty over the past decade, coupled with high levels of debt and a deteriorating balance-of-payments situation, and the structural adjustment measures adopted to remedy the situation, left little room for any significant improvement in social infrastructure in the Philippines.

The two countries of the region where significant declines occurred in social sector expenditure were Sri Lanka and Viet Nam. In the mid-1970s Sri Lanka devoted over a third of total public expenditure to social infrastructure. In Viet Nam the share declined by almost a half largely because of the resource constraint faced by the Vietnamese economy and the economic reforms undertaken to revitalize the economy. The country, along with other centrally planned economies, is facing increasing problems in sustaining social infrastructure expenditure as pressures to liberalize the economy and reduce the overall size of public expenditure increase.

2. Indicators of overall availability of social services

Table II.12 details a profile of current levels of access to, and coverage of, infrastructural facilities in the ESCAP region.[8] Measures of performance are included for the health (and allied sectors of sanitation and safe drinking water supply) and education sectors. Indicators measuring social sector performance include life expectancy, rates of infant and child mortality, and adult literacy rates. Per capita levels of income (also measured in terms of real purchasing power parity), and a composite index of human development, the human development indicator (HDI) of the United Nations Development Programme (UNDP), are presented with a view to bringing out relationships between levels of social infrastructural coverage and measures of economic and social development. The human development indicator of UNDP (see box II.5) is an innovative and simple way to bring out the extent to which a country falls short of targets in literacy, life expectancy and income necessary to meet basic needs (measured in terms of purchasing power parity). The targets being the highest levels reached by the developed nations. Those with HDI figures near a value of 1 are close to the levels of economic and social development of the most developed nations.

The pattern of variation across

[8] It must be noted that data quality is not uniformly good. In certain countries, particularly the least developed countries, insufficient skilled personnel limit the ability to raise and analyse data. Population figures are often based upon extrapolated projections rather than accurate censuses. Where the population is widely spread across difficult rural terrain accurate measures may not be possible (the Lao People's Democratic Republic is one example with its numerous hill tribes). In Afghanistan 10 years of war have made it almost impossible to collect field statistics. The figures on coverage of social infrastructure and sectoral performance should, therefore, be handled with some caution.

Table II.12. Selected economies in the ESCAP region. Coverage of social infrastructure, social sector performance measures and economic and social indicators

	Coverage of infrastructural services				*Social sector performance*				*Economic and social indicators*		
		Population with access to					*Mortality rate (per 1,000) live births*				
	Primary school enrolment (percentage) 1987	*Health services (percentage) 1985-1987*	*Safe water (percentage) 1985-1987*	*Sanitation (percentage) 1985-1987*	*Adult literacy rate (percentage) 1985*	*Life expectancy at birth (years) 1987*	*Infant 1988*	*Under-five 1988*	*GNP[a] per capita ($US) 1987*	*Real GDP[a] per capita ($US ppp[c]) 1987*	*Human development idex*
Developed economies											
Australia	106	...	...	...	...	76	9	10	11 100	11 780	0.978
Japan	102	...	...	...	...	78	5	8	15 760	13 140	0.996
New Zealand	107	...	...	...	...	75	10	12	7 750	10 540	0.966
NIEs[d]											
Hong Kong	106	...	...	...	88	76	8	10	8 070	13 910	0.936
Republic of Korea	101	93	77	100	...	70	24	33	2 690	4 830	0.903
Singapore	...	100	100	99	86	73	9	12	7 940	12 790	0.899
China	132	...	...	...	69	70	31	43	290	2 120	0.716
ASEAN											
Indonesia	118	80	38	37	74	57	84	119	450	1 660	0.591
Malaysia	102	...	84	76	74	70	24	32	1 810	3 850	0.800
Philippines	106	...	52	67	86	64	44	73	590	1 880	0.714
Thailand	95	70	64	53	91	66	38	49	850	2 580	0.783
Viet Nam	102	80	46	...	...	62	63	88	...	...	0.608
South Asia and the Islamic Republic of Iran											
India	98	...	57	10	43	59	98	149	300	1 050	0.439
Iran, Islamic Republic of	114	78	76	...	51	66	61	90	...	...	0.660
Pakistan	52	55	44	20	30	58	108	166	350	1 550	0.423
Sri Lanka	104	93	40	45	97	71	32	43	400	2 050	0.789
Least developed countries											
Afghanistan	...	29	21	...	24	42	171	300	...	...	0.212
Bangladesh	59	45	46	6	33	52	118	188	160	880	0.318
Bhutan	24	65	...	...	...	49	127	197	150	...	0.236
Lao People's Democratic Republic	111	67	21	...	84	49	109	159	170	...	0.506
Myanmar	...	33	27	24	...	61	69	95	200	750	0.561
Nepal	82	...	29	2	26	52	127	197	160	720	0.273
Pacific island country											
Papua New Guinea	70	...	27	45	45	55	57	81	700	1 840	0.471

Sources: United Nations Development Programme, *Human Development Report 1990* (New York, Oxford University Press, 1990); and World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990).

[a] Gross national product. [b] Gross domestic product. [c] Purchasing power parity. [d] Newly industrializing economies.

the region based on the two sets of indicators is not dissimilar to that emerging from data on the ratio of social expenditure analysed earlier. In particular, the divergence in levels of coverage and availability of social infrastructure between the South Asian region and East Asia is most apparent. For example, whereas three quarters of the population of East and South-East Asia had access to health services in 1986 only 56 per cent did so in South Asia.

Not surprisingly, the NIEs, which have the highest shares of state funding to the social sectors among the region's developing economies, were also among those providing the highest levels of coverage of social infrastructural facilities. Indeed, in Hong Kong and Singapore the levels of coverage compared favourably with that of the developed economies of the region. The Republic of Korea, although lacking in extensive coverage of infrastructural facilities has made rapid gains in improving health standards over the past three decades (see table II.13), although its under-five mortality rate remains thrice as high as in Hong Kong and Singapore.

Box II.5. The human development index

Although per capita income remains the most widely used measure of standard of living, the search for more satisfactory and exhaustive sets of social indicators has continued unabated.[a] An indicator capable of capturing wider aspects of social development, particularly relating to standards of health and levels of education, would be an analytical tool of great value in assessing the impact of economic and social developments on people's lives.

Attempts at constructing such an index, however, face considerable problems in avoiding subjective value judgements in the choice of aspects of social development to be included in the index. Differences in perception on cultural, religious, distributive and environmental matters also will inevitably affect the construct of such an index.[b]

More directed measures of quality of life have shied away from making subjective inferences and focused on target groups and target issues. Among these are the index of poverty[c], or recent measures looking at gender imbalances and women as the target group.[d] Both of these underline the close relationship between poverty and the status of women on the one hand and the level of economic development on the other.

The human development index developed by the United Nations Development Programme is an important contribution to the subject of social indicators of development.[e] It is essentially a measure of the degree of deprivation which a country suffers in the areas of education, health and income. The index takes national levels of adult literacy as a proxy measure for overall education status of a country, average life expectancy as an indicator of overall health status and average per capita income, measured in terms of purchasing power parity units to reflect price variations, as an indicator of national income. It, therefore, in essence combines measures of social well-being with that of economic well-being.

Deprivation is seen as the extent to which a country falls short of the highest levels attained internationally in each of the three categories. The average life expectancy figure of 78 years in Japan sets the standard for the overall status of health, 100 per cent adult literacy is the target to gauge education levels, while "the logarithm of the average poverty line income of the richer countries," measured in purchasing power parity units, sets the income standard. The composite index is arrived at by taking a simple average of the three separate indicators. This value when subtracted from 1 gives the figure for the human development index. A country with a value of 1 would have the most desirable level of human development.

The figure below outlines how the economies in the ESCAP region compare in terms of their ranking in the human development index and their level of per capita gross national product (GNP) (the most basic measure of income). There appears to be a strong relationship between per capita GNP and the human development index, particularly for the relatively low income nations in the South Asian subregion. This is partly to be expected given that income is one component of the human development index. However, the cases of China, Sri Lanka and Thailand underline the fact that relatively high levels of human development are feasible without the prerequisite of high per capita incomes.

Although it is not a very exhaustive measure and is certainly unable to account of inequality within societies, the human development index does provide a crude measure of overall social development. The human development index is not, however, value free in that it assumes that the level of development in the developed countries is the ideal that should be aimed at. Apart from

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[a] J.G.M. Hilhorst and M. Klatter, eds., *Social Development in the Third World: Level of Living Indicators and Social Planning* (London, Croom Helm, 1985); and I.Miles, *Social Indicators for Human Development* (London, United Nations University, 1985).

[b] ESCAP, *Study on the Development of Quality of Life Indicators in Asia and the Pacific* (ST/ESCAP/868).

[c] A.K. Sen, "Poverty: an ordinal approach to measurement", *Econometrica*, vol. 44, March 1976.

[d] ESCAP, "The development of social statistics and indicators on the status of women", report presented in ESCAP Seminar on Social and Related Statistics, Seoul, 22-28 May 1984.

[e] United Nations Development Programme, *Human Development Report 1990* (New York, Oxford University Press, 1990).

Within the ASEAN subregion, Malaysia (and to a lesser extent Thailand) stood out with overall health and education standards similar to those of the Republic of Korea. However, in Indonesia, the poorest of the ASEAN economies in terms of per capita GNP, the percentage of population enjoying social infrastructure facilities was extremely low; under 40 per cent of the population had access to safe drinking water or sanitation facilities, while morbidity rates, and infant and child mortality rates were more than double those for other ASEAN countries.

In China, which has a sustained record of according high priority to the social sectors in its overall development strategy, the indicators of health and educational performance were close to those of the leading ASEAN economies of Malaysia and Thailand as well as the Republic of Korea despite having much lower per capita incomes than those economies.

In Sri Lanka, which, despite its low per capita income, had consistently pursued welfare-orientated policies in the social sectors until the late 1970s, exceptionally high levels of achievement in education and health continued to be maintained until recently. However, it was becoming increasingly difficult to sustain such high standards, following the policy shift away from direct state support to the social sectors in the late 1970s and the severe structural adjustment measures adopted in the 1980s. Nevertheless, levels of coverage in health and education continued to be high and well above most South Asian countries' and they also compared favourably with those of many South-East Asian economies which have considerably higher per capita incomes.

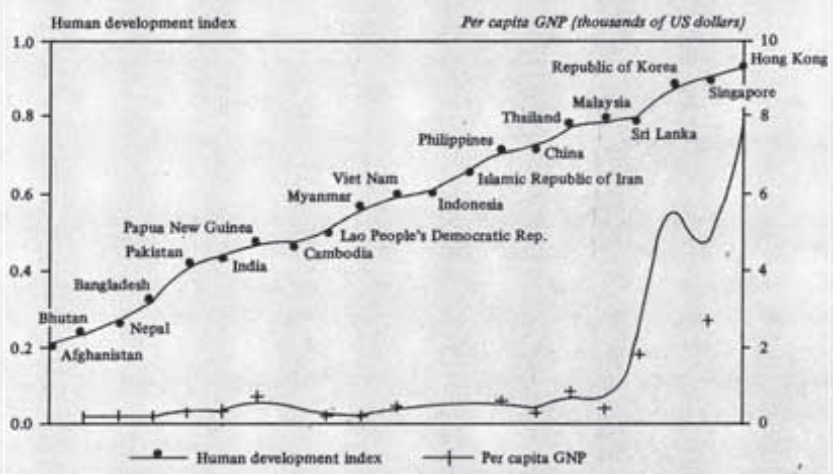
In contrast, the least developed countries of Afghanistan, Bangladesh, Bhutan and Nepal as well as the developing economies of India and Pakistan had the most basic shortcomings in terms of access to social infrastructure services. In most of these nations less than 50 per cent of the population had access to safe drinking water and less than 25 per cent to sanitation facilities. In the case of Bangladesh, India and Nepal only 6 per cent, 10 per cent and 2 per cent of the populations respectively were covered by sanitation programmes. In Afghanistan and the Lao People's Democratic Republic only a fifth of the population were able to obtain safe drinking water. Gross primary school enrolment in Bangladesh and Pakistan was as low as 59 and 52 per cent respectively and in Bhutan it was only 24 per cent.

the issue of the relevance of indicators of social development in the first world to the third world, there have also been a number of critiques of modernization and development theories that question the very ethos of development.[f]

The importance of the index lies in reorienting development debates to broader issues of societal goals as opposed to the narrower growth-led orientation of mainstream development thinking. Furthermore, the *Human Development Report 1990*, while not integrating other variables into the index for reasons of statistical propriety, highlights, in its comprehensive statistical annex, a series of factors that have hitherto not found integration into standard measures of development. In particular, it raises the question of the role of participation, democracy and human rights as inalienable components of development performance. It also highlights the negative impact of high military expenditure on overall social development.

[f] T. Banuri, "Modernization and its discontents: a perspective from the sociology of knowledge", WIDER *Working Papers*, No. 33 (December 1987).

Ranking of developing economies in the ESCAP region according to per capita GNP[a] and the human development index, 1987



Source: United Nations Development Programme, *Human Development Report 1990* (New York, Oxford University Press, 1990).

[a] Gross national product.

Table II.13. Selected economies in the ESCAP region. Trends in human development

	Life expectancy (years)			*Under-five mortality rate (per 1,000)*		*Population with access to safe water (percentage)*		*Daily calorie supply (as percentage of requirements)*		*Adult literacy rate (percentage)*		*GNP[a] per capita ($US)*	
	1960	*1975*	*1987*	*1960*	*1988*	*1975*	*1985-1987*	*1964-1966*	*1984-1986*	*1970*	*1985*	*1976*	*1987*
Developed economies													
Australia	71	73	76	25	10	...	...	120	125	...	...	6 100	11 100
Japan	68	74	78	40	8	...	...	112	122	99	...	4 910	15 760
New Zealand	71	72	75	27	12	...	...	127	129	...	...	4 250	7 750
NIEs[b]													
Hong Kong	66	73	76	65	10	...	...	...	121	77	88	2 110	8 070
Republic of Korea	54	64	70	120	33	66	77	96	122	88	...	670	2 690
Singapore	64	70	73	50	12	...	100	87	124	74	86	2 700	7 940
China	47	65	70	202	43	...	...	86	111	...	69	410	290
ASEAN													
Indonesia	41	49	57	235	119	11	38	81	116	54	74	240	450
Malaysia	54	64	70	106	32	34	84	101	121	60	74	860	1 810
Philippines	53	59	64	135	73	40	52	82	104	83	86	410	590
Thailand	52	60	66	149	49	25	64	95	105	79	91	380	850
Viet Nam	44	53	62	233	88	...	46	97	105	...	...	...	...
South Asia and the Islamic Republic of Iran													
India	44	52	59	282	149	31	57	89	100	34	43	150	300
Iran, Islamic Republic of	50	57	66	254	90	51	76	87	138	29	51	1 930	...
Pakistan	43	50	58	277	166	25	44	76	97	21	30	170	350
Sri Lanka	62	66	71	113	43	19	40	100	110	77	87	200	400
Least developed countries													
Afghanistan	33	39	42	380	300	9	21	90	94	8	24	160	...
Bangladesh	40	46	52	262	188	56	46	91	83	24	33	110	160
Bhutan	38	43	49	297	197	...	...	...	...	...	...	70	150
Lao People's Democratic Republic	40	42	49	232	159	...	21	86	104	33	84	90	170
Myanmar	44	54	61	229	95	17	27	89	119	71	...	120	200
Nepal	38	45	52	297	197	8	29	87	93	13	26	120	160
Pacific island country													
Papua New Guinea	41	49	55	247	81	20	27	72	96	32	45	490	700

Source: United Nations Development Programme, *Human Development Report 1990* (New York, Oxford University Press, 1990).

[a] Gross national product. [b] Newly industrializing economies.

In terms of performance measures adult literacy rates across these countries were extremely poor. In Afghanistan, Bangladesh, Nepal and Pakistan literacy rates did not exceed 33 per cent whereas in the ASEAN and NIE subregions and in Sri Lanka literacy was either almost universal or at least three quarters of the population were able to read and write.

Table II.14 compares overall trends in the region over the past two to three decades in terms of access to certain services and of measures of health and education performance. What is clear is that for most economies there have been rapid improvements on various counts. Child mortality was brought down in all countries, reflecting improvements in health care, health awareness and the nutritional status of children. In particular, the Republic of Korea reduced its under-five mortality rate from 120 per 1,000 in 1960 to 33 in 1988. China brought down its child mortality rate from 202 in 1960 to 43 in 1988.

Nutritional intake in terms of daily calorie supply rose significantly in China, the ASEAN economies and the Islamic Republic of Iran. In Bangladesh, however, it fell underlining the growing impoverishment of that country. In Afghanistan, Nepal and Pakistan

there was only a marginal improvement in nutritional standards with the food calorie supply continuing to fall short of the 1988 requirements. This clearly had a major impact on the poor health standards in these nations.

Among the countries that displayed a marked improvement in terms of access to drinking water supply was Malaysia where the population having access to

Table II.14. Selected developing economies in the ESCAP region. Health care coverage

	Population per physician			*Population per bed*			*Population per nurse*		
	1970	*1980*	*1988*	*1970*	*1980*	*1988*	*1970*	*1980*	*1988*
NIEs[a]									
Hong Kong	1 520	1 393	982	240	243	227	2 246	418	221
Republic of Korea	2 159	1 689	1 139	1 901	1 001	470	2 079	944	551
Singapore	1 522	1 220	838	301	251	270	481	319	295
Taiwan Province of China	2 240	1 323	1 077[b]	2 494	446	238[b]	7 088	1 527	741[b]
China	...	2 228	1 201	760	503	431	...	1 429	1 116[c]
ASEAN									
Brunei Darussalam	3 333	2 205	1 412	263	308	283	674	420	325
Indonesia	26 510	11 408	7 746[b]	1 650	1 488	1 515[c]	7 960	7 301	3 025[b]
Malaysia	4 234	3 563	2 853[c]	388	384	442[c]	607	558	473[c]
Philippines	1 170	6 656	6 413[d]	917	549	683	948	5 031	5 245[d]
Thailand	6 726	6 755	5 595	892	651	624[b]	2 364	1 330	839[b]
Mongolia	...	450	370	133	92	87	291	243	238[b]
Viet Nam	8 782	4 262	3 086	641	270	288	...	707	823
South Asia and the Islamic Republic of Iran									
India	4 795	2 569	2 400[c]	1 650	1 203	1 112[c]	7 001	4 623	3 701[b]
Iran, Islamic Republic of	3 297	2 320	...	...	678	...	3 234	5 535	5 837[d]
Pakistan	4 658	3 500	1 905	2 061	1 742	1 635	14 700	9 077	6 136[c]
Sri Lanka	5 950	7 178	7 255[b]	341	349	358[b]	2 259	2 276	2 040[b]
Least developed countries									
Afghanistan	20 682	11 945	5 148[c]	6 140	3 125	...	35 237	16 896	7 129[c]
Bangladesh	8 557	9 652	6 219[c]	8 122	4 033	3 187[c]	83 892	28 711	14 651[c]
Bhutan	...	24 181[e]	9 740	1 940	2 080[e]	1 500	...	8 836[e]	4 982[c]
Kiribati	1 867	1 930	1 939[d]	108	196	200[d]	698	366	480[d]
Lao People's Democratic Republic	16 536	...	...	1 176	...	...	4 587	662	480[c]
Maldives	27 500[g]	19 625	7 692	2 556[g]	1 691[e]	1 563	24 000	1 524	1 653
Myanmar	8 830	4 595	3 400	1 180	1 374	1 553	3 546[f]	7 966	4 700
Nepal	51 086	26 138	20 466	5 762	5 249	4 283	70 932	31 986	29 933
Samoa	2 960	2 786	...	232	224	...	442	453	...
Tuvalu	...	1 750	...	...	97	...	...	416 667	...
Vanuatu	3 310	5 364	...		153	...	...	420	388[e]
Pacific island countries									
Cook Island	909[g]	1 000	...	112	126	...	225	308	...
Federated States of Micronesia	...	3 080	...	...	...	...	...	726	402[d]
Fiji	2 140	2 232	2 008	343	354	412	664	454	468[d]
Guam	...	1 514	...	...	450	...	...	263	330[b]
Nauru	700	...	...	34	...	...	...	...	...
Niue	1 000	1 650	...	167	...	...	...	...	...
Papua New Guinea	10 644	16 052	12 379[d]	149	243	...	1 616	1 773	837[d]
Republic of Palau	...	1 212	...		...	...	...	1 574	...
Solomon Islands	4 474	7 500	8 438[d]	185	175	184[d]	751	436	394[d]
Tonga	3 955	2 853	2 398[c]	390	299	266[c]	1 059	517	566

Sources: United Nations, *Statistical Yearbook for Asia and the Pacific*, various issues; and national sources.

[a] Newly industrializing economies. [b] 1986. [c] 1987. [d] 1985. [e] 1982. [f] Nurses and midwives. [g] 1976.

water increased from 34 per cent in 1975 to 84 per cent in 1985-1987. Similarly, India and Thailand also indicated substantial improvement in access to safe water. In Bangladesh, however, the share of the population with access to safe water fell from 56 to 46 per cent between the mid-1970s to the mid-1980s. Finally in respect of education standards, literacy levels improved on the whole although in some cases only marginally. For example, the literacy rate in Pakistan rose from 21 per cent in 1970 to 30 per cent in 1985. In the Lao People's Democratic Republic levels of literacy rose substantially over the same period from 34 to 84 per cent.[9]

The preceding brief overview of the availability of social infrastructure services in the region brings out the very sharp contrasts between the economies of East and South-East Asia, with relatively high per capita income and with a well endowed health and education infrastructure on the one hand, and the predominantly low income countries in South Asia, parts of East Asia and the Pacific on the other hand, in which access to such basic social infrastructure facilities as education, health, sanitation facilities and safe drinking water was extremely poor and the services low in quality. There are a few significant exceptions in both groups of countries, however: Indonesia and the Republic of Korea in the first and China, Sri Lanka and Viet Nam in the second group. The marked difference in levels of coverage between the two broad groups of countries underlines the different weights given to such policy issues as equity and distribution, productive efficiency, management and financing capability for the development of social infrastructure. The low income countries need to give priority to the coverage of minimal levels of social infrastructure through increased resource allocations to the social sectors. For them trade-offs between equity and efficiency are very small, indeed investment in social infrastructure is likely to have positive effects on productivity and efficiency. In the relatively better off economies, such as the NIEs and members of ASEAN, some trade-offs may exist, and may be affordable in the interest of sustaining higher growth in the future. Those countries where satisfactory levels of social infrastructure coverage already exist, would be largely concerned with the issue of the quality of social service provision and of developing new areas of social sector services. In particular, this would include improved care for the elderly, developments in curricula, teaching aids and in secondary and tertiary levels of education, and improvements in the quality and levels of curative health care.

Clearly for achieving sustainably high levels of coverage of social sector facilities, per capita income growth rates will have to rise further in both groups of countries. What needs to be ensured is that the fruits of growth are not dissipated in furthering distributive inequalities but are harnessed to increase the access to improved social and physical infrastructure development. What is clear from the Asian and Pacific experience is that while the relative priorities in and sequencing of growth and social development may have differed in individual countries, high income status has generally been concomitant with high levels of social development. In other words attempts by countries to raise per capita incomes have broadly gone in hand with efforts to improve the coverage of social infrastructure. However, imbalances in social infrastructure development can be substantially corrected without unduly waiting for income levels to rise significantly, if shifts in relative sectoral allocations can be effected. In this regard there has been a growing concern regarding rising levels of military expenditure in the region. In the South Asian region annual military expenditures were as much as $US 10 billion, exceeding total annual expenditures on education.[10]

China and Sri Lanka and to some extent Viet Nam stand out as economies which despite low levels of income have achieved fairly high standards of social infrastructure coverage, although, as noted earlier, there is a noticeable shift away from this trend in recent years. While this may not be of great relevance to the least developed countries where the question of choice in relative allocation of resources is almost non-existent, it does provide some lessons to relatively better placed low income nations such as India and Pakistan. However, as the recent changes in the policies of China and Sri Lanka have shown, an emphasis on the social sectors cannot be sustained without a concomitant expansion in the manufacturing sectors and related macro-economic policies. What the Chinese and Sri Lankan experience does emphasize is that in spite of limited resources, a certain minimum level of social development can be achieved if a concerted

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[9] UNESCO, *Statistical Yearbook 1988*, pp. 1-20. 1985 literacy rates in the Lao People's Democratic Republic of those in the age bracket of 15-45 was 16.1 per cent.

[10] UNDP, *Human Development Report 1990* (New York, Oxford University Press, 1990), p. 77; and R.L. Sivard, *World Military and Social Expenditures 1989*, 13th edition.

policy direction in favour of developing social sector programmes is followed. The experience of the Republic of Korea illustrates the opposite point that continuing high rates of growth cannot be sustained without paying adequate attention to the social infrastructure, as the imbalance gives rise to unbearable social tensions. There appears to be a growing policy convergence in the region about the relative and interlinked roles of growth and social infrastructure development.

3. Coverage of specific sectors within social infrastructure

In this section, the following categories of social infrastructure are discussed in detail, namely, health, education, sanitation, safe water supply and housing. While they are treated independently for ease of analysis, it must be underlined that they are intrinsically interlinked, for example, literacy can heighten the success of a public health care programme. Access to safe water is closely related to improved levels of child health. Likewise those who have inadequate sanitation facilities and lack access to safe drinking water are also likely to be poor and nutritionally deprived, lack medical facilities, have a poor standard of housing and generally low levels of education. This also serves to emphasize poverty as a key factor in any discussion of the social sectors. It is obvious that any analysis of an individual social sector has to be undertaken in the broader context for an integrated policy framework.

(a) Health care facilities

Like all social sectors there is a yawning gap in health care between avowed international objectives and actual achievements. The laudable aims of the 1978 Alma-Ata declaration of "an acceptable level of health for all the people of the world by the year 2000" are now recognized as being unachievable for most of the developing countries. The developing world as a whole was well behind the target of universal health coverage with only 61 per cent of the population having obtained access to health services in 1986. For the least developed countries more than half the population (54 per cent) did not have access to health care.[11] These figures, of course, say nothing either about the quality of health care being offered or about the distribution of health services, which varies widely both within and among developing countries of the Asian and Pacific region.

The health sector can be seen as consisting of functionally distinct categories requiring very different types of infrastructure. At least three such categories can be clearly distinguished, curative treatment facilities, the increasingly important area of preventive health, and family planning programmes, as constituting distinct aspects of an integrated health programme.

Curative care, consisting of hospital facilities, medical personnel and pharmaceutical products, usually takes up most of the health budget in many countries. A large proportion of curative care expenditure is accounted for by the construction of physical structures for hospitals, laboratories and other medical facilities and in the training of doctors. In general, curative care treatment has tended to be fairly capital intensive because of its use of advanced medical technology geared largely towards the treatment of cancer, degenerative and circulatory diseases. Such ailments accounted for 75 per cent of all deaths in the developed countries in 1985 and only 24 per cent of deaths in that year in the developing world.[12] Even in the developing world such forms of disease seem to be concentrated among the affluent sections of the population who are often well able to afford private treatment.

The over-emphasis upon the development of curative care facilities, therefore, appears misplaced when viewed against the fact that 44 per cent of all deaths in 1985 in the developing world were reported to have been caused by infectious and parasitic vector (water-borne) diseases.[13] Many of these could have been easily prevented through adequate immunization of infants and pregnant women (the primary risk groups), improvements in waste disposal and overall sanitation measures, and the provision of simple remedies to deal with dehydration and diarrhoeal diseases. These are comparatively much cheaper methods than tackling the health problem at a later stage through curative treatment of diseases caused by the non-adoption of preventive methods.

The increasing realization of the nature of disease patterns and their close link to social, sanitation and housing conditions has been responsible for a continuing change in the health programmes of the developing world towards a more preventive and family and community-based orientation. In particular, the international programme of expanded immunization of children by the World Health Organization (WHO) has made substantial progress in even the poorest of the least developed countries. This alone is likely to bring down infant mortality

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11 UNDP, *Human Development Report 1990*, p. 24.

12 The Commission on Health Research for Development, *Health Research: Essential Link to Equity in Development* (Oxford, Oxford University Press, 1990), p. 38.

13 *Ibid.*

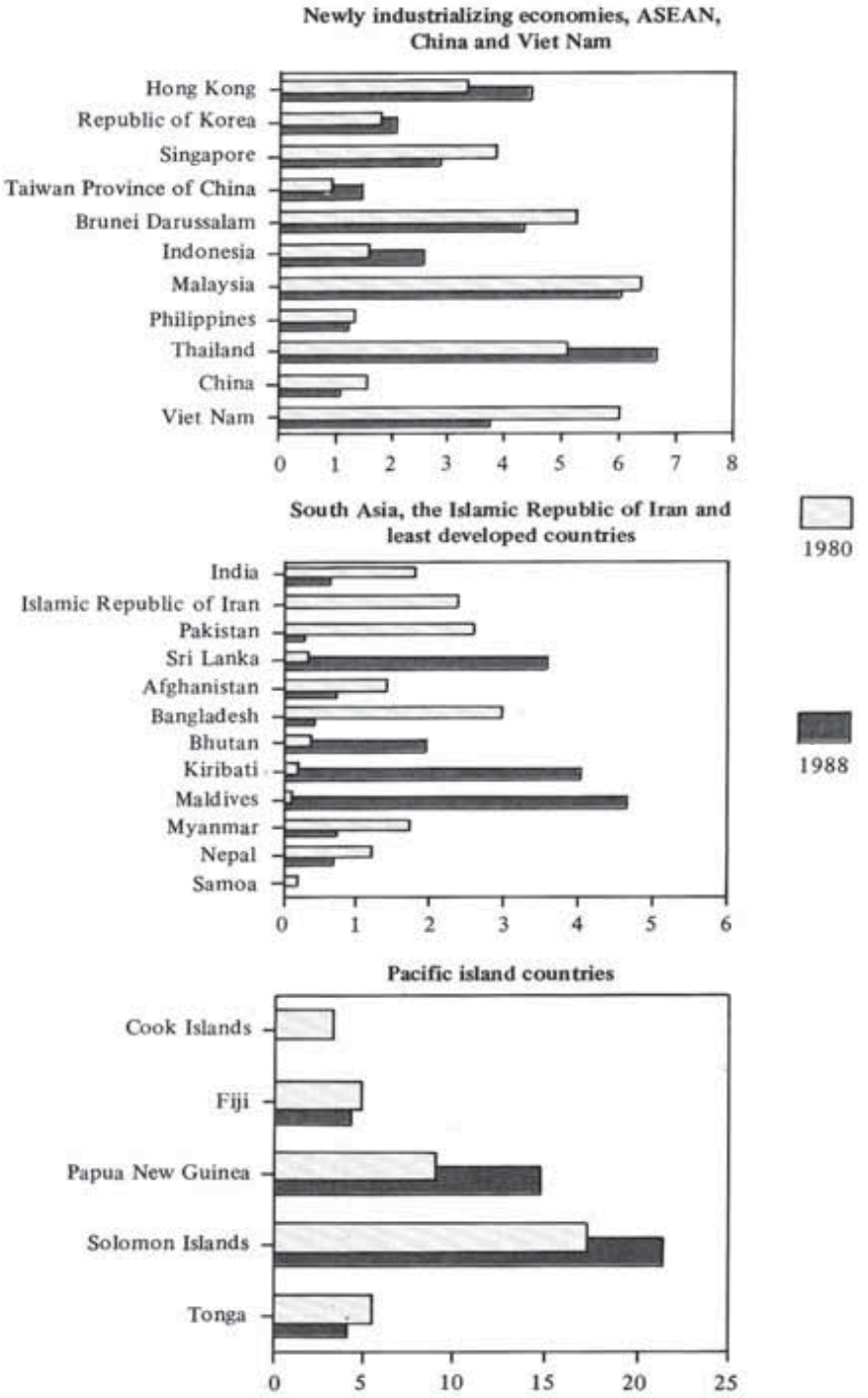
rates significantly in the near future. Preventive health care is also becoming part of an integrated process of raising health and sanitation awareness particularly among women. It is largely the concentration on preventive health which has made policy makers aware of the fact that sanitation and water supply programmes may be as important to health care as the provision of hospital beds.

(i) Curative care

Notwithstanding the importance of primary care, considerable resources are required for the adequate provision of infrastructural facilities devoted to curative treatment, still the model health care programmes of various countries in the region. Table II.14 provides data relating to the number of people served by physicians, nurses and hospital beds within the developing ESCAP region for 1970, 1980 and 1988. While each of the three categories (namely physicians, nurses and hospital beds) are part of the curative care structure, the distinction between physicians and nurses is an important one. First, nursing care, while not qualitatively similar to that of physicians, is often a reflection of para-medical coverage where comparatively "simpler" skills are often adequate in dealing with minor ailments and diseases. An inadequate supply of nurses could lead to an underutilization of the skills of well-trained doctors who may be called upon to undertake comparatively simpler medical duties. It may also result in insufficient nursing care which is an essential part of modern curative treatment.

In the developed and industrialized world, on average 4.2 nurses worked with a qualified doctor in 1984.[14] In most developing economies of the ESCAP region (as shown in figure II.4), except Brunei Darussalam, Hong Kong, Malaysia and Thailand, this ratio is much lower. Doctors outnumber nurses in most countries

Figure II.4. Selected developing economies in the ESCAP region. Ratio of nurses per physician, 1980 and 1988



Sources: United Nations, *Statistical Yearbook for Asia and the Pacific*, various issues; and national sources.

[14] UNDP, *Human Development Report 1990*, p. 149.

of South Asia, especially in Pakistan where the ratio of nurses to doctors was less than a third in 1988. Thus, although Pakistan had one of the highest number of physicians per thousand people among the low income nations of the ESCAP region, the number of nurses per unit of population was among the lowest in the region.

The low and declining ratio of nurses to doctors in South Asia (with the notable exception of Sri Lanka) is largely supply constrained and is closely tied to the low social esteem accorded to nursing as a profession in those countries. Given that training costs of doctors are substantially higher than that of nurses, allocating resources to producing doctors at the expense of nurses would seem to be inappropriate.

With the exception of Mongolia, the NIEs had the highest coverage of physicians within the developing ESCAP region by the late 1980s with 1 doctor per 1,000 persons on average. China, Brunei Darussalam and Pakistan were the only other nations where there was a doctor for at least every 2,000 people, although Pakistan's relatively high ratio of doctors was not reflected in comparatively better health standards. In terms of hospital beds, Viet Nam and Sri Lanka had an availability ratio comparable to NIEs, although, in terms of coverage of medical personnel they did not fare so well. China, given its large population, achieved very high levels of both physical and human infrastructural facilities for health services.

In the ASEAN subregion, Malaysia, along with Brunei Darussalam and Singapore, has invested heavily in improving the availability of doctors, nurses and hospital beds to its population. Although in Indonesia per capita availability of medical facilities was by far the lowest in the ASEAN subregion, it effected dramatic improvement between 1970 and the mid-1980s with the ratio of doctors per 1,000 people rising over threefold while that of nurses more than doubled. However, the increase in the availability and in the coverage of hospital beds did not significantly outpace population growth during the period.

Other weaknesses in the curative segment of health care include the lack of adequate stocks of medicines, sufficient blood and blood products and basic and advanced types of medical equipment, as well as the lack of adequate quality standards critical to assuring proper treatment.

Another neglected aspect of curative medical care is the inherent emphasis placed in developing economies upon systems of treatment and forms of medication which are often incompatible with low levels of education and income, as well as being incompatible with the traditional, predominantly rural, backgrounds of the majority of their population. Little effort has been made to increase the social acceptance of the modern structure of curative medicine, which is as serious a problem as access for such groups.

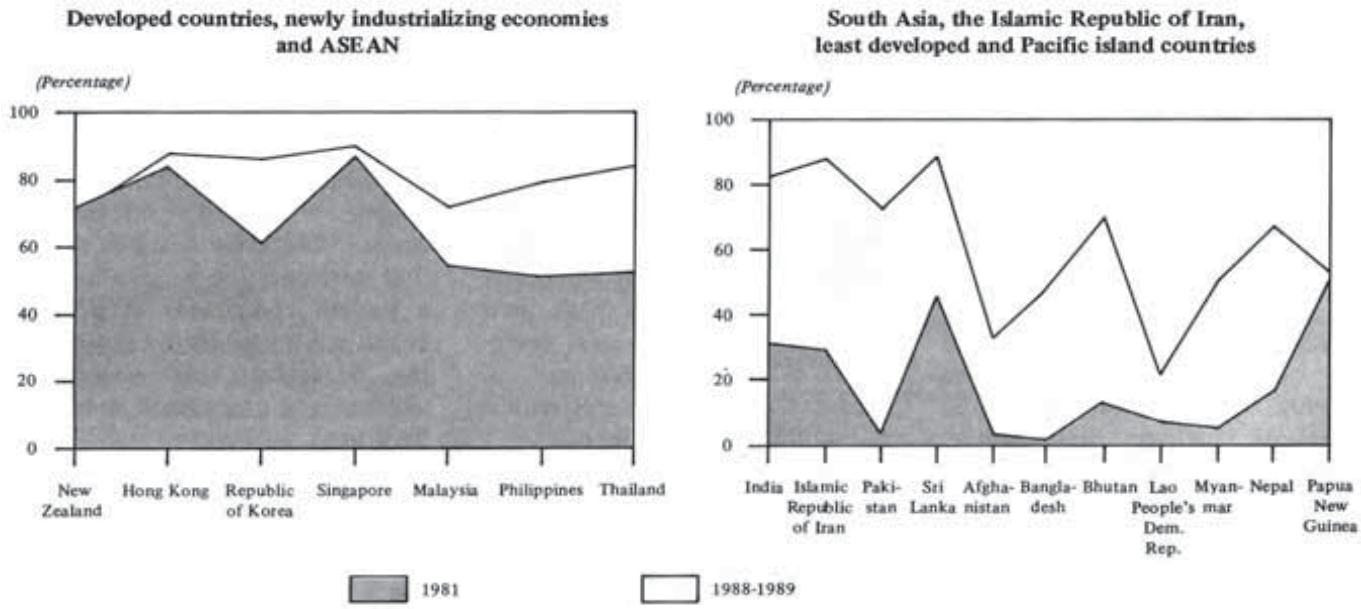
Partly in response to the excessively "modern", alienating and high cost nature of formal curative care, a large proportion of the population resort to practitioners of homoeopathic, ayurvedic, herbal and traditional forms of medicines, many of whom lack formal training. The relative neglect of these other systems of curative medicine, many of which have proven scientific validity at least for certain types of ailments, not only discourages the development of a cheap and acceptable form of treatment but also leads to abuse by untrained practitioners.

(ii) Primary care

Primary health care coverage is somewhat more difficult to measure than curative facilities. Few countries provide data on either financial allocations to primary health services *per se* or the number of primary health facilities currently available. A proxy measure that gives some indication of primary health care is the extent of target populations (particularly young children and pregnant women) immunized against infectious diseases, given that immunization programmes are a leading component of primary health strategies. Figure II.5 details the percentage of one-year-old children and pregnant women who have been fully immunized against diphtheria, whooping cough (pertussus) and tetanus (DPT), the most common diseases for young children, in selected economies of the ESCAP region.

What appears very sharply from the figure is the rapid improvement in levels of immunization across the region as a whole between 1981 and 1988/89. This reflects the growing awareness in the brief span of less than 10 years of the importance of immunization programmes in the health care system. Of the countries listed, all had some degree of immunization for children against tuberculosis, diphtheria/pertussus/tetanus, polio and measles in 1988/89. In 1981 only Hong Kong, Malaysia, the Republic of Korea, Singapore and to a lesser extent the Philippines, Sri Lanka and Thailand could be described as having a significant immunization programme. By 1988/89 the NIEs, members of ASEAN, Bhutan, China, India, the Islamic Republic of Iran, Nepal, Pakistan, Sri Lanka and Viet Nam had well over 50 per cent of one-year-old infants receiving DPT vaccines. China and the NIEs in particular had achieved almost universal immunization of infants against DPT. Bhutan, one of the poorest of the least developed countries, raised the

Figure II.5. Selected economies in the ESCAP region. Preventive health care. Percentage of one-year-old children fully immunized against diptheria, 1981 and 1988-1989



Source: United Nations Children's Fund, *The State of the World's Children 1991.*

proportion of DPT vaccinated one-year-olds from 27 per cent in 1986/87 to 70 per cent in 1987/88, a remarkable achievement in the space of one year.

Among countries with extremely high infant mortality rates, Pakistan in particular displayed a dramatic improvement in its immunization programme from only 3 per cent of one-year-old children being vaccinated against DPT in 1981 to 73 per cent in 1988/89. Although this was not reflected in substantial improvements in infant mortality rates in Pakistan (see table II.12), there is on the whole a "public health revolution" under way as a result of the extended immunization programme which should bring about substantive declines in infant mortality and emphasize the efficacy of preventive health care.[15]

Despite these advances, a number of the least developed countries continued to have low levels of child immunization. In Bangladesh, only 49 per cent of one-year-olds had received the DPT vaccine. In other countries, such as Afghanistan and the Lao People's Democratic Republic, where civil strife, difficult terrain and insufficient resources were major barriers to an immunization programme, less than 40 per cent of one-year-old children had been vaccinated against DPT by 1988/89.

In addition to preventive medicine, important new areas for health care that need to be addressed in the region will be the treatment of the rapidly increasing numbers of drug addicts and of sexually communicable diseases. In addition to rehabilitative care public awareness campaigns would need to play a major role in this regard. In many of the more advanced economies where demographic changes in favour of the elderly have been more marked and where traditional support networks for the elderly are disintegrating, geriatric medicine and nursing care for the elderly is likely to become an area of growing concern.

(iii) Family planning

Family planning is widely seen as an intrinsic part of an integrated health programme, particularly within the local and community-level primary health care structure. Lowering the fertility rate and encouraging spacing of childbirths are recognized as having a direct beneficial impact on the health of women and newborn infants. In addition, reducing the number of dependent children allows for a more adequate sharing of limited resources within both the home and the community at large.

In a number of countries,

[15] UNICEF, *The State of the World's Children 1989* (Oxford, Oxford University Press, 1989).

family planning programmes face resistance in social acceptability on religious, cultural and traditional grounds. Among the poor, reducing the number of children is also regarded as unacceptable within a longer life cycle strategy where children are an insurance and support network for the elderly. Reducing the number of children increases the risk of outliving one's offsprings risking the loss of an important source and thereby of old age support. These concerns are also a major factor in the desire for male offsprings.

For a number of nations in the region the bulk of the population uses contraceptives and has ready access to family planning services. Use of contraceptives is extensive among the NIEs, China, Sri Lanka and Thailand. However, in Pakistan, where population growth rates exceed 3.2 per cent, less than 10 per cent of couples were reported to be using contraceptives.[16] Similarly in Bangladesh and Nepal contraceptive use was low. Tying family planning programmes to primary-level infant and maternal health services as well as to income and employment generating schemes for women within the South Asian countries may well lead to a more efficient and effective delivery of family planning services.

(b) Educational infrastructure

In addition to the functional roles, as perceived in the neo-classical human capital approach, education raises the capacity of the people to participate in cultural, social and political activities by empowering them with both the necessary skills of reading and writing and the sense of self worth. The pursuit of knowledge *per se* is thus often considered as a basic human right which is necessary for the enrichment of life and for increased public participation in social activities. Although it has been noted that education can be both a liberator from and an enforcer of forms of discrimination and systems of social control, lack of education clearly weakens an individual's bargaining power.[17] Furthermore, literacy and numeracy skills are widely recognized as being critical to the functioning of public awareness programmes in health care, sanitation, family planning, and the environment.[18]

(i) Financial allocations to education

Table II.15 details the share of government expenditure allocated to the education sector since the early 1970s. With the exception of some of the smaller island States, the share of total government funds allocated to the education sector tended to be the highest among the NIEs and ASEAN economies, in the range of 15 to 20 per cent of total government expenditure. The least developed countries maintained around 10 per cent of their total government funding to education. The low share of central government funding to the education sector in India and Pakistan, must be qualified by the fact that education was largely covered by provincial or state levels of government whose expenditure is not included in the figures provided.

If one compares trends in financial allocations by governments to education over the past two decades there appears on the whole to be very little indication of substantive shifts. In most cases the shares of government funds presently flowing to the education sector are similar to the shares allocated to that sector in the early 1970s. This raises serious questions about the commitment of many countries, especially low income economies, to achieve the internationally accepted target of reducing illiteracy by 50 per cent by the year 2000 and bringing about full coverage of primary schooling.

The significant exceptions to this pattern are China and the Islamic Republic of Iran which have systematically raised their allocations to the education sector to well above 10 per cent of total government funding. In contrast relative funding levels fell systematically in Sri Lanka and Viet Nam. In the case of Sri Lanka the shift in economic strategies away from the social sectors during the 1980s is largely the reason for the fall. In addition in terms of minimal educational standards, Sri Lanka had reached almost universal levels of literacy during the early 1980s. Viet Nam, however, appears to have been severely constrained in its funding to the educational sector owing to recent pressures of structural adjustment and curtailment of state expenditure as a whole.

(ii) Issues in educational policy

The regional patterns are reinforced by the data on enrolment rates across levels of education (see figure II.6). As of 1987 only India, Pakistan, the least developed countries (barring the Lao People's Democratic Republic) and Thailand had less than universal primary enrolment, although in the case of India and Thailand the enrolment

16 UNICEF, *The State of the World's Children 1990* (Oxford, Oxford University Press, 1990).

17 S. Bowles, "Capitalist development and educational structure", *World Development*, vol. 6, No. 6 (1978).

18 For a detailed discussion of the role of education, especially primary education, in alleviating poverty and promoting social development in the region, see this *Survey*, part one, chap. V.

ratios were 95 per cent or above. Consequently, the provision of a full coverage of primary schooling is largely a problem unique to Pakistan and the least developed countries. There was somewhat greater diversity in secondary and tertiary level enrolment ratios. Hong Kong, the Philippines and the Republic of Korea had secondary and tertiary level enrolment rates that were largely comparable with the developed economies. Among the least developed countries and the low-income economies secondary enrolment ratios were generally low (with the exception of Sri Lanka), while tertiary level enrolment was uniformly very low.

The allocation of funds between different levels and kinds of education does not often meet the critiria of either efficiency or equity. In a number of countries the state subsidizes the provision of secondary and especially tertiary levels of education which often remain the preserve of the urban elites, while primary education remains neglected in spite of having the highest levels of enrolment. Primary education accounted for less than 50 per cent of total state expenditure on education by economies in the ESCAP region.[19] University and medical schools, although technically open to all, are usually attended by those who have been able to achieve higher standards of primary and secondary education often acquired through better quality private institutions.

Since education is funded from the generally regressive tax system and post-primary education is skewed towards students from middle- and high-income families, there is a redistributive effect towards favouring the affluent.[20] A World Bank study on the share of public resources for education appropriated by different socio-economic groupings, shows that urban manual and white collar workers receive a disproportionately large share in public school

Table II.15. Selected economies in the ESCAP region. Percentage share of government expenditure on education in total expenditure

(Percentage)

	Average 1970-1974	*Average 1975-1979*	*Average 1980-1984*	*Average 1985-1988*
Developed economies				
Australia	4.4	8.7	7.8	7.1[a]
New Zealand	15.3	13.4	12.0	11.2[a]
NIEs				
Hong Kong	18.9	17.5	14.7	17.7
Republic of Korea	16.0[b]	13.8	16.0	17.1
Singapore	12.5[c]	13.7	14.7	15.2[a]
Taiwan Province of China	7.5[c]	4.4	4.5	5.6
China	...	7.1	14.5	12.5
ASEAN				
Indonesia	4.5[c]	8.3	8.1	9.4
Malaysia	20.6[c]	19.2	15.3[d]	19.2
Philippines	14.2[c]	12.5	13.5	14.6[a]
Thailand	19.7[c]	20.7	19.4	19.0
Viet Nam	...	17.7[e]	...	8.1[f]
South Asia and the Islamic Republic of Iran				
India	1.8[g]	1.7	1.4	1.8
Iran, Islamic Republic of	9.6	10.7	16.3	18.5[h]
Pakistan	1.1[i]	1.7	2.2	2.4[e]
Sri Lanka	13.2[j]	9.3	7.6	8.1[a]
Least developed economies				
Bangladesh	10.9[h]	8.8	7.0	10.8
Maldives		6.3[k]	7.0	9.9
Myanmar	14.8[i]	11.6	11.4	12.8[a]
Nepal	8.4[a]	11.0	10.1	11.6
Samoa	...	...	13.2[l]	...
Vanuatu	...	...	23.2[m]	24.6[e]
Pacific island economies				
Fiji	19.0	22.3	20.4	21.5
Papua New Guinea	...	16.9	16.0	16.1[a]
Solomon Islands	...	13.5	15.1	12.9[n]
Tonga	...	...	...	15.1[o]

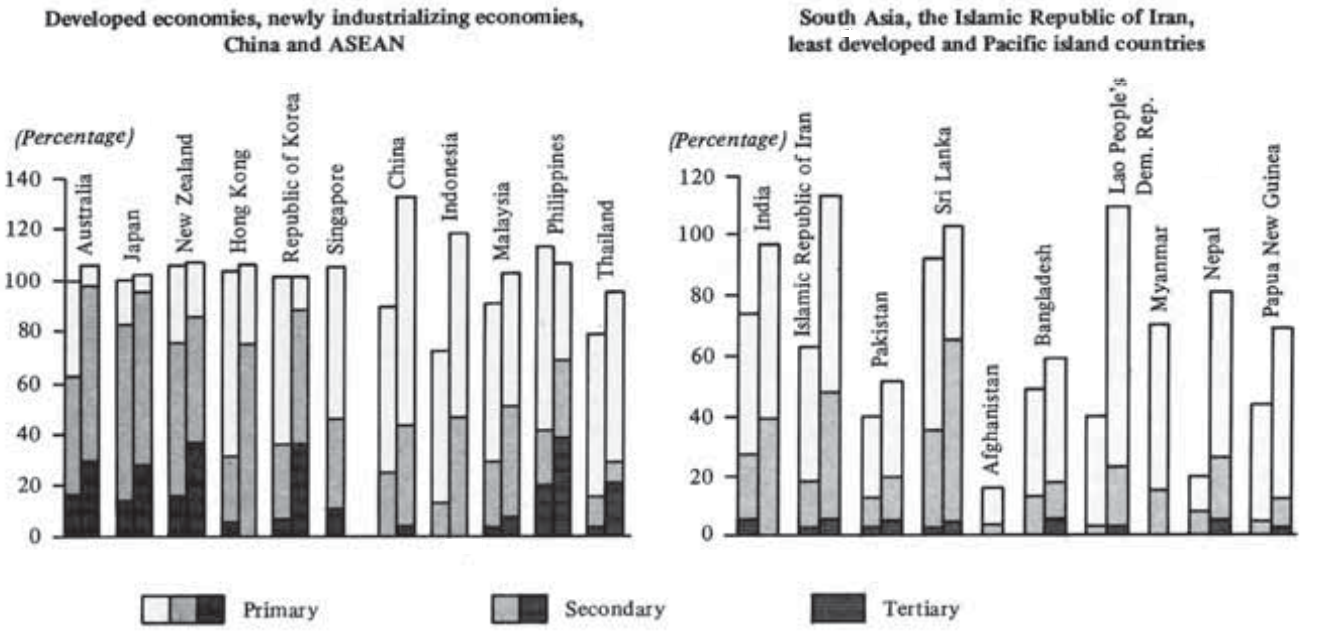
Sources: International Monetary Fund, *International Financial Statistics*, various issues; Asian Development Bank, *Key Indicators of Developing Member Countries of ADB*, various issues, and, *Key Indicators of Developing Asian and Pacific Countries*, July 1990; and national sources.

[a] Average 1985-1987. [b] Average 1971-1974. [c] Average 1972-1974. [d] Average 1980-1981. [e] 1978 only. [f] 1988 only. [g] 1974 only. [h] Average 1985-1986. [i] Average 1973-1975. [j] Average 1970-1971 and 1973-1974. [k] 1979 only. [l] 1984 only. [m] Average 1981-1984. [n] Average 1985 and 1987-1988. [o] Average 1986-1988.

[19] UNDP, *Human Development Report 1990.*

[20] World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990), argues strongly for a reorganization, and partial privatization of the education sector based on ability- and willingness-to-pay arguments and justified by the *de facto* regressive nature of its financing; M. Todaro, *Economic Development in the Third World*, 4th edition (New York, Longman, 1989), p. 341, argues along similar lines. Also see UNDP, *Human Development Report*, p. 72.

Figure II.6. Selected economies in the ESCAP region. Percentage of age group enroled in education, 1965 and 1987



Source: World Bank, *World Development Report 1990.*
Note: These are gross enrolment ratio and can therefore exceed 100 per cent.

resources. According to the study, Asian farmers received only 34 per cent of all public school resources although they made up 58 per cent of the population, while white collar workers comprising 10 per cent of the population had access to 28 per cent of the education resources.[21]

The higher expenditure in secondary and tertiary education is partly owing to the nature of the subject matter to be imparted: advanced training, for example, in foreign languages and the natural sciences in particular, requires better qualified teachers, expensive laboratory equipment and library facilities. These are necessary in creating an independent and indigenous capacity for reseach and development, and thus in improving the retention of well-educated human resources within the developing countries.

Caution, therefore, needs to be exercised in diverting finance from the secondary and tertiary to the primary sector, as currently proposed in many national and international education strategies.[22] Given the lumpiness of basic investment into secondary and tertiary school facilities, in the long term, a more balanced option may well be to improve the effectiveness and capacity utilization of such educational investment and to enhance institutional linkages between the secondary and higher school sectors and research facilities.

Where the government is involved in the provision of secondary and tertiary education there is usually little attention paid to the type of training being provided and in some cases to the quality. In certain countries there is substantive excess demand for tertiary level education which forces students to seek admission abroad. In Malaysia, an estimated 150,000 students are studying abroad because of a lack of university places in their home country.[23]

The high levels of graduate

[21] E. Jimenez, "The public subsidization of education and health in developing countries: a review of equity and efficiency", *World Bank Research Observer,* vol. 1, No. 1 (January 1986). The categories of "farmer", "manual labourer" and "white collar worker" would of course need some qualification in the context of developing Asian societies.

[22] *Meeting Basic Learning Needs: a Vision for the 1990s,* Inter-Agency Commission for World Conference on Education for All, (New York, April 1990), p. 80.

[23] L.T. Ghee, "Policies and priorities in human resources development for Asia and the Pacific", in United Nations, *Human Resources Development in Asia and the Pacific: Its Social Dimension,* 1986 (ST/ESCAP/472), p. 39.

unemployment observed, particularly in the South Asian countries, over recent years, has begun to make educationists increasingly aware of the need to evaluate the requirements of the labour markets into which their graduates are to enter. A concomitant outcome of this is the social discontent among the educated unemployed who are unable to obtain work commensurate with their skills. This has raised valid questions concerning the quality and type of education being offered, especially in light of the generally accepted fall in educational standards in many South Asian universities. There is also concern that higher levels of education do not necessarily lead to improved levels of productivity but are desired on grounds of "credentialism" as a prerequisite for professional employment.[24]

There is growing awareness that an emphasis upon technical and vocational training should replace the present more generalist approach to higher education. Only the Republic of Korea and Thailand had more than 15 per cent of those enroled in secondary education actually in technical or vocational institutes.[25] In particular, cognitive skills acquired through on-the-job training are largely felt to lead to more productive returns to skill investment than formal systems of vocational schooling. Social attitudes to technical training are often not supportive because of a perceived lack of prestige compared with formal university education. While this serves as a barrier to the acquisition of vocational schooling in certain societies, the Singapore experience of providing incentives to both workers and employees to develop skills through on-the-job training and via formal courses appears to have been successful in raising skills.[26]

(c) Infrastructure for the provision of basic amenities of life: sanitation, water supply and housing

Sanitation, waste disposal, water supply and housing, while distinct services in themselves, are often treated as a single group under the umbrella of human settlements. These are largely urban infrastructure problems (although safe water supply is as much a rural as well as an urban concern) which have become extremely acute with the rapid pace of urbanization experienced over the past three decades.

In a number of economies in the ESCAP region the ratio of population growth in urban areas has exceeded an annual 4 per cent between 1960 and 1988 (in Bangladesh 6.2 per cent, in the Islamic Republic of Iran 5.2 per cent and in the Republic of Korea 5.3 per cent).[27] According to the latest United Nations projections Asia's urban population is projected to rise to 1.3 billion by the year 2000 and double to 2.6 billion by 2025.[28] According to the United Nations Centre for Human Settlements (UNCHS), the ESCAP region had 8 of the world's 25 largest urban agglomerations in 1960, 11 in 1980 and by the year 2000 it will have 15 of the world's 25 largest megacities.[29]

Rural migrants during the 1960s and 1970s tended to concentrate in the leading primate and capital cities of their country. Consequently, population growth rates for such centres exceeded the national urban average. The population of Dhaka, for example, grew at a phenomenal 10.9 per cent a year during the 1970s.[30] Between 1966 and 1970 the population of Seoul expanded at 9.4 per cent annually.[31] Since 1980, however, there is evidence of a decline in the flow of migrants to the primate cities and an increasing drift towards secondary and intermediate urban centres, especially in Pakistan and the Republic of Korea.[32] This trend is a possible result of growing awareness among would-be migrants of the rising costs of shelter, transport and job search in the largest cities. In a number of countries in the region, however, the urban population continues to be concentrated within the major metropolis. Thailand is a prime example where 61.5 per cent of the national urban population lives within the confines of the Bangkok metropolis.

The rapid urban population growth and the extreme levels of overcrowding in major Asian cities have brought an unbearable

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24 L. Corner, "Human resource development for developing countries: a survey of the major theoretical issues", in United Nations, *Human Resources Development in Asia and the Pacific: Its Social Dimension*, 1986.

25 UNDP, *Human Development Report 1990.*

26 L.T. Ghee, *op. cit.*, p. 39.

27 UNDP, *human Development Report 1990*, pp. 160-161.

28 United Nations, *Prospects of World Urbanization, 1988* (United Nations publication, Sales No. 3.89.XIII. 8).

29 United Nations Centre for Human Settlements, *Global Report on Human Settlements* (New York, Oxford University Press, 1987), p. 28.

30 ESCAP, "Overview on physical and institutional situations of cities in the ESCAP region", Report of the Second Congress of Local Authorities for Development of Human Settlements in Asia and the Pacific, Nagoya, Japan, 21-27 July 1987.

31 ESCAP, "Trends in migration and urbanization in selected ESCAP countries", *Asian Population Studies Series*, No. 89, 1988, p. 8.

32 *Ibid.*

burden on urban management. Calcutta, the world's most over-populated city, already has nearly 90,000 persons per square kilometre, Manila has over 45,000 persons per square kilometre and Dhaka nearly 10,000.[33] It is evident that these megacities, which lack adequate administrative capacities, are experiencing a severe shortage of resources for providing shelter and basic services to their existing inhabitants.

Within most of the high density cities in the developing countries of the region a large proportion of the urban population is unable to obtain affordable housing in formal developed localities which have an installed network of sanitation and water supply. As a result, large sections of the population either illegally occupy vacant and undeveloped land as squatter settlements, or seek low income housing within inner city tenements, or live on the pavements without constructed shelter. According to estimates by UNCHS, there were 3.5 million such slum dwellers in Bombay in 1985 of whom 100,000 lived on the streets (Calcutta, for instance, had 600,000 street pavement dwellers). It was projected that at current rates of growth three quarters of Bombay's residents would be living in slums by the year 2000.[34] The picture appeared to be similar in a number of other leading urban centres in the Asian region, particularly cities in South Asia and the ASEAN countries (see table II.16).

In addition to lacking access to basic amenities the standard of housing stock within the slums was generally extremely poor, with construction material ranging from cardboard, plastics, corrugated metal, wooden planks and asbestos sheets. These provide little protection against the elements and are destroyed by heavy rains and flood conditions.

There have been some efforts in the region at providing low-cost housing for the poor who currently live in informal settlements. Such attempts appear to have been far more successful in cities that were well-endowed financially. Between 1964 and 1976, Hong Kong provided public housing for 137,000 former squatters. In addition, a further 46,000 persons were moved from squatter settlements in 1980 and given permanent and temporary housing. Despite these efforts the squatter population in Hong Kong, consisting mainly of illegal migrants from China, was higher in 1986 than the number of squatters 10 years earlier.[35] In Singapore, the Housing Development Board began a programme of constructing public housing in 1960. It is currently estimated that as much as 87 per cent of Singapore's population is housed in units built by the Housing Development Board.[36]

Attempts to shift squatter communities in Bangkok in the mid-1980s to make way for urban development schemes generally failed in the face of strong community pressure from slum residents. As a result, eviction was avoided and, land-sharing arrangements were reached by the Klong Toey area slum residents with the Port Authority.[37] The community action also resulted in the greater involvement of the community in addressing local sanitation needs.

In Jakarta the municipal authorities introduced a *kampung* (or neighbourhood) improvement programme in the late 1960s. To date it is estimated that up to 500 *kampungs* housing 3.8 million people were able to upgrade physical infrastructure, particularly roads, drainage and water supply networks.[38]

The Karachi Development Authority in Pakistan tried to provide low-income housing for the poor through the Metroville schemes. These and subsequent low-income housing projects failed to reach their target population. The schemes were plagued by land speculation by government officials and real estate developers.[39] In addition such schemes tended to provide a level of infrastructural service which effectively priced them beyond the reach of the poor.

Slum and squatter informal localities, which house the poorest

Table II.16. Selected cities in the ESCAP region. Share of urban population housed in informal settlements, 1982

	(Percentage)
Bangkok	28
Bombay	34
Colombo	54
Dhaka	32
Jakarta	25
Karachi	36
Kuala Lumpur	28
Manila	28
Port Moresby	15
Seoul	25
Shanghai	22
Singapore	12
Suva	9

Source: ESCAP, *Human Settlements Atlas for Asia and the Pacific*, 1986.

33 UNDP, *Human Development Report 1990*, pp. 160-161.

34 United Nations Centre for Human Settlements, *Global Report on Human Settlements*, p. 80.

35 *Ibid.*, p. 81.

36 L. Chong-Yah and T. Boon-Nga, "Shelter for the poor: housing policy in Singapore", *Asian Development Review*, vol. 8, No. 1, 1990, p. 99.

37 UNDP, *Human Development Report 1990*, p. 93.

38 *Ibid.*

39 A.H. Aliani and Y.K. Sheng, "The incremental development scheme in Hyderabad", *Cities*, vol. 7, No. 2, May 1990.

of the urban poor have been marked by appalling conditions of housing, sanitation and water supply. In a survey of 4,000 households located across nine slum localities in Bombay, none had private toilet facilities and a quarter did not even have access to community toilets, with residents being forced to use open public spaces within the slum.[40]

In recognition of the importance of sanitation and water supply to urban human settlements and with regard to the larger issues of poverty and health, the 1980s was marked by the United Nations as the International Drinking Water Supply and Sanitation Decade (see box II.6).

Table II.12 above, has already detailed the share of the population within the ESCAP region which has access to safe water and sanitation facilities. It is apparent that on both counts it is the least developed and the South Asian countries that fare poorly, while the NIEs have almost universal coverage. Among the ASEAN countries, while Malaysia appears to have a better level of infrastructure in this regard, none of them can be said to have brought about universal provision of safe water or sanitation services.

The acute shortages in water supplies are likely to be aggravated as allocations to water supply and sanitation programmes by third world governments are unlikely to rise during the 1990s, as suggested by studies made by the World Bank.[41] This implies a greater need for external support for such programmes in a number of countries, together with moves to develop sustainable low cost community-based systems of sanitation, improve efficiency of existing systems and look towards non-formal systems of supply of such services.

Community-based neighbourhood groups, non-governmental organizations, and the informal sector are widely seen as part of an integrated solution to the

Box II.6. The International Drinking Water

The proclamation by the United Nations General Assembly in November 1980 of the International Drinking Water Supply and Sanitation Decade served to underline the urgency of fulfilling the need for adequate access to a safe water supply and sanitation services as these were beyond the reach of the majority of human beings.[a] Apart from satisfying a very basic need, access to the relevant infrastructure facilities also provides several other benefits.

The lack of such facilities is now recognized as causing tremendous economic and social costs in terms of human mortality and a higher frequency of debilitating diseases, particularly among infants and the poor. The quality of drinking water in many countries is often unsafe for human consumption. There is considerable medical evidence to indicate that improved water supply and sanitation lowers significantly the incidence of diarrhoeal morbidity and other water-borne diseases, thereby adding an estimated 10 years to the low life expectancy in the third world.

Together with the substantive direct health costs associated with an inadequate and impure water supply, the collection and transportation of drinking water by households lacking home water connections is a time consuming task that invariably falls upon women. Up to five hours a day are wasted in queuing, collecting and carrying drinking water from urban public stand-pipes and rural water sources.

Viewed from the perspectives of social and economic costs, investment in water supply and sanitation infrastructure appears highly cost-effective. It is estimated that such investment by the developing countries rose from $US 6 billion to $US 8 billion annually between the early and late 1980s. Approximately two thirds of this amount came from national sources, except in the least developed countries where the locally generated proportion was about a quarter. There was also a sizeable increase in external support with external funds being channelled to the water and sanitation sector, the amount rising by almost two thirds in the developing ESCAP region between 1982 and 1986.[b]

In spite of intensified domestic and international efforts, global and regional progress in the improved provision of water and sanitation facilities and services has been uneven (see figure). In the course of the decade there was a marked increase, from 28 to 67 per cent, in the proportion of rural residents in the developing economies having access to safe water supplies (having in-house piped water or a public stand pump not more than 200 metres from their home). Improvements during the 1980s in the coverage of sanitation facilities was much more modest, from 42 to 54 per cent of the rural population of the region being covered by sanitation facilities (consisting of either public sewers, household-based waste disposal systems such as pit latrines, septic tanks or communal toilets). There was only a marginal positive change in the proportion of the urban population in the developing ESCAP region with access to safe water, 73 to 77 per cent, and sanitation services remained constant at 65 per cent during the course of the Decade. In absolute terms, the number of urban dwellers in the region without safe water supplies has increased considerably to over 175 million from 148 million during the 1980s, the corresponding figures for sanitation infrastructure being 266 million and 192 million respectively. One of the main reasons for this deterioration is the fast pace of urbanization and urban agglomeration, averaging over 3 per cent annually in the last two decades.

[a] United Nations, *Achievements of the International Drinking Water Supply and Sanitation Decade 1981-1990*, Report of the Secretary-General (A/45/327), p. 3.

[b] *Ibid.*, p. 13.

[40] United Nations Centre for Human Settlements, *Global Report on Human Settlements*, p. 81.

[41] World Bank, *FY88 Annual Sector Review: Water Supply and Sanitation* (Washington, November 1988).

problems of low-cost housing, sanitation, water supply and waste disposal in large urban areas, particularly slums.

The informal sector is acknowledged as having an important role to play in the recycling and disposal of aspects of urban waste. According to recent estimates, cities in low-income countries such as Karachi and Calcutta generate about 0.4 to 0.7 kg of solid waste per capita per day. Middle income cities like Bangkok and Manila generate about 0.5 to 1.0 kg per

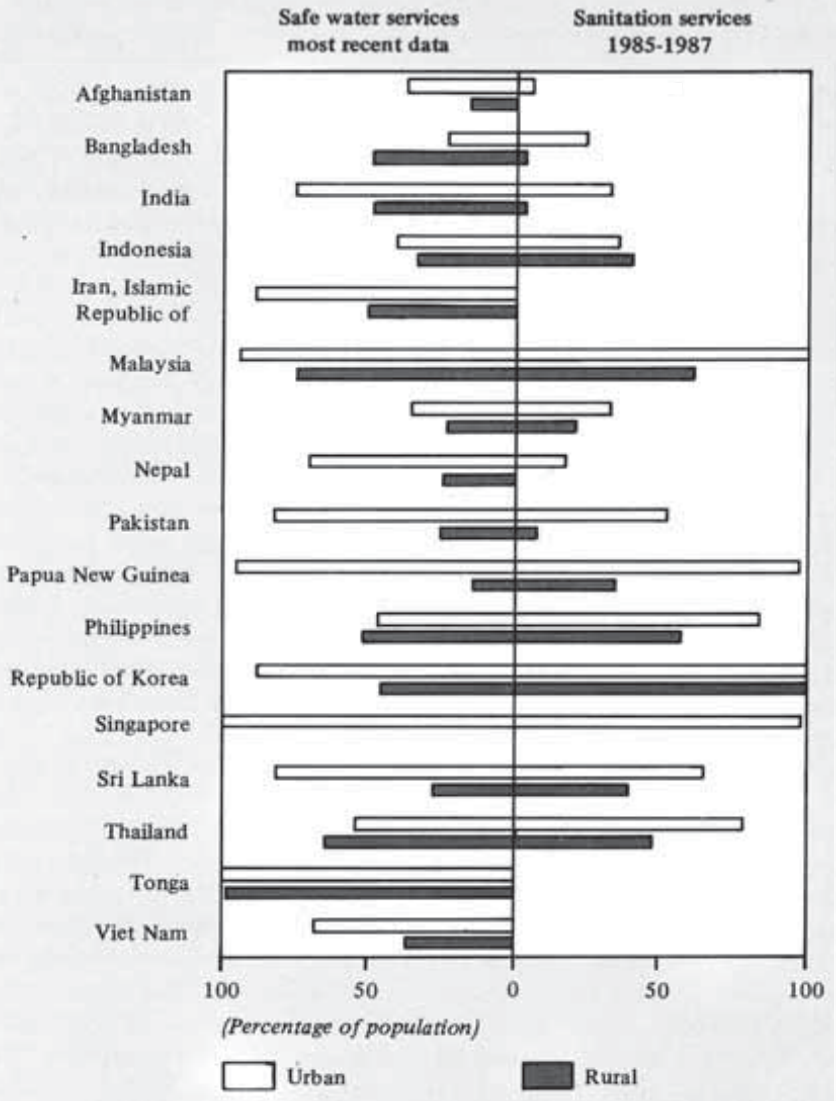
Supply and Sanitation Decade, 1981-1990

Thus the goals envisaged by the Decade for the rural areas in the Asian and Pacific region have been exceeded although those set for the urban areas have not yet been reached. Within the region there is, however, wide divergence. Many countries, or subnational regions, had over half of the population lacking access to both safe drinking water and sanitation facilities (see figure). The proportion of the population deprived of such necessary infrastructural services tended to be much higher in the least developed countries and in relatively "backward" areas.

The possibilities of developing public water supply programmes for rural localities are largely determined by the sources of water and the consequent technologies necessary to extract it as well as levels of population density. Deep bore wells to extract relatively deep underground aquifers are capital intensive with high levels of fixed and operating costs which are highly energy intensive. In small settlements low-level communal hand pumps may suffice if the ground water is not too deep. In urban areas rapid population growth has added to the urgency to exploit new water sources in a number of countries. Insufficient water supplies led to the introduction of metering of consumption. However, the measures are inadequate to solve the problem and often give rise to agitation by deprived sections of the population. Karachi, which faces a daily shortage of water has seen, for example, water riots by communities which have not obtained water supplies for extended periods. Such social conflicts in water availability and distribution are likely to occur in a number of other urban centres in the region.

With the fast pace of urbanization and the acute constraints on finance and skilled human resources within the public sector, any significant extension in the water and sanitation infrastructure to bridge the service gap will be a daunting task in the coming decade. Many urban water and sanitation agencies do not generate sufficient internal surpluses to cover their investment needs. Higher investment costs in rural areas render most rural systems unable to cover operational and maintenance requirements.[c]

Access to safe water and sanitation services by urban and rural population



Sources: World Bank, *Social Indicators of Development 1989* (Baltimore, the John Hopkins University Press, 1989); and United Nations Development Programme, *Human Development Report 1990* (New York, Oxford University Press, 1990).

[c] W.C. Baum and S.M. Tolbert, *Investing in Development – Lessons of World Bank Experience* (New York, Oxford University Press, 1985), pp. 307-308.

capita.[42] While much of this waste is of a dangerous nature and needs to be treated in sewage and chemical treatment plants before it can be safely handled, a large part of the compostable and combustible waste generated in cities is collected and recycled by the informal sector. Extremely poor scavengers from squatter settlements collect the waste from municipal waste dump sites and sell it to metal, paper and plastics recycling units. In Karachi this activity is undertaken primarily by the private informal sector and it sustains a large segment of the poor. In Shanghai, however, the city's Environmental Sanitation Administration employs 29,000 persons in collecting and recycling up to 2,500 tons of organic waste daily.[43]

B. ISSUES OF DISTRIBUTION AND ACCESS TO SOCIAL INFRASTRUCTURE

This section discusses questions concerning the distribution of and access to social infrastructure. Social infrastructural services are generally found to be unevenly distributed within developing societies. While the objective of providing social infrastructure facilities is partly to reduce income inequalities, access to their use is often highly biased in favour of the privileged. Access is largely determined on the basis of income, gender, ethnicity, caste, age, region and other related factors.

In most developing countries, three interconnected sets of parameters appear to have had the greatest impact in determining access to social services. The first relates to location. There is a substantial indication that the rural population, which forms the majority of citizens in most developing countries, tends to be discriminated against, the wealthier and politically more powerful urban inhabitants being the main beneficiaries of infrastructural facilities in education, health and other social sectors.

Along with the urban-rural disparities, there is extensive intracountry unevenness in terms of coverage of social infrastructure. For example, primate urban centres and capital cities are better endowed with respect to social infrastructure than secondary cities within the country. Conversely, economically backward areas, with low levels of income, natural resource base and population density, and which are poor or generally lacking in political influence, receive low priority in infrastructure development, especially in the social field.

The second important factor is gender. In developing countries women, particularly those who are poor, are less well covered by, or in a position to gain access to social infrastructure services than men. Social biases against women are strengthened by strong patriarchal attitudes and religious/cultural values often codified in law. These serve to oppress and restrict women in terms of economic access to work, material benefits and social services, and to subordinate their needs to those of men. Gender bias is also observed as being the major factor behind inequitable allocation of scarce resources within the family.

Finally, a large proportion of the rapidly expanding urban population consists of poor or low-income slum dwellers. This segment of the urban community has little access to many aspects of social infrastructure, especially urban services such as water supply and sanitation.

1. Urban versus rural

The notion of an urban bias in service provisions, particularly in relation to the social sectors has gained wide recognition.[44] The concentration of economic planning and decision-making in the hands of those who originate from urban surroundings, the pre-eminence of Western and thereby solely urban models of development strategies, a growing fixation in developing societies with the trappings of urban culture, and the underlying social and cultural attitude that the rural community is in some ways "backward" and acquiescent, or even content in abject poverty, are among the many factors that have tended to reinforce the continuing neglect of rural areas. With the exception of the NIEs and the Islamic Republic of Iran, the rural dwellers in the developing ESCAP region as shown in table II.17 accounted for almost 60 per cent of the total population (and in the least developed countries for as much as 80 per cent or more). With such magnitudes, overt biases in service provisions against rural areas have severe and adverse implications for the vast majority of those who live in the region.

The prevailing notion of urban bias is often oversimplified and needs to be qualified in several respects, especially regarding the lack of homogeneity of the rural population and the highly stratified nature and conflicting interests of rural society. Despite these qualifications, it would be too facile not to take into account the extremely limited access to social infrastructure enjoyed by the rural

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[42] ESCAP, *State of the Environment in Asia and the Pacific 1990* (ST/ESCAP/917).

[43] United Nations Centre for Human Settlements, *Global Report on Human Settlements;* and UNDP, *Human Development Report 1990.*

[44] M. Lipton, *Why Poor People Stay Poor* (London, Temple Smith, 1974).

population in most economies in the ESCAP region. This is clearly shown in table II.17. Access to health, water and sanitation services were fairly uniformly distributed in favour of the urban areas across the developing ESCAP region.

The extent of disparity between urban and rural regions is more marked for the least developed countries and South Asian economies than for the NIEs and the ASEAN countries (see figure II.7), although even the NIEs do not provide equal access to rural areas for certain basic services. For example, only 48 per cent of the rural population in the Republic of Korea had access to safe drinking water compared with 90 per cent of urban residents. Similarly, in Malaysia and Thailand only 60 and 46 per cent of rural dwellers respectively had sanitation facilities within their homes or communal toilets nearby compared with almost universal coverage for urban residents.

Interestingly, in the case of certain social infrastructure facilities, rural localities in the ASEAN countries had better access. In Thailand, for example, a far larger proportion of rural inhabitants (66 per cent) as opposed to urbanites (56 per cent) had safe drinking water. A similar although less pronounced pattern of access to safe drinking water was seen in the Philippines. This may well reflect the poor availability of drinking water in urban slums,

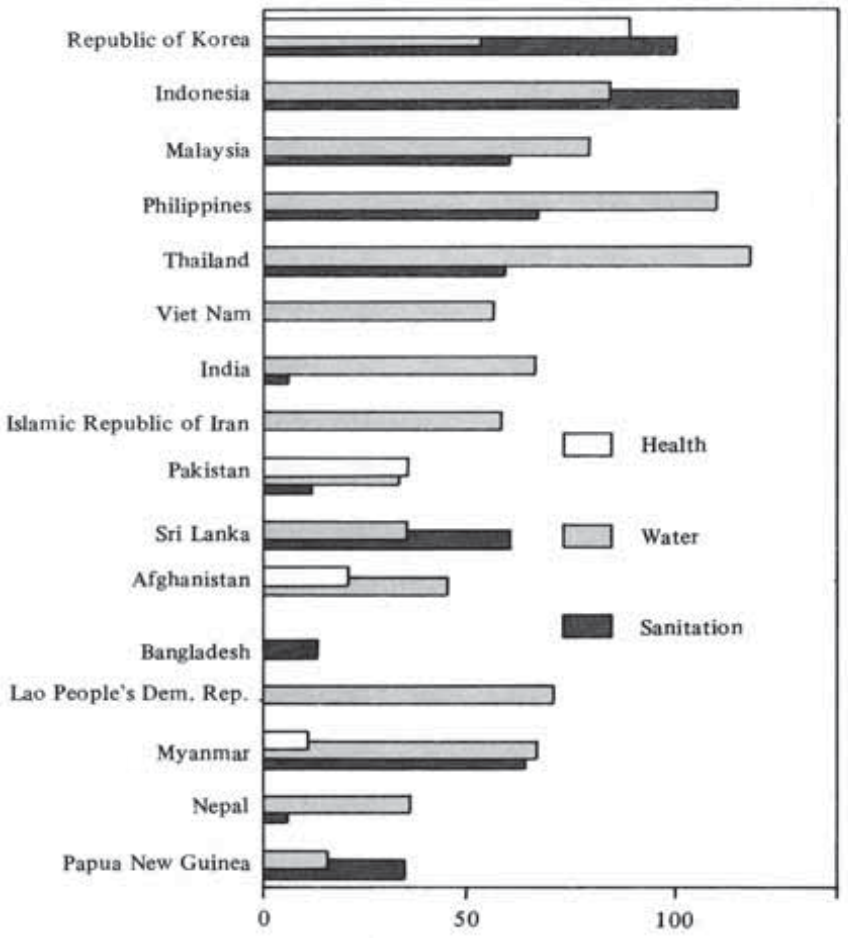
Table II.17. Selected economies in the ESCAP region. Access to social infrastructure by rural and urban locations

	Rural population (percentage) 1988	*Percentage of population with access to*					
		Health services		*Safe water*		*Sanitation*	
		1985-1987		*1985-1987*		*1985-1987*	
		Rural	*Urban*	*Rural*	*Urban*	*Rural*	*Urban*
Developed economies							
Australia	15	...	...	...	...	...	...
Japan	23	...	...	...	...	...	...
New Zealand	16	...	...	...	...	...	...
NIEs[a]							
Hong Kong	7	...	...	...	...	...	...
Republic of Korea	31	86	97	48	90	100	100
Singapore	...	...	100	...	100	...	99
China	79	...	...	...	85	...	...
ASEAN							
Indonesia	73	...	...	36	43	38	33
Malaysia	59	...	...	76	96	60	100
Philippines	59	...	...	54	49	56	83
Thailand	78	...	...	66	56	46	78
Viet Nam	79	75	100	39	70	...	...
South Asia and the Islamic Republic of Iran							
India	73	...	...	50	76	2	31
Iran, Islamic Republic of	46	60	95	55	95	...	...
Pakistan	69	35	99	27	83	6	51
Sri Lanka	79	...	...	29	82	39	65
Least developed countries							
Afghanistan	79	17	80	17	38	...	5
Bangladesh	87	...	...	...	24	3	24
Bhutan	95	...	...	19	...	...	...
Lao People's Democratic Republic	82	...	...	20	28	...	...
Myanmar	76	11	100	24	36	21	33
Nepal	91	...	...	25	70	1	17
Pacific island country							
Papua New Guinea	85	...	...	15	95	35	99

Source: United Nations Development Programme, *Human Development Report 1990* (New York, Oxford University Press, 1990).

[a] Newly industrializing economies.

Figure II.7. Selected developing economies in the ESCAP region. Rural and urban disparity in access to basic social services, 1985-1987



Source: United Nations Development Programme, *Human Development Report 1990.*

Note: 100 = parity; less than 100 = disparity in favour of urban sector; greater than 100 = disparity in favour of the rural sector.

particularly in the primate cities of Bangkok and Manila. As mentioned earlier, not only do both cities dominate the national urban population but 28 per cent of the citizens of both cities were housed in informal slum settlements with little availability of water and sanitation services. Many rural inhabitants acquired water from ground-water sources through boreholes and tubewells. Ground-water supplies in urban areas were both limited and of poor quality owing to seepage from inadequate forms of urban sanitation and waste disposal, thereby restricting urban dwellers to piped water from primarily surface sources.

Among the least developed countries the urban-rural differences are much sharper. For example, whereas 80 per cent of the urban population in Afghanistan was covered by health services, only 17 per cent of its rural inhabitants had health facilities that were easily accessible in terms of distance. In Nepal, a country where 91 per cent of the population were rural inhabitants, only a quarter of the rural population had safe drinking water. In Pakistan, while 83 per cent of the urban population had safe drinking water, only 27 per cent of the rural population had safe drinking water. In much of South Asia the fetching of water in rural society was the primary responsibility of women, often involving a walk of a number of kilometres to the nearest water source.

Rural coverage of sanitation facilities was particularly poor in Bangladesh, India, Myanmar and Pakistan where hygienic forms of human excreta disposal was only available to less than 10 per cent of the rural population. In contrast, in-house sanitation or communal toilet facilities were universally available to rural dwellers in the Republic of Korea and to close to half of those who resided in rural areas in the ASEAN countries.[45]

Countries which stood out with extremely wide urban-rural disparities in the coverage of health care were Afghanistan, Myanmar and Pakistan, although the pattern prevails in almost all low income countries. The pattern also reveals that whereas the urban areas had almost universal health coverage although not necessarily equal access, health facilities were physically much more widely dispersed for rural inhabitants. Many of those seeking medical aid in rural areas have to travel to nearby district towns.

[45] One should note, however, that with respect to sanitation, poor levels of access in urban areas is a far greater social health risk than an identical shortfall of sanitation facilities in rural localities. High population concentrations in urban centres, particularly low-income squatter settlements, make them ideal breeding grounds for infections and water-borne diseases which multiply under poor sanitary conditions. This is likely to lead to greater levels of mortality in such densely populated urban areas than in low-density rural settings.

Where rural populations are widespread it is difficult to construct costly health infrastructure in close proximity to all rural settlements. In addition, scale economies would dictate that such development would be inefficient and financially unsustainable. As an alternative, improving the transport and communications infrastructure in rural areas may have a more beneficial impact on improving health standards for rural communities.

With the increasing emphasis upon comparatively lower cost preventive health care strategies it may be preferable to develop, as has been done in a number of countries in the region (China, India and Pakistan for example), mobile forms of preventive health care delivery. This could be done for immunization programmes, and for a larger system of prenatal and infant medical check-ups. Such strategies could be integrated with existing extension services relating to agricultural activities, provided the ability of women to approach such programmes is not a serious constraint.

Rural health centres have been built as part of the health delivery systems in most countries in the region. These normally operate as referral hospitals with limited diagnostic facilities, sometimes with an operating theatre and between 10 to 25 beds. They tend to cover a large population – as much as a quarter million per centre – although the average appears to be around 25,000; and receive patients referred to them by smaller clinics or basic health units. Such centres are supposed to be capable of dealing with most levels of curative care and of referring more serious patients to better equipped urban hospitals.[46]

One widespread problem in the region has been the inability to motivate health practitioners, particularly young medical graduates, to move to rural areas and operate rural health centres. The experience on this count has been mixed. In Pakistan, despite the building of a large number of rural health units, they remain grossly understaffed. Doctors express reservations about working in rural settings, reflecting both their cultural alienation from the rural community and the inappropriateness of their professional training to deal with common ailments of the rural people.[47] The main hindrance, however, is that the earnings potential for medical personnel is far greater in urban areas. China on the other hand, has had far greater success in encouraging medical personnel to work in rural settings, with the so-called "barefoot doctors" having been a leading feature of China's grassroots rural health care programme (see box II.7).

2. Gender bias

Another aspect of concern is the gender gap in access to social infrastructure services. This arises largely from the demand side and is related to the general question of the status of women in the family and in society. For example, in many Asian societies, despite having an active role in the labour force (much of which remains unrecorded), women face discrimination at all stages in life. As young infants they are discriminated against in favour of male offspring in the provision of nutrition and access to health care.[48] This neglect of the girl child, even to the extent of committing female infanticide, is largely the reason behind relatively higher female as opposed to male infant mortality rates.

In this regard, a disquieting finding recently brought to light has been that the sex ratio of women to men, while greater than 1 in Europe and North America (where it averages 1.06), and South-East Asia (1.01), is well below 1 in South Asia and China. In Pakistan, for example, the sex ratio is 0.90. It is claimed that if India and China had the same sex ratio as Africa (1.02), these countries would have 30 and 38 million more women respectively than they do at present.[49] These "missing women" are a telling indicator of the pervasive character of discrimination faced by women in many Asian societies, which has its impact on their low share in the distribution of social infrastructure services as well.

The sexual division of labour in both agricultural and urban industrial and service activities has meant that as income earners women are usually restricted to labour-intensive tasks requiring limited skills.[50] Consequently, wage rates earned by women are well below those of men. Within the home, women, especially from low income backgrounds, have a lower level of nutritional intake than male household members.

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[46] World Bank, *World Development Report, 1980* (New York, Oxford University Press, 1980), p. 58.

[47] S.A. Zaidi, "Why medical students will not practice in rural areas: evidence from a survey", *Social Science and Medicine*, vol. 22, No. 5 (1986).

[48] M. Das Gupta, "Selective discrimination against female children in rural Punjab, India", *Population and Development Review*, vol. 13, No. 1 (1987).

[49] A.K. Sen, "Gender and cooperative conflicts", in I. Tinker, ed., *Persistent Inequalities: Women and World Development* (New York, Oxford University Press, 1990).

[50] E. Boserup, *Women's Role in Economic Development* (New York, St. Martin's Press, 1970); and H. Afshar, ed., *Women, Work and Ideology in the Third World* (London, Tavistock Press, 1985).

Intra-household studies on distribution of food have underlined the relatively weaker status of women, especially those who are pregnant or lactating, and female children.[51]

[51] W. Mahmud and S. Mahmud, "Age-sex aspects of the food and nutritional problems in rural Bangladesh", ILO-WEP Research Working Paper 10-6/WP74, 1985.

One often under-reported aspect of abject poverty and hunger is the frequency with which women are victims of physical abuse and violence by men in subsistence level households.[52]

[52] B. Hartmann and J. Boyce, *A Quiet Violence: View from a Bangladesh Village* (London, Zed Press, 1983).

Despite the increasing concern with the subject of women in development there is very little data on the degree to which women are discriminated against in the distribution of social services. There is no information available on the level of access women have to health services. However, there is some indication of differing

Box II.7. Medical and health care in rural China

For a country in which four fifths of the over one billion population lives in the countryside, China has given considerable attention to developing an extensive rural medical and health care infrastructure. Emphasis has also been placed on preventive care, with an extensive network of maternal and child health care units, while both modern and traditional forms of medicine have received support.

A decade earlier, the Chinese rural health care programme experimented with an innovative programme centred on a highly motivated cadre of "barefoot doctors", whose training as paramedics was essentially geared to meeting the medical needs of the rural population. Its main aim was to supplement the limited resources of the professional health care infrastructure with a more appropriate "soft" health technology. While the importance of the "barefoot doctors" programme has declined during recent years, the health system in China continues to retain a strong rural presence. Of the total of 3.8 million medical professionals in the country, one half served in the rural areas in 1989, a large proportion of whom were women.[a] There are thus about 2 medical workers per 1,000 rural dwellers. It is also estimated that 60 per cent of medical cases and 90 per cent of preventive health care are conducted by the rural doctors.

Training for these doctors, in both modern and traditional forms of medicine, is provided by almost 700 schools which had been set up by mid-1990.[b] The training programme was traditionally linked to the rural production brigades. The doctors were themselves nominated from the brigades for medical training thereby minimizing the possibility of cultural alienation between such doctors and their patients as well as instilling a sense of responsibility in the doctors to return to their brigades on completion of their training. Those given training under the barefoot doctors programme were, however, restricted from working in urban areas. Another aspect of the rural health programme was the mobilization of surplus labour during the slack farming seasons to work on preventive health and sanitation programmes, such as pest eradication measures.[c]

The Chinese have also had a long history in the use of medicinal herbs for the prevention and treatment of illnesses, as well as practicing acupuncture and moxibustion (treatment by burning a herbs on the skin) for anaesthetic and curative purposes. Traditional medicines play an important role in the preventive and health care infrastructure. There were an estimated 362,000 medical professionals who specialized in traditional medicine and almost 1,900 hospitals (with over 140,000 beds) and 400 clinics providing traditional treatment in 1988.[d] In addition there is a large pharmaceutical industry consisting of over 800 factories producing more than 2,000 kinds of traditional medicines in various forms.[e] Such forms of medication were found to be a cheaper system of health delivery for specific ailments than the modern curative treatment methods.

The services provided under the rural health care programme in China have had a significant impact on the improvement of the health of the country's population. Mortality rates for infants have fallen from about 200 per thousand four decades ago to less than 35 per thousand, while mortality rates for pregnant women during the same period have fallen from 15 per 10,000 to 5 per 10,000. These achievements contributed, in turn, to the long-term decline by more than one half in the overall mortality rate, from about 14 per thousand in 1953 to 6.6 in 1982.[f]

While rural health care facilities have played an important role, medical facilities in rural China still lag behind those available in major urban centres, although the situation is less serious than in other developing economies of the region. In a recent survey in Hunan province less than one half of the rural patients were treated in local township or village hospitals, while the rest were treated at city hospitals. It is also reported that per capita state subsidies for health were almost tenfold higher for urban dwellers than for rural citizens.[g]

The increasing financing burden of providing free health care, a consti-

[a] *China Daily*, Beijing, 21 June 1990, p. 3.

[b] *China Daily*, Beijing, 31 October 1990, p. 3.

[c] United Nations Development Programme, *Human Development Report 1990* (New York, Oxford University Press, 1990), p. 53.

[d] *Beijing Review*, Beijing, 18-24 July 1988, pp. 14-18.

[e] *Four Decades of Vigorous Progress 1949-1989*, Chinese edition (Beijing, State Statistical Bureau of China, July 1989), pp. 88-91; *China Daily*, Beijing, 19 May 1990, p. 5.

[f] *China Daily*, Beijing, 16 July 1990.

health standards between women and men both in terms of child mortality and life expectancy (see figure II.8). The data on female education standards in terms of literacy *vis-à-vis* that of males, and on differing levels of access to education in the form of primary and secondary school enrolment by gender also indicates a considerable degree of bias against women (see figure II.9).[53]

Female life expectancy exceeds male life expectancies. Similarly, under-five mortality rates are on the whole higher for male children than for female ones. These biological disparities are found to be true universally in high and middle income economies, as well as in many developing countries. The striking exceptions to this general pattern, however, are Bangladesh, Bhutan, Nepal and Pakistan, where female under-five mortality exceeds male under-five mortality levels. Furthermore, men in these four countries as well as in China and India on average tend to outlive women. While there is no indication of degree of access to health services or nutritional consumption by gender, these figures on health status strongly underscore the prevailing biases against women in South Asian societies regarding access to nutrition, health care and medical attention.

Biases against women are almost invariably conditioned by cultural factors, often enforced by women themselves for the sake of tradition. Education of women is therefore a critical aspect of raising women's self awareness and conciousness of their gender-based conditions. In addition, increasing female education is likely to result in forceful changes in male social attitudes to women reflected in classic male stereotypes of women as sex objects and workhorses.

The ratio of female-to-male enrolment at the primary and secondary levels as well as female literacy levels *vis-à-vis* males was at or near 1 (i.e., an equal distribution across genders) in the region's developed economies, the NIEs, ASEAN countries and Sri Lanka. In fact, women often had higher secondary enrolment rates (Hong Kong, Singapore and Sri Lanka stand out in particular).

It would appear, however, that where levels of female education are low the incidence of poverty is comparatively high. While there is insufficient data on poverty to support such a correlation, there is some evidence that in poor families women do suffer in terms of nutritional allocation, expenditure on medical aid or access to education. Even where education at the primary level is free, education-related expenses such as uniforms, books, transport and school meals can be prohibitive. In such cases, low-income families are likely to allocate their limited resources primarily to educating male offspring for whom returns from education may be more tangible in terms of higher wage rates and greater mobility in the labour market. These benefits are perceived to accrue more directly to the family based on a patriarchal joint family system, which still strongly prevails in rural Asia.

In this regard strategies aimed at raising women's access to health, literacy and school enrolment need to be assured through positive action in their favour. In health provision women, particularly those who are pregnant or lactating, and children in South Asia and to some extent China need to be targeted through public delivery programmes. Second, strategies aimed at raising nutritional intake and entitlements of the very poor must take cognizance of the inequitable distribution of food and other resources within the household. Again programmes targeted at nutritional support for women may be one approach. Third, girls as well as boys from low-income backgrounds should be

tutional right of each Chinese citizen, by the public sector has led to attempts to promote a nation-wide co-operative health care insurance system for rural dwellers. Under the scheme each village or collective unit is encouraged to contribute funds to the local medical station which is then required to treat member patients for little or no charge. Statistics from the eastern coastal province of Jiangsu reveal that a yearly premium of about 12 yuan renminbi would be sufficient for this scheme of medical service; in villages not covered by the scheme, however, the figure reached 28 yuan renminbi.[h]

The questions that arise *inter alia* are: first, to what extent the rural health care programme, and in particular the new health insurance scheme, will be able to replace the health protection available under the rural commune and production brigade system and its replacement in rural areas by the household responsibility system of production, which itself is in transition; second, what the effect on the quality of rural health care will be with the widening regional inequalities in China. With the move towards market-based transactions the programmes of grass-roots health care may be difficult to sustain financially, especially in the relatively more backward region. Furthermore, the motivation of doctors to work in rural areas, in an environment where market relationships are gaining ascendancy, could weaken considerably.

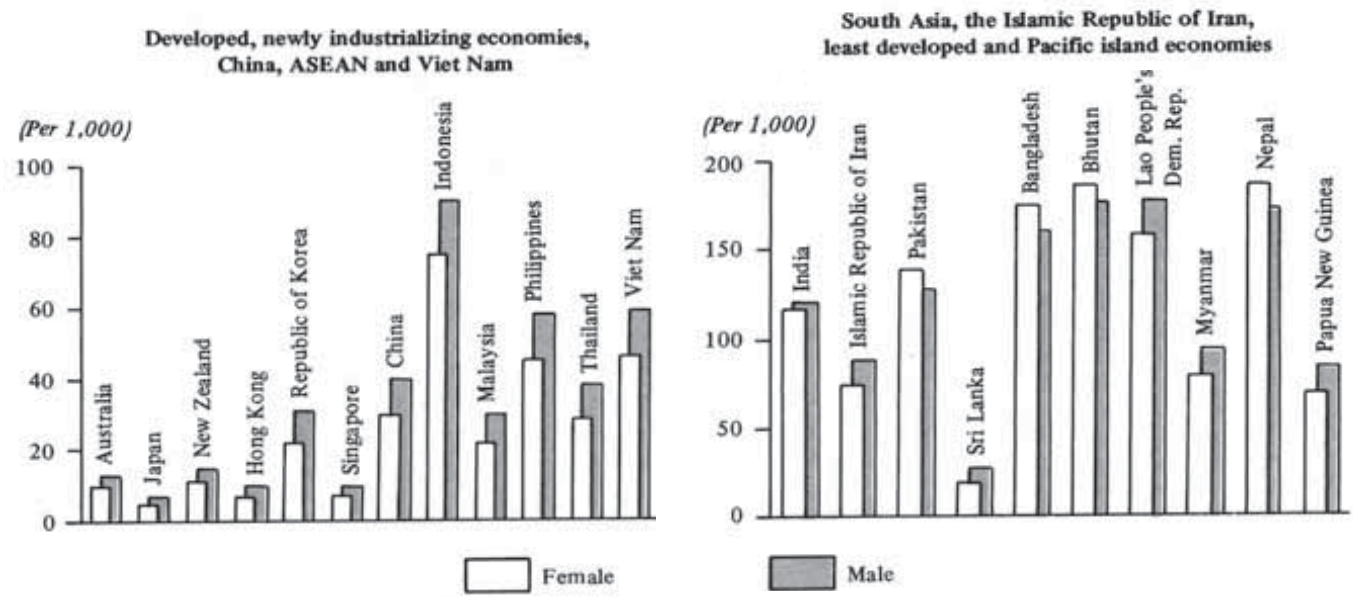
[g] United Nations Development Programme, *Human Development Report 1990.*

[h] *China Daily*, Beijing, 21 June 1990, p. 3.

[53] For a more detailed analysis of the gender question in relation to education, see this *Survey*, part one, chap. V.

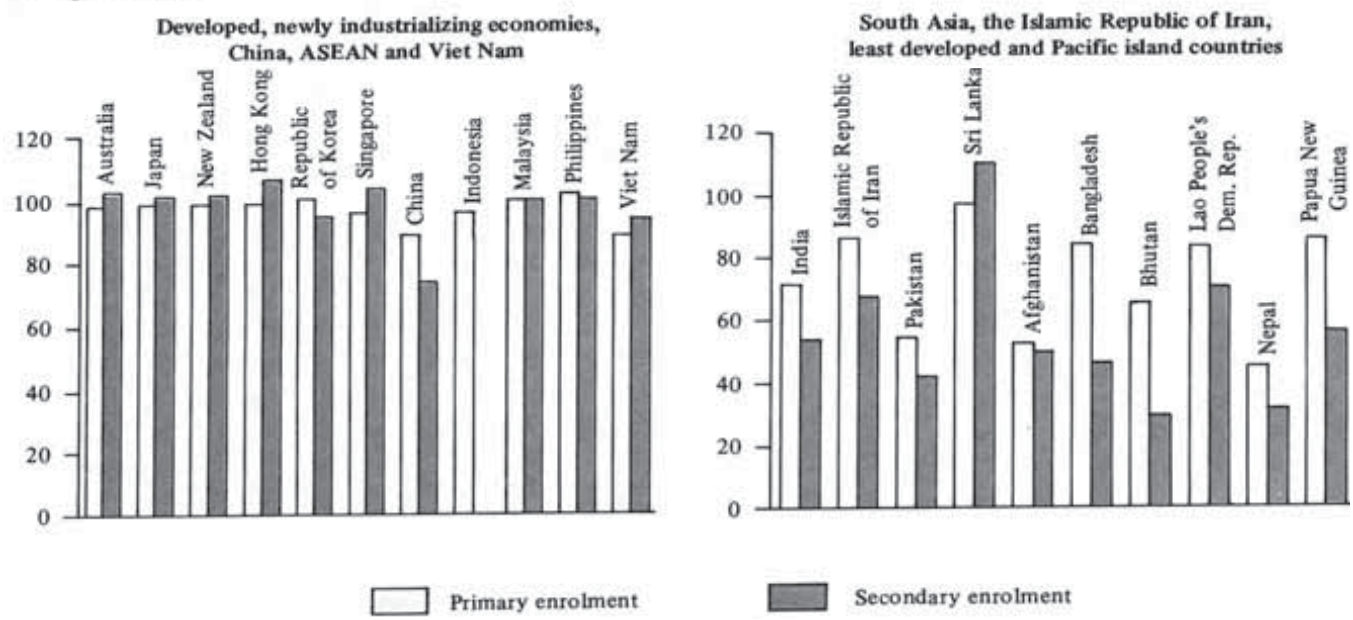
given financial assistance for attending school to compensate for some level of opportunity costs and to allow them to finance the non-tuition costs of attending schools. Fourth, returns to education for women must be seen to be tangible in terms of increased access to employment and wages commensurate with educational skills. In implementing these objectives, however, government

Figure II.8. Selected economies in the ESCAP region. Child mortality by gender, 1988



Source: World Bank, *World Development Report 1990.*

Figure II.9. Selected economies in the ESCAP region. Gender biases in education, 1986-1988. Females as percentage of males



Source: United Nations Development Programme, *Human Development Report 1990.*

action alone may be inadequate and may need support from social activities, non-governmental organizations and other community-based efforts.

3. Regional unevenness

The availability of social infrastructure facilities is often unevenly distributed across the various geographical regions of a country. Such unevenness can arise from physical factors relating to difficult terrain, distance from the metropolitan centre, border regions, low population density, climatic conditions or insufficient natural resources which lead to a district or region of a country being comparatively undeveloped. In addition social, political and cultural factors also influence the backwardness of a region. For example, if the region's population is not part of the dominant national ethnic, religious or linguistic group it could be discriminated against and may require special treatment in policy-making. Such regional unevenness is quite common in the Asian and Pacific region.

Examples of regional disparities in access to social infrastructure abound in the region. For example, reflecting the wide regional disparities that mark the social and economic development of Pakistan, the population of the province of Baluchistan has levels of access to safe water supply and primary enrolment that lie well below the national average.[54] Similarly, in the island of Mindanao and the region of Visayas in the Philippines access to levels of social infrastructure were also below the national average. In addition, the extent of poverty in these regions exceeded national levels of poverty.[55] In the Karen state in Myanmar, which is predominantly populated by the minority Karen tribe, health expenditure per capita in 1983/84 was, at 2.1 kyat, the lowest in the country. In the same year Yangon had per capita health expenditure almost eight times higher.[56] Assam state in India had half the national average in terms of proportions of population with access to safe drinking water.[57] In Malaysia, only 5 per cent of Kuala Lumpur's population was below the poverty line in 1984 although in the state of Kelantan the incidence of poverty in the same year was close to 40 per cent.[58] In Indonesia, much

[54] See UNICEF/ESCAP, *1988 Asian and Pacific Atlas of Children in National Development* (E/ICEF/EAP/87-2), p. 160.

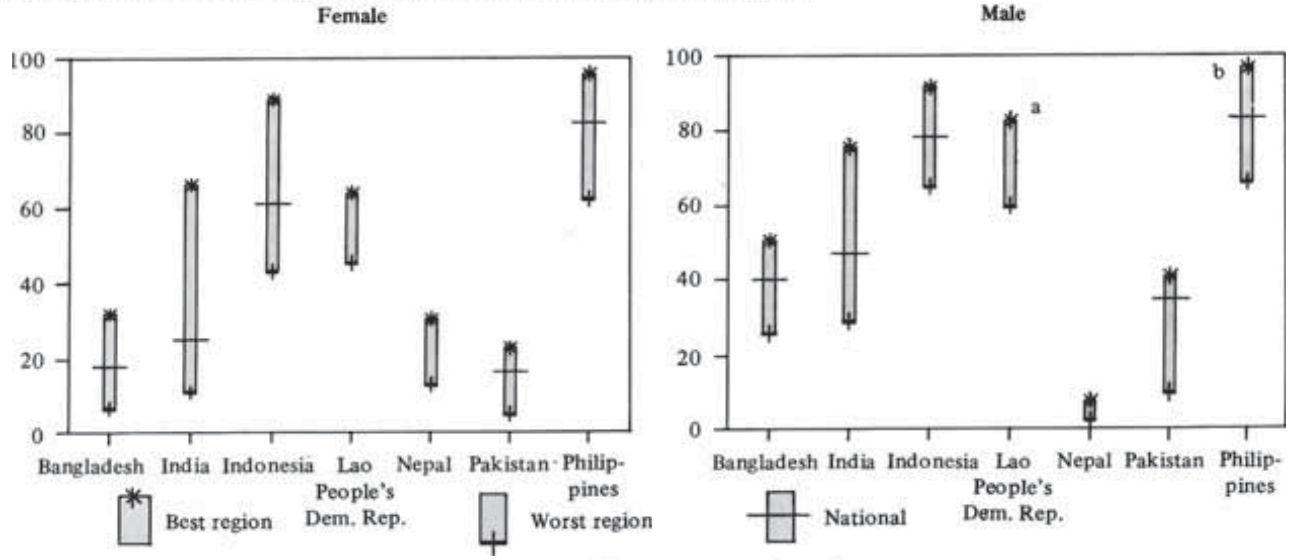
[55] *Ibid.*, p. 180.

[56] *Ibid.*, p. 62.

[57] *Ibid.*, p. 86.

[58] *Ibid.*, p. 136.

Figure II.10. Selected developing economies in the ESCAP region. Regional unevenness in educational standards: subnational variations in adult literacy rates by gender, 1985 or latest year



Source: UNICEF/ESCAP, *1988 Asian and Pacific Atlas of Children in National Development.*

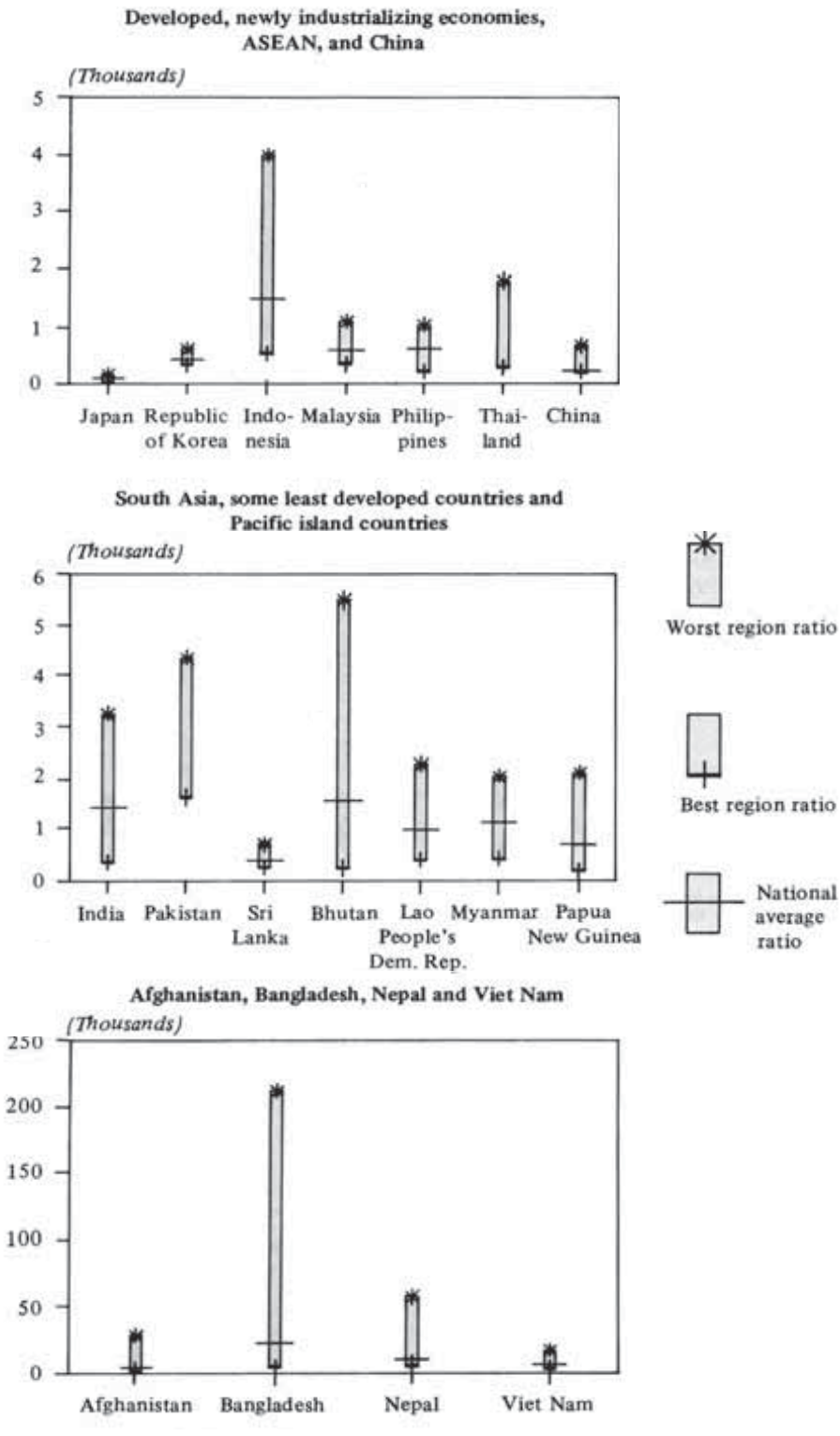
Note: The highest and lowest ratios respectively in an individual administrative district is given to illustrate the span of coverage which is concealed in national aggregate date. Where the best coverage is achieved in the capital city, this is indicated in the footnote.

[a] Vientiane prefecture. [b] Metro Manila.

of the southern part of the island of Java had up to 60 per cent of its population under the poverty line whereas the capital district of Jakarta, on the same island, had a poverty incidence of 17 per cent.[59] Figure II.10 and II.11 detail the regional disparity within countries in the ESCAP region in terms of literacy (as a crude measure of educational standards), and levels of health care (as indicated by the coverage of hospital beds).

Among the countries on which data at a regional level are available, Japan, the Republic of Korea, and Sri Lanka display the least degree of regional diversity in terms of coverage of health and education infrastructure. For the ASEAN subregion there appears, on the whole, to be little regional unevenness with respect to education, although there is wide variation when it comes to health and allied sectors. In the Philippines, the infant mortality rate ranged from 39.1 (Metro Manila) to 105 per thousand live births (western and central Mindanao). In Penang state in Malaysia, 91 per cent of the population had access to safe water compared with only 33 per cent in Kelantan state. In China, the vast north-eastern province of Xinjiang Uyger had the highest infant mortality rate in the country (108 per thousand live births), more than seven times greater than the levels of infant mortality in Beijing (14.9). On the whole, the coastal provinces, particularly Guangxi Zhuang, Guangdong, Shanghai, Zhejiang and Fujian, had the highest coverage of health facilities, whereas the central and north-western provinces had the lowest.[60] As China expands its economic zones in the

Figure II.11. Selected economies in the ESCAP region. Regional unevenness in health care: population/hospital bed, early to mid-1980s



Source: UNICEF/ESCAP, *1985 Asian and Pacific Atlas of Children in National Development.*

[59] *Ibid.*, p. 100.

[60] *Ibid.*, p. 68.

southern coastal provinces and shifts away from its former policy of actively supporting relatively backward areas, fears of widening disparities between the coastal and the southern provinces are growing.

In South Asia, barring Sri Lanka, and the least developed countries there is extensive regional unevenness in terms of coverage of social infrastructure. In Bangladesh, population per hospital bed was the highest in the Chittagong Hill Tracts, and almost 10 times the national average in Comilla and Patuakhali districts. In contrast, the two major urban centres, Chittagong and Dhaka, had the highest coverage of hospital beds. Similarly, in Nepal the mountainous Rapti Zone had less than a tenth of the national average of coverage of hospital beds, whereas the Bagmati zone in the Kathmandu Valley had approximately five times the national average. Similar patterns were observed for Pakistan. Primary enrolment rates in Baluchistan and the North West Frontier Province were around 14 per cent whereas in the comparatively more prosperous Punjab province primary enrolement rates were 53 per cent.[61] In contrast, the provision of a safe water supply was far more extensively developed in the North West Frontier Province (NWFP) than elsewhere in the country, reflecting partly the greater effort by the NWFP provincial government in this regard as compared with other provincial bodies in the country. India also clearly displays patterns of differing levels of state effort regarding the provision of schooling and health facilities. Kerala state, which has been ruled by a leftist United Front government with commitment to social causes, had the highest levels of male and female literacy in the country in 1981 (female literacy of 66 per cent), as well as the lowest infant mortality rate (of 30 per thousand live births) in 1982.[62]

Ethnicity and caste considerations, independent of regional patterns, have also affected the distributional basis of service provisions. In the South Asian region, the issue of secondary and university admission across caste and ethnic groups has been the cause of prolonged student unrest. There remains, however, very little data that highlights such factors in the discrimination of service access. UNDP reports that literacy rates for high caste Brahmins in one South Indian village were 90 per cent and only 10 per cent for those who came from low caste groups.[63] This gives some indication of how caste-based inequities in access to education can serve to reproduce patterns of social stratification.

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[61] *Ibid.*, p. 160.

[62] *Ibid.*, p. 86.

[63] UNDP, *Human Development Report 1990*, p. 33.

IV. FINANCING, MANAGEMENT AND INSTITUTIONAL ISSUES IN INFRASTRUCTURE DEVELOPMENT

INTRODUCTION

The previous chapters have shown that in terms of both physical and social infrastructure all but a few of the developing countries of the region ate far from meeting the requirements of either economic growth or equitable social development. In order to meet international targets in areas of social development, a recent United Nations report has argued that a large number of developing countries would have to double financial allocations to the social sectors.[1] However, the World Bank is highly pessimistic about developing countries as a whole being able to increase their allocations to certain social services during the 1990s.[2] The prospects of improving the physical infrastructure of the developing economies of the region are hardly any better and this raises severe apprehensions about continuing the growth momentum in the production sectors of these economies.

At the same time, the unfavourable global economic environment, marked by recessionary pressures, declining aid flows and substantially higher energy costs arising from the likely resurgence of the energy crisis in the wake of the events in the Persian Gulf aggravate the situation. This raises serious concerns regarding the ability of developing countries to find financially sustainable solutions for infrastructure development in an international and domestic environment of severe resource constraints. The structural adjustments undertaken by many developing countries in recent years have also seriously eroded the capacity and questioned the capability of the government to play the leading role that it has traditionally played in the provision of infrastructure facilities. While efforts to improve the efficient use of resources by public sector enterprises have been made in the past, it is now a widely held belief that nothing short of wide-ranging institutional reforms, with an increased role for the private sector, are called for to meet the challenge.

The present chapter centres on the financial, managerial and institutional concerns relating to the provision of social and physical infrastructure. It focuses on the following issues:

(a) Sources of financing for infrastructure and possible forms of resource constraints that may limit such financial avenues;

(b) Efforts to improve the efficient use of resources and thereby reduce the costs of infrastructure provision, with particular attention to the operation and maintenance of infrastructure and project evaluation methods for socially and environmentally sound infrastructure;

(c) Various institutional reforms, including privatization and community participation, aimed at raising efficiency and improving the cost effectiveness of infrastructure.

A. THE FINANCING OF INVESTMENT IN INFRASTRUCTURE

The mobilization of the funds needed for undertaking the construction of infrastructure facilities and the delivery of infrastructure services at appropriate prices are issues of major importance in infrastructure development. A number of options can be considered in meeting the large financial requirements for this purpose. First, through increased fiscal effort, the overall amount of resources available to the government for financing infrastructure development could be increased. These measures could be reinforced by reductions in subsidies and the imposition of, or increases in, user charges. It would also include the reordering of overall investment expenditure, as well as switching expenditure between different infrastructure services and within particular services (for example, between tertiary and primary education, curative and preventive medicine); such inter-services and intra-services transfers would release resources for raising investment in socially more desirable directions. Second, the efficiency of existing resource use could be increased through administrative, managerial and institutional reforms. The involvement of the private sector

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[1] UNDP, *Human Development Report 1990* (New York, Oxford University Press, 1990)

[2] World Bank, *FY 88 Annual Sector Review Water Supply and Sanitation*, (Washington, D.C., November 1988).

in infrastructure provision that has so far been mainly the domain of the public sector would be included. Third, foreign capital and foreign assistance could be attracted into the financing of infrastructure projects. Where the private sector is responsible for infrastructure service provision or management, revenues are primarily generated through appropriate pricing mechanisms. In some cases this is further augmented by state subsidies, particularly if such services are being provided at below the average cost of production.

1. Fiscal policy measures

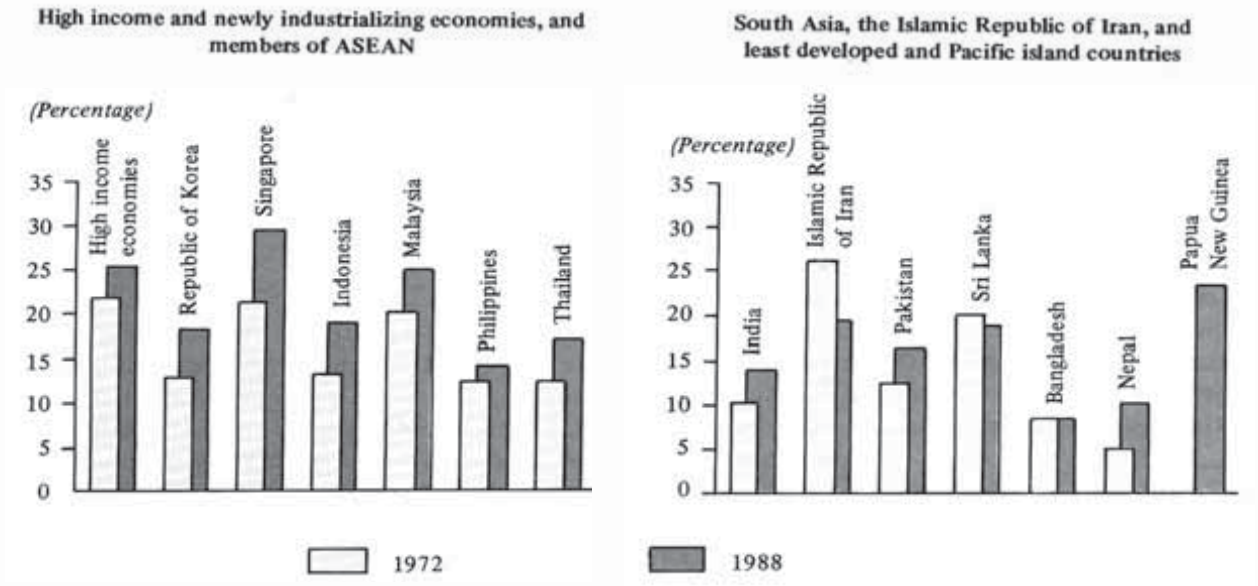
An important indicator of the overall fiscal effort in a country is the change in the tax revenue/GDP ratio over time. In the developed economies as much as a quarter of gross national product (GNP) is contributed by the fiscal take of the government. Most countries of the region have only had half as high a ratio of government revenue to GDP. In order to increase the infrastructure expenditure significantly, the developing countries of the region need to increase the tax/GDP ratio through a greater emphasis on progressive direct taxation.

Fiscal effort in the ESCAP region, as measured in terms of total central government revenue as a proportion of GNP (see figure II.12), is the lowest for the least developed countries and India, Pakistan and the Philippines. In these countries the fiscal effort ranged between 8.6 per cent in Bangladesh and 16.5 per cent in Pakistan. In contrast, the ratio in the relatively high-income economies of Singapore and Malaysia was 29.6 and 25.1 per cent respectively.

In low-income economies taxable capacity is no doubt limited. However, per capita income, though important, is not the only factor in determining the taxable capacity of an economy. In fact, the correlation between per capita income and tax ratios across developing countries is not very strong. Other important factors that determine the potential for raising tax revenues are: the distribution of income between different sections of the community, the structural characteristics of the economy, the political legitimacy and credibility of the government in imposing taxes, and the administrative capacity, efficiency and honesty of the revenue collection machinery.

There are in some cases insurmountable limits to raising fiscal revenues from direct tax instruments. In a typical developing country of the region, a large number of those engaged in agriculture and related activities and in the unorganized, informal urban-industrial sectors as wage labourers or as self-employed have near subsistence level incomes. In many cases they form the bulk of the

Figure II.12. Fiscal effort in the ESCAP region, 1972 and 1988



Source: World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990).

nation's labour force. Consequently, this large segment of the labour force is for both practical and equity considerations exempt from income tax. Similarly, where the corporate sector is small or dominated by public sector enterprises the potential for increasing revenues through taxes on business incomes and profits is limited. Attempts to directly tax agricultural incomes have faced political resistance from the landed classes, although the excuse often used is that of practical problems of assessment and collection in introducing such a tax. Agriculture in virtually all developing countries is taxed indirectly; the weakness of this approach is that taxation relates to the volume of production and therefore neither is progressive nor gives any incentives for raising productivity.

Fiscal policies are generally accepted as the ideal instrument for promoting the objective of an equitable distribution of income. The discussion in earlier chapters has pointed out that some of this burden is currently borne by pricing policies relating to infrastructure services, especially in the social field. This clearly is a second best solution. However, although the principle of progessive taxation is now universally accepted in many developing countries, there are serious administrative and other difficulties in implementing it. In addition, a consideration that has often weighed heavily is that the rates and structure of taxation should be such that they do not destroy incentives to increasing output and acquiring improved skills. This places a significant constraint on a government's fiscal and redistributive policies, especially since many types of skilled and professional categories of labour are now in demand world-wide and migration of this type of labour is easy and fairly common. Similarly, capital movements across national frontiers also do not present any insuperable problems, foreign exchange regulations notwithstanding. Thus, tax regimes, after tax incomes and differentials for different types of labour have to be such that a process of labour migration (brain drain) and capital flight is not set in motion.

However, these considerations, important though they are, need to be balanced by others which argue for an increased vigour in the fiscal effort. In many countries there is considerable scope for re-allocating current public expenditure from relatively less essential to more productive uses. There is also considerable room for tapping certain income segments which are relatively undertaxed. Therefore, invariably, significant scope exists for releasing pressures on fiscal policy and raising the volume of public revenue without adversely affecting incentives. In addition, both equity and efficiency considerations argue for shifting the tax effort from relatively regressive indirect instruments to direct sources.

It is well known that in the low-income economies taxes on incomes, profits and capital gains generally account for a relatively small proportion of government revenue. This means that an unduly large proportion of revenue is derived from indirect taxes, an inequitable method of raising government income. For instance (as shown in table II.18) taxes on income, profits and capital gains account for less than 15 per cent of total government revenue in the Asian least developed economies and South Asia. The ratios in Malaysia and Singapore exceed 30 per cent. In Malaysia and the Republic of Korea during the period 1972-1988 the share of indirect taxes in total revenue fell while that of direct taxes rose – indicating a healthy development in the area of fiscal policy. The reverse pattern is observable in Bangladesh, India Myanmar and Nepal and to some extent in Pakistan, indicating the existence of significant constraints on achieving rapid and large increases in government revenues through direct taxation.

There are therefore grounds to argue (as already indicated) for increased fiscal effort, identification of new income-elastic tax instruments, and a shift of the burden to high-income groups, particularly to those which have the ability to pay but for a variety of reasons are undertaxed.

Local-level fiscal measures have a more direct bearing upon urban social infrastructure, such as housing, water supply and sanitation which are usually the responsibility of local and municipal levels of government. In China, India, Pakistan, the Philippines and Singapore urban infrastructure services are substantially financed by municipal taxes on property.[3] Municipal-level taxation is, however, generally observed to be regressive in incidence and suffers from poor assessment and administration.[4]

There is, however, considerable scope for fiscal decentralization in order to mobilize resources for infrastructure development. A devolution of administrative and fiscal powers and responsibilities to lower levels of government, particularly local bodies and municipal authorities, in both rural and urban areas, could greatly assist not only the mobilization of funds for infrastructure development, but also the identification

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[3] V. Prakash, "Financing urban services in developing countries", in D.A. Rondinelli and G.S. Cheema, *Urban Services in Developing Countries*, (London, Macmillan, 1988).

[4] *Ibid.*, p. 71.

Table II.18. Structure of central government revenue, 1972 and 1988

(Percentage)

	Taxes on income, profit and capital gain		*Domestic taxes on goods and services*		*Taxes on international trade and transactions*		*Others*[a]	
	1972	*1988*	*1972*	*1988*	*1972*	*1988*	*1972*	*1988*
High-income economies	44.0	37.8	23.3	30.0	2.3	1.1	30.4	41.1
Newly industrializing economies								
Republic of Korea	29.0	30.3	41.7	37.3	10.7	14.0	18.6	18.4
Singapore	24.4	19.1	17.6	14.5	11.1	2.7	46.9	63.7
ASEAN								
Indonesia	45.5	55.9	22.8	24.5	17.6	5.6	14.1	14
Malaysia	25.2	32.2	24.2	18.0	27.9	17.3	22.7	32.5
Philippines	13.8	21.5	24.3	37.5	23.0	24.5	38.9	16.5
Thailand	12.1	19.9	46.3	46.3	28.7	22.9	12.9	10.9
Iran, Islamic Republic of	7.9	13.4	6.4	8.0	14.6	9.0	71.1	69.6
South Asia								
India	21.3	14.5	44.5	35.3	20.1	30.3	14.1	19.9
Pakistan	13.6	11.9	35.9	33.0	34.2	31.0	16.3	24.1
Sri Lanka	19.1	11.1	34.7	40.8	35.4	29.9	10.8	18.2
Least developed economies								
Bangladesh	3.7	11.7	22.4	33.2	18.0	31.5	55.9	23.6
Myanmar	28.7	6.7	34.2	39.8	13.4	14.3	23.7	39.2
Nepal	4.1	8.4	26.5	36.1	36.7	31.1	32.7	24.4
Pacific island economies								
Papua New Guinea	...	43.6		11.8		25.9		18.7

Source: World Bank, *World Development Report 1990* (New York, Oxford University Press, 1990).

[a] Comprising social security contributions, other taxes are non-tax revenue.

and management of infrastructure projects at the local level.

Decentralization of state bodies has been a feature of the public administration of the social sectors in many countries in the region.[5] In general, however, local bodies usually operate at the largesse of higher levels of government and are given limited powers to identify and respond to local needs. An inherent danger of decentralized forms of fiscal mobilization and infrastructure development, however, has been the likelihood that their main beneficiaries would be influential local elites. This emphasizes the need for increased literacy and the existence of participatory institutions as a prerequisite for effective fiscal decentralization. However, measures aimed at initiating public participatory forms of social infrastructure development could prove catalytic in expanding the resource base and managerial efficiency of infrastructure projects at the local level. Local bodies need to be provided with the technical and managerial expertise, revenues and revenue raising powers, and have safeguards to minimize the influence of local elites in order to function effectively as delivery points for infrastructure programmes. In this, the non-governmental organizations can play an effective role.[6]

2. The role of foreign assistance

Foreign aid and foreign loans have played a large role in financing infrastructure projects, particularly those that are large, indivisible in scale, highly capital intensive, require large amounts of investment particularly in foreign exchange, and are dependent upon

[5] H. Siedentopf, "Decentralization for rural development: government approaches and people's initiatives in Asia and the Pacific", and A. Bhatt, "Decentralization for rural development: an overview of South Asian experience", in *Building From Below: Local Initiatives for Decentralized Development in Asia and Pacific* (Kuala Lumpur, Konrad Adenauer Stiftung and Asia and Pacific Development Centre, 1987).

[6] See this chapter, section C 2 for a discussion on the role of non-governmental organizations.

external technical expertise to design, construct and implement.

Such aid originates from both bilateral and multilateral sources, with the leading bilateral donor for many developing countries of the region being Japan (see box II.8). Table II.19 illustrates that a slightly larger proportion of multilateral aid was channelled into infrastructure projects compared with bilateral aid from the Organisation of Economic Co-operation and Development (OECD) economies that make up the Development Assistance Committee in 1988. For example, the World Bank allocated 55.8 per cent of its total assistance to infrastructure projects in 1988 as compared with 46.6 per cent by all the OECD countries.

Figure II.13 also indicates that a slightly larger proportion of bilateral aid (24.9 per cent) went to social and administrative infrastructure as opposed to economic infrastructure (21.7 per cent). The pattern was reversed in the case of multilateral aid where 30.4 per cent was allocated to economic infrastructure compared with only 19.9 per cent for social and administrative infrastructure. The specific type of infrastructure project which received the most bilateral aid was transport and communications, (table II.19) followed closely by the education subsector, while multilateral aid tended to favour the energy sector as well as transport and communications.

The reliance on foreign assistance for financing infrastructure or loan dependency varies from one developing country to another, being particularly acute for the least developed countries. Such dependency can either be in a given infrastructural sector or from one donor source. Shifts in aid policy by donors can thereby seriously harm infrastructural development planning in many of the low-income and least developed countries. Within a given sector there can also be acute dependence upon foreign aid. In Nepal, for

Table II.19. Breakdown of aid by major purposes (commitments), 1988

(Percentage of total)

	Total Development Assistance Committee	*Multilateral finance (ODA)*[a]			
		Total	*European Economic Community*	*World Bank*	*United Nations agencies*
Social and administrative infrastructure	24.9	19.9	11.3	20.8	27.9
Education[b]	11.0	4.3	3.8	4.9	2.6
Health and population	5.3	7.8	2.6	6.1	19.1
Planning and public administration	2.6	0.5	...	...	4.4
Other (including water supply)	6.0	7.3	4.9	9.8	1.8
Economic infrastructure	21.7	30.4	16.8	35.0	5.9
Transport and communications	12.6	11.3	9.9	12.8	3.8
Energy	7.9	18.8	5.8	22.2	...
Other	1.2	0.3	1.1	...	2.1
Production	17.9	36.6	40.2	36.3	16.6
Agriculture	10.8	23.2	24.3	23.3	9.6
Industry, mining and construction	5.4	9.3	10.3	8.0	3.8
Trade, banking, tourism	1.7	3.8	5.6	5.0	1.2
Other	...	0.2	...	...	2.0
Multisector	2.8	...	...	...	...
Programme assistance	15.1	5.4	11.7	7.5	...
Debt relief	2.0	...	...	...	...
Food aid	5.3	3.3	13.0	...	20.7
Emergency aid (other than food aid)	1.3	2.4	1.4	...	19.6
Administrative expenses	3.9	0.2	3.2	...	...
Unspecified	5.1	1.8	2.4	0.4	9.3
TOTAL	100.0	100.0	100.0	100.0	100.0

Source: Organisation for Economic Co-operation and Development, *Development Co-operation in the 1990* (Paris, 1989) p. 232.

[a] Official development assistance for the year 1987. [b] Including students and trainees.

example, aggregate flows of external assistance were of great importance to the education sector. Over 23 per cent of education expenditure during the five-year period 1981/82 to 1985/86 was financed by external assistance. Loan assistance to Nepal, which only began in 1978/79, has grown

Box II.8. Economic infrastructure in the official development assistance of

In 1989, Japan emerged as the highest donor of official development assistance (ODA) which amounted to $US 8,965 million, surpassing the $US 7,664 million contribution of the United States of America. Although in absolute terms ODA contributions of both major donors were lower than in 1988, the fall in ODA of Japan was less steep than that of the United States mainly because of a rise in the value of the yen. The developing countries of the ESCAP region, because of their close historical and economic ties, receive a high proportion of ODA from Japan. In 1989, these countries received 62.5 per cent of bilateral ODA from Japan, which accounted for three fourths of the total ODA disbursements and amounted to $US 6,779 million. However, the share of developing countries of the ESCAP region in ODA of Japan has fallen from the 70 per cent level in 1980. East and South-East Asian countries have received by far the largest shares of such assistance, although ODA to countries of South Asia has generally been sizeable (table A).

The share of Japan in the total bilateral ODA extended to the Asian region from member countries of the Development Assistance Committee, Organisation of Economic Co-operation and Development in 1988 was the highest, accounting for 48.2 per cent, while the United States was a far second, contributing 9.8 per cent. Apart from its large size and relative importance, a distinctive feature of ODA from Japan is that a high proportion is devoted to the provision of economic infrastructure. Table B shows the composition of the bilateral ODA of selected donor countries. Almost one third of aid from Japan is devoted to providing economic infrastructure, such as transport and communication, energy, river development and so on. The Federal Republic of Germany also devoted a high proportion of its bilateral ODA to economic infrastructure.

The rationale for the emphasis on infrastructure assistance is given in *Japan's ODA 1989*, published by the Ministry of Foreign Affairs:

"Assistance in this area leads to the improvement of industrial infrastructure, which is the foundation of a nation's economic growth. In addition to its vital importance to the economic growth of developing countries, the development of economic infrastructure also contributes ultimately to the improvement of living standards and welfare through the expansion of employment opportunities and increased income levels. Furthermore, it is difficult to accommodate public works projects within the normal framework of economic profit, and despite the major need for such projects in developing countries, fiscal expenditure cannot readily be allocated for such purposes. In this sense, assistance in this area has major significance for the government of the recipient country" (pp. 65-66).

The document also gives the

Table A. Major recipients of bilateral aid from Japan, 1989

Country	*Amount*	*Percentage of total*
Indonesia	1 145.3	16.9
China	832.2	12.3
Thailand	488.9	7.2
Philippines	403.8	6.0
Bangladesh	370.6	5.5
India	257.2	3.8
Sri Lanka	185.3	2.7
Pakistan	177.5	2.6
Nigeria	165.9	2.4
Kenya	147.8	2.2

Source: Government of Japan, *Wagakunino Seifu Kaihatsu Enjo* (Tokyo, October 1990).

Table B. Aid by major purposes in various years

(Percentage of total)

	Japan 1989	*United States of America 1987*	*Canada 1988*	*Australia 1988*	*Federal Republic of Germany 1987*	*France 1987*
Social and administrative infrastructure	17.5	23.4	15.6	23.6	32.1	45.1
Economic infrastructure	31.7	4.8	17.0	8.0	26.2	13.7
Production	16.9	13.0	16.7	8.1	22.7	14.6
Programme assistance	20.6	32.5	8.7	50.2	4.7	3.6
Others	13.3	26.3	42.0	10.1	14.3	23.0

Source: Organisation for Economic Co-operation and Development, *Development Co-operation in the 1990s* (Paris, OECD, 1989); and Government of Japan, *Wagakunino Seifu Kaihatsu Enjo* (Tokyo, October 1990).

significantly, but grant aid remains the more important component of foreign assistance, constituting 74 per cent of total disbursements over the same period.[7]

However, several factors tend to limit the effectiveness of foreign assistance in infrastructure development. First, at the level of human resources there are difficulties in identifying, selecting, mobilizing and retaining competent technical experts to assist the developing countries.

Second, there are organizational factors which reduce the effectiveness of foreign assistance. Foreign assistance throughout the world is at present inadequately co-ordinated. Consequently there is widespread duplication and inadequate planning of effort. This is further compounded by the fact that foreign assistance programmes are often insensitive to local needs, create an element of dependence, and when provided in the form of loans add to the overall debt burden.

Infrastructure projects financed by foreign assistance are often inappropriate in terms not only of selection but also of the technology used in their construction. Even if the infrastructure project to be funded is in accord with the priority objectives of the recipient country, the technology used in its construction may be inappropriate within the context of the country's resource endowments. Foreign assistance often tends to introduce inappropriate technology in the construction of infrastructure projects in developing countries. Donor countries often require the use of experts and the import of inputs from their own countries. In this way, foreign assistance influences the choice of technique

[7] USAID, *Nepal Education and Human Resource Sector Assessment* (January 1988).

Japan

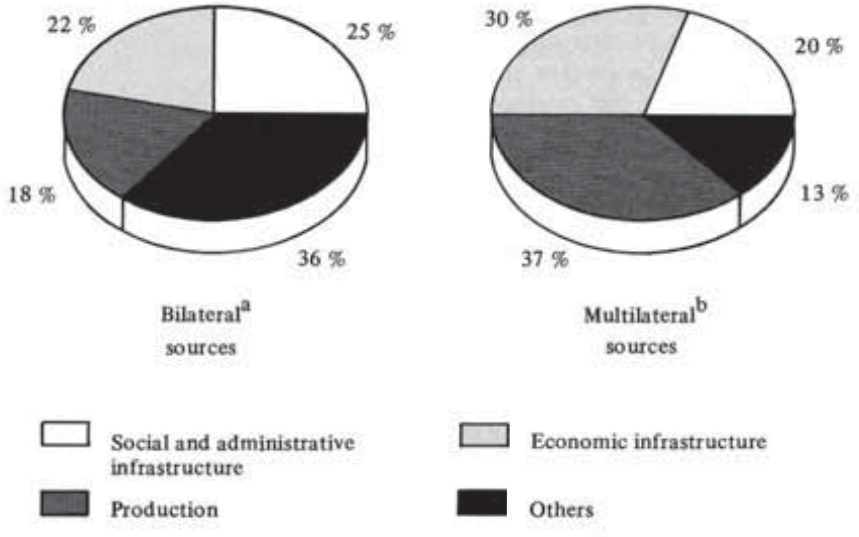
reasons for the comparative advantage of Japan in providing development assistance in this field:

"Moreover, even by the standards of industrialized nations, Japan has considerable expertise in the fields of civil engineering and construction, including the construction of roads, bridges and dams. For this reason recipient nations place high expectations on Japan's co-operation in this area and Japan is likely to be able to provide aid most effectively for such projects" (p. 66).

An example of aid for economic infrastructure in the field of energy is the construction of power plants. The number of power generating projects which were financed by ODA loans since the 1960s (including those at the planning stage) has reached 20 for India, 14 in Indonesia, 10 in Malaysia, and 7 in Thailand. In the case of Indonesia, it included the Asahan hydroelectric plant, which constitutes the core of the Asahan development project.

The emphasis on physical infrastructure in ODA has apparently been under reconsideration in recent years. The share of ODA devoted to economic infrastructure has been gradually reduced from 49.2 per cent in 1987 to 39.4 per cent in 1988 to 31.7 per cent in 1989. This decline represents a shift in favour of social infrastructure designed, among other objectives, to promote more efficient use of and greater complementarity with physical infrastructure already established through development aid and loans. The proportion of aid channelled to education in bilateral ODA reached 5.8 per cent in 1989 and 4.7 per cent in 1988, representing an increase from the 3 per cent share allocated in 1980 and 1981. Other components of social infrastructure receiving increasing attention from Japan include health facilities, water supply and sanitation, and population programmes. As can be seen from table B, the share of Japan in social infrastructure is considerably lower than that of other major donors of the Development Assistance Committee.

Figure II.13. Distribution of official development assistance by type and major purposes, 1988



Source: Organisation for Economic Co-operation and Development, *Development Cooperation in the 1990* (Paris, 1990), p. 232.

[a] From all Development Assistance Committee sources. [b] European Community, the World Bank and the United Nations agencies.

used for the construction of the infrastructure in the recipient country. Moreover, by lowering the cost of imported inputs, relative to labour (and other domestically produced inputs) aid tends to favour more capital-intensive methods. Where factor endowments in developing economies do not favour capital, and where mounting unemployment and underemployment are severe problems, relatively labour-intensive techniques would be more appropriate. Such techniques are often available and are also cost competitive for a wide range of infrastructure projects. Thus appropriate measures have to be formulated to reduce the bias of foreign assistance towards capital-intensive infrastructure projects.

One way of eliminating the bias toward capital intensity inherent in current aid programmes is to cease tying aid to specific projects, thus moving from a "project" to a "programme" approach. Such aid would add to the overall resources available to the economy but no strings would be attached to the manner in which the aid funds themselves are used. From the point of view of project evaluation, such a change would dramatically alter the calculations of opportunity cost and reduce the bias of foreign assistance towards capital-intensive projects. Another step in the same direction would be to permit the financing of local cost components in order to promote the selection of more appropriate technologies. This would offset the practice whereby technologies that are relatively intensive in imported equipment (and consultants) are preferred over those that use mainly local materials.

Finally, adequate provision of maintenance expenditure for any infrastructure project financed by foreign assistance needs to be made. This will ensure better utilization and a longer working life for the project.

3. Pricing policies, user charges and insurance schemes

An important means of ensuring the healthy development of infrastructure is to charge an adequate price for the supply of infrastructure facilities. Although in itself, it is not a major source of revenue generation for infrastructure development, an appropriate pricing policy can contribute greatly to efficiency and cost consciousness in the operation of infrastructure facilities. However, an over-concern about cost recovery runs the risk of pricing out certain segments of consumers from access to infrastructural services. In order to meet both concerns it is suggested that pricing strategies for services where equity considerations are of concern may have to be coupled with a support system, through either subsidies or differential access for low-income consumers. Some of the broader considerations for pricing policies for infrastructure services are briefly discussed below.

(a) User charges

The most general argument in support of user charges rests on considerations of efficiency. For instance, it is argued that marginal cost pricing of drinking water makes consumers more aware of the opportunity cost of water, leads to less wasteful consumption, and inculcates the notion of conservation among consumers. Strictly speaking, this argument is neutral with respect to income distribution. If on considerations of equity it is thought that for some sections of the community the consumption of a good or service should be subsidized, then such a subsidy should be given directly, not in the form of prices that diverge from costs. However, as pointed out earlier, the financing of subsidies is possible only to the extent that additional government revenues can be mobilized through taxation or the existing expenditure can be reduced.

Another argument for the introduction of user charges, at least on a selective basis, is that in practice the provision of subsidized services uniformly across the population often benefits high income groups rather than the poor. Therefore, it is argued that there is no social justification for the free provision of such services. For instance, university education, which is almost universally subsidized in the region, tends largely to be the preserve of the relatively prosperous sections of the community. The poorer sections generally are unable to qualify on merit. Thus, an argument is made for the introduction of tuition fees in this sector of education so that the relatively well-to-do students pay at least part of the cost of the service they receive.

A similar argument is that in the complete absence of user charges public resources often flow in disproportionate amounts into areas where social returns are comparatively low. Instances of such distortions are the imbalance in resource allocation between curative and preventive medicine, and primary and tertiary education.

In South Asia, for example, in the early 1980s 39 per cent of total resources devoted to education went to higher levels of education which cater for only 4 per cent of the population. In sharp contrast, primary education which covered 81 per cent of the population received only 23 per cent of the resources.[8]

[8] A. Mingat and J-P. Tan, "On equity and education again: an international comparison", *Journal of Human Resources*, vol. 20 (1985).

Subsidies per tertiary level student, at 119 per cent of per capita GNP, were also extremely high in South Asia (in 1980) as compared with 8 per cent at the primary level.[9] The pattern of subsidies across the two subsectors of education was similar elsewhere in the Asian and Pacific region.

Finally, it needs to be noted that very often user charges are introduced simply as revenue-raising exercises. There are situations where heavy subsidization results in a financial burden that the authority is unable to carry. According to one study, for instance, Jakarta faced such a crunch in its water supply distribution in the 1970s owing to a failure to levy user charges.[10]

In many cases, the reason for the low pricing policy stems from the perception that some infrastructure services, especially water, should be regarded as a free good or service to be provided by the Government. Thus in Indonesia, provincial governors were authorized to charge the land owners certain fees, but the long established custom of irrigation water being free has hampered the collection of water rates.[11]

(b) Public utility pricing

In the delivery of public utility services, such as new highways, airports and telecommunications services, toll charges can, over an extended period, recoup some if not all the initial capital costs. The appropriate pricing of such services also becomes necessary to finance the current level of service provision and to fund qualitative and quantitative improvements in levels of infrastructural coverage.

There is a large body of literature on the pricing and investment policy of public utilities, particularly in the fields of electric power and transport, whereby pricing rules are derived with the objective of promoting the optimal use of resources. Since they are often subject to decreasing costs or to externalities, optimal rules for taxation and subsidies have also been developed to supplement the pricing rules. The basic consideration behind these rules is to ensure that the social cost of these infrastructure facilities is equated to social benefits derived from them. The textbook solution of equating marginal costs with prices, however, often turns out to be impracticable for administrative and political reasons and needs to be modified in various ways.

The primary role of prices should be to avoid waste and price policy should not be burdened with multiple objectives. In practice, however, a variety of criteria, including economic efficiency, social equity and financial viability are used in setting the price by the concerned public sector undertaking. In addition, in many developing countries, because of political pressures from influential user groups, infrastructural services tend to be underpriced, resulting in a wastage of resources. For example, underpricing of irrigation water in India and Pakistan has led to a wasteful use of water and the adoption of inappropriate farming practices, which in turn have worsened the problem of waterlogging and salinity.

Important modifications to marginal cost pricing for service delivery are joint cost or differential pricing models. These have been most effectively used in the energy and telecommunications sectors. Differential pricing models, reflecting varying demand elasticities, lead to a more effective pattern of demand management with user charges varying according to consumers and peak and non-peak periods.

A number of countries charge differing tariffs according to consumer classes for electricity supply. In most economies in the region where differential tariffs are used commercial consumers tend to pay the highest rates, followed usually by domestic users. Rates for agricultural-based consumers are often the lowest. Differentials can vary widely, however. In the Republic of Korea, commercial consumers were charged over four times the unit price for electricity paid by the agricultural sector. A similar level of differential applied in Pakistan between the commercial and agricultural consumers of electrical power. In the Philippines, on the other hand, commercial users were charged only 13 per cent more per unit of electricity than the agricultural sector.[12] Clearly differential rates across broad economic and social categories reflect not only the varying levels of willingness to pay for different categories of consumers but also an underlying aspect of sectoral redistribution of surplus. Consequently, in the NIEs industrial consumers of electrical power were charged a lower unit rate for energy than domestic

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[9] E. Jimenez, *Pricing Policy in the Social Sectors* (Baltimore, Johns Hopkins Press for the World Bank, 1987).

[10] J.F. Linn, *Cities in the Developing World: Policies for their Equitable and Efficient Growth* (New York, Oxford University Press for the World Bank 1983).

[11] D. Prabowo, "Irrigation and water management policies in Indonesia", paper presented at the ILO-ARTEP Regional Seminar on Rural Employment Policies in Asia, 6-9 December 1983, Bangkok.

[12] Asian Development Bank, *Asian Electric Power Utilities Data Book 1985* (Manila, 1985).

households in order to keep production costs low.

Within a specific consumer category, varying forms of block tariff structures are used in pricing electricity. In the "inverted" tariff structure the unit charge rises with levels of consumption. The decreasing block tariff, however, often tied to peak and non-peak period use, has a declining block rate with levels of electricity consumption. This practice is regressive in that low-income consumers who consume less electricity pay a higher average unit price than those with higher levels of energy consumption.

Time of use (TOU) electricity tariff structures are fairly common in developed economies leading to an effective demand management between peak and off-peak periods and have been especially important for industrial and increasingly for domestic consumers. Demand elasticities of different categories of consumers, as well as the administrative costs of introducing such metering and billing systems, have to be taken into account before such pricing models can be effectively introduced in developing economies.[13] According to one study TOU electricity tariffs during the early 1980s were being utilized in only six economies in the region, prominent among which were Indonesia, the Republic of Korea, Taiwan Province of China and Thailand. Subsidized lifeline tariffs and metered kilowatt hour tariffs were used by electricity distribution agencies in most countries within the region. Rates per kilowatt hour in 1982 varied substantially the lowest being in the least developed countries (1.14 US cents/kWh in the Lao People's Democratic Republic and 2.51 US cents/kWh in Afghanistan) and higher for the NIEs and the ASEAN subregion (9.70 US cents/kWh in Hong Kong, 9.52 US cents/kWh in Malaysia and 8.93 US cents/kWh in Singapore). The highest levels of electricity tariff in the region were found in the Pacific island economies where per unit generating costs were the greatest (rates were 14.83 US cents/kWh in Fiji to 25.40 US cents/kWh in Solomon Islands).[14]

(c) Financing social infrastructure services

As a result of financial pressures, a variety of schemes to promote the financial sustainability of social services provision are beginning to gain importance. To share the cost burden between the individual and the government, medical insurance has become an important part of the financing of health care in the developed world. Health insurance schemes on similar lines are also being introduced in the developing ESCAP region. The Mediservice scheme in Singapore is based on individuals saving 6 per cent of their earnings on a regular basis in their personal Mediservice account, which can be used to finance outpatient and minor surgery charges.[15] In the Republic of Korea, where curative health care is predominantly supplied by the private sector, a medical insurance programme covers government employees, all firms or organizations which employ five persons or more, the self-employed and farmers. Since the mid-1970s a targeted programme of medical assistance for the poor pays either full or half of medical costs, depending on income levels. It was estimated that by 1989 the whole of the population was covered under the health insurance and medical assistance programmes.

A number of other countries in the region have also adopted a variety of health insurance schemes. Indonesia has a compulsory scheme for public sector employees (the ASKES plan) and a voluntary programme for the private sector (the DUKM). Over 15 million people derive benefits under the ASKES plan, with subscribers making a monthly contribution of 2 per cent of income. Contributions under the private sector scheme are 7 per cent of income.[16] Health insurance schemes also exist in Thailand (covering slightly less than 40 per cent of the population) and the Philippines (covering the state and the formal sectors). In China, where health care is a constitutional right, there are moves to introduce health insurance schemes.

However, there is a widespread belief that these schemes need significant improvement. Where differential charges are imposed on different groups of consumers, a duality in the quality of service – one for those who pay a higher price and another for those who pay less – is a possible danger which needs to be guarded against. Furthermore, most health schemes concentrate on the state and formal sectors, effectively excluding most rural dwellers, the low-income self-employed and workers in the informal sector.

In recent years, the Government of the Republic of Korea has also taken over greater responsibility for health care.

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[13] M. Munasinghe and J.J. Warford, *Electricity Pricing: Theory and Case Studies* (Baltimore, Johns Hopkins Press for the World Bank, 1982).

[14] M. Munasinghe, "Energy pricing policy framework and experience in developing countries", in C.M. Siddayao, ed., *Criteria for Energy Pricing Policy* (United Nations and East-West Center, Graham and Trotman, 1985).

[15] United Nations Development Programme, *Human Development Report 1990.*

[16] J.F. Linn, *op. cit.*, A. Ron, *et al.*, *Health Insurance in the Developing Countries* (ILO, Geneva, 1990).

While most facilities remain privately owned, government intervention in the pricing of medical services and health care investments has increased significantly. The Government has also regulated health insurance with a view to increasing coverage and reducing the premiums.

B. EFFICIENCY IN USE OF RESOURCES

While finding sufficient resources is the main hindrance in infrastructure development, especially in low-income developing economies, improved utilization of available resources, including existing infrastructure facilities, can be of considerable help in alleviating the shortage of infrastructure services. This requires considerable attention to the planning, implementation and management aspects of infrastructure development. Inability to identify or monitor emerging shortages in the supply of infrastructure services, delays in implementation and cost overruns are some of the major symptoms of the inefficient use of available resources. Of particular importance is the use of appropriate project selection techniques to ensure that proposed infrastructural projects are economically, socially and environmentally efficient. Social cost benefit analysis and environmental impact assessment can play a major, although by no means infallible, role in trying to attain the efficient allocation and use of resources (see box II.9).

Where infrastructural projects have been constructed, underutilization of capacity often co-exists with an unsatisfied demand for such infrastructural facilities. Levels of capacity utilization in large infrastructure projects may often be low in anticipation of future growth in demand, but there is something pathologically wrong if such underutilization exists simultaneously with a large unsatisfied demand. The reasons for such underutilization can be many, ranging from the absence of ancillary facilities, such as feeder canals, roads or transmission lines, the lack of imported inputs or spare parts to the lack of supervisory technical staff and proper arrangements for the operation and maintenance of such facilities. In any event, efforts to improve the efficiency of existing infrastructure facilities can lead not only to considerable savings in capital and other scarce inputs but also to an increased contribution from these facilities to the overall performance of the economy.

1. Improving the quality of public management

Since the government is involved in infrastructure development from the stage of its planning to the ultimate delivery of the services, the quality of public management plays an important role in the efficient use of resources. The involvement of the public sector in infrastructure development is not confined solely to the operation of such facilities through publicly owned enterprises, but is also reflected in the quality of macro-economic co-ordination, direct and indirect controls on, and the monitoring of, investment and other regulatory procedures.

The inadequate monitoring and co-ordination of spending commitments on infrastructure facilities by different public sector agencies is a major element of their inefficiency and high cost. The macro-economic restraints faced in recent years by the developing countries of the ESCAP region have ironically led to even greater inefficiencies in the public management of infrastructure. Pressures for short-term adjustments have often brought into conflict the goals of annual budgeting and longer-term planning, contributing to *ad hoc* patterns of disbursement of funds which seriously affect the efficiency of infrastructure projects. In many cases, across-the-board cuts in the allocation of funds have been forced even on priority projects. Such abrupt changes render the timely and stable implementation of key long-gestation infrastructure projects extremely difficult. (see box II.10). The consequent delays and cost overruns result in the over-capitalization of projects. In turn, such delays can have adverse impacts on future programming and resource availability for infrastructure development.

There are other serious problems about improving the efficiency of public management. They relate even more significantly to institutional infrastructure, such as general administration and public financial institutions, exacerbating the problem of resource mobilization. The existence of inefficiency, waste, corruption and non-responsiveness to social concerns often erode the credibility and legitimacy of tax collection, leading to tax evasion and a lack of public concern or enthusiasm for governmental efforts to increase resource mobilization. This sets into motion a vicious cycle whereby the resource constraint inhibits the improvement of social infrastructure which reinforces the popular apathy, if not disdain, for the government's attempts to provide these services, further eroding the legitimacy of revenue collection.

In many countries, public financial institutions have played an important role in the development of infrastructure by providing funds at below market rates. This has, however, created problems in the efficiency of the financial sector and the possibilities of adverse selection and discrimination

against efficient productive units. Cross-subsidization, while justifiable on grounds of social equity, is often indiscriminately used to distribute patronage to favoured sectors or social groups. For example, in India the railways subsidize passenger traffic at the cost of freight traffic. Even within freight traffic, a larger share of costs is borne by the industrial rather than the agricultural sector. Transparency and accountability are often lacking in the management of public financial institutions, raising not only doubts about their integrity, but also making it difficult to make rational choices.

Public infrastructure enterprises are often run on bureaucratic lines with little autonomy and devolution of responsibility. The managers and other employees are relatively underpaid and do not have incentives to improve their efficiency or quality of work. It has, therefore, been suggested that the equity of these enterprises be more widely dispersed, although the modalities of such dispersion are likely to vary widely among different countries. These modalities could include, for instance, partial ownership of equity by the general public, employees' equity participation or full privatization.

Box II.9. Problems in selection and evaluation of infrastructure projects

The selection of infrastructure projects is a complex process, involving many social, economic, environmental and sometimes, even political considerations. Since infrastructure projects are intended to last for a long period of time, as well as take considerable time to build, there are a number of uncertainties involved in relation to both the costs and benefits. Despite considerable progress in the methodology of project evaluation, there is no universally acceptable technique which provides a clear-cut basis for the selection of a project. In the end, decision-makers need to exercise considerable judgement, based largely on intuition and experience, to select a particular project from among a given number of alternatives.

Among the more sophisticated and analytically comprehensive techniques for project evaluation is social cost-benefit analysis (SCBA). SCBA uses the estimates of the benefits to be derived through the project and the costs incurred in undertaking such a project to derive its internal rate of return and contrasts that with the opportunity cost of capital, or the social discount rate.[a]

SCBA is far from being a foolproof method and choices made on the basis of SCBA estimates can often prove inappropriate. In many developing countries SCBA estimates for infrastructure projects are severely hampered by a lack of basic data on physical inventories and shadow prices. In addition, data may not be available in the form required for SCBA. These factors often lead to the adoption of "rule of thumb" techniques in estimating shadow prices which can seriously affect the outcome of the evaluation exercise.

Project delays and cost escalations can also drastically lower the cost-benefit ratio from that initially estimated to economically inefficient levels. According to one study costs incurred in constructing 41 irrigation and hydroelectric dam projects in India overran by an average of 254 per cent from the original cost estimates.[b] An under-estimation of costs and an over-estimation of benefits is a common hazard where financing agencies are not autonomous and face pressures from sponsors of potential projects.

Furthermore, by failing to take account of the full range of both positive and negative externalities arising from a project most SCBA exercises only provide a limited picture of the direct costs and benefits emerging from a given project. By the same token estimation of the indirect costs and benefits of a given project can seriously affect investment decisions on large infrastructure project. The indirect effects and significant backward and/or forward linkages within or between the productive sectors generated by large infrastructure projects are, however, not easy to conceptualize, and monetize. In this regard one of the pioneering attempts at quantifying such indirect effects was made by the World Bank following the implementation of the Bank-assisted Muda Irrigation Project in Malaysia.[c]

The Muda scheme, one of the largest agricultural development efforts in the country, was designed to make possible double rice cropping on 255,000 acres farmed by some 51,000 rural families. The project was expected to contribute to domestic rice self-sufficiency and thus relieve balance-of-payments pressures then being generated by a significant volume of rice imports. Construction began in 1966 and by 1974 the scheme had become operational at a total cost of about $US 270 million; about $US 100 million was on loan from the World Bank to finance the direct foreign exchange component.

The project almost doubled the cropping area from 100,000 hectares in 1967 to almost 190,000 thousand in 1974. During the same period, cropping intensity reached 1.98, and the 150 per cent expansion in paddy output raised its gross value and also family income from rice cultivation by over 360 per cent. Estimates on the basis of a social accounting matrix for the project indicated substantial indirect benefits. In particular, those emerging on the downstream side through household expenditure linkages and multipliers were equivalent to 80 per cent of the direct value added under the project. Besides, these indirect externalities accrued mostly to non-agricultural households which were, by and large,

[a] For details of SCBA methodology, see I. Little and J. Mirrlees, *Project Appraisal and Planning in Developing Countries* (Heinemann and Basic Books, 1974); and UNIDO, *Guidelines for Project Evaluation* (New York, 1972).

[b] S.K. Singh, "Evaluating large dams in India", *Economic and Political Weekly* (Bombay, March 1990), p. 563.

[c] C. Bell, *et al.*, *Project Evaluation in Regional Perspective* (Baltimore, Johns Hopkins University Press, 1982).

A major favourable consequence of such measures is the impact on increased accountability in and more efficient use of resources. However, only a few countries have large enough capital markets to absorb more than a fraction of the equity in the larger infrastructure facilities, such as the railways, airlines or banks. Nevertheless, small degrees of penetration by private interests could have favourable effects on the managerial efficiency of the project.

A greater degree of privatization of infrastructure could have several effects on managerial efficiency. First, it could enable the government to manage those activities which are strategically important and which it could manage well. Second, by exposing the public sector enterprises to a degree of competition from the private sector it could enhance their efficiency. This is particularly pertinent to higher levels of education, urban transport and health sectors. In addition, the private sector could be encouraged to undertake the construction of buildings and the provision of goods and services for building infrastructure facilities.

The transport sector provides a number of examples in which management efficiency in the public sector is very low. For example, a large number of public-sector bus corporations have experienced large losses, amounting (during 1984 and 1985) from $US 20 million to upwards of $US 42 million in Bangkok, Bombay, Delhi and Jakarta among others.[17] More generally, many of these bus utilities are not able to meet basic operating costs and have been heavily dependent on government subsidies. This has, in turn, had an impact on structural and management efficiency.

Such financial support is designed to keep fares low, maintain uneconomic services on social grounds, and sustain employment on equity and other public interest grounds. Its availability, however can distort rational decision-making and efficient resource use. In particular, management has no incentive to improve service standards or to promote new businesses, leading often to the vicious circle of falling patronage, revenue leakages, higher operating costs, unreliable and inefficient facilities and services, and further losses and larger subsidies.

Most of the region's ports are operated by the public sector with a large and well-organized

better placed to take advantage of new business and service opportunities.

The inclusion of the estimated indirect benefits rendered the net present social value of all pertinent project activities positive even at a relatively high discount rate of 10 per cent. The above project case study underlines the importance of adequate accounting of linkage effects particularly in large projects through, resources and data permitting, a regional social accounting matrix framework or the extension of standard economic cost-benefit analysis to cover appropriate input-output estimates of regional economic interaction and linkages.

Other leading problems associated with project evaluation and SCBA, however, have to do more with the relevance of such techniques than with their precision.[d] The distributive aspects of projects often prove too complex to be satisfactorily solved by SCBA. Furthermore, there are many intangible, often qualitative, costs or benefits, which cannot easily be measured. Improvements in health standards as a result of a given social infrastructure project are very difficult to monetize, as are the costs of social upheaval and displacement arising from the development of a project. In addition to the difficulties inherent in quantifying such attributes as convenience, it is almost impossible to measure the modernizing effects of infrastructure projects, particularly social changes brought about in the minds and attitudes of the population. Moreover, since the output of many infrastructure facilities is not produced under competitive conditions and is generally non-tradeable, it is difficult to find prices to express their benefits in monetary terms. More recently, concerns relating to the environment and the depletion of non-renewable resources have led to an increased emphasis upon environmental impact analysis and resource accounting techniques within the overall methodology of project evaluation.[e]

Paradoxically, the lack of definitiveness associated with most SCBA exercises, enhances rather than reduces the need for systematic SCBA of infrastructure projects. In particular it forces an objective evaluation of investment decisions rather than relying upon the subjective judgements, often a euphemism for whims, of an individual or a group of experts, however knowledgeable in their own fields. Consequently, in spite of its limitations, SCBA can be a useful analytical framework to assess the viability of a given infrastructure project. A broadening of the definition of costs and benefits to incorporate externalities, distributional and environmental impacts of infrastructural projects could, nevertheless, greatly enhance the value of SCBA.

[d] SCBA has been criticized both on grounds of methodology as well as on the basis of its principles. For a discussion of these criticisms, see F. Stewart, "Social cost-benefit analysis in practice: some reflections in the light of case studies using Little-Mirrlees techniques," *World Development*, vol. 6, No. 2 (1978), pp. 153-166.

[e] For a more detailed discussion of environmental impact analysis, see chapter V, part two of this *Survey*.

[17] A. Armstrong-Wright and S. Thiriez, *Bus services: Reducing Costs, Raising Standards*, World Bank Technical Paper No. 68, Urban Transport Series (Washington, D.C., World Bank, 1987), p. 14.

Box II.10. The Mahaweli project in Sri Lanka

The Mahaweli project in Sri Lanka is one of the largest water and land resource development infrastructure facilities in the developing ESCAP region. It covers about 25,000 sq km (or about 38 per cent of the land surface in Sri Lanka), and involves the diversion and utilization of about 7.4 billion cu m of water from the Mahaweli river and adjoining streams for, among other purposes, the irrigation of 0.9 million acres with over 70 per cent of this area belonging to underdeveloped land. The project will also result in at least 500 megawatts of additional electricity generating capacity. Moreover, it aimed at resettling over half a million people, with a view to reducing significantly population pressures in the western and southern provinces.

The original project called for a 30-year development time frame under three phases. In 1977, the gestation period was collapsed to about 6 years, partly causing project costs to rise to an estimated 15 billion rupees ($US 2.52 billion) from the original estimate of 2.5 billion rupees ($US 0.42 billion) in early-1970s prices.[a] Among other cost-push factors were higher imported input prices as a result of the world-wide inflation of the early 1980s in the wake of the second oil price shock. Problems during the accelerated implementation process, including inadequate design or unanticipated site conditions, difficulties in water distribution and resettlement, also contributed to cost overruns.

The share of the Mahaweli project bulked large in the country's public finance, rising from about 7 per cent of the capital budget in 1977 to 35 per cent in 1982/83. Cut-backs in the original design had to be made in response to the recession and the financial constraints of the early 1980s. The height of the Kotmale dam, for example, was reduced and downstream projects were postponed while a moratorium was imposed on funding of new projects not included in the public investment programme of 1983/84.

The experience of the Mahaweli project brings to light some interesting issues in financing and managing a large infrastructural project with multiple economic and social objectives. The first is the opportunity cost involved in committing an inordinately large share of a country's financial resources and scarce administrative and other technical skills to a single project. As a result, in 1982 the project is reported to have absorbed as much as 46 per cent of the country's public capital expenditure. These large outlays contributed to a widening of the budget deficits which in addition to creating inflationary pressures, led to a heavy reliance on external official financing for project implementation. Foreign official financing, however, proved inadequate, necessitating a recourse to external commercial borrowing, thereby adding to the debt servicing problems in a period of rising interest rates and recessionary external demand for exports. As a result, when budget cuts and expenditure restraints became necessary as part of structural adjustment programmes in the early 1980s, a moratorium was imposed on undertaking or implementing new projects. Among the victims of these structural adjustments were many items of social sector expenditure, especially in food subsidies and health.[b]

Second, infrastructure investment on the scale of the Mahaweli project by its nature has a long gestation period. However, the time horizon for political decision-making is of a much shorter duration and pressures to accelerate the pace of the project and to show tangible results can both affect the project's efficiency and limit access to its benefits. In particular, it could severely overstrain not only the financial resources but also the available administrative capacity to plan and execute the project.

Third, the attainment of social objectives of an infrastructural project needs time and careful planning for effective implementation. The aim of settling landless farmers in the new areas opened up by the project presents a good case in point. The acceleration of implementation necessitated the adoption of capital-intensive techniques which had an adverse impact on employment creation.

Delays in the completion of downstream development areas also considerably constrained the volume of project employment creation. Also as a result of inadequacies in design and in the analysis of the water requirements, an irregular water supply hampered the early settlers in the Mahaweli areas. Aside from this, there were other problems such as the non-cultivation of land provided to the settlers, unwillingness to accept the housing, lack of experience in cultivation and use of modern methods, and poor co-ordination of water distribution and farming activities by the project administrators. In addition, the integration of the new settlers into the existing farming community was not always smooth and proved at times to be a source of social tension. However, the policy to "cluster" hamlets, villages and townships in order to overcome these constraints did achieve a measure of success.

Finally, there are of course important trade-offs to be taken into consideration in any large project that tries to attain a host of social and economic objectives. Thus, in the light of rising oil prices and uncertainties surrounding fossil fuels, it made good sense to reduce the dependence on oil by developing alternative sources of energy. From this perspective, the Mahaweli project with a high potential for enhancing the hydroelectric generating capacity of the country appeared extremely attractive. And indeed, in the 1980s, several hydropower stations under the project came on stream and made a useful contribution in meeting the growing demand for electricity in Sri Lanka. However, the pressing requirement of water for irrigation has placed limits on full-scale hydropower development. As in other countries of the region, there are competing demands for water for domestic use, for power generation and for agriculture. The problem is particularly acute in times of drought. Obviously, choices and trade-offs are involved here, and these are questions that are not easily resolved, even with the best of managerial skills.

[a] Department of Census and Statistics, *Sri Lanka Yearbook 1977*, pp. 58-60.

[b] See *Survey* 1987, Box II.9, "The human impact of recession on the Philippines and Sri Lanka", pp. 149-150.

labour force. Improved managerial and operational efficiency levels have contributed to productivity improvements in many of the ports. The available data indicate, generally, that high rates of cargo through-put were sustained in spite of stagnant or even lower employment volumes. Improvement was particularly marked in Indonesia's Tanjung Priok, where a 40 per cent expansion in handled cargo was achieved with an almost one fifth reduction in the workforce size. The transfer of management of Manila International Container Terminal to private sector operators coincided with a significant rise of almost 60 per cent in through-put in 1989.[18]

Improvement in management can also considerably increase access to existing water supply schemes. Thus a study of 40 developing countries has revealed that leakages in the water supply system, illegal connections and poor standards of metering account for losses of up to 30 per cent or more in water supply networks.[19] Similarly, WHO found in its mid-decade review of the International Drinking Water Supply and Sanitation Decade that water usage per person tended to double where households had home connections in contrast to cases where households obtained water from public stand-pumps some distance from their home.[20] In order to maximize the number of persons served, it recommended the building of incremental water supply schemes around public stand-pumps.

2. Operation and maintenance

A leading problem in infrastructural programmes found in many developing countries is the inefficient system of operation and poor maintenance of infrastructure facilities. This is a reflection of managerial inefficiencies and results in the underutilization and reduced lifespan of many infrastructure facilities. Furthermore, losses arising from inadequate operation and maintenance may also be considerable, depleting the pool of investible resources. For example, systems losses from electric power projects in Indonesia and Pakistan in the starting year averaged 25 and 34 per cent respectively of gross generation.[21] In most cases losses are passed on to consumers.

The inefficient operation and poor maintenance of infrastructure facilities may also be reflected in the rapid deterioration and frequent breakdown of facilities and equipment. The outcome may have other adverse effects apart from causing direct losses and inconveniences to the consumers. For example, the deterioration in an irrigation system may lead to a breakdown in the allocation system of water as well as in agricultural land use. Breakdowns in power distribution, especially when erratic in their frequency, have substantial negative impacts upon energy dependent commodity producing sectors as well as being life threatening in certain social sectors such as emergency health care facilities. This has led to private solutions being sought to ensure, in the case of energy, an uninterrupted power supply through private generation capacity, which may be socially cost ineffective and undesirable. This may be cited as an example of "government failure" to provide infrastructure facilities, in contrast to the usual case when the government operates an enterprise "inefficiently".

The reasons for many of the major problems pertaining to the operation and maintenance of infrastructure are several and varied. First, there is a tendency on the part of planners to "glamourize" the construction of new infrastructure at the expense of existing infrastructure.

Second, the budget mechanism for infrastructure financing tends to emphasize the cost-factor at the expense of long-term benefits arising from operation and maintenance. In times of recession, this is even more evident when the most severe financial cuts fall on maintenance. In addition, many foreign aid agencies and donors which helped finance an infrastructure facility are often reluctant to finance the costs of maintenance and operations, even when these require essential imports.

Third, pricing policies for infrastructure services generally fail to generate adequate revenues to recover the cost of not only the initial investment but, in some cases, even operation and maintenance. In the Philippines, for example, even though a water rate is charged, the total amount collected covers only one third of the required cost of operation and maintenance of the irrigation system.[22] In order to cope with this situation there has been a forceful argument that govern-

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[18] ESCAP, "Review of developments in transport and communications: surface transport in the ESCAP region 1990" (E/ESCAP/STC.13/2), p. 6.

[19] The World Resources Institute, *World Resources 1990-91* (New York, Oxford University Press, 1990).

[20] World Health Organization, *The International Drinking Water Supply and Sanitation Decade: Review of Mid-Decade Progress as at December 1985* (Geneva, 1987).

[21] M. Munasinghe and J.J. Warford, *op. cit.*, p. 101.

[22] R. Siy, "Irrigation and water management in the Philippines", paper presented at ILO/ARTEP Regional Seminar on Rural Employment Policies in Asia, 6-9 December 1983, Bangkok.

ments should ensure that, at the minimum, pricing policies for infrastructure services should recover operation and maintenance costs.

The above constraints are not insurmountable and need to be overcome to maximize the benefits from infrastructure investment. This is particularly important in view of the scarcity of capital resources in developing countries. Timely and cost-effective operation and maintenance are required to preserve the very large investment made in infrastructure and to extend the useful life of such investment to the maximum period possible.

While developing countries tend to neglect operation and maintenance in the budgeting and management of infrastructural facilities, several developed countries now spend more money on operation and maintenance of roads and railways than on new infrastructure. Since the mid-1970s, road maintenance costs in Sweden have exceeded expenditure incurred upon road construction. At present, the funds for maintenance are about three times those for construction.[23] There is also a growing acceptance that operation and maintenance for certain types of infrastructure requires the same technical energies in research and development previously applied to new construction. Studies have shown that, in the case of roads, the costs in terms of fuel consumption, journey times or lack of accessibility owing to poor maintenance can be very high and investment in maintenance can bring greater benefits than new construction. Other studies show that preventive maintenance is more cost-effective than reconstruction.[24]

There is a strong case for introducing decentralized types of management by giving a role to the consumers in certain infrastructural systems to increase their efficiency. Community-level associations can serve as the link between the infrastructure delivery authority and the community in such a decentralized system of management. Water-user associations, for example, can have a significant role to play in the management of public irrigation systems. Decentralized systems can ensure the bureaucracy's accountability to users and at the same time contribute to greater local resource mobilization, cost-savings and increased efficiency. Studies in Indonesia, the Philippines and Sri Lanka show the ability of community management systems to operate and maintain small irrigation facilities efficiently.[25] The experience of Sri Lanka in community management of small irrigation schemes also suggests the undesirable consequences of attempts to introduce institutional innovations from the top, disregarding the positive elements of traditional time-tested systems of community management.[26]

Such community institutions have demonstrated a remarkable capacity for (a) mobilizing resources (which include labour, finance and materials); (b) maximizing production and employment through effective and regular system maintenance and efficient management of resources; and (c) ensuring equitable distribution of obligations and benefits. The successful mobilization of resources has facilitated regular maintenance and long-term improvement of the infrastructural capital stock. In addition, community management has helped to reduce the Government's burden in operation and maintenance and increased the users' commitment to maintaining and safeguarding the community asset.

C. INSTITUTIONAL REFORMS

In view of the increasing fiscal pressures resulting from a variety of factors discussed earlier and increasing demands on the budget, governments have had great difficulty in fulfilling the large variety of functions associated with physical and social infrastructure. With progress in economic development, the nature of the demands made on the government has also become more complex. In addition, there are countries where poor management of the existing infrastructure, along with corruption, has compounded the problem. Thus, for a large variety of reasons there are strong pressures on governments to experiment with various types of institutional reforms, in particular the privatization of some of the infrastructural facilities. This can be in the form of a complete handover to the private sector or a subcontracting of managerial functions to the private sector. In addition, there is a greater recognition of

[23] K. Hedman, "Strategic road maintenance planning in Sweden", in *The Management of Road Infrastructure* (the 10th International Road Federation World Meeting, Rio de Janeiro, October 1984), p. 337.

[24] K. Madelin, "The management of highway maintenance – a code of good practice", *The Management of Road Infrastructure, op. cit.*, p. 137.

[25] N. Sutawan and others, "Community-based irrigation system in Bali, Indonesia", pp. 81-147; and R. Siy Jr., "Local resource mobilization and management: a study of indigenous irrigation in Northern Philippines", pp. 23-80, in W. Gooneratne and S. Hirashima, eds., *Irrigation and Water Management in Asia* (New Delhi, Sterling Publishers, 1990).

[26] J. Gunadasa, "Aspects of water management under reservoir irrigation: a study of the giant tank's system in Sri Lanka", *ibid.*, pp. 190-236.

the involvement of non-governmental organizations and the informal sector in the provision of certain social services. Attempts at some of these reforms are discussed in the following sections.

1. Privatization

Notwithstanding the leading role that the government has played in the past in building infrastructure facilities, there are increasing signs that the private sector is destined to play a larger role. During the last 10 years, in line with the world-wide trend towards liberalization and orientation towards a market economy, governments in many developing countries have come to realize that over-regulation in the infrastructure sector has become an impediment to competition and efficiency. Thus, there have been increasing attempts to experiment with measures aimed at liberalization and privatization.

A prime example of successful privatization in infrastructure development is provided in the telecommunications field. A number of countries in the region have chosen to privatize telecommunications. In Malaysia, for example, telecommunications have completely moved into the private sector. Similarly, the drive and efficiency of the private telecommunications industry in Hong Kong have been exemplary in the region. Through a combination of efficient service and cheap rates Hong Kong has become the communications hub for many high-tariff countries. A firm in another country in the region that depends on international telecommunications can lease a single high-speed line to Hong Kong and from there transmit world-wide signals at rates that are considerably cheaper than those it would be able to obtain directly from its home base.

In the Republic of Korea, 49 per cent of the state-owned Korea Telecommunications Agency (KTA) was scheduled to pass into private ownership during 1990. Furthermore, KTA will face competition on international and long-distance lines from Dacom, a private company 30 per cent owned by KTA.

Another instance of the increasing role of the private sector in the telecommunications industry in the region is provided by Viet Nam. A state-of-the-art earth station for satellite communications through the Intersat network was inaugurated at Hanoi in March 1990. It was the second major project in Viet Nam built by the Directorate General of Posts and Telecommunications in co-operation with OTC International of Australia. A similar "Standard A" class station began operating at Ho Chi Minh City in August 1989. It is estimated that through these and other similar joint ventures Viet Nam will earn at least $US 5 million a year. Following the success of its joint ventures in Viet Nam, OTC International has signed a 10-year contract with Cambodia to establish a telecommunications network, starting with a satellite earth station in Phnom Penh.

In Pakistan, the Government is welcoming private investment, including foreign participation, into certain areas of the country's state-dominated energy business. The move is designed to assist the energy sector which has been starved of financial resources. At the same time, power shortages are estimated to cost Pakistan about $US 1 billion a year in lost GNP, and things are expected to get much worse. Thus the Government is pinning its hopes on a $US 1.1 billion private-sector thermal power project which will be built on the Hub River, near Karachi. The project brings together Mitsui of Japan, Hawker Siddley of the United Kingdom, Xenal of Saudi Arabia and several companies of Pakistan and is expected to generate some 1.292 megawatts when it is in operation. Work on the project, which is also being funded by the Export-Import Bank of Japan ($US 150 million) and the World Bank ($US 335 million) will begin shortly.

Thailand presents an important example of the increasing participation of the private sector in the provision of infrastructural services. The private sector is now widely engaged in the development of industrial estates in the country. Several industrial estates have been developed by the private sector, including the High-Tech Industrial Estate, a joint venture between the Jurong Town Corporation of Singapore and the Thai Industrial Estate Corporation Ltd. The state-run Estate Authority of Thailand has invited the private sector to take part in developing an industrial estate in Nakhon Sawan. The private sector is also being involved in a number of industrial water supply projects. Finally, one of the biggest infrastructure projects in Thailand with private sector participation is the 42 billion baht Skytrain project approved by the Cabinet in September 1990.

It needs to be pointed out, however, that despite success in many cases, private sector participation does not offer a general solution to the problems associated with the provision of infrastructural facilities. Private sector willingness to participate in infrastructural projects is usually confined to areas of low risk and to where a satisfactory profit rate can be reasonably assured. These are generally areas where monopoly positions are also found. Finally, it needs to be emphasized that private sector initiatives are necessarily driven by market imperatives. This means that, in

the area of social infrastructure facilities, the poor and the disadvantaged groups will be in danger of being priced out of essential services. In the drive towards privatization this general consideration would need to be kept in mind.

In general, there are significant advantages in seeking private investment for infrastructure projects requiring enormous sums of money. In most cases, not only is the required infrastructure built at little cost to the government, but the government also earns income from the concessionaire. If the government were to wait until it had accumulated sufficient funds, there would be a long delay in the construction of the infrastructure and in some cases, it would never be constructed at all. The opportunity costs in either case would be considerable.

It would thus seem that the first candidates for privatization are those infrastructure services in which equity consideration is relatively unimportant. These services will usually be associated with physical infrastructure. The second in line for privatization should be those social infrastructure services that are specific to high-income groups and neighbourhoods. This would free public resources for concentration on the poor and the disadvantaged – those who need social support on considerations of equity.

2. Non-governmental organizations and community organizations

There is a growing recognition of the need to expand community-level participation in the selection and management of social and physical infrastructural priorities and programmes. This is felt to be of use both in achieving improved levels of efficiency in operation of services and in mobilizing partial financing from the community. The active involvement of the community in participatory development is further beneficial in that it leads to a more socially relevant and locally acceptable package of services for the community. Among its other possible benefits are the inculcation of the democratic spirit, the sensitization of state functionaries and bureaucrats to the demands of the public at large, and the reduction of leakages of public funds.

Bureaucrats and state organizations are generally not well equipped to initiate and mobilize the community into participatory development activities. As a result, the importance of non-governmental organizations has steadily grown in recent years. In certain geographical areas and in particular types of service provision, the non-governmental organizations have provided examples worthy of emulation by the government on a broader scale. The relative strength of non-governmental organizations in participatory grass-roots level infrastructure programmes is in part a reflection of the greater degree of sensitivity and social commitment of their workers to local-level needs as opposed to bureaucrats. Non-governmental organizations also appear to have a greater degree of flexibility than state agencies in generating local and adapted technological and organizational solutions to local infrastructural needs and bottle-necks.

In the context of social infrastructure non-governmental organizations are involved in providing, usually within an integrated framework, education, sanitation, health care, and housing facilities in both urban and rural areas of the region. These facilities are particularly aimed at low-income and relatively disadvantaged groups. A few illustrative examples of non-governmental organization efforts in building infrastructure facilities in various parts of the region are provided below.

The Orangi Pilot Project (OPP) operating in the Orangi slum area of Karachi, Pakistan, has emerged as one of the better known grass-roots and community-based non-governmental development efforts in the ESCAP region. The project developed a low cost lane-based sanitation technology that proved to be a useful starting point for larger community-based efforts. It took over three years to perfect the technology which brought a substantive reduction in costs. Construction expenditure on sewerage pipes was lowered from 100 rupees per running foot to 13 rupees per foot; manhole cover prices were brought down from 500 rupees to 70 rupees and that of septic tanks from as much as 2000 rupees to 160 rupees.[27] Residents were encouraged to form into street-based sanitation groups to provide working capital and maintenance of the sanitation programme.

The primary motivators in the project were members of the community themselves who formed a catalytic group of community workers that encouraged households to participate in the programme. Following the success of the sanitation scheme, which at present covers half of the area's 800,000 population, the OPP started primary health care centres particularly for women, family planning and immunization programmes, a school support network, housing support measures and income generating strategies for

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[27] United Nations Development Programme, *Human Development Report 1990;* and A. Hasan and C. Vaidya, "Two approaches to the improvement of low-income urban areas – Madras and Orangi", *Habitat International,* vol. 10, No. 3, 1986.

women.[28] A measure of the success of the Project has been the attempts made to replicate its approach by the public bodies dealing with such issues in Karachi and Hyderabad.

Another innovative country programme initiated by the Bangladesh Rural Advancement Committee (BRAC), started as a village-based school programme in 1985 and aimed at providing literacy and numeracy skills to children of landless families. By late 1989 there were 2,500 such primary level, one-teacher village schools in operation. The majority (63 per cent) of pupils are girls; the pupil – teacher ratio is maintained at 30, and the overall drop-out rate has been found not to exceed 1.5 per cent. Teachers, who receive a small stipend, are predominantly women. BRAC provides low cost school infrastructure including ancillary services for children as well as teaching materials, textbooks and training for teachers. In addition to classes on literacy and arithmetic the one-teacher schools also provide practical advice on health as well as on a number of community-based social problems. The low-cost approach has been able to keep the annual cost per child to approximately $US 15.[29]

The Grameen Bank in Bangladesh, better known for its income-generating group credit scheme, has also been successful in introducing a low-cost technological design for flood resistant housing. These houses, which won the prestigious Aga Khan Award for architecture in 1989, use simple local materials and can be constructed for under $US 350 each. The design has been found to be effective against the annual flood-related devastation, thereby reducing household housing costs over time. Construction outlays are financed by Grameen Bank loans; by late 1989 45,000 housing units had been built.[30] In addition, the Grameen Bank, in collaboration with UNICEF, provided loans for the sinking of over 1,500 wells for drinking water purposes in rural villages.

In the Philippines, the Makapawa project developed by the Roman Catholic Church in Leyte province has attempted to provide a rural level health care strategy using elected community leaders as paramedics. The programme is also extensively co-ordinated with the public health network. There have been some initial problems regarding the growing influence of sectional and rural elite interests in the programme, a level of dependence on the part of the community upon the programme and a large dependence on missionary efforts. The programme has also moved from its initial primary health concentration to providing other forms of economic and social assistance as well as general consciousness raising. There are no measures of the extent of coverage of the Makapawa project, but it is reported to have provided health coverage in most villages in the province where the public primary health care network has not entered.[31]

A somewhat similar rural health programme is the Vedagedara project in Sri Lanka which trained local volunteers in rudimentary levels of health care in the remote, physically harsh and generally poor rural area of Yakalla. Although Sri Lanka has an extensive rural-based health delivery system certain inaccessible regions have been neglected. Residents from the Yakalla area, for example, have to spend up to a day in travelling to a local hospital. Transport costs and medication expenses often force villagers to sell food stamps in order to avail themselves of medical care, often doing more harm than good. The Vedagadara programme, initiated by the local public health inspector, aimed at reducing the villagers' transport costs by ensuring that treatment of minor ailments and preventive health care were available within the villages through local volunteers who were trained at and operated from village health centres. The volunteers are highly motivated, predominantly young women. Such volunteers have also been able to initiate limited education and income-generating programmes. Much of the expenses of the programme have been met by villagers' contributions. The programme has developed an innovative way of supplementing the existing public rural health network with a local system of health delivery. By localizing health delivery through volunteers from among the poor, it found a way to sensitize the rural health network to the demands and needs of the poor. In the process it has also achieved a reduction in health and ancillary expenditure incurred by the poor and sown the seeds of a new socially conscious leadership among the poor.[32]

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[28] K. Nadvi, *Review of Major Private Charities and Social Anti-Poverty Arrangements in Karachi, Pakistan*, study conducted for World Bank, 1989.

[29] United Nations Children's Fund, *State of the World's Children 1990* (Oxford, Oxford University Press, 1990).

[30] *The Financial Times*, London, October 23, 1989.

[31] L.V. Carino and W. Carada, "Participatory decentralization and primary health care: governmental and non-governmental approaches in the Philippines", in *Building From Below: Local Initiatives for Decentralized Development in Asia and Pacific, op. cit.*

[32] A.S. Gunawardena, "Community-based village health centre in Sri Lanka", in *Building From Below: Local Initiatives for Decentralized Development in Asia and Pacific, op. cit.*

There are a number of lessons to be learned by the State from non-governmental organization efforts at community organization and participation in social infrastructure delivery. First, if it is intended to let the community finance and manage such infrastructure then the community must be involved in the initial stages of selection and formulation of social objectives. Second, there appears to be a need to develop programmes over time using the "action-reflection-action" methodology of participatory development, which essentially requires extensive experimentation, and flexible and non-bureaucratic systems of management. Third, technologically low-cost solutions with which communities can identify and easily operate are critical. Fourth, the catalytic agents in any community programme are the community workers who must emanate from within the community itself. Such individuals are not only the future leadership of the poor, but the forces that motivate the community to participate in the management and financing of such programmes. Fifth, many non-governmental organizations have been initiated by individuals who have extensive vision, social commitment and a charismatic personality. Such individuals need to be identified and encouraged in their efforts. Finally, there has to be a willingness to learn from the community and from existing, and sometimes informal systems of operation and service provision.

With regard to the last point, it is clear that the informal sector plays a large role and is likely to continue to do so in providing services for the urban poor. Much of the affordable low-income housing development in urban Pakistan, for example, is undertaken by the informal sector, which provides both credit and instalment payments to slum and squatter dwellers seeking shelter.[33] The Orangi project effectively copied parts of the informal sector's systems of operation as well as incorporated informal sector units and agents into its programme of housing and sanitation support. The manner of such informal operations needs to be understood by the Government if it is to be able to provide services at the prices at which the informal sector has been able to do so. This has been attempted in the Pakistan city of Hyderabad where a public housing scheme for the poor has used the informal sector model of providing low-cost shelter.[34] This, in contrast, appears to have been more successful than earlier formal attempts at providing low-income housing in urban Pakistan.[35]

Non-governmental organizations, however, are far from being the panacea to social and physical infrastructure coverage and delivery problems. A number of concerns regarding the functioning of these organizations need to be noted. First, there is often a power relationship and hierarchy that emerges between the non-governmental organization and the community in which it works. In some cases, the non-governmental organization can in effect become a new form of bureaucracy riding on the backs of the communities it has set out to support. Second, there is a tendency for the community to become dependent upon the non-governmental organization and thereby unable to manage and develop community-based programmes in a self-reliant manner. Third, if the non-governmental organization is an external agency it often provides sets of solutions that can be inappropriate to local needs. Finally these organizations can, and do, concretize existing social hierarchies within the community by utilizing the dominant power structures. These concerns also suggest that greater efforts should be made at identifying indigenous community-based programmes which may exist without external non-governmental organization support or inducement.

At a macro level questions of replicability have also seriously plagued non-governmental organizations and community efforts at developing social infrastructure measures. It appears that for many programmes certain unique features of a region, a community, or a type of non-governmental organization, may have had a great deal of impact in determining relative success. In addition not all programmes can be feasibly left to non-governmental organizations or community groups to develop, particularly if universal levels of coverage are aimed at or scales are large. Ultimately, of course, the question is raised as to whether services which were formerly considered the social responsibility of the State should be handed over to non-governmental organizations.

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[33] A. Hasan and C. Vaidya, *op. cit.*

[34] A.H. Aliani and Y.K. Sheng, "The incremental development scheme in Hyderabad", *Cities*, vol. 7, No. 2, May 1990.

[35] *Ibid.*

V. SELECTED POLICY ISSUES IN INFRASTRUCTURE DEVELOPMENT

INTRODUCTION

A number of important policy issues relating to physical and social infrastructure, which lie beyond the more immediate financial, managerial and institutional concerns discussed in the preceding chapter, have also aquired increasing importance in the region. Four such broad subjects are addressed in this chapter: special problems relating to infrastructure development in the least developed and Pacific island economies; technology and human resources; environmental impact; and regional co-operation.

The discussion on the first subject focuses on the special needs of and constraints on infrastructure development in these countries which suffer from a variety of disadvantages. The other three subjects are in the nature of specific themes underlying almost all categories of infrastructure and thus deserve special attention.

A. SPECIAL PROBLEMS OF THE LEAST DEVELOPED AND PACIFIC ISLAND COUNTRIES

The review of infrastructure development in the preceding chapters has been largely based on the experience of countries where such infrastructure facilities, though never adequate, are generally available. In the least developed and Pacific island countries in the developing ESCAP region such facilities are often conspicuous by their absence. Many do not have a shipping or a railway line. Others may not have a university, a medical or an engineering school. Both in the extent and quality of their infrastructure, there is a considerable gap between these groups of countries and other developing economies, especially in South-East and East Asia. This often reflects not only the small size and low per capita income but also the consequence of several physical, structural and institutional constraints faced by these disadvantaged groups of countries.

The magnitude of these problems, however, has tended to grow with the continued poor economic performance of many least developed and Pacific island countries in the past two decades or so.[1] Poor growth performance and low per capita incomes have an adverse effect on economic and social progress, and on the quality of life in many of these countries. Thus the widening of the domestic resource gap has a negative impact on infrastructure provision, and sets a vicious circle which can only be broken by either a massive infusion of capital or a sudden unforeseen change in economic fortunes. Inadequate transport and communications facilities and services, for example, have a direct bearing on the provision of and access to social infrastructure in most countries, while the persistent shortage of affordable commercial sources of energy has contributed to, among other things, extensive deforestation and severe environmental degradation, particularly in several least developed countries in South Asia.

1. Physical constraints

Dominant among the host of special development constraints are serious physical barriers to infrastructure, as well as general development. Many of the least developed countries in Asia, including Afghanistan, Bhutan, the Lao People's Democratic Republic, Myanmar and Nepal, are land-locked and characterized by difficult terrain and less than hospitable topography. This renders the extensive and integrated development of infrastructure networks, and their maintenance, very costly; it also contributes to the uneven concentration of available infrastructure facilities and services in relatively more accessible locations, mainly urban areas.

Four of the least developed countries in Asia are land-locked, with the consequent adverse implications for the feasibility and efficiency of infrastructure development, particularly of transport systems. In contrast, Maldives

[1] For details of their patterns of economic growth and structural transformation, and related issues and problems in development policy and planning, see *Survey*, 1989, pp. 103-164; and ESCAP, *Development Performance of the Least Development Countries of Asia and the Pacific Region in the 1980s and Their Prospects for the Decade Ahead* (ST/ESCAP/898).

and other developing islands in the Pacific subregion are "sea-locked". Many island countries are also highly fragmented into widely dispersed smaller islands or groups of islands. Tuvalu, for example, has a land area of only 26 sq km among its nine atolls. These, however, cover an exclusive economic zone of 900,000 sq km. Similarly, Kiribati has only 690 sq km of land surface, but the distance between the two most separated islands measured from north to south is about 3,900 km, and from east to west over 2,000 km. Other Pacific island economies suffer from less extreme physical fragmentation and remoteness. Nevertheless, their marked insularity has raised the cost, and reduced both the availability and coverage, of a wide range of physical and social infrastructure in the subregion, apart from the uneven distribution as noted earlier.

A large number of least developed and Pacific island countries are also highly vulnerable to natural disasters ranging from severe and extensive flooding, as in Bangladesh, to tropical cyclones, droughts, earthquakes and volcanic eruptions. The 1980s, for example, witnessed a series of highly damaging weather conditions and natural disasters in several least developed countries in South Asia as well as in the Pacific islands.[2] The vulnerability of these island economies is extreme because a single disaster may endanger a sizeable segment of the population, destroy a large part of the productive assets and painfully-built infrastructure, leaving a long-lasting adverse effect on their long-term capital development programmes and growth potential. Direct losses caused by a 1987 cyclone in Vanuatu, for example, were estimated to be equivalent to nine tenths of the country's GDP. Difficult topographic and climatic conditions add another burden on infrastructure development through the destruction of physical facilities that are often very specific in nature and, therefore, costly.

Structural constraints on infrastructure development are equally severe in most least developed and Pacific island countries. All the island countries (whether least developed or not) have a total population of much less than 170,000 except for Fiji, Maldives, Papua New Guinea and Solomon Islands; eight island economies have less than 40,000 people and another three, less than 100,000. Such a small and widely dispersed population base does not allow economies of scale in infrastructure development. This factor, among other things, accounts for the relatively higher costs per unit of output or service in island energy, transport or communication facilities. It has also precluded the extensive provision of a wide range of economic and social facilities and services that are possible in larger countries or even in the large urban areas in Asia.

At the other end of the spectrum, Afghanistan, Bangladesh, Myanmar and Nepal have a large population base and relatively high levels of population density and growth rates. In particular, the average population density levels in Bangladesh, at over 722 persons per sq km, and Maldives, at 647 persons, are among the highest in the world. There is, at the same time, a disproportionate concentration or aggregation of population in cities at the subnational level, thus over-extending significantly the carrying capacity of the limited physical and social infrastructure that exists.

The structural conditions of heavy urban congestion and growing needs, aggravated by a persistent and serious resource gap, raise costs for infrastructure development and affect the equitable coverage of existing facilities and services. The problem is particularly acute in cases requiring large initial investment outlays with a significant foreign exchange content, such as modern energy, transport, telecommunications and health care systems and facilities. The considerable burden on the budget of recurrent costs associated with established infrastructure poses another critical problem which will be discussed in greater detail later on.

Other major structural constraints include the persistently low rates of aggregate savings in many least developed and Pacific island countries.[3] More importantly, these rates show marked variations, reflecting domestic economic instability induced by the export earnings cycle, bad weather conditions, and responsive measures implemented for short or medium-term economic and financial stabilization. Such measures, in particular fiscal austerity, have had an unfavourable impact not only on infrastructure development and maintenance, but also

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[2] For details, see *Survey*, 1989, p. 108.

[3] During the 1980s, for example, the annual rates of gross domestic savings ranged from negative or very low magnitudes (Kiribati, the Lao People's Democratic Republic and Samoa) to around 10 per cent or less in a large number of these countries. The inclusion of net factor income and net private transfers (principally from migrants and workers abroad) doubled the national savings rate in Bangladesh to about 6 per cent a year, and raised that of Samoa to about 20 per cent. *Survey*, 1989, pp. 138-139; and ESCAP, *Development Performance of the Least Developed Countries of Asia and the Pacific Region in the 1980s and Their Prospects for the Decade Ahead*, (ST/ESCAP/898), pp. 13-14.

on equity in coverage and distribution of existing facilities and services. Periodic disruptions in development and maintenance programmes, in turn, contribute to costly delays and deterioration in facilities and services, as well as to reduced usefulness of the existing infrastructure because of inadequate complementation and sharp cost overruns when development is resumed. Bangladesh, the Lao People's Democratic Republic, Myanmar, Nepal, Papua New Guinea and Samoa are among the least developed and Pacific island countries which have adopted expenditure restraint programmes and/or availed themselves of multilateral financing through short-term stabilization and structural adjustment programmes of the International Monetary Fund (IMF) and the World Bank.

The acute lack of skilled and experienced human resources constitutes both a structural and institutional constraint on infrastructure and social and economic development in general. This, in part, is attributable to emigration, whether temporary or permanent, and the failure to attract the return of persons educated overseas, although such emigration is often a source of substantial inward remittances for many economies, including Bangladesh, Cook Islands, Nepal, Niue, Samoa and Tonga. Notwithstanding the rapid expansion of post-primary education in the least developed and Pacific island countries, the persistent shortage of trained human resources also reflects the inability of education facilities and services to respond effectively and on a sustained basis to changing or evolving needs. Issues of relevance, quality and balance among different levels and types of post-primary education pose even more acute problems in these countries than in other developing centres of the region.

The consequences of the inadequacy of human resources development can be seen in many ways. The inability to adapt appropriate technologies, and insufficient skills for maintenance and repair of physical infrastructure are among the more serious effects. Weaknesses in the planning of infrastructure projects, as well as in their programming and implementation, often result in inefficiencies in the general mobilization and allocation of resources, and hence the general development and transformation process. As discussed elsewhere (in part two, chapter IV and this chapter), efficiency gains can be considerable when there is a strong public-sector capability in the least developed and Pacific island countries to appraise major infrastructure projects in their *ex-ante* stage, particularly with special emphasis on the choice of technology, *ex-post* financial implications, and long-term environmental impact.

It is pertinent to note, in this context, that many of the difficulties faced by the least developed and Pacific island countries in their general economic or infrastructure development stem from the relatively short historical experience in modern development planning, management and administration. For example, many Pacific islands gained independence or self-government only from the mid- or late 1970s. A formal budget and taxation system emerged in Bhutan only in the early 1970s. Generally, therefore, basic administrative and financial planning and management institutions and capabilities have tended to be poorly developed. Nevertheless, significant progresss has been achieved, particularly in the larger countries in the South Asian and Pacific island subregions, in the past decade although, by and large, the scope for improvement with respect to infrastructure development and management has by no means been exhausted.

2. Comparative patterns of infrastructure development

The variety of physical, structural and institutional constraints to the development and transformation process in general, and to efficient infrastructure establishment and management noted above have resulted in a level of availability and coverage of related facilities and services in the least developed and Pacific island countries which has been much less favourable compared with those prevailing in the more fortunate economies in South-East and East Asia. There are, however, sharp differences in the patterns of infrastructure development and availability within the least developed and Pacific island economies themselves.

The level and rates of growth of commercial energy consumption are among the major indicators of development and modernization. The available data, although rather limited, reveal per capita annual consumption ranging from about 20 to 70 kg of oil equivalent in Bangladesh, the Lao People's Democratic Republic, Myanmar and Nepal during the mid-1980s; in comparison, the corresponding volume averaged between 200 and 400 kg in Indonesia, the Philippines and Thailand. Afghanistan, Maldives and most economies in the Pacific island subregion exhibit greater energy intensity in their domestic activities ranging from 130 to 350 kg of oil equivalent in terms of per capita consumption annually. This is attributable in the subregion to the greater prevalence of commercial energy sources and infrastructure, particularly electricity transmission

facilities, plus energy-intensive mining operations in Papua New Guinea, and agro-processing and tourism development in several others, including Fiji, Samoa and Vanuatu.

In many Asian least developed countries, traditional sources of fuel have continued to provide the large bulk of domestic energy needs. Such a reliance has contributed to environmental degradation through deforestation particularly in several areas of the South Asian subregion. Afghanistan, Bhutan, Fiji, the Lao People's Democratic Republic and Nepal are among the countries with a significant hydropower generation capacity. Although hydropower is a clean energy source, there are long-term environmental effects, elaborated later in this chapter, which deserve careful monitoring and analysis.

Given the highly divergent geographical conditions in many least developed and Pacific island countries, there is no single indicator which can adequately illustrate the availability and coverage of transport infrastructure. Pacific island economies have no public railway system although this mode of transport is of considerable importance in several least developed countries in Asia. In terms of road density, however, Afghanistan, Fiji, the Lao People's Democratic Republic, Myanmar, Nepal and Papua New Guinea have a total road length per thousand sq km of land area ranging from 5 to 15 km, one of the lowest in the region. The difficult topography, among other major causes of this situation, has also led to the concentration of such facilities in more accessible, urbanized locations. Inland water transport and traditional transport modes (including animal-drawn carts, sailboats and tricycles) remain relatively important in several Asian least developed countries. In the Pacific island subregion, however, coastal and ocean transport equipment and port facilities are of great importance and relatively modern in nature.

Partly to compensate for the absence of other means of transport and communication, the Pacific island subregion tends to be better provided with telecommunications facilities than most of their least developed counterparts in Asia. The level of telephone density, for example, averaged just below 1 to almost 5 sets per 100 persons in many island economies, compared with fewer than 0.3 in Afghanistan, Bangladesh, the Lao People's Democratic Republic, Myanmar and Nepal in the mid-1980s. Telephone, telex and radio transmission facilities are particularly crucial to overcoming the severe degrees of remote insularity typical of most island economies.

Many least developed countries in Asia depend on extensive networks of water reservoirs, dams and canals for the irrigation of agriculture, although this mode of water supply is of limited importance to most Pacific island economies. However, research and extension services have proved instrumental in the widespread development of commercial cropping, and related agro-processing activities, particularly in Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu. Generally, however, agricultural support facilities and services in many least developed and Pacific island countries have been under severe funding pressures. There are also issues relating to effective co-ordination between research and extension services, and to the efficient transmission to individual farmers of improved knowledge and practices, as discussed at some length in chapter II, section C.

With few exceptions, the Pacific island subregion has generally had a reasonably good record of education and, to a lesser extent, health care in spite of severe constraints on the provision of the related facilities and services. Universal primary education has been more or less achieved in most of the smaller island economies, as well as in Fiji, Samoa and Tonga. The situation in the Lao People's Democratic Republic, Myanmar and Nepal (for males) is also encouraging although enrolment ratios are lower in other least developed and Pacific island countries. A disquieting trend is the persistence of low ratios in rural areas and for women in several of these countries.

There are no significantly sharp differences among the least developed and Pacific island countries in life expectancy, which has improved considerably in the past two decades. Generally, health care facilities and services appear to give greater coverage in the island subregion in terms of the number of people per hospital bed or of medical personnel. With few exceptions, there is also a higher percentage of immunization of children against serious diseases in several island economies compared with the corresponding ratios in most Asian least developed countries. The mortality rate of infants under five years of age is also lower, although such a rate has shown an enormous improvement in the least developed and Pacific island countries over the last two decades or so.

The urban populations in Pacific island economies tend to have a much better access to safe water and sanitation services than their counterparts in the Asian least developed countries. As in the case of other facilities and services, there is a bias of coverage against rural areas particularly in the larger countries

in the Asian and the Pacific island subregions. The continuing fast pace of urbanization in several of these countries, the acute constraints on government finance and human resources, and the high cost of water supply and sewerage facilities generate perhaps insurmountable barriers to any significant extension of coverage in urban or rural areas in the coming decade.

3. Issues and implications in infrastructure development

The range of financial, management and institutional issues in infrastructure development analysed in the preceding chapter (chapter IV) are also applicable in varying degrees of urgency and intensity, to most least developed and Pacific island countries. The discussion below elaborates further on the implications relating to the recurrent financing of infrastructure development in these countries. In addition, certain issues and options in their infrastructure development, with special emphasis on human resources development and technological choice dimensions, are also discussed. This is to provide a specific backdrop to a more general discussion on these issues and options in the rest of this chapter in the context of the developing ESCAP region.

The least developed and Pacific island countries face a classic dilemma in the financing of infrastructure development. Expenditure on infrastructure has almost wholly been underwritten by the substantial inflow of official development assistance (ODA) in many cases. In turn, this has appreciably expanded the recurrent budget in the medium to long term, which few of these countries can provide for without considerable difficulty. Yet any significant scaling down of capital outlays could lead to a self-reinforcing cycle of economic decline because it would adversely affect not only the current low standard of living, but also the quality of life. It would also further depress local economic activities and hence internal revenue growth, contributing thus to a larger budget deficit. At the same time, the scope for economies on non-essential outlays and domestic resource mobilization is severely limited, notwithstanding the concerted efforts made by government in these areas.[4]

The new willingness of many donors to provide for recurrent and counterpart expenses of certain infrastructure projects, discussed earlier, would help ease considerably the financing problem which has proved particularly burdensome in most least developed and Pacific island countries. Indeed, it was recommended by a committee reviewing the Australian aid programme that, in exceptional circumstances, budget support be provided to very small Pacific island economies.[5] A related, and more general, issue concerns the stability and predictability of the annual aid flows in the future, particularly in view of the substantial importance of such resources in the domestic capital formation of these countries.

Among the innovative modalities and initiatives in this regard are the Tuvalu Trust Fund, a series of five-year agreements between the Government of Australia and Papua New Guinea with explicit specifications regarding the size of annual aid flows, and a similar agreement relating to future financial assistance in the compacts of free association between the United States and the Federated States of Micronesia and the Republic of the Marshall Islands. It is well recognized that ODA has to be appropriated annually in donor countries. This technical requirement however, is unlikely to be insurmountable given the spirit of understanding between the donor and recipient countries.[6] Yet the possible options, if widely adopted, would greatly facilitate the effective programming of long-gestation capital assets and of their maintenance and operations, to ensure maximum utility for the recipient countries concerned.

Given the constraining circumstances of the least developed and Pacific island countries, the pattern and pace of infrastructure development is necessarily conditioned by a realistic appreciation of viable development opportunities and potential. For the larger economies, agricultural growth through intensification and diversification is essential not only for ensuring food security and adequate nutrition, but also for any significant reduction in the severe levels of rural unemployment and poverty at present.

Irrigation has absorbed a large part of public sector resources

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[4] Most of these countries have been able to realize a large resource transfer, largely through taxation, over the last two decades. This, however, has not been accompanied by any noticeable upward trend in domestic savings, thus implying a certain crowding-out impact, among other adverse repercussions. On the other hand, there is some scope for revenue raising through greater efficiency in tax design and administration. *Survey*, 1989, pp. 140-141.

[5] *Report of the Committee to Review the Australian Overseas Aid Programme* (Canberra, Australian Government Publishing Service, 1984), p. 6. Australian grants-in-aid have been made available to Papua New Guinea in a series of medium-term agreements between the two Governments because of special historical relationships.

[6] *Survey*, 1985, p. 69; *Survey*, 1986, p. 58; and *Survey*, 1989, p. 149.

directly through big projects, and indirectly through heavily subsidized energy sources and long-term credit which have contributed to the rapid expansion of private schemes. A general issue concerns the appropriation by well-placed farmers of support facilities and services intended to be of more general application. There are less expensive solutions in water provision, such as better maintenance of existing irrigation systems, developing small-scale community-based (or controlled) facilities, improving rain-fed, flood-prone and upland cropping which still occupies a larger proportion of cultivated area but registers low levels of productivity.

Agricultural extension services are crucial, in this connection, for induced technical changes although the provision of such services has not been an unqualified success. At the same time, the acute shortage of support infrastructure, service roads and appropriate technologies in particular, as well as patterns of ownership, tenancy and land rights have also made it very difficult to assist small and upland farmers. These options and issues in agricultural infrastructure development, and related policy implications, were examined at some length in the previous chapters (chapters II and IV).

In most least developed and Pacific island countries, certain manufacturing and service sectors have to be depended on for accelerated growth, if only because agriculture cannot be expected in the long run to expand much in excess of 4 per cent per annum; this historically very high rate of growth is essential for any real intersectoral transfer of investible resources. A key element in such structural transformation is the size and quality of the labour force, apart from complementary physical infrastructure. A perfect match between the long-term technical needs and education outputs is scarcely possible. There appears, however, to be scope for improvement in a wide variety of skills at various levels ranging from those for repair and maintenance of agro-industrial equipment to management in support of the expansion of small-scale industry.

Equity, access and other considerations underline the need in most Asian least developed countries and some Pacific island economies to raise school enrolment ratios well above the prevailing levels. Yet, as noted previously, the questions of quality, relevance and balance among different levels and types of post-primary education will prove intractable, as they have already done so in many developing countries which have already reached high ratios. In particular, the well-known divergence between perceived private returns on particular types of skill or education and social benefits remains yet to be corrected through lower subsidies or higher user charges.

Government services will remain an important source of employment in many smaller least developed and Pacific island countries owing to limited opportunities for development in agriculture, industry and, with some exceptions, service sectors. Educational and training facilities and services must thus be geared toward the adequate development of clerical and secretarial skill structures based on secondary education achievements, and of generalists, rather than specialists, in administration and resource management. As mentioned earlier, it is also necessary to generate a domestic capacity to choose among the available alternative technologies, such as telecommunications, power generation and information systems, in the provision of public goods or among different foreign aid projects available from donors. The special skills involved probably have to be obtained from tertiary education abroad and, in this connection, there are good possibilities for sub-regional co-operation. The University of the South Pacific is a case in point for general post-secondary education.

For several least developed countries and many Pacific islands, tourism and financial services offer another option for economic growth and restructuring. These export subsectors require certain types of infrastructure, transport, telecommunications, hotel facilities and marketing networks, some of which are suitable for donor or private sector provision (through joint ventures or wholly-owned foreign subsidiaries). In particular, air transport provides an effective means for high-value exports in spite of locational or geographical disadvantages. The spectacular success of Mauritius illustrates the great potential of air freight services for quality horticulture, fishery products and assembly-type manufactures that could be raised and produced in Bhutan, Fiji, Myanmar, Nepal, Samoa and Tonga, among other least developed and Pacific island countries. External resources could contribute usefully to the establishment of ancillary facilities and services.

Increased ODA, as well as access to external markets and investible resources, will be crucial to the success of these countries in exploiting some of the available opportunities. However, their heavy dependence on foreign aid for infrastructure development has not been without financing problems, although several of these can be more or less resolved as noted earlier. A more pressing need, not only for infrastructure development, but for economic development in general, is for

enhancing and strengthening institutional and administrative capabilities for responding to changing economic circumstances, an ability often even more critical than that of making the right initial choice. These imply the need for an administrative infrastructure and ancillary capabilities which have yet to emerge fully in most least developed and Pacific island countries.

B. TECHNOLOGY AND HUMAN RESOURCES DEVELOPMENT

Technological capacity in the form both of "material technology" embodied in the equipment associated with the production process and "social technology" tied to the process of formation and enhancement of skills and knowledge of the work-force are extremely important factors in raising efficiency in the development of physical and social infrastructure. Questions of technology choice, that is the adoption of capital- or labour-intensive production techniques, and the subject of appropriate technology have always been at the centre of policy discussions in economic development, of which infrastructure development is an integral part. In addition, new technological innovations, such as micro-electronics and information technology, numerically controlled machine tools, robotics and computer-aided techniques have had a major impact on a number of infrastructural sectors recently. In particular, the revolutionary developments in informatics, being "process as opposed to product orientated" development, have not only transformed the telecommunications sector but influenced all aspects of economic activity.[7] New technological advances have also emphasized the importance of research and development (R & D) as an integral aspect of enhanced technological capacity. Importantly, it has served to underline the necessity of having a "synergetic relation between the education system and technology acquisition", emphasizing the link between human resource capacity and technology.[8]

In the larger context, appropriate technologies for infrastructure have to be seen in the light of the overall technology policy of the government, in particular to industrial and manufacturing technologies. This is in itself inextricably tied to the emerging patterns of the international division of labour and globalization of trade which influence, and are influenced by, the nature of technology and human resource capacity in any given economy. Furthermore, it has been emphasized that the ability to assimilate new technologies is greatly dependent upon the existence of an adequate institutional base, "broadly defined as the ways of doing and thinking".[9]

1. Choice of technologies

Very often the range of technologies available for the construction and operation of infrastructural projects is limited. Where sophisticated technologies are necessary in the provision of certain infrastructure facilities, such as a satellite-based telecommunications network, there is in effect little choice of technique. In certain types of physical infrastructure there may be some degree of choice available only in the techniques of construction and not in the infrastructure itself. For example, in the building of a railway line there are both labour-intensive and capital-intensive methods of construction available, while in the establishment of an efficient signalling system, the choice may be rather limited. Alternatively, the choice of technology may depend upon the size of a project. Thus, a small-scale irrigation or power project may have a greater range of technologies available to it than a large-scale energy or irrigation system.

Where choices do exist, in whatever limited fashion, the technology adopted would usually be determined by relative factor endowments. This is predicated, however, on the condition that factor prices broadly reflect factor scarcities and that market rigidities in allocating endowments are minimal. In most developing economies, this is not always the case. There exist a number of market distortions that result in underpricing capital and in making wages higher than their social opportunity cost. Some of these distortions of the factor prices come about through deliberate policy actions designed to mobilize greater private and foreign investment. Thus in many developing countries distortions in favour of capital intensity have been introduced in the form of subsidized credit for large firms, and by tax concessions dependent on the scale of fixed capital investment. Over-valued exchange rates (and in certain cases dual exchange rate structures) serve to make capital imports relatively cheaper and distort resource allocations.

As a consequence of these factors, construction of infrastructural projects, such as roads,

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[7] M. Castells and L.D'Andrea Tyson, "Growing impact of the technological revolution", *Economic Impact*, No. 70, 1990/1.

[8] ESCAP, *Restructuring the Developing Economies of Asia and the Pacific in the 1990s* (ST/ESCAP/879).

[9] H.T. Oshima, "On the transferability of institutions from abroad: lessons from the Japanese and Philippines experience", *The Philippine Economic Journal*, vol. 22, No. 1 (1983).

energy and irrigation systems, water supply and sanitation schemes, have often been undertaken with capital-intensive techniques despite the abundance of comparatively cheaper labour in low-income developing economies.[10]

In addition to price distortions, institutional factors can also influence technology choice in socially inappropriate directions. Government agencies or public enterprises entrusted with the design and construction of infrastructure are often biased in their choice of technology. A partial explanation for this may lie in the fact that in most developing countries, public sector management is usually in the hands of non-technical and administrative personnel whose training does not prepare them for making appropriate technological choices. The situation is further aggravated by government administrative procedures which often tend to discriminate against indigenous or labour-intensive technology, whose protoganists often lack the administrative, procedural and fiscal support of those proposed by large corporations with access to capital and foreign collaboration.

Although foreign direct investment plays a useful role in the transfer of modern technologies, foreign collaboration in physical infrastructure development often tends to favour capital-intensive techniques of construction. Labour-intensive technologies entail more extensive labour management, an activity which foreign investors often wish to minimize. Additionally, if a foreign company has incurred expenses on a certain process or in the development of special equipment or techniques, it attempts to recoup the cost of its research and development. Where foreign collaborators set up infrastructure projects on a turn-key basis they tend to prefer tried technology rather than risk capital on non-commercialized know-how. A similar situation often arises where infrastructural development funding is made available through bilateral assistance, wherein the donor country has the leverage in promoting the technology and production methods of its own firms in preference to those considered more appropriate by the recipient country.

2. Appropriate infrastructure technologies

Rising levels of unemployment inspite of industrial growth in most developing nations, high and increasing capital costs of infrastructural delivery and the particularly poor infrastructural coverage obtained by rural and low income communities provided the impetus in the 1970s for research on "more appropriate" technologies. A number of studies and technical projects related to low cost, relatively labour-intensive, appropriate technologies for infrastructural programmes were undertaken by various international organizations and universities.[11]

Appropriate low-cost technologies for water supply and sanitation can provide full coverage with associated health benefits at a substantial cost savings over existing modes of delivery.[12] Conventional technology for human waste disposal requires a massive investment of both foreign and local capital that is generally not available in developing countries. This makes such technologies inaccessible to many poorer communities. A World Bank study on alternative sanitation technologies found that the hypothetical monthly costs (measured in 1978 prices and incorporating both construction and operation expenditure) ranged from $US 2.0 for pour-flush toilets to $US 25.8 for septic tanks.[13] Septic tanks and sewerage systems were found to be the most expensive technologies, costing twice as much per unit as the medium-cost technologies of aquaprivies, composting and communal toilets. Pit latrines and pour-flush toilets were found to be the least expensive techniques for human waste disposal.

An area where appropriate technologies could play a critical role is in complementing the infrastructure for electricity, with is limited at present to urban industrial centres and affluent households in many countries of the region. Small-scale low-cost energy technologies have proved to be effective in rural areas. In China, traditional, or biological, energy sources have accounted for the bulk of energy consumption for domestic use in rural areas (figure II.14). A similar phenomenon if observed in rural India. The Asia and Pacific region as a whole is reported to account for 48 per cent of total global fuelwood consumption, with 1.5 billion persons in the

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[10] Frances Stewart, "Technology and employment in the LDCs", *World Development*, March 1974; Paul Streeten, *First Things First: Meeting Basic Human Needs in the Developing Countries* (New York, Oxford University Press, 1981).

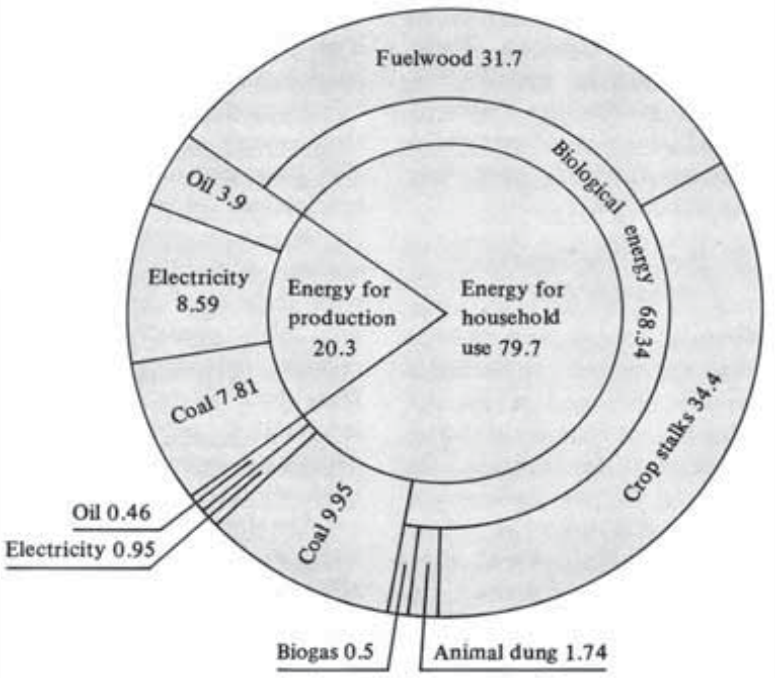
[11] A.S. Bhalla, ed., *Technology and Employment in Industry* (Geneva, International Labour Organisation, 1985).

[12] J.M. Kalbermatten, D.S. Juluis and C.G. Gunnerson, *Appropriate Technology for Water Supply and Sanitation* (World Bank, December 1980).

[13] World Bank, "Water Supply and Sanitation", *Poverty and Basic Needs Series* (Washington D.C., 1980).

Figure II.14. Rural energy consumption in China

(Percentage)



Source: FAO, *Rural Energy Planning in China and Other Developing Countries of Asia*, Environment and Energy Paper, No. 5 (Rome, 1985).

region, predominantly rural dwellers, dependent upon fuelwood as the primary source of energy for cooking and heating purposes and consuming an estimated 1,000 million cubic metres of fuelwood annually.[14] Despite attempts to improve the efficiency of fuelwood stoves and accelerate afforestation campaigns in the region, the rapidly declining acreage under forestry has focused attention on alternative and renewable sources of energy and energy technology.

Work done by various organizations, such as the Intermediate Technology Development Group, Dian Desa, an Indonesian action-oriented appropriate technology group affiliated with the Gadjah Mada University in Jogjakarta, and Soong Jun University in Seoul has identified renewable and non-renewable energy systems which are low cost, appropriate and efficient.[15] These include, methane and ethanol produced from animal wastes, crop residues and feedstocks as sources of energy, solar energy for water heating, cooking and crop drying purposes as well as solar photovoltaic cells, wind-powered energy systems and small hydroelectric schemes. The commercial viability of such forms of energy is heavily influenced by the market price for oil and oil products. The recent rise in the world oil market price following a period of relatively low oil prices is likely to add to efforts to develop such alternative energy sources.

Biogas plants, generating energy from gaseous fuels produced through the anaerobic digestion of human and animal organic wastes, are estimated to be capable of providing energy for the cooking needs of 166 million persons in the region.[16] During the mid-1980s China was estimated to have 6.5 million biogas units in use, and India had 650,000 biogas plants in operation. In contrast, Nepal, Pakistan and Thailand had no more than 5,000 biogas plants being used by rural dwellers.[17] While the potential for biogas technology is large in rural localities, there is still a long way to go in disseminating such energy systems in rural areas. Other biomass forms of energy being developed and utilized in the region on a smaller scale are fuel ethanol distilled from sugar-cane (on a small scale in the Philippines) and gaseous fuels from gasifiers fueled by rice husks and coconut shells (found in parts of China, Myanmar and the Philippines).[18]

Solar energy is being used for water heating purposes in China (it is estimated that 100,000 solar water heaters are operating in Beijing alone), and on a much smaller scale for cooking in India, as well as for the drying of crops and animal hides in India and China. Photovoltaic cells using solar power have been used to generate electricity for small rural settlements that are not covered under the electricity distribution network. In Pakistan such technology is reported to have been used to generate between 5 kWh and 100 kWh of energy per system.

[14] ESCAP, *New and Renewable Sources of Energy for Development*, Energy Resources Development Series No. 30 (ST/ESCAP/580).

[15] *Small Industry Development Network*, vol. 4, No. 2, 1st Quarter, 1978.

[16] ESCAP, *New and Renewable Sources of Energy for Development*, Energy Resources Development Series, No. 30 (ST/ESCAP/580).

[17] *Ibid.*

[18] *Ibid.*

Photovoltaic cells have also been used in the Pacific island economies and in some of the more remote atolls in Maldives. In the Philippines solar photovoltaic energy has been used to provide energy for water pumps on small irrigation schemes.[19]

Wind power also has a potential role as a source of industrial and household energy and there have been some attempts in the region at harnessing it to generate electricity and as a water pumping system. The Philippines has approximately 300 commercial windmills in operation while Pakistan has been using small low velocity windmills for water pumping as well as installing windmills for power generation along isolated coastal regions in Baluchistan province.[20]

Small-scale hydroelectric schemes have, however, proved to have a far greater energy potential. In China it was reported that by 1985 there were 1,037 small hydro plants of 460 MW capacity generating a total of 9,500 MW or 22.6 billion kWh of electricity. This accounted for a quarter of the total electricity generation in the country.[21] China's success in developing small-scale hydroelectric plants has spurred other nations in the region, which have a potential for small dam developments (for example, it is estimated that 27,000 MW of electricity could be generated in Nepal with the aid of small-scale hydroelectric plants) to look towards such low-cost systems of energy generation.

The preceding brief survey of the experience of various countries in the region in making use of low-cost, appropriate technologies shows that they play an important role in extending the coverage of a number of infrastructure services. It also shows that these technology alternatives are both technically feasible and economically efficient. There is also evidence of considerable substitution possibilities between capital and labour in infrastructure construction in both core and ancillary operations.

3. New technologies for infrastructure

There is no necessary conflict between appropriate technologies of the kind discussed earlier and the adoption of new technologies in infrastructure development. On the contrary, the new technologies provide possibilities for "leap frogging" and saving several intermediate-level investments in infrastructure, especially in training and human resources development. These technologies should be employed where appropriate and feasible to enhance the efficiency of infrastructure design, construction, operation and maintenance. New technologies such as microelectronic information technology, telecommunications, computer-aided design, biotechnologies, new materials (alloys, ceramics, composites) can assist developing countries not only in upgrading the quality but also in facilitating their access to a wide range of infrastructure.

Of the more recent new technologies, micro-electronics has had the greatest impact upon infrastructural services and as a result has been the most widely adopted. Telecommunications is recognized as being the critical infrastructure for the 1990s, evolving into the "nervous system" of industry and ultimately determining the overall level of efficiency in the economy. Its increased importance as a sector rests both on new business demands for information flows and on the breakthrough in information technologies.

The electronic and communications based information technology revolution allows developing countries to make a quantum leap forward in enhancing their telecommunications sciences and their overall productive capacities. The development of digital communications provides more effective ways of coping with increasing volumes of traffic. Digital systems with their error-checking facilities and high capacity offer more reliable facsimile and computer links and fewer delays. Such information networking is now considered necessary to business applications.

Developing economies which have significantly upgraded their telecommunications facilities to the state-of-the-art level include Hong Kong, Indonesia and Singapore. Indonesia, for example, has significantly improved its telecommunications following the move in the 1970s to implement an expensive satellite-linked communications system to unify the country. Indonesia is the third country in the world, after the United States of America and the Union of Soviet Socialist Republics, to create a domestic satellite-transmitted communications network. Such information systems are not only improving communications but actively motivating industrial development and foreign investment. The advantages of an advanced telecommunications system are also being experienced in certain low income countries. Viet Nam, for example, has used the new technologies to transform its antiquated telecommunications service from one dependent on the operator to a modern service linked to an earth satellite. Other developing countries need to follow suit if they wish to improve or even maintain their global competitive advantage.

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[19] *Ibid.*

[20] *Ibid.*

[21] *Ibid.*

An advanced telecommunications system has additional advantages for developing countries in that it improves the productivity of other sectors. For example, the development of data banks and access by means of satellites make it easier for rural communities that lack substantial infrastructure to make use of information technologies. According to a study, the installation of decentralized systems could have beneficial effects not only for the more efficient management of small and medium-sized concerns (rural co-operatives in particular) but also for agriculture, health and education. In fact, the assessment of natural resources, the spread of meteorological data and forecasts, the prevention of certain natural disasters (for example by anticipating the migration of swarms of insects) could gain from the flexibility of new systems of data collection and processing. Several developed and developing countries are already co-operating on projects involving the distribution of drugs, health education and delivery systems, epidemiological surveys and assistance in medical diagnosis via access to expert systems.

The new micro-electronic technologies may also be applied to improving existing transport infrastructure. The availability of low-cost microcomputer technology can increase the efficiency of road maintenance operations. For example, a project management and control system using microcomputers can link together three well-known techniques for controlling the progress of road construction and rehabilitation projects. The system offers great flexibility in programming detail and includes the bi-axial graph, the bar chart and arrow-network diagram.[22] The potential beneficiaries of this relatively inexpensive, user-oriented computing power are likely to be the national and state road organizations in developing countries.

The diffusion of micro-electronic technology through the development of software for use in different economic activities can also greatly enhance the economy's overall productivity. The availability of cheap hardware and software in information technology can greatly spread the diffusion process. In the South Asian countries the rapid diffusion of this technology could absorb the vast reservoirs of educated unemployed to produce software and computer-based products for exports.

4. Research and development and human resource capacity

Infrastructure development and operation require a pool of engineers, technicians and other skilled personnel. In order to absorb new technologies efficiently such a work-force must possess both the necessary and requisite technical skills and have the ability to apply such skills in practical and applied situations. In addition continuing research and development in new technologies and techniques of production are critical for a country that wants to ensure its edge in global trade. Such research and product development is only feasible in economies where a substantive education system exists, with state and private sector support as well as social recognition for a body of scientific researchers.

With rapidly advancing technologies and increasing skill requirements for human resources, literacy and technical standards of education have to be raised above the bare minimum in order to utilize and adapt the new technologies and to improve the efficiency of infrastructure. In addition, it has to be ensured that existing skills are efficiently utilized.

There are also serious deficiencies in the substantive content of training programmes. These have to be removed for efficient utilization of infrastructure facilities. Often the training and calibre of fresh graduate engineers is not relevant to the needs of infrastructural projects, particularly those located in the rural areas. There is usually a lack of hands-on experience in training programmes leaving students ill-equipped to handle, and often totally alienated from, their practical tasks. Training programmes also place little or no emphasis on the increasingly important subject of community development, of great significance for both capital cost reductions and long-term maintenance of certain infrastructural projects in the areas of health care, sanitation and housing. Retraining of existing staff is also necessary to upgrade skills to new technical standards. Such problems are further compounded where educational standards and thereby technical skills in training institutions are falling rather than rising.

An increased role for user communities in infrastructure development also implies that technical and organizational abilities must reside within the community. A major component of human resources development will have to focus on the community itself and the supporting local bodies.

The Republic of Korea, which has already attained universal standards of literacy, high levels of secondary enrolment together with a substantial proportion of

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[22] For details see International Road Federation, *The Management of the Road Infrastructure* (Rio de Janeiro, 1984), pp. 241-248.

total secondary enrolment in technical and vocational training institutions, has given the greatest emphasis to the area of scientific research and product development. Estimated expenditure on research and development as a proportion of GDP in the Republic of Korea was 1.1 per cent in 1980, largely financed by the leading Korean industrial houses.[23] While in proportionate terms this figure is low in comparison with the average for developed market economies (at 2.2 per cent of GDP), it compares favourably with other leading economies in the region which have a substantial technical capacity. India, for example, allocated 0.7 per cent of its GDP to R & D while Singapore spent 0.3 per cent.[24] A major proportion of research and training in Singapore was undertaken by the transnational enterprises that had invested there. In contrast public sector institutes, such as the Korea Advanced Institute of Science and Technology and the Korea Institute of Science and Technology, played a key role in providing training in new technologies. This was also augmented by the growing proportion of research and development funding by the large private Korean corporations.

C. ENVIRONMENTAL IMPERATIVES

After a period of benign neglect by development economists and planners, environmental concerns are beginning to occupy the centre stage of contemporary discussions on economic growth in developing economies. The growing environmental awareness[25] has raised questions about infrastructural projects, particularly those relating to the energy, transport and water resources sectors. This has led to the recognition that in order to offset further environmental damage the evaluation of such projects must incorporate an analysis of the possible environmental consequences in both the medium and long term. As a result environmental impact analyses, resource accounting and energy accounting are slowly being accepted as part of the methodology of infrastructural project selection.[26] Furthermore, natural resources are slowly being accepted as social capital and as part of the national accounts, the degradation of which is an economic cost to society. In addition such heightened sensitivity to man's impact on nature has motivated research into environmentally "clean" technologies appropriate for physical infrastructure. Since environmental matters often transcend national boundaries, they raise issues of managing common global resources. Infrastructural projects, such as the building of dams and flood control, often give rise to situations where the costs and benefits of the project spill over to neighbouring countries. Such situations would require regional and international co-operation to find mutually satisfactory solutions.

1. The impact of infrastructure programmes upon the environment

The nature, impact and extent of environmental damage varies widely according to the type of infrastructural project concerned as well as to the prevailing geological, climatic and geophysical conditions in the region where such projects are developed. An area where environmental effects are fairly pronounced is the infrastructure relating to irrigation and water management.

In the case of tubewell irrigation and water supply infrastructure, over-exploitation of ground water can lower the water table resulting in land subsidence as well as a deterioration in water quality. This results in substantially increased costs for drinking water supply as deeper wells have to be sunk to reach lower aquifers. Where such extraction is not economically feasible increased efforts have to be made at treating partially saline ground water. Excessive ground-water extraction for purposes of irrigation and drinking water is blamed for land subsidence in a number of cities of north China. In certain suburbs of Beijing, subsidence is reported to average 20 to 30 cm annually. Severe subsidence has been reported in Tainjin and Ningbo in China as well as Calcutta,

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[23] Maja Kosak, "Technology policy of the Republic of Korea: what can we learn?," *Development and South-South Co-operation*, vol. V., No. 9, December 1989.

[24] ESCAP, *Restructuring the Developing Economies of Asia and the Pacific in the 1990s* (ST/ESCAP/879).

[25] For a description of the studied indifference of development economists and planners, see Dasgupta, P. and Karl-Goren Mahlter, *The Environment and Emerging Development Issues*, No. 28, Development Economy Research Programme, London School of Economies, Sept. 1990. The report of the World Commission on Environment and Development (often referred to as the Brundtland Commission), *Our Common Future*, (Oxford, Oxford University Press, 1987) has greatly influenced the current awareness on the subject.

[26] As of fiscal year 1990 the World Bank, for example, required detailed environmental impact analysis for all proposed World Bank financed projects in the energy sector. See D.Butcher, "A Review of the Treatment of Environmental Aspects of Bank Energy Projects", Energy Series Paper No. 24, Industry and Energy Department Working Paper, (The World Bank, Washington, D.C., March 1990).

Dhaka, Hanoi, Jakarta and Manila.[27] In Bangkok the problem is acute enough to lead to fears that parts of the city may sink below sea level by the year 2000.[28]

Excessive ground-water extraction for drinking water in several Pacific island countries and along mainland coastal belts has led to sea water intrusion into low-lying fresh water aquifers making them unfit for drinking water purposes. This problem is reported as being particularly severe in Kiribati, Maldives and the Federated States of Micronesia as well as parts of coastal Viet Nam and the city of Bangkok.[29]

Uncontrolled irrigation with inadequate drainage systems and unlined irrigation channels in Asia has also resulted in the water-logging of irrigated land, causing salinization of soils, thereby rendering the land unfit for cultivation. Excessive irrigation, inadequate attention to drainage in irrigation construction programmes and extremely high water losses through seepage in the irrigation system (of as much as 60 per cent) have caused a severe problem of waterlogging and salinity in much of Pakistan's Sindh province. In India, by the mid-1980s over 6 million hectares were reported to be severely waterlogged. One study found that up to 18 per cent of the total area irrigated by 14 large dams in India was waterlogged and saline as the result of improper irrigation management.[30] In another study 36 per cent of the irrigated farm area in India, 20 per cent in Pakistan and 15 per cent in China were found to have been affected by salinization problems as of the mid-1980s.[31] Availability of water under subsidized irrigation programmes gives rise to shifts in cropping patterns favouring water intensive crops, such as sugar-cane, which can deplete soil nutrients, contribute to the waterlogging problem and reduce the long-term sustainability of agriculture.

The construction of large dams for irrigation and hydro-electric power generation has caused severe environmental impacts in the form of improper watershed management, soil erosion, sedimentation, land inundation and destabilization of the natural habitat for local fish, wildlife and flora. Dams cause major alterations in the hydrological regime of watersheds, particularly if there has been large-scale deforestation in the construction process. Accelerated soil erosion arising from dam construction, coupled with the physical barrier placed by reservoirs for silt flows, leads to siltation. Increased siltation brought about by dams causes a reduction in their power-generating efficiency, damages turbine blades, reduces storage capacity and hampers flood control and irrigation measures. Excessive silt deposits not only reduce the active life of a dam by as much as half, but also leave the reservoir area unfit for cultivation once it is filled up with silt. In India siltation has been a major problem for the country's 2,240 large dams. The Bhakra Dam is said to have had its active life halved from 88 years to 47 years because of the siltation process, while the Hirakud Dam, which was expected to operate for 110 years, is now expected to serve for only 35 years.[32] A similar story applies to the Sefid Rud Dam, one of the largest reservoirs in the Islamic Republic of Iran.[33]

Dams also drastically alter the physical and ecological settings in the immediate vicinity of the project. Such changes sometimes continue downstream to the final discharge area. Furthermore, establishment of new access routes upstream of a dam usually results in a serious impact on wildlife and agricultural practices in the watershed. Effluents being discharged upstream of a dam and physio-chemical and biological changes occurring within a reservoir seriously affect fish stocks within the reservoir and downstream of the dam. Fish populations within a new reservoir are usually altered both qualitatively and quantitatively, depending on their adaptability to existing conditions, thereby seriously harming the livelihood of nearby fishing communities.

Dams and large reservoirs in tropical localities are known to increase the incidence of water-borne diseases, particularly malaria, cholera, gastro-enteritis and encephalitis. WHO studies have found significant increases in international and parasitic infections and in malaria among those who reside in the proximity of the Ubolratana Dam complex and the Srinagarind Dam in Thailand.[34] Slow-moving waters

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[27] ESCAP, *Geology and Urban Development* (Bangkok, United Nations, 1988); and ESCAP, *Urban Geology of Coastal Lowlands of China* (ST/ESCAP/624).

[28] ESCAP, *State of the Environment in Asia and the Pacific 1990* (ST/ESCAP/917).

[29] *Ibid.*

[30] S.K. Singh, "Evaluating Large Dams in India", *Economic and Political Weekly*, vol. 25, No. 11, 17 March 1990.

[31] Worldwatch Institute, *State of the World 1990* (New York, Norton & Co, 1990).

[32] S.K. Singh, *loc. cit.*

[33] ESCAP, *State of the Environment in Asia and the Pacific 1990* (ST/ESCAP/917).

[34] World Health Organisation, *Environmental Impact Assessment*, Monitoring and Assessment Research Centre, Report No. 4 (London, 1987).

of man-made lakes, dams and irrigation channels can also harbour the water-based snail host which perpetuates schistosomiasis. Dam spillways with their fast-flowing water could be breeding sites for simulium blackflies which cause onchocerciasis or river blindness.

Dams are also reported to have been a leading factor in causing earthquakes by increasing pressure on seismically sensitive zones. The Koyna earthquake of 1967 in India which resulted in the death of 177 persons and injuries to 2,300 people is directly attributed to the Kona reservoir.[35] Similarly, the earthquake that destroyed the Indian town of Morvi in August 1979, causing several hundred deaths, was reportedly caused by the Machu Dam.[36]

In addition to direct environmental damage most large dam projects present social problems in the form of displaced communities to be resettled. The involuntary resettlement of local residents, displaced farmers, fishermen and landless labourers from traditional income-generating activities leads to a disintegration of village communities and social networks. The construction of the Mangla and Tarbela Dams in Pakistan and the Damodar Dam in India together caused the displacement of 270,000 persons.[37] A total of 1.4 million persons are estimated to have been displaced by 42 other dam projects in India.[38] If implemented, the Chinese Three Gorges scheme will displace as many as 1.4 million people, while 40 proposed new dams to be constructed in the Philippines could displace as many as 1.5 million persons.[39] The ensuing process of migration of such displaced persons as landless labourers to urban areas in search of employment further aggravates the severe crises faced by urban infrastructural services and has an overall environmentally destructive effect.

While the construction of hydroelectric power plants is often damaging to the environment, they produce relatively "clean" energy supplies. Thermal power plants using oil or coal as fuels are a primary source of atmospheric pollution. Solid fuels are known to "produce more pollutants per unit of energy generated than any other fuel source".[40] In Thailand, where power generation plants largely use coal and oil, they were the leading source of atmospheric pollution contributing 33 per cent, 48 per cent and 28 per cent of total emissions of suspended particulates sulphur dioxide and nitrogen oxide.[41]

Another infrastructure facility which causes severe pollution is road transport. Petrol and diesel burning vehicles emit hydrocarbon, carbon monoxide and nitrogen oxide concentrations which can rise to levels hazardous to health. Forty-six per cent of all hydrocarbon emissions, 60 per cent of carbon monoxide and 23 per cent of nitrogen oxide emissions in Thailand in 1982 were attributed to various forms of transport.[42] Where unleaded fuel is used high lead concentrations in the blood seriously affect the physical and mental health of new-born children.

Shipping has also contributed its share of environmental damage through oil spillage on busy shipping lanes and harbours, with adverse effects on coastal wildlife, mangrove swamps, fish stocks and marine resources. It is estimated that 6,000 tons of crude oil are spilled annually in the vicinity of Chittagong port in Bangladesh, severely damaging the local marine habitat. Oil spills have affected coastal flora and shellfish stocks around Karachi harbour. Land-based sources of pollution, particularly industrial effluents and domestic sewage, have caused marine contamination in much of the region's coastal belts and harmed fish stocks.[43]

The development of roads traversing mountainous forests can result in the commercialization of ecologically important virgin forests or agricultural land (as in Indonesia, Malaysia and to a lesser extent India, Nepal, the Philippines and Thailand). It can lead to soil erosion in mountainous areas with unstable slopes, as for example in India, Indonesia, Malaysia, Nepal, the Philippines, and Thailand, and through encroachment by uncontrolled development to deforestation, denudation, soil erosion, siltation, and floods, as has happened in India, parts of Indonesia, the Philippines and Thailand.

2. Incorporating environmental concerns in infrastructure development

Despite the nature and magnitude of their negative impact on the environment, feasibility studies on environmentally-sensitive infrastructure projects did not generally pay adequate attention to the social and environmental

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[35] ESCAP, *State of the Environment in Asia and the Pacific 1990* (ST/ESCAP/917).

[36] S.K. Singh, *loc. cit.*

[37] ESCAP, *State of the Environment in Asia and the Pacific 1990* (ST/ESCAP/917).

[38] S.K.Singh, *loc. cit.*

[39] ESCAP, *State of the Environment in Asia and the Pacific 1990* (ST/ESCAP/917).

[40] *Ibid.*

[41] *Ibid.*

[42] *Ibid.*

[43] *Ibid.*

costs of these projects.[44] As a result, in the past, several large infrastructure projects with adverse environmental impacts were undertaken with scant regard for the environment. Environmental impact assessment (EIA), which assesses the environmental efficiency of a project was not required for any infrastructure project. The evaluation study for such a project was usually confined to its economic and technical parameters with hardly any consideration shown to the social or environmental costs which the project might impose.[45]

Clearly if environmental impact assessment, energy and resource accounting had been mandated, the implementation of some infrastructure projects would have been halted or at least modified because of the serious environmental and resource consequences which resulted from their construction. It is important to note that EIAs do not put a stop to development. They are used, rather, to point out corrective environmental measures to be taken so that an infrastructure project does not destroy the very environment it seeks to sustain and enhance. In recent years EIAs have been conducted world-wide on a number of different projects including highways, industrial facilities, dams and irrigation projects, waste management and disposal schemes. Unfortunately, the proper use and conduct of environmental impact assessment and resource accounting techniques are still an exception rather than the rule in many developing countries.

Finally, as discussed in the previous chapter, the pricing system for many infrastructure services tends to reduce incentives to adopt resource-saving technologies and increase environmental impacts. For example, many governments heavily subsidize irrigation water, destroying farmers' incentives to adopt even simple and highly economic technologies to conserve water.[46] Overall water use efficiency is drastically reduced, and rivers, wetlands, ground water and soils also suffer a significant loss of productivity, though few such losses impinge directly on the individual farmer.

Nevertheless, the ideal solution is not necessarily the construction of fewer infrastructure projects in order to conserve the environment. In fact, the construction of certain infrastructure projects such as waste disposal sites are desirable for environmental protection. But even in the case of those infrastructure projects which are environment sensitive, several measures may be undertaken to mitigate the problems created by such projects.

First, environmental assessment and resource accounting techniques need to be made mandatory for all pollution-prone infrastructure projects. At present, five countries in the ESCAP region, Indonesia, Malaysia, Papua New Guinea, the Philippines and the Republic of Korea have specific laws and regulations on environmental impacts, while five other countries, China, the Islamic Republic of Iran, Pakistan, Sri Lanka and Thailand, have general legislation on environmental protection which empowers a government agency to require EIA. Hong Kong and India have informal provisions, which effectively means not having statutory provisions on environmental effects. Where legislation exists, enforcement, which is weak, needs to be strengthened through effective environmental protection institutions. Furthermore, such environmental concerns have to be integrated into overall national economic planning.

Together with the need to incorporate environmental impact assessment, at the subregional and regional levels, there is a further need for countries to work towards the harmonization of their regulations. The current efforts taken by ASEAN to strengthen its environmental impact evaluation procedures is a step worth emulating by other subregional and regional groups.

Steps also need to be taken to integrate ecology and economics by measuring economic progress properly. Like other forms of capital, natural resources provide a flow of economic benefits over time. Yet activities which deplete or degrade these resources are represented as generating income, rather than as reducing wealth. Thus countries which sell off their timber and minerals add the entire proceeds from such sales to current income in their national income accounts. This obscures the economic costs of environmental damage and perpetuates the false dichotomy between economic growth and environmental protection. Current economic accounting systems, which were developed when natural resource limitations seemed less pressing,

[44] For example, the highly influential and widely used United Nations Industrial Development Organization document of 1972, *Guidelines for Project Evaluation* (United Nations Publication, Sales No. E.72.II.B.11), made no mention of environmental costs in assessment of social costs and benefits related to development projects.

[45] S.K. Singh, *loc. cit.*

[46] The problem with infrastructure facilities with adverse environmental effects can be treated as part of a general problem where there is a discrepancy between private benefits and social costs, a problem studied by R.H. Coase, "The problem of social cost," *Journal of Law and Economics*, 3(1): 1-44, 1960.

should be revised. Two changes are of high priority:

First, natural resources for which economic values can be established should be treated as tangible capital in economic accounting frameworks, while depletion and degradation should be treated as capital consumption;

Second, pollution control and other identifiable "defensive" expenditure undertaken to prevent the loss of environmental services should be treated not as final expenditure but as intermediate costs (i.e., the cost of generating a given level of goods and services) whether undertaken by government, households, or enterprises.

Apart from reconfiguring national income accounting to reflect the significance of natural resources, private companies and governments should "internalize the externalities" so that the prices of goods and services reflect the true costs of production, including the costs of pollution and natural resource depletion to society. Using the "polluter pays" principle assignment of legal liability for pollution damages need to be implemented in order to discourage pollution.

There is extensive academic research literature on such revisions, and several OECD governments are making statistical estimates. A few developing country governments have also initiated resource accounts while international organizations such as OECD, United Nations Environment Programme (UNEP), and the World Bank, have supported their adoption.

D. REGIONAL CO-OPERATION: POTENTIAL AND PROBLEMS

Given the nature and magnitude of their investment and of the benefits derived from it, several types of infrastructure projects have substantial scope for regional co-operation among economies in the ESCAP region. The rationale for regional co-operation in infrastructure projects can be stated briefly. Co-operation will allow participating countries to benefit through a more efficient use of their resources in infrastructure development. Benefits derive from the elimination of waste and the duplication of efforts through the pooling of resources. Regional co-operation also enables countries to take all possible advantage of the potential economies of scale and the efficiency of large projects, such as in transport and telecommunications and in such activities as training and research. In addition, regional sharing of infrastructure can lead to a more efficient use of resources by ensuring full capacity utilization. For example, co-operation in energy projects enables countries to reduce their investments in hydroelectric dams and maximize capacity utilization by taking advantage of the differences in peak load hours. Most importantly of all, regional co-operation in infrastructure development can greatly enhance the possibilities in other fields, especially trade. For example, since most transport and communications links, such as shipping and airlines, are linked with trade in the industrialized North, regional co-operation can greatly reduce transport costs. More specifically, there are four areas in social and physical infrastructure development which offer immense potential for regional co-operation among ESCAP members: health, environment, transport and energy.

Regional co-operation in health is probably among the least politically controversial areas of co-operation and may thus be the most feasible. Since all developing countries have endorsed the social goal of "Health for All by the Year 2000", the objectives of co-operation could include:

(a) Accelerating the development of national capabilities for health systems development;

(b) Developing a sufficient supply of health leaders in developing countries.

In order to realize the above objectives as soon as possible and with the minimum of resources, ESCAP countries will need to co-operate in training, research and information exchange. Training is required to upgrade manpower requirements in health services in various countries. While the training of many categories of health workers may have to be undertaken at the national level, there may be advantages in co-operating in the training of teachers and researchers, especially those who are involved in postgraduate courses in different branches in public health. Similarly, co-operation may be useful in research on subjects of common interest to different developing countries, such as the control of communicable diseases. Finally, the setting up and exchange of information mechanisms in specific areas common to developing countries should be explored. The programme of information exchange will aim at supporting the publication of field experience in the application of technical co-operation among developing countries for Health for All, to the problem encountered in implementing national health strategies, as well as to common needs and capabilities of developing countries in these areas.

The recent sensitivity to global environmental concerns provides one of the most powerful rationales behind regional co-operation in infrastructure development. There exists tremendous potential for regional and international co-operation in the promotion of environmental management. Exam-

ples of such co-operative efforts are the South Pacific Regional Environment Programme (SPREP) which attempts to co-ordinate the "protection and management of the marine environment in the Pacific islands region . . . as one of the components of the United Nations Environment Programme's Regional Seas Programme".[47] Similar, under UNEP auspices the Co-ordinating Body on the Seas of East Asia (COBSEA) and the South Asia Co-operative Environment Programme (SACEP) have been established.

Certain environmental assessment and management measures are fairly well developed in some countries. The transfer of such technologies, their adoption and application can achieve successful results. There are a number of local or regional institutions which can be utilized for this purpose and serve as potential regional centres of excellence. Training and manpower development can also be promoted through these institutions. An example of such an institute in the field of desert control technology is India's Central Arid Zone Research Institute. Environmental impact analysis guidelines for several types of development projects, with necessary modifications, can be easily adopted by other countries for the assessment of their development projects. In the field of legislation Japan, the Philippines and Thailand have enacted specific laws and set standards which can be used as guidelines for other countries for developing or introducing environmental management policies and standards. In particular Japan and Singapore have had considerable success in solid waste management programmes. Their experience in collection, transfer and disposal of waste could be useful for countries faced with the problem of having to institute similar programmes. Other examples of environmental technological capabilities in the region are listed in table II.20, and these may also be used as the basis for regional co-operation.

The efficient functioning of a regional transport and communications system is the basic prerequisite for increased intra-regional trade and joint industrialization in any regional co-operation scheme. Without it, most efforts are doomed to fail because of unaccountably high transport and communications costs. In several developing countries, some co-operation in this area already existed in colonial

[47] ESCAP, *State of the Environment in Asia and the Pacific 1990* (ST/ESCAP/917).

Table II.20. Potential for regional co-operation. Illustrations of environmental technological capabilities in the ESCAP region

Environmental areas of concern		*Countries where technological capability is available*
Terrestrial ecosystem	Deforestion	India, Nepal
	Desertification	Bangladesh, China, India, Indonesia, Nepal, Philippines, Thailand
	Soil erosion	India, Nepal
Aquatic ecosystem	Water pollution	India, Thailand
Water supply and sanitation	Low cost water supply	India, Thailand
	Human waste recycling, biogas etc.	China, India
Urban deterioration	Air pollution	Japan, Singapore
	Solid waste	Japan, Philippines, Singapore
Environmental management	Environmental standards	Japan, India, Philippines, Thailand
	Resource recovery and utilization (forests)	India, Nepal
	Environmental legislation	Philippines, Thailand
	Environmental impact assessment (EIA)	India, Indonesia, Thailand
	Environmental education	India, Indonesia, Thailand

Source: ESCAP, *State of the Environment in Asia and the Pacific*, vol. 1 (ECU/OES/MCEA/PM/4).

times (for example, common railway, communications and postal services) although many improvements were required to arrive at an efficient operation of these services. Outside the colonial territories, with a few exceptions only very poor intraregional connections existed. The transport and communications systems were primarily oriented towards export markets and/or the administrative centres. Until recently, for instance, in order to place a phone call between Phnom Penh and Bangkok, connections had to be made via Moscow. More generally, the focus of the transport and communications systems on overseas markets has led to the formation of traffic junctions along the coast at the major ports. Roads and rail links were constructed to transport bulky primary products from the interior to the ports, which were the direct links to the colonial power's markets. Consequently the hinterland has been very neglected, very few cross-border road or rail links exist, and even the coastal connections are often rather poorly developed.

In view of the above deficiencies, there is tremendous scope for regional co-operation in transport, especially in highway construction and shipping. Some success is already evident. For example, the implementation of the Asian Highway project has given some impetus to overland intraregional trade, such as between Malaysia and Thailand.

It is also imperative for developing countries in the region to co-operate in shipping since they depend largely on the western shipping lines for the movement of the bulk of their foreign trade; and the freight rates of these lines have been constantly rising. The shipping fleets of the developing countries are too small to offer any effective competition. The national fleet of the developing countries could be substantially increased if they could secure business from other developing countries. A joint shipping corporation with adequate tonnage could be established to supplement the national fleet of individual countries. It will not only promote trade among the developing countries but can also secure business from the rest of the world. Other areas of co-operation in shipping can take place in training, technology transfer including multimodal transport and containerization, setting up of appropriate legislative and administrative infrastructure and the improvement of port management. Regional co-operation in shipping is particularly crucial for the Pacific island economies which depend mostly on marine transport. Such co-operation is taking place through the operation of the Pacific Forum Line (see box II.11).

Similarly, ASEAN has set up the Committee on Transportation and Communications (COTAC) to promote close co-operation, establish joint programmes and develop technical projects in the field of communications and transport including land transport, marine transport, inland waterways, navigation, air transport, posts and telecommunications and other related matters and recommend appropriate policies for implementation. The activities of COTAC are guided by the integrated work programme in transportation and communications consisting of a co-ordinated and consolidated list of projects identified for implementation. Through COTAC, 90 projects were undertaken or sanctioned for the period 1987-1991, funded by the UNDP and donor countries. Of these projects 20 were completed, 54 were ongoing, one was held in abeyance and two deferred.[48]

In addition to transport there is also scope for regional co-operation in the development of energy sources. In the field of hydroelectric energy projects there are well-established power flows though Malaysia, Singapore and Thailand. The 100 MW and 200 MW interconnections that Malaysia operates with Thailand and Singapore respectively have proved useful to the three countries involved, enabling reduction in on-line reserve carrying capacity with no degradation, improved distribution and better systems security. This forms the basis of the ASEAN power system link-up. On a bilateral basis, Thailand and the Lao People's Democratic Republic have also co-operated in the development of hydroelectric power. Interest has also been generated in a wider regional context and an overall study of the ASEAN power system link-up is currently being undertaken under the ongoing Regional Energy Development Programme of ESCAP.

An equally ambitious regional co-operation project in energy development is the Mekong Project which won the Ramon Magsaysay Award for International Understanding in 1966 (see box II.12). Apart from the Mekong, there are other great rivers and river basins in the ESCAP region which offer similar potential for regional co-operation in energy development. One such example is provided by the Himalayan water and its hydropower potential.

Regional co-operation in infrastructure development need not be restricted to a particular sector nor involve the entire participating country. This expediency has given rise to the concept of the

[48] For details, see R.V. Navaratnam in N. Sopiee and others, ed., *ASEAN At the Crossroads*, (Institute of Strategic and International Studies, Malaysia, 1987), pp. 357-370.

"growth triangle" which is currently taking shape among three ASEAN member countries, namely, Indonesia, Malaysia and Singapore. Given its simplicity and timeliness, the growth triangle concept may emerge as a useful tool for regional co-operation among other ASEAN countries, such as between Indonesia Malaysia and Thailand or even outside the ASEAN region, such as between China, Taiwan Province of China and the Republic of Korea.

Unfortunately, in spite of the immense advantages which may be derived from regional co-operation, such co-operation in infrastructure development within the ESCAP region has had its fair share of difficulties. Several factors have hindered progress in further co-operation. First, there is a lack of strong commitment among some countries for full co-operation. Second, the participation of the private sector and non-governmental organizations are not accorded the role they are capable of playing in regional co-operation projects. Third, the regional co-operation projects are subject to considerable delays from the time of project identification to implementation. For example, the COTAC containerization training project was

Box II.11. The Pacific Forum Line: regional co-operation in shipping

The Pacific Forum Line, currently owned by 11 Pacific countries (including New Zealand) in the subregion, is a notable example of regional co-operation in a vital area of infrastructure development for the Pacific island countries. Following the formation of the South Pacific Forum by independent and self-governing nations of the Pacific subregion in 1971, concern was expressed that shipping services being offered by tramp operators might deteriorate following the widespread move to containerization in the industrialized countries and major trading partners of the island economies. Several studies were carried out on the feasibility of a South Pacific regional shipping service. The Pacific Forum Line was subsequently established in 1977 and commenced its operations in May 1978 with a total working capital of about 312,000 Samoan tala ($WS). This was considerably less than the initial envisaged target of $WS 500,000.

In establishing the shipping service, the South Pacific Forum saw it as not only a co-operative venture but also an instrument for regional development through the provision of regular and efficient shipping services to member countries. The Forum Line initially operated conventional vessels but in 1980 three self-sustaining container ships on long-term charters were put into service; two of these were purpose built for the trade. In 1989, a milestone was achieved when the Forum Line spent $NZ 10.6 million to purchase one of the vessels it had been chartering and another vessel was purchased in May 1990 in the current five-vessel fleet linking Australia and New Zealand to major ports in the Pacific islands. In the same year the Republic of the Marshall Islands was admitted as a shareholder of the Pacific Forum Line.

In the early years of its existence, the Forum Line suffered a succession of operating losses because of initial under capitalization, high world charter rates, high cost of leasing containers and other associated expenses, most of which were paid in United States dollars or other foreign currencies. This caused a crippling drain on the company's cash flow. The accumulated losses were met partly from grants, including aid from Australia.

Despite its poor performance in the early years of its establishment, the availability of regular shipping services was important to island economies and shareholders continued to provide the Forum Line with the necessary financial assistance, including recapitalization to realistic levels. These support measures had enabled the company to reorganize its operations and the Forum Line finally recorded a profit of $WS 3.6 million for the first time in 1985; it has since maintained a good profitable record. The cumulative net operating surpluses amounted to $WS 23.6 million between 1985 and 1989.[a]

The Pacific Forum Line also manages the Kiribati-Tuvalu-Marshall Islands feeder line on behalf of the Governments of Australia and New Zealand which fund this service. The shipping itinerary was introduced in May 1989 to replace the earlier feeder service which had linked Kiribati and Tuvalu via Fiji since 1982. Shipping services and port infrastructures are relatively poor in the central Pacific, and the feeder service has enabled two of the shareholders in the Forum Line, namely Kiribati and Tuvalu, to enjoy regular services which, in turn, have brought stability to the flow of products to these countries. Unfortunately, the feeder route has proved unprofitable and it is hoped that a purpose built vessel, to be introduced soon for this route, will reverse the trend.

The Pacific Forum Line is now commercially viable, operates free of subsidies, provides employment throughout the Pacific subregion, and has facilitated the development of trade and exports in particular in the Pacific island nations. However, inadequate port infrastructure and facilities, including weaknesses in management and shortage of skilled human resources, especially in the small economies, have an adverse impact on the quality and frequency of services. It is hoped that the South Pacific maritime development project currently being implemented by the Forum Secretariat will help identify and resolve some of these problems.

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[a] Forum Secretariat, South Pacific Regional Shipping Council, *Summary Records of the Fourteenth Meeting* (November 1989), pp. 16-17; and Pacific Forum Line Limited, *Annual Report and Consolidated Financial Statements at 31 December 1989.*

Box II.12. The Mekong River basin development: regional co-operation for development

The Mekong River is one of the longest in the world. The last 1,500 miles of its length flow through the Lao People's Democratic Republic, Thailand, Cambodia and Viet Nam. With the establishment of ESCAP came the real stimulus for international co-operation in the development of the rich economic potential of this water resource.

The amount of water that flows down through the lower Mekong basin into the ocean is vast, about 475 billion cubic metres annually. If this water is used to generate power, the resources of the lower Mekong basin can supply electricity (505,000 megawatt/hours a year) to all the countries in South-East Asia, and possibly beyond, through an interconnected grid. There is also the possibility of using the water to irrigate some six million hectares of cultivable land for rice and other crops, and of raising agricultural production in general. Other possibilities associated with the development of these water resources include flood control and the improvement of navigation.

While the water resources potential of the lower Mekong basin is immense, the river runs through one of the poorest regions of the world. Annual per capita income in a large part of the basin is in the neighbourhood of $US 190 – $US 540. Viewed from this perspective, the lower Mekong River basin project is typical of several large infrastructure projects in the Asia and Pacific region where regional co-operation can assist in improving living standards and promote closer economic complementarities, among other positive benefits.

When the Mekong project was proposed, it was decided to concentrate on the lower Mekong basin, whose potential with respect to hydropower, irrigation and flood control was then surveyed in 1956. The study provided a conceptual framework for planning the development of the river basin as an "integrated system". It advocated an international approach to development through the close co-operation of the four riparian countries in data collection, planning and development. Such collaboration is, indeed, an essential condition for success as several major proposed projects were located on the boundaries of two participating countries and some projects, though located within a single country, could nevertheless benefit neighbouring countries by supplying water for irrigation, regulating flow, allowing increased power production downstream, reducing flood losses and improving navigation.

One of the main conclusions of the study was that there was a need for an institutional mechanism that could obtain technical and financial assistance for the required surveys and for the development of projects expected to emerge from those exercises. Subsequently, the Committee for Co-ordination of Investigations of the Lower Mekong Basin (or the Mekong Committee) was established in September 1957 as an autonomous organization of sovereign States to achieve a common purpose. The Committee became one of the most significant institutional mechanisms for development through international co-operation of the Mekong's water and land resources on behalf of its members who, either individually or collectively, did not possess the necessary financial and/or technical human resources required for such development.

Up to 1988, the Committee, through its secretariat based in Bangkok, had completed 16 out of 180 possible tributary projects identified in the 1970 Indicative Basin Plan; the Plan was updated in 1987. Basin-wide activities have included the establishment of an extensive network of hydrologic and meteorological stations to collect basic data on, among other variables, the quality and quantity of water flows, the conduct of environmental studies, and thematic mapping and basin planning. Information, which has been obtained through the Committee's investigations and operations over 30 years, has culminated in a extensive inventory of the Lower Mekong basin water resources and potential. The inventory is stored in a computerized information system.

The largest single investment made by the Mekong Committee so far has been in the Lao People's Democratic Republic for the Nam Ngum hydropower dam, whose capacity has expanded from 110 to 150 MW; the surplus power from Nam Ngum is exported to Thailand. Eight smaller power plants in the Lao People's Democratic Republic, Thailand and Viet Nam have also been completed to date. Several projects for fishery development, including pilot fish farms at Tha Ngone (the Lao People's Democratic Republic), Lam Pao (Thailand) and the prawn hatchery in Viet Nam have been carried out to launch aquaculture, and compensate for losses caused by dam construction and intensive irrigation. In line with current trends, the Committee has also carried out environmental impact studies on water resources development projects, including a basin-wide survey of water-borne diseases to identify changes in environmental parameters engendered by water resources development.

The activities of the Mekong Committee have been financed largely by voluntary contributions. From 1957 to 1988, the Committee received about $US 420 million, mostly from the Governments of Australia, Japan, the Netherlands, Sweden, the United States of America, the European Community, the United Nations Development Programme (UNDP) and the riparian countries. UNDP also provided programme support to help the Mekong Committee in updating the Indicative Basin Plan in 1987 and in establishing the Lower Mekong Basin Information System and its data bases. The updated plan includes a framework for development projects that extends beyond the year 2000. It is being used as a guideline for the formulation of new studies and activities for inclusion in the Committee's work programme.

The Mekong Committee's success in implementing the Mekong project was recognized in 1966 when the Committee and its co-operating partners became the recipients of the Ramon Magsaysay Award for International Understanding.

mooted at the first ASEAN-EEC Joint Consultative Committee meeting held at Manila in 1980 and was implemented in 1986. Finally, regional co-operation projects are often predicated on the availability of assistance from donor countries, whose interests often do not coincide with those of the co-operating parties.

In view of the above problems, much more needs to be done to increase regional co-operation in infrastructure development. First, countries should be more fully committed to such co-operation. Commitment may be enhanced if the countries are made more aware of the net benefits of co-operation. Second, the private sector and the non-governmental organizations should be accorded the fullest participation in any co-operation project so that their resources may be fully utilized. Third, the procedural and administrative delays in the implementation of projects should be reduced.

In conclusion, the achievements of regional co-operation in infrastructure development have generally fallen short of the relatively high expectations that were created by them and may be regarded as one of the many wasted opportunities in development co-operation. The potential for increased regional co-operation in infrastructure development has hardly been realized and, with few exceptions, it has as yet contributed little to the overall prosperity of the region.

VI. SUMMARY AND POLICY CONCLUSIONS

INTRODUCTION

In the preceding five chapters, the *Survey* has attempted to present an analytical overview of the problems and progress in infrastructure development in the developing ESCAP region. While structural changes in the economy have affected the comparative position of various production sectors, infrastructure continues to be of unchanged importance in most developing economies. However, the nature of infrastructure facilities and their mode of operation, management, ownership and financing have undergone some fundamental changes. The *Survey* has endeavoured to bring out such changes.

At the same time, concerns about the access to infrastructure facilities, especially those relating to social infrastructure, by large sections of people living in rural areas or belonging to low-income groups, have received increasing attention by policy makers. Yet another emerging concern has been the damage caused to the environment in building ill-designed infrastructure facilities whose social costs have often exceeded their social benefits. Both these concerns have been reflected in the *Survey*.

A basic characteristic of infrastructural facilities is the effect that they have on other economic activities, including those made possible by other infrastructural facilities. These have been highlighted by the *Survey* in different contexts within the domestic economy. The impact of external economies and diseconomies created by infrastructure development is not, however, confined within national boundaries. When a river runs through a number of countries – a situation fairly typical in the large continent of Asia – dams and hydroelectric systems built on it in one country create both economic opportunities and economic costs for other riverine countries. Similarly, the benefits from the infrastructure developed in one country, such as airports, telecommunications, hotels and other tourist facilities can spill over to neighbouring countries, or at least neighbouring parts of such countries, spurring on their mutual development. The growth triangle formed with Singapore as apex and with Batam in Indonesia and Johor in Malaysia as the other centres, is a recent example of such a development in the region. Opportunities for regional co-operation in infrastructure development such as these are waiting to be exploited in the region. However, there are a number of obstacles preventing such efforts from gaining sufficient momentum to enable the region to take full advantage of the available opportunities. The *Survey* has endeavoured to focus attention on both the experience in and the potentials for such regional co-operation efforts.

In this concluding chapter, the empirical findings of the *Survey* are summarized in section A, while some of the major policy conclusions emerging from the experience in infrastructure development in the region are presented in section B.

A. SUMMARY OF FINDINGS

1. Physical infrastructure

The main physical infrastructure facilities which have contributed to (or proved to be a bottle-neck in) the acceleration of growth are power generation, transport and communications and telecommunication facilities, as well as irrigation, agricultural extension services and related infrastructure in agriculture.

Among the physical infrastructure needs in the developing economies of the ESCAP region, one of the most basic is that for electricity. Demand for electrical power in the developing countries of the region expanded at a fast rate, generally averaging upwards of 8 per cent annually in the last two decades. The level of per capita electricity consumption has tended to be lower in most low-income and least developed countries in Asia; several of these countries (for example, Afghanistan, the Lao People's Democratic Republic, Myanmar, Nepal and Sri Lanka) derived one half or more of their power from hydroelectricity. The severe strain on the power subsector resulted in varying degrees of power shortage in, among others, Bangladesh, China, India, Nepal, Pakistan, the Philippines, Thailand and Viet Nam. In addition, the persistent lack of

affordable sources of commercial energy, particularly in rural areas, has contributed to deforestation, growing fuelwood shortage, and environmental degradation in many parts of the ESCAP region. The binding constraints on increasing the electricity supply in the short to medium term have necessitated the introduction of wide-ranging measures for energy conservation to reduce excessive waste in transmission and distribution and to promote the use of less expensive and cleaner sources of primary energy.

The transport and communications infrastructure, generally allocated the largest share of government spending, also suffers from serious deficiencies in most developing countries of the region. Although there was a reasonably steady growth in railway freight and, to a lesser extent, in passenger traffic in China, India, Indonesia and Mongolia in the second half of the 1980s, there remained considerable need for increased investment. Rail transport in South Asia, with an estimated route length of about one third of the region's total of around 216,000 km, and in China, with a quarter of the region's route total, has declined in relative importance, partly because of underinvestment in the railway sector and partly because of a sharp increase in road transport.

Railways provide perhaps the most cost-efficient transport mode, particularly for freight over long distances and mass transit in densely populated urban areas, although constraints on pricing have generated acute financial problems for many systems. Realizing its importance and past neglect, several countries in the region have launched investment programmes, among other measures, aimed at upgrading (largely through electrification) and extending track, promoting improved and integrated services, and providing urban mass transit in order to redress, if not reverse, the emerging inter-modal imbalance in transport services.

In road transport, the increase in passenger and commercial motor vehicles has been substantial across many parts of the region, with China, Indonesia, the Islamic Republic of Iran, Malaysia, Pakistan and Thailand among the countries registering double-digit annual growth in the volume of passenger and commercial motor vehicles, including two- and three-wheeled vehicles, in the last two decades. In contrast, the ancillary infrastructure, road networks in particular, expanded very slowly (around 2 per cent per year) despite concerted efforts made in many countries of the region. Its quality also tended to deteriorate owing to inadequate design, maintenance and management. All these have contributed over the years to severe resource wasting problems of congestion, pollution and urban blight.

Seaports constitute another important set of transport infrastructures. In the last two decades, containerization has posed one of the most challenging options in port development in the developing ESCAP region. The increasing trade volumes have facilitated the adoption of containerization. Container traffic has increased dramatically in many ports, particularly since the second half of the 1970s. Consequently, throughout most of the region port development and modernization have continued, with heavy investments and emphasis on infrastructure and modal integration, despite serious problems of resource mobilization and management.

The developing ESCAP region has also experienced sharp growth in air transport largely owing to trade and tourism; such expansion, averaging over 10 per cent annually for passenger-kilometres and almost 14 per cent in freight ton-kilometres, was considerably faster than the respective global rates. The region has emerged as the most active in airport development and acquisition of aircrafts and the trend is expected to continue, since many major infrastructure projects in air transport are under way or planned to meet the increasing demand forecast for the 1990s and beyond.

Telecommunications facilities and services, another crucial prerequisite of the development process, tend to show perhaps the widest disparity in terms of availability within the developing ESCAP region. While an estimated 18 countries have less than one telephone set per 100 persons, in Hong Kong and Singapore telephone availability, with around 36 lines per 100 persons, exceeds that of many developed countries. With few exceptions, the region's telecommunications infrastructure has been unable to keep up with the requirements of economic growth since the late 1970s. However, there have been continuing programmes to expand and upgrade telecommunications infrastructure across the region, with expenditure on telecommunications expected to reach $US 100 billion during the first half of the 1990s.

The success of the green revolution in Asia owes a great deal to appropriate development of agricultural support infrastructure. During the period 1978-1988 irrigated cropping areas expanded at a strong pace in several countries, including Bangladesh, Indonesia, the Lao People's Democratic Republic, Nepal and Thailand. The availability of other modern inputs also contributed to greater cropping intensity in many countries. Although many countries have made considerable progress in building up their research infrastructure and facilities,

the continuing financial constraints require difficult choices to be made as regards the nature and priorities of agricultural research. Recent advances in biotechnology have introduced another quantum jump in agriculture and agro-processing productivity; they can also be relied on to redress the imbalances caused by the green revolution itself. However, the efficient transition to this complex and sophisticated field of research requires certain structural and organizational changes, as well as skilled personnel who are in critically short supply. Lastly, the growing commercialization of research work in the developed countries has generally limited the free flow of new developments in biotechnology to developing countries.

Notwithstanding the spread of the green revolution and other forms of intensive agriculture, research-cum-extension programmes still encounter considerable difficulties. These may be of an institutional (for example, prevailing patterns of ownership, tenancy and land rights in small-scale farming), socio-cultural (for example, gender bias resulting in inadequate recognition of the important role of women in agriculture) or managerial in nature (insufficient and untimely supply of inputs). Although considerable progress has been made in the region, marketing conditions (including transport and storage facilities) remain difficult and credit availability inadequate in many places. The policy of keeping food prices low has constituted another disincentive. Moreover, small, landless and upland farmers tend to be the least provided with the relevant facilities and services, although there may be significant efficiency and equity gains with extended coverage.

2. Social infrastructure

The development of social infrastructure facilities, such as those for education, health, urban housing and other facilities, has lagged considerably behind that of physical and economic infrastructure facilities. With few exceptions, the share of government spending on social infrastructure – a principal indicator of the availability of such services – tended to rise slowly or stagnated in the developing ESCAP region during the last two decades or so. Such allocation generally accounted for about one fifth of central government expenditure in the late 1980s; in several countries (for example, India and Pakistan), however, provincial and local-level government played a more important role than the central authorities in the provision of social services and infrastructure. There were significant variations among the economies of the region, with China and the Islamic Republic of Iran among the countries which experienced the sharpest rise in social sector allocation. Several ASEAN (Association of South-East Asian Nations) members registered a marginal fall in social infrastructure funding, although Malaysia and Thailand had, by and large, achieved high levels of coverage of social infrastructure by the late 1980s.

In terms of availability, there is considerable divergence between the South Asian and East Asian subregions, within East Asia, the NIEs generally had the highest levels of social infrastructure coverage and availability. China, which had accorded high priority to the social sectors, exhibited indicators of health and education performance close to those of several South-East Asian countries in spite of lower per capita income. South Asia and the Asian least developed countries suffered from chronic shortage of social infrastructure facilities and services, with the consequent unfavourable indicators of performance across a wide range of social infrastructure. Sri Lanka exceptionally had very high rate of adult literacy and primary school enrolment, as had the Pacific island economies of Fiji, Samoa and Tonga.

By and large, both the coverage and availability of social infrastructure in the developing ESCAP region have expanded considerably in the past three decades or so. This has contributed, in turn, to a noticeable improvement in various performance indicators, including a sharp decline in infant mortality rates, an increase of varying magnitudes in life expectancy at birth, adult literacy rates and nutritional intake, and greater access to a wider range of social-sector facilities and services. In spite of several variations in approach and priorities regarding social infrastructure development and targeting among developing countries of the region, it is apparent that high levels of social development have been preceded by high income growth. Notwithstanding this sequence, the prevailing imbalances in social infrastructure, particularly in terms of greater equity in access and distribution as well as in intersectoral allocations, can be in a large measure corrected without an unduly long wait for the necessary rise in income levels.

As regards the health sector, there is an observable over-emphasis on developing curative health care facilities and ancillary services, which are relatively capital-intensive in most countries of the region. However, there is a wide variation in the availability of physicians

and hospital beds as a proportion of population, with high availability ratios restricted to NIEs and other middle-income level countries. However, Sri Lanka and Viet Nam had an availability ratio in terms of hospital beds per population comparable to that of the NIEs, while China and Pakistan were among countries with a high ratio of physicians. The over-emphasis on modern curative medical systems not only is often incompatible with low levels of education and income and the traditional background of many patients, but also results in the persistent neglect of many traditional forms of medicine and treatment. Moreover, the increasing realization of the nature of disease patterns and their close link to social, sanitary and housing conditions has contributed to a shift of attention and resources toward preventive, and family- or community-based health care programmes in recent years. There has been considerable improvement in child immunization rates in many economies in the 1980s; however, the rates remained comparatively low in most least developed countries. Family planning programmes are now seen as intrinsic to an integrated health care approach, although contraceptive methods have tended to be conditioned by socio-cultural or religious considerations.

In education, the share of government expenditure has generally not shown any marked shift in the last two decades. It ranged from 15 to 20 per cent of total expenditure among the NIEs, ASEAN and several Pacific island countries to around 10 per cent among the Asian least developed countries. Among the exceptions, China and the Islamic Republic of Iran have raised considerably their educational funding, while the relative share going to education has fallen in Sri Lanka and Viet Nam owing to a shift in policy orientation and resource constraints. In general, educational funding faces persistent problems, in terms of both efficiency and equity. In many countries, while primary education programmes remain severely under-funded, vast sums are spent on post-primary education, which has remained largely the preserve of the urban elite and other well-off segments of the population. In addition, excessive concentration on tertiary education has resulted in high levels of graduate unemployment in many countries. The growing need for greater harmonization between educational and labour market structures has often led to increased emphasis on vocational and technical education, although social attitudes have not generally been supportive of such education in several countries.

The rapid rates of urbanization and severe urban congestion have placed a great burden on the provision of water supply and sanitation services, and housing in many parts of the region. Unaffordable and inadequate housing and other facilities have forced a large proportion of the urban population (ranging typically from a quarter to two fifths) to live in overcrowded squatter settlements, city tenements, or on pavements without constructed shelter. Efforts to provide low-cost housing and related facilities to the poor have tended to be relatively more successful in the NIEs, especially Hong Kong and Singapore.

The proportion of urban population with access to piped water supplies and sanitation services expanded considerably in the last two decades, particularly in the East Asian subregion; the extent of coverage in most South Asian and least developed countries, however, has not been impressive. The expansion, often made possible through over stretching existing facilities along with inadequate maintenance, has caused deterioration in quality of water supply in several countries. The growing shortage of water sources in many locations, the high cost of urban water and sewerage systems, and the persistent budgetary constraints make any significant extension of coverage unlikely in many cities of the region in the 1990s. As a response, there has been some progress in developing low-cost community-based sanitation facilities and options, while the informal sector has played an important role in recycling a significant portion of urban waste materials. Non-governmental organizations and other informal-sector groups are seen as part of an integrated solution to some of the problems confronting urban water and housing supplies and sanitation services.

The issues concerning the distribution of, and access to, social infrastructure facilities and services are generally more serious than those with regard to physical infrastructure. Along with the urban-rural disparities and other subnational divergences, there is a pronounced gender bias against women, particularly those who are poor and live in rural areas. However, gender equity in terms of primary and secondary school enrolment ratios tends to prevail in the NIEs, ASEAN and Sri Lanka.

3. Finance and management

A major constraint on the increased availability of infrastructure services is the limited financial resources, both domestic and external, available for investment in and maintenance of infrastructure facilities. Since most infrastructure facilities are the responsibility of the government, fiscal measures to increase the availability of resources are essential. In most developing countries of the ESCAP region, the existence of relatively modest

tax ratios points to possibilities for increased efforts to raise domestic resources for infrastructure development. There are, however, limits to such efforts in low-income economies, as well as on the types of instruments that can be relied on for such mobilization. There is also considerable room for reallocation of public expenditure. In many countries of the region reductions in the large military expenditure could become possible in view of the changing geo-political situation in the 1990s; this would provide more resources for infrastructure development. Within the infrastructure itself, the possibility exists for reallocation of resources from programmes and projects whose goals, in varying degrees, have been met or whose underlying premises are no longer valid or urgent, so as to improve both efficiency and equity in infrastructure development and management. Greater fiscal decentralization in mobilizing resources is another option, as indeed local-level measures tend to have a more direct bearing on urban social facilities and services in particular, and on rural infrastructure in general.

Another source of domestic finance for infrastructure development is the involvement of the private sector. In most countries of the region, the private sector is likely to play a larger role in infrastructure development and management in the 1990s. The trend towards liberalization is apparent in several fields, most notably telecommunications, various transport subsectors and energy. It would seem that the most probable candidates for further privatization are those infrastructure services in which equity considerations are less important, and social infrastructure that is specific to high-income groups and neighbourhoods.

Government finance for infrastructure development can also be increased through user charges. User charges, or increases in them, can be selectively imposed to rationalize demand, improve delivery efficiency (by keeping costs down), and improve equity over a wide range of infrastructure utilized by mostly well-off social groups, conferring large private benefits and/or subject to inelastic or excess demand (for example, post-secondary education). A rational pricing approach typical in many countries of the region is to levy differing tariffs on various categories or classes of electricity consumers. Several facilities and services (for example, primary education, health, water and sanitation) constitute basic public goods, but an indiscriminate low pricing policy often contributes to the continued need for financing, and consequently declining availability and standards of service. In the case of basic social infrastructure, however, cost recovery would not be feasible without the development of scholarship, student loan and health insurance schemes. Although considerable progress has been made in several countries, such a development is still constrained by inadequate institutional facilities and the existence of heavily subsidized or free services.

Foreign aid and loans have in the past played an important role in the development of a wide range of economic and social overheads with a high component of foreign exchange or skilled inputs. The impact of external assistance, however, depends greatly on effective co-ordination among donors, as well as between donors and the recipient Government, to avoid duplication and to achieve greater relevance in terms of local needs, absorptive capabilities, and the choice of technology. The observed bias in favour of capital-intensive projects could be reduced by moving from a project to a programme approach. The possibility of financing local cost components as well as recurrent expenses also deserves consideration by external donors, as these measures would contribute to the selection of more appropriate technologies and the better utilization of established infrastructure.

There is considerable scope for improvement of public sector management through closer monitoring and co-ordination of expenditure commitments on infrastructure by various departments and agencies. In addition, the *ad hoc* patterns of disbursement of funds brought about by unforeseen resource constraints and other short-term adjustments affect considerably the efficiency of infrastructure project development and management. Management weaknesses are also reflected in inadequate operation and maintenance of infrastructure. Yet, there is considerable evidence that preventive maintenance is more cost effective and brings greater overall benefits than new construction. The consequent deterioration in standards and services not only causes direct losses to users but also affects adversely the usefulness of ancillary facilities and services.

B. POLICY CONCLUSIONS

1. Overview

Infrastructure development in the Asian and Pacific developing region has not kept up with the hectic pace of growth witnessed in the past two decades. While the level of infrastructure in the more dynamic economies of East and South-East Asia has been rising, it remains in most cases generally inadequate and lacking in balance. However, most other countries in the region suffer from very serious inadequacies in their development. In this section, after taking stock of the

policy problems in various categories of countries, selected policy issues of a general nature are discussed at some length.

In the least developed and Pacific island countries, the availability and coverage of economic and social infrastructure are much less favourable than in the NIEs and ASEAN. This is the result of a variety of physical, structural and institutional constraints, ranging from difficult terrain, sea- and land-lockedness, remote insularity, small population base and/or high population density, frequent natural disasters and unstable patterns of economic growth to inadequate human resources and institutional capabilities. Even so, the Pacific islands tend to have higher per capita energy consumption and better telecommunications facilities; smaller island economies also exhibit more favourable indicators in education and, to a lesser extent, health care, safe water supply and sanitation services.

In social infrastructure provision also, there are large variations across the region. In the NIEs and, to a lesser degree, in some of the ASEAN economies, at least minimal standards of coverage in social infrastructure are provided. For them, improvement in the quality of infrastructure provision and widening the scope of social infrastructure are of paramount importance. There is also the need to bring specific underdeveloped regions, and in particular rural areas, into the national mainstream even in these relatively well-provided countries of the region. However, for most countries in the region, particularly the least developed countries, India and Pakistan, levels of coverage are so poor that only a phenomenal raising of resource allocations to the social sectors could come close to addressing the shortfalls.

Given the special development constraints faced by the least developed and Pacific island countries, their pattern and pace of infrastructure development would necessarily be conditioned by the viable development opportunities and potential. In addition, the financing of recurrent costs from existing infrastructure, established largely through overseas aid, has been a considerable burden and deserves serious consideration for possible assistance by external donors.

2. Determining the priorities in the context of limited resources

Against the backdrop of scarce resources which can be mobilized in a given context, there is clearly the need to reallocate expenditure in favour of infrastructure development. Such a shift, if properly designed, could generate additional investments by the private sector, rather than stifle or "crowd out" current levels of private investment. Increased fiscal efforts could also generate substantial revenues to allow for increases in both infrastructural and directly productive investment. In the absence of either of these alternatives, resort will increasingly have to be made to raising user charges for service provision. This would be desirable in itself, if it could be targeted primarily at those who can afford to pay. Equity considerations, however, may require the scope for privatization to be restricted to services which are consumed largely by the high-income groups. Concerns on equity further dictate that social infrastructure provision is more effectively targeted at those sections of the community that tend to be neglected in levels of coverage.

Priorities also need to be defined between physical and social infrastructure, as well as within each of them. It is not easy to determine such priorities purely on the basis of economic considerations. Nevertheless, social infrastructure seems to suffer from greater neglect in many developing economies of the ESCAP region, than does physical infrastructure. However, in many countries the underinvestment in both is so glaring that it would not matter which was given precedence. At the same time, there is a certain degree of interdependence between different categories of infrastructure, which could cause bottlenecks to their growth. For instance, without having sufficient progress in human resources development, it is impossible to build complex infrastructure requiring engineering and managerial skills of high quality.

Priorities among physical infrastructure categories cannot be set on any predetermined basis. However, it is easier to recognize the emergence of imbalances. For instance, transport infrastructure, and within it railways, seems to have suffered generally in many developing countries of the ESCAP region. There is also imbalance between road vehicles, particularly private cars, and the ancillary infrastructure such as roads and traffic signalling systems. On the other hand, while large irrigation and hydroelectric dams are constructed, attention is not paid to building irrigation channels and power distribution lines and managing them efficiently. This often gives rise to underutilization of expensively built infrastructure.

In social infrastructure, there is obviously a greater need to focus on low-cost areas of service provision which carry greater social utility. In health care this involves a concentration upon preventive medicine, health awareness, sanitation standards and an improvement in levels of nursing care. Public awareness programmes need also

to be linked to overall literacy strategies. Educational investment in particular has to be raised at the primary level at the expense of reducing public allocations to tertiary education. In housing, water supply and sanitation programmes, new technologies that lower capital and operating costs have to be developed, as has been done by a number of innovative non-governmental organization based strategies.

Finally, in many countries suffering acute shortages of social infrastructure, because of the co-existence of extensive poverty, the worst affected groups are the poor. These inadequacies in social infrastructure provision cannot be viewed in isolation from the question of poverty and inequitable distribution of resources. There is a hierarchy of needs for the poor which dictates that a package of services starting with nutritional support and, importantly, an increase in exchange entitlements are provided before turning to issues of health, education and allied infrastructure. This does not imply that concerns about other social sectors should not receive attention until poverty has been eradicated. However, social infrastructure should develop from the perspective of providing the poor with basic social services along with income generating measures that effectively raise the ability of the poor to meet immediate and future needs.

3. Environmental concerns

Environmental concerns have in recent years affected the pace and content of infrastructure development programmes. The goals of infrastructure development and environmental protection are not irreconcilable. In fact, they could serve to reinforce each other in achieving the common goal of sustainable development.

In recent years, environmental impact assessments have been conducted on a number of infrastructure projects including highways, industrial facilities, dams and irrigation projects, waste management and disposal schemes. Unfortunately, the proper use and conduct of environmental impact assessment and resource accounting techniques are still rather limited in many developing countries of the region. At present, five countries in the ESCAP region (Indonesia, Malaysia, Papua New Guinea and the Philippines, the Republic of Korea) have specific laws/regulations on environmental impacts while five other countries (China, the Islamic Republic of Iran, Pakistan, Sri Lanka and Thailand) have general legislation on environmental protection which empowers a government agency to require environmental impact analysis. India and Hong Kong have informal provisions, without statutory force, on environmental effects. Even where legislation exists, enforcement needs to be strengthened through effective environmental protection institutions.

Furthermore, such environmental concerns have to be integrated into overall national economic planning. Along with the need to incorporate environmental impact assessment at the sub-regional and regional levels, there is a further need for countries to work towards the harmonization of their environmental impact assessment regulations. The current efforts undertaken by ASEAN to strengthen its environmental impact evaluation procedures is a step worth emulating by other sub-regional and regional groups.

The sensitivity to environmental questions can be strengthened by increasing the efforts to measure the impact of environmental effects on economic progress. In making assessments about net economic growth, natural resources should be treated as tangible capital in economic accounting frameworks, while depletion and degradation should be treated as capital consumption. At the same time, efforts could be made, as far as possible, to apply the "polluter pays" principle within the country.

4. Regional co-operation

Environmental concerns themselves provide a strong basis for regional co-operation in infrastructure development. Indeed there already exist a number of such well-implemented programmes in the region. There are also others in the field of transport and communications, shipping and development of energy resources. However, there remains a large area of unexplored potential opportunities for regional co-operation in infrastructure development. At the same time, there are a number of difficulties – political, administrative, technical, as well as financial – which have stood in the way of an extended basis for regional co-operation in the development of common infrastructure facilities in the region.

Infrastructure development across national frontiers can go a long way to cementing the cohesion of the Asian and Pacific region as an economic entity. It requires, however, the concerted effort of not only concerned national governments, but also technical agencies, development banks and donor governments to support regional infrastructure projects which promote economic linkages between countries of the region. Such projects could also provide a vehicle for the recycling of the capital surpluses of Japan and the NIEs, which in turn would benefit from the higher economic efficiency of their private direct investments in these countries.

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