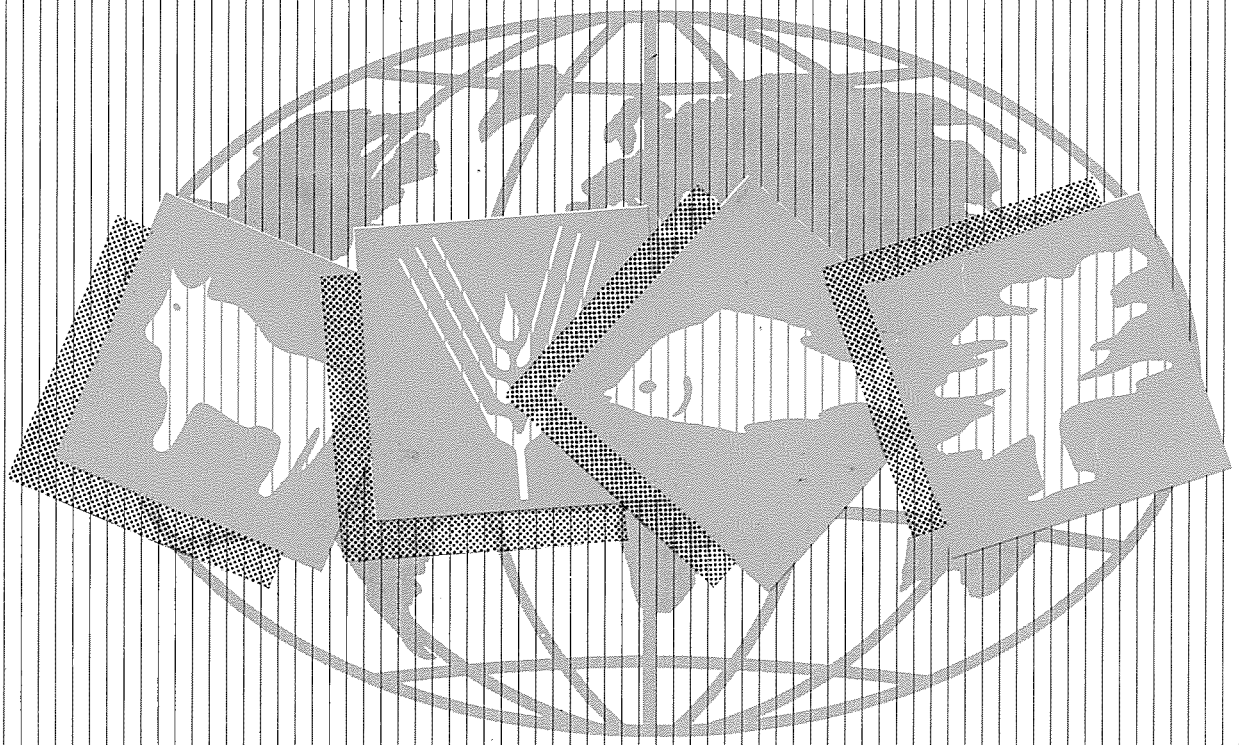
1989

THE STATE OF FOOD AND AGRICULTURE

World and regional reviews
Sustainable development and natural resource management



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Special Chapters

In addition to the usual review of the recent world food and agriculture situation, each issue of this report from 1957 has included one or more special studies of problems of longer-term interest. Special chapters in earlier issues have covered the following subjects:

1957
Factors influencing the trend of food consumption
Postwar changes in some institutional factors affecting agriculture

1958
Food and agricultural developments in Africa south of the Sahara
The growth of forest industries and their impact on the world's forests

1959
Agricultural incomes and levels of living in countries at different stages of economic development
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1968
Raising agricultural productivity in developing countries through technological improvement
Improved storage and its contribution to world food supplies

1969
Agricultural marketing improvement programmes: some lessons from recent experience
Modernizing of institutions to promote forestry development

1970
Agriculture at the threshold of the Second Development Decade

1971
Water pollution and its effects on living aquatic resources and fisheries

1972
Education and training for development
Accelerating agricultural research in the developing countries

1973
Agricultural employment in developing countries

1974
Population, food supply and agricultural development

1975
The Second United Nations Development Decade: mid-term review and appraisal

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1977
The state of natural resources and the human environment for food and agriculture

1978
Problems and strategies in developing regions

1979
Forestry and rural development

1980
Marine fisheries in the new era of national jurisdiction

1981
Rural poverty in developing countries and means of poverty alleviation

1982
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1983
Women in developing agriculture

1984
Urbanization, agriculture and food systems

1985
Energy use in agricultural production
Environmental trends in food and agriculture
Agricultural marketing and development

1986
Financing agricultural development

1987-88
Changing priorities for agricultural science and technology in developing countries

THE STATE OF FOOD AND AGRICULTURE 1989

FAO Agriculture Series *No. 22*

THE STATE OF FOOD AND AGRICULTURE 1989

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1989

The statistical material in this publication has been prepared from the information available to FAO up to February 1989.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. In some tables, the designations "developed" and "developing" economies are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process.

PART THREE, Sustainable Development and Natural Resource Management, was based on the work of Michael Redclift, consultant.

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FOREWORD

The years 1987 and 1988 witnessed a marked turnaround in the world agricultural and food security situations. Some important agricultural commodity markets shifted from having a global surplus to a situation of relative scarcity, and international prices increased significantly, after having fallen to their lowest levels in many years. World stocks of cereals, oilseeds and products, dairy products and even sugar were sharply reduced from previous high levels, but meat, cocoa, coffee, tea and cotton supplies remained large. In this overall situation it was the current and projected levels of cereal stocks that underlined the need for continued vigilance from the perspective of global food security.

Prospects for 1989 are for an increase in food and agricultural production, but the extent of the improvement remains uncertain. Much depends on the outcome of the crops that are still to be harvested in the remainder of this year. Nevertheless, the world food supply and security situation will probably remain precarious in 1989/90. In particular, the increase in cereal production is unlikely to permit the replenishment of stocks to what is considered a safe level.

The reversal in world agricultural commodity supplies and food security arose mainly because of natural events, the most important from a global perspective being the protracted drought in North America, although for some products policy changes were also important. The resulting drop in output led to a stagnation in world food production in 1988, for the second consecutive year.

In a longer perspective, higher international prices may help restore competitiveness to production in those countries where world market prices determine the returns to producers. In 1987 and 1988, however, a few exporting countries earned more from their agricultural exports and were able to reduce budget outlays for commodity programmes,

A selection of events in 1988 related to food and agriculture

2.1.1988
US/Canada

Prime Minister Mulroney of Canada and President Reagan of the United States signed a free trade agreement in separate ceremonies in Ottawa and Palm Springs. Under the agreement, which required ratification by the United States Congress and the Canadian Parliament, most tariffs on cross-border trade in goods and services produced in the two countries would be eliminated over ten years, beginning 1 January 1989. With certain exceptions (i.e. agricultural products) neither country would be permitted to impose import or export quotas.

1.1-13.2.1988
Special European Council (Brussels Summit)
Brussels, Belgium

The Council's decisions to double spending on the Structural Fund by 1993, impose strict budget discipline (notably on farm spending) and change the basis of member countries' budget contributions corresponded very closely to the proposals outlined in the so-called "Delors-package" put forward by the European Commission a year earlier.

1-3.3.1988
Second meeting of the South Commission
Kuala Lumpur, Malaysia

The meeting's purpose was to finalize details of the objectives and terms of reference for the Commission. Other issues on the agenda included Third World debt and ways of raising funds for the work of the Commission. The Commission called for the establishment of a debtor's forum to plan a strategy for combating the problem of Third World debt.

6-9.3.1988
International Conference on the Human Dimension of African Economic Recovery and Development
Khartoum, the Sudan
The Khartoum Declaration, adopted by the Conference, called for an approach to economic recovery and socio-economic development in Africa that focused directly on the needs of the continent's peoples.

10-19.3.1988
19th FAO Regional Conference for the Near East
Muscat, Oman

Discussed, *inter alia*, intraregional labour mobility, the role of energy in rural and agricultural development within the region, and the development of inland fisheries and aquaculture.

7-8.4.1988
World Food Conference
Brussels, Belgium

Organized under the initiative of Lord Plumb, President of the European Parliament, the Conference brought together some 300 agricultural experts to discuss ways of reducing the present global imbalance in food supplies and combating Third World hunger. Proposals included an increase in technological aid to promote Third World self-sufficiency in food.

while the vast majority of countries and millions of consumers experienced the negative effects of higher international or internal prices. Against the background of a continuing adverse external economic environment and economic difficulties, including heavy external debt, the increase in international prices as well as a reduction in availability of food aid placed additional burdens on the food-deficit developing countries.

In this overall context, it was fortunate that many developing countries recorded improved harvests in 1988, thus limiting the impact of tighter global food supplies. Recovery in production from the sharp 1987 decline was most pronounced in some countries in Asia. Food production in developing countries as a whole increased by 1.2 percent per caput, and increased or remained stable in 48 percent of the reporting developing countries compared to only 28 percent in 1987.

In the context of a vigorous expansion in total merchandise trade in 1987, agricultural trade also expanded. World exports of fishery and, to a lesser extent, forestry products, showed the most dynamic expansion. Export earnings from agriculture, however, declined in the majority of developing countries. Nearly two-thirds of 117 developing countries experienced a decline in export earnings from agriculture, compared to 40 percent in 1986, mainly due to depressed prices for several important commodities. However, export volume of many countries, particularly in Africa, fell back because of supply problems.

In 1988, growth in the value of world agricultural trade, while less dynamic than other sectors, may have exceeded or at least equalled that of 1987. However, this growth arose mainly from increases in prices rather than volume, and in crop foods and feed products rather than meat, beverage crops and raw materials.

The Uruguay Round of multilateral trade

Events in 1988 *(continued)*

13-15.4.1988
Group of Seven and IMF/World Bank spring meetings
Washington, USA

The Finance Ministers and Central Bank Governors of seven major industrial countries met to conduct multilateral surveillance of their economies pursuant to the economic policy coordination process adopted at the 1986 Tokyo Summit and strengthened at the 1987 Venice Summit. This meeting preceded the semi-annual meeting of IMF and World Bank which included consideration of the transfer of real resources to the developing countries.

26.4-4.5.1988
15th FAO Regional Conference for Africa
Port Louis, Mauritius

Discussed, *inter alia*, farm mechanization, fisheries and their potential for development, the development of an indigenous African food industry and forestry in support of agriculture.

9-13.5.1988
FAO Committee on Forestry
Rome, Italy

Made recommendations on managing wildlife for sustained utilization, on promoting the potential of small-scale forest-based industries and on the adoption of sound harvesting methodologies. Through the Tropical Forestry Action Plan it called for a better understanding of the relationship between conserving tropical forests and the development of agriculture and livestock.

10-11.5.1988
EEC/ACP Council
Port Louis, Mauritius

A meeting of ministers from the 12 member countries of the European Economic Community (EEC) and 66 associated African, Caribbean and Pacific (ACP) states was held in Mauritius to prepare for the negotiation of the fourth Lomé Convention between the EEC and ACP countries, since the existing Convention is due for renewal in 1990. Delegates discussed the effects on ACP economies of the slump in world commodity prices, the debt problems in particular of African countries and African emergency food and needs.

18-19.5.1988
Annual OECD Ministerial Meeting
Paris, France

The meeting was closed with the pledge to avoid aggravating the confrontation between the United States and the EEC regarding agricultural subsidies. The meeting was preoccupied by the continuing disagreement on agricultural subsidies.

negotiations, which was stalled at the mid-term review at Montreal in December 1988, restarted in April 1989. This positive development enabled trade liberalization measures already agreed for tropical products to enter the implementation phase.

In a broader economic context, conditions generally improved in 1988 in the developed countries and in Asia. While growth in their production of goods and services gained momentum, price inflation remained moderate. At the same time, their trade volumes continued to increase and their terms of trade improved slightly.

In contrast, the economic and financial situation remained difficult in Africa, Latin America and the Caribbean, and the Near East. Significant policy reforms have been initiated in Africa since the launching of the UN Programme of Action for African Economic Recovery and Development (PAAERD) in 1986. The success of the Programme, however, will depend as much on external factors, such as international commodity prices, external resource flows and debt relief, as on internal policy measures.

In Latin America and the Caribbean per caput output declined, price inflation became more severe, net capital outflows continued and the debt-service ratio rose, even though growth in export volumes accelerated. The protracted economic and financial crisis has led to a reappraisal of past development strategies and the role of agriculture within them. Prospects for agricultural-based growth in this region are constrained by slow growth in domestic demand and external constraints on agricultural exports.

Economic circumstances remained most difficult in the heavily indebted oil-exporting countries, as well as the majority of low-income countries. Crude oil prices declined, and external debt continued to climb to ever higher levels, with the increase in lending being mainly from official creditors.

Events in 1988 *(continued)*

23-26.5.1988
14th Session of the World Food Council
Nicosia, Cyprus

The meeting brought together Ministers of Agriculture and their representatives from the 36 member countries of the Council. A new initiative (Cyprus Initiative), whose objective is the harmonization and reinforcement of food production policies and the alleviation of hunger, was adopted. It established a select working group responsible for presenting concrete measures to cope with the chronic food crisis in some developing countries.

13.6.1988
Floods in Bangladesh

Floods starting in mid-June left millions of people homeless and caused more than 1 000 deaths. Three-quarters of Bangladesh were covered by water, which started to recede only by early September.

19-21.6.1988
14th Annual Economic Summit (Group of Seven)
Toronto, Canada

The heads of state and governments of the Group of the Seven Most Industrialized Countries announced that they had reached a consensus on re-scheduling the debt of the world's poorest countries. Discussions were also held on structural economic reform, on the fight against inflation and the adoption of a framework approach to promote the agricultural reform process.

22.6-1.7.1988
International Tropical Timber Organization (ITTO) Council meeting
Rio de Janeiro

A number of projects on information and market intelligence, on aspects of forest industry and on reforestation and forest management were initiated, including a substantial project on Integration of Forest-Based Development in the Western Amazon.

27-28.6.1988
European Summit
Hanover, Federal Republic of Germany

Ministers declared that the goal of completing a single internal market by 1992 had become irreversible but consensus was not reached on monetary union and the possibility of a European Central Bank.

27-30.6.1988
International Conference on the Changing Atmosphere
Toronto, Canada

Over 300 experts from 45 countries attended this meeting, which is viewed as the initial international response to the findings of a UN Environment Programme (UNEP) report, which urged international action to limit the so-called "greenhouse effect" or global warming. Experts warned that global warming might threaten the earth's ability to feed its population.

Many developing countries that had undertaken major economic adjustments—often at a heavy socio-economic cost—still did not see their efforts adequately rewarded by enhanced export earnings and restructured or reduced debt. The search for solutions to the debt problem continued, resulting in some relief for low-income countries, but progress remained disappointing for middle-income debtor countries. Since 1984, developing countries, especially those heavily indebted in Latin America, have been paying more in principal repayments and interest on long-term debt than their inflows from disbursements, largely due to the precipitous decline in private lending. According to the World Bank, the net outward transfer on long-term debt reached US$43 000 million in 1988. This paradoxical situation makes a mockery of accepted principles of, and commitment to, economic growth and equity.

Recent trends in external resource flows to agriculture show that concessional multilateral commitments in 1987 rose considerably above the previous year's low figure. In a longer-term perspective, however, this welcome development appeared less encouraging because such commitments in real terms were only slightly higher in 1987 than their average of the previous three years. Non-concessional commitments fell markedly in 1987, but from an exceptionally high level in 1986. On the positive side, considerable increases in soft loans to agriculture by the IDA in 1987 and 1988, and in the World Bank's total authorized capital, should benefit agricultural investment significantly in the future.

This year's *The State of Food and Agriculture* revisits the issue of "Sustainable development and natural resource management" in its special chapter. The awareness of the destructive exploitation of our natural resource endowment has come into sharper focus since the topic was addressed in SOFA 1977, and the concept of sustainable development has

Events in 1988 *(continued)*

11.7.1988
FAO's *Food outlook*

The July issue of FAO's *Food outlook* warned that the severe and widespread drought in North America would be expected to force world cereal stocks down to a dangerously low level and could lead to possible food shortages.

11.7.1988
Common Fund for Commodities

The remaining condition for entry into force of the Agreement establishing the Common Fund for Commodities was fulfilled, namely that the ratifying countries should represent two-thirds of the Fund's directly contributed capital. However, the Fund will not be able to come into operation until the 64 states that had ratified it by September 1983 meet to decide on a final date for the entry into force of the Agreement.

11-15.7.1988
19th FAO Regional Conference for Asia and the Pacific
Bangkok, Thailand

Discussed, *inter alia*, food production for nutritional adequacy in the region, progress and problems of livestock development and how to promote agroforestry.

4-5.8.1988
Floods in the Sudan

Torrential rains on 4 and 5 August caused the worst floods since 1946 in the Sudan. A state of emergency was declared and about 2 million people were left homeless.

5-8.8.1988
3rd Meeting of the South Commission
Mexico City, Mexico

The South Commission advocated a collective response from developing countries to the organized efforts of the industrial countries through the Uruguay Round, to create a new world economic system to suit their interests. The Chairman of the Commission, Julius Nyerere, forwarded a 35-page statement to the heads of the states/governments of the South countries analysing the Uruguay Round and calling for collective action by the developing countries.

23-26.8.1988
FAO 16th Regional Conference for Europe
Cracow, Poland

The Conference discussed a paper on Integration of Environmental Aspects in Agricultural, Forestry and Fishery Policies in Europe. A joint FAO/ECE study "European agriculture: policy issues and options to 2000" was also presented as a background document.

become quite well understood. The special chapter therefore does not dwell on the concept; instead, it seeks to make the concept operational.

While the causes of environmental damage differ, its existence is common to all. All nations, developed and developing alike, must search for appropriate solutions to enable their developmental goals to be attained without incurring irrevocable environmental damage. We are now at the point where only a rapid and massive mobilization of public opinion, technical inventiveness, political wisdom and international cooperation can prevent further global ecological deterioration with potentially disastrous consequences. FAO is well aware of the enormity of the task, having worked on environmental matters since its inception and having played a key role in essentially all of the important international environmental events.

Among the many causes of environmental damage are excessive use of chlorofluorocarbons, the use of hazardous chemicals, inefficient combustion of fossil fuels, the accumulation of toxic and nuclear wastes, nuclear accidents and oil-tanker spills, the use of inappropriate agricultural production technologies or practices, deforestation, overfishing, insufficient awareness among policy-makers of the immediate and long-term effects of resource mismanagement, and the lack of access by the poor to adequate resources or alternative employment opportunities.

A number of areas for concrete action are identified in the special chapter. First, the developed countries must continue their search for ways to pursue economic goals without the present unacceptably high levels of environmental damage to themselves and other nations. Second, there must be a serious examination of the strategies and means of survival of the poor, particularly in rural areas, where poverty and the lack of alternative employment opportunities may force them to

Events in 1988 *(continued)*

31.8-2.9.1988
Mid-season coordination/planning meeting in 1988 Desert Locust Campaign
Rome, Italy

This was one of several meetings held during the period April-December 1988 in Rome and elsewhere. There was general recognition that further large donor assistance would be required in the near future.

24-28.9.1988
IMF/World Bank autumn meeting
West Berlin, Federal Republic of Germany

The issue of debt relief finally gained acceptance, but no consensus emerged as to how it would be funded. This IMF/World Bank semi-annual meeting was again preceded by the Group of Seven meeting.

29.9-1.10.1988
International Symposium on the Crisis of the Global System,The world ten years after the Brandt Report
Vienna, Austria

Major differences emerged over development aid policies at the seminar, which brought together experts from all over the world. Concepts such as "interdependence and development aid" were criticized by Third World participants as part of a language and ideology introduced by the North to hide the reality of development. The meeting was expected to provide some guidelines on crisis management in the 1990s.

10-12.10.1988
FAO 20th Regional Conference for Latin American and the Caribbean
Recife, Brazil

The study "Potential for agricultural and rural development in Latin America and the Caribbean" was presented. It stressed the importance of shifting priorities in favour of rural areas and small-scale agricultural producers.

18-29.10.1988
International Conference on the Desert Locust Peril
Fez, Morocco

Proposed an International Green Force under the aegis of the United Nations to undertake control in strategic areas.

10-12.11.1988
Ministerial Meeting of the Cairns Group
Budapest, Hungary

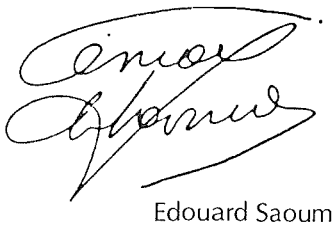
Ministers stressed the importance of the forthcoming Mid-Term Review of the Uruguay Round to be held in Montreal for achieving substantive results on agriculture. Their proposals called for negotiation of a long-term framework for agricultural trade, and a reformed and strengthened GATT regime for agriculture as well as a package of early action measures for immediate implementation. Officials were requested to develop further the Group's ideas on a more favourable treatment for developing countries.

overexploit the natural resources on which they depend. The varied household tasks of women should also be analysed to see how they perceive and react to the depletion of natural resources such as fuelwood and water.

Third, broad integrated strategies must be devised for the various types, combinations and quality of land and water resources and the uses which they serve: low- and high-potential lands, forests, fisheries and, throughout these, but most frequently in tropical forests, genetic reserve areas. In formulating such strategies, we may look to the Tropical Forest Action Plan to provide a useful framework for coherent planning of natural resource use in a broader sense.

Fourth, there is the need for greater integration of economic and environmental considerations. All too frequently, the costs of environmental degradation are inadequately accounted for when formulating development strategies, policies, programmes and projects. Should these environmental costs be adequately assessed, then decisions based on conventional economic cost-benefit analyses may be modified or reversed.

With sound coherent policies and planning, natural resource degradation need not be an inevitable consequence of agricultural progress. Sustainable development can permit the present generation to improve its welfare, while passing on to future generations a world capable of supporting them and providing a better place in which to live.



Edouard Saouma
Director-General

Events in 1988 *(continued)*

15-25.11.1988
94th Session of FAO Council
Rome, Italy

Discussed, *inter alia*, FAO's contribution to sustainable development and a plan of action for the integration of women in development.

30.11-1.12.1988
Second Bellagio Strategy Meeting on Tropical Forests
Wiston House, UK

Supported recommendations that a Task Force be established for increasing the flow of resources to forestry research worldwide and that an entity be created with responsibility for coordinating forestry research, possibly through expansion of the Consultative Group on International Agricultural Research (CGIAR).

5-8.12.1988
Mid-term Review of the Gatt Uruguay Round
Montreal, Canada

The meeting ended with only tentative accords on 11 of the 15 subject areas of the negotiations. On four items—agriculture, textiles, safeguards and trade-related intellectual property rights—no consensus was achieved and the whole package was put "on hold" until April 1989 pending further consultations on these aspects. The lack of progress resulted primarily from the failure of the United States and the EEC to resolve their differences over agricultural reforms.

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GLOSSARY

ADF	African Development Fund
ARP	Acreage reduction programme
CAP	Common Agricultural Policy
CBA	Cost benefit analysis
CCFF	Compensatory and Contingency Financing Facility
CFCs	Chlorofluorocarbons
CIAT	International Centre for Tropical Agriculture
CIMMYT	International Centre for Maize and Wheat Improvement
DES	Dietary energy supply
DIESA	Department of International Economics and Social Affairs (UN)
ECA	Economic Commission for Africa
ECLAC	Commission for Latin America and the Caribbean
ECLO	Emergency Centre for Locust Operations
ECU	European Currency Unit
EEC	European Economic Community
EEP	Export Enhancement Programme
EEZ	Exclusive Economic Zone
EFF	Extended Fund Facility
EIA	Environmental impact assessment
ESCAP	Economic and Social Commission for Asia and the Pacific
FAC	Food Aid Convention
FBS	Food balance sheets
FOWCIS	Forest and Wildlands Conservation Information System
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GIS	Geographical Information System
GNP	Gross national product
HYVs	High-yielding varieties
IDA	International Development Association
IDB	Inter-American Development Bank
IEFR	International Emergency Food Reserve
IFAD	International Fund for Agricultural Development
IGOs	Intergovernmental organizations
IMF	International Monetary Fund
IPM	Integrated pest management
ITTO	International Tropical Timber Organization
IUCN	International Union for the Conservation of Nature
LDCs	Least developed countries
NGOs	Non-governmental organizations
NMP	Net material product
OECD	Organization for Economic Cooperation and Development
OPEC	Organization of the Petroleum Exporting Countries
PLD	Paid land diversion
PPP	Polluter pays principle
RMB	Renminbi-yuan (Chinese currency)
SAF	Structural Adjustment Facility
SDR	Special drawing rights
SMS	Safe minimum standard
SNAs	System of National Accounts
TFAP	Tropical Forestry Action Plan
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN-PAAERD	UN Programme of Action for Africa's Economic Recovery and Development
WCARRD	World Conference on Agrarian Reform and Rural Development
WCED	World Commission on Environment and Development

EXPLANATORY NOTE

The following symbols are used in the statistical tables:

-	=	none or negligible
...	=	not available
"1987/88"	=	a crop, marketing or fiscal year running from one calendar year to the next;
"1986-88"	=	the average for three calendar years.

Figures in statistical tables may not add up because of rounding. Annual changes and rates of change have been calculated from unrounded figures. Unless otherwise indicated, the metric system is used throughout. The dollar sign ($) refers to United States dollars.

Production index numbers

The FAO index numbers have 1979-81 as the base period. The production data refer to primary commodities (e.g. sugar cane and sugar beet instead of sugar) and national average producer prices are used as weights. The indices for food products exclude tobacco, coffee, tea, inedible oilseeds, animal and vegetable fibres and rubber. They are based on production data presented on a calendar-year basis.[1]

Trade index numbers

The indices of trade in agricultural products are also based on 1979-81. They include all the commodities and countries shown in the *FAO Trade Yearbook 1987*. Indices of total food products include those edible products generally classified as "food".

All indices represent changes in current values of exports (f.o.b.) and imports (c.i.f.), all expressed in United States dollars. If some countries report imports valued at f.o.b. (free on board), these are adjusted to approximate c.i.f. (cost, insurance, freight) values. This method of estimation shows a discrepancy whenever the trend of insurance and freight diverges from that of the commodity unit values.

Volume and unit value indices represent the changes in the price-weighted sum of quantities and of the quantity-weighted unit values of products traded between countries. The weights are respectively the price and quantity averages of 1979-81, which is the base reference period used for all the index number series currently computed by FAO. The Laspeyres formula is used in the construction of the index numbers.[2]

Definitions of "narrow" and "broad"

The OECD definitions of agriculture are generally used in reporting on external assistance to agriculture. The **narrow** definition of agriculture, now referred to as "directly to the sector" includes the following items:

Appraisal of natural resources
Development and management of natural resources
Research
Supply of production inputs
Fertilizers
Agricultural services
Training and extension
Crop production
Livestock development
Fisheries
Agriculture (subsector unallocated)

The **broad** definition includes, in addition to the above items, activities that are defined as "indirectly to the sector". These activities are:

Forestry
Manufacturing of inputs
Agro-industries
Rural infrastructure
Rural development
Regional development
River development

Regional coverage

Developing countries include:

(i) Developing market economies (Africa, Latin America, Near East,[3] Far East and Other) and
(ii) Asian centrally planned economies or ACPE (China, Democratic Kampuchea, Democratic People's Republic of Korea, Mongolia and Viet Nam).

Developed countries include [4]

(i) Developed market economies (North America, western Europe including Yugoslavia, Oceania, Israel, Japan and South Africa) and
(ii) centrally planned economies of Eastern Europe and the USSR (Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania and USSR).[5]

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1. For full details, see *FAO Production Yearbook 1987*, 1988

2. For full details, see *FAO Trade Yearbook 1987*, 1988

3. The Near East includes: Egypt, Libyan Arab Jamahiriya, the Sudan, Afghanistan, Bahrain, Cyprus, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Kingdom of Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen Arab Republic and Democratic Yemen.

4. Note that "industrial countries", as defined by the International Monetary Fund (IMF) include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany (Fed. Rep. of), Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom and United States. (They do not include Yugoslavia, Greece, Israel, South Africa, the centrally planned economies and some smaller other countries.)

5. Albania is omitted in this report for lack of sufficient data..

PART ONE

WORLD REVIEW

PART ONE of *The State of Food and Agriculture* provides a global perspective of current trends and issues related to agricultural performance, based on information available up to the beginning of February 1989.

WORLD REVIEW

Chapter 1

WORLD ECONOMIC ENVIRONMENT

Global economic growth continued in 1988 for the sixth consecutive year, but was sustained mainly by growth in the industrialized countries and in Asia. Serious problems remained, however, in many developing countries, especially in Africa and Latin America and the Caribbean, where investment rates remained depressed and net capital outflow unabated.

The cloud of uncertainty which hung over the world economy after the October 1987 stock market crash began to dissipate in 1988. After a period of instability, financial markets regained their balance and proceeded to grow in an orderly manner. As the memory of Black Monday receded, so did fears of global recession. Forecasters revised their growth and trade estimates upwards, reflecting general optimism about short-term prospects.

With monetary and financial markets calm, business and consumer confidence grew in industrial countries. Capital expenditures in these countries increased substantially, especially in North America and Japan. Rising employment stimulated income and consumption. Trade imbalances tended to decrease among them. The industrialized countries also strengthened efforts to coordinate economic policy and took steps, most notably at the June 1988 Toronto Summit, to reduce trade imbalances and to promote more sustainable patterns of growth. There were some favourable impacts also on the developing countries, particularly in Asia. Stronger exports, for some, and higher commodity prices in 1987 and 1988, helped ease the economic situation in certain nations. Overall, debt-service ratios of capital-importing countries declined in both years, although the decline was marginal in 1988. Furthermore, of the major regional groupings only Asia registered an improvement in 1988. Both Africa and Latin America and the Caribbean experienced a worsening in their debt-service ratios, after the temporary improvement registered the previous year.

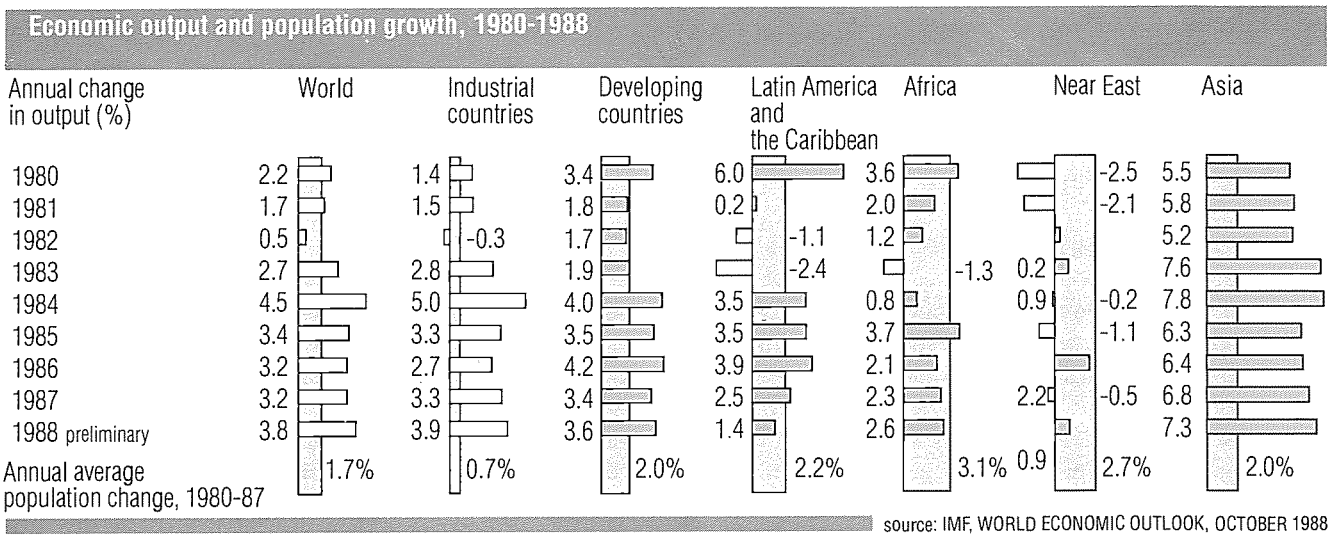
Despite some favourable developments, serious dangers to the world economy, and to the developing countries in particular, remain. Protectionism plagues trade relationships, and increasing inflationary pressures are compelling governments to raise interest rates and possibly slow economic growth. These factors could weaken demand for developing countries' exports—in a period when imbalances in their trade and payments remain abnormally large.

The debt problem remains a serious unresolved threat to growth and stability. Indeed, despite improvements for some developing countries, the debt trap actually deepened for some nations whose economic adjustment measures had reached their limits. Declines in oil prices and increases in interest rates exacerbated the debt of many countries, further compromising their development prospects.

A developing country perspective of the global economy was expressed in the Group of 24 (Development Committee) communiqué issued during the World Bank/IMF Spring Meetings in April 1988. A major concern was that unless industrial countries did more to step up the pace of their economic growth and provide debt relief, there was little hope of easing the debt crisis and reversing the present perverse flow of resources from developing to developed countries. Other interrelated reasons

World economic output, 1980-1988

source: IMF, WORLD ECONOMIC OUTLOOK, OCTOBER 1988



for concern continue to be the inadequate access of developing countries' products to world markets, the erosion of preferential trade arrangements and the inability of these countries to improve their position in world trade.

Output growth and patterns

World economic output increased by an estimated 3.2 percent in 1987, continuing the steady, if moderate, expansion begun in 1983. Estimates for 1988 suggest a global economic growth rate of 3.8 percent—the highest since 1984 and the second highest in the 1980s.

Economic growth in the industrial countries was unexpectedly vigorous in 1987 (3.4 percent), benefiting from lower oil prices and interest rates, as well as exchange rate realignments, up until the October 1987 stock market crash. Growth remained strong in 1988 (nearly 4 percent), and is expected to continue at from 2.5 to 3.0 percent in 1989.

Demand and economic activity in the United States increased sharply in 1988 while Japanese economic growth was particularly dynamic in both 1987 and 1988. Moreover, Japan's growth was more internally generated than in previous years—welcome news for her trading partners and for international adjustment. By contrast, most European countries experienced only modest increases in generally low growth rates. Demand, especially its investment component, was stronger, but unemployment remained high.

Overall growth in the developing regions was strong (an estimated 3.4 percent in 1987 and 3.6 percent in 1988), but it was unevenly distributed, and failed to prevent per caput incomes from dropping in many areas. Real growth was impressive only in Asia, because of advances in China and the Republic of Korea. In Africa, real per caput GDPs dropped in 1987, with economic growth failing to keep pace with population increases. In Latin America and the Caribbean, the situation was only slightly better, with economic growth just keeping up with population increases. In the Near East, economic growth was negative.

In 1988, economic growth accelerated, by varying degrees, in all developing regions except Latin America and the Caribbean, where the 1.4 percent regional GDP growth estimate implied a significant reduction in per caput production and income—the first such decline since the 1981-83 recession.[1] The estimated 2.6 percent increase in output in Africa would be one of the highest in the 1980s, but would still fall short of population growth. Thus 1988 would be the seventh year since 1980 in which African per caput output declined.

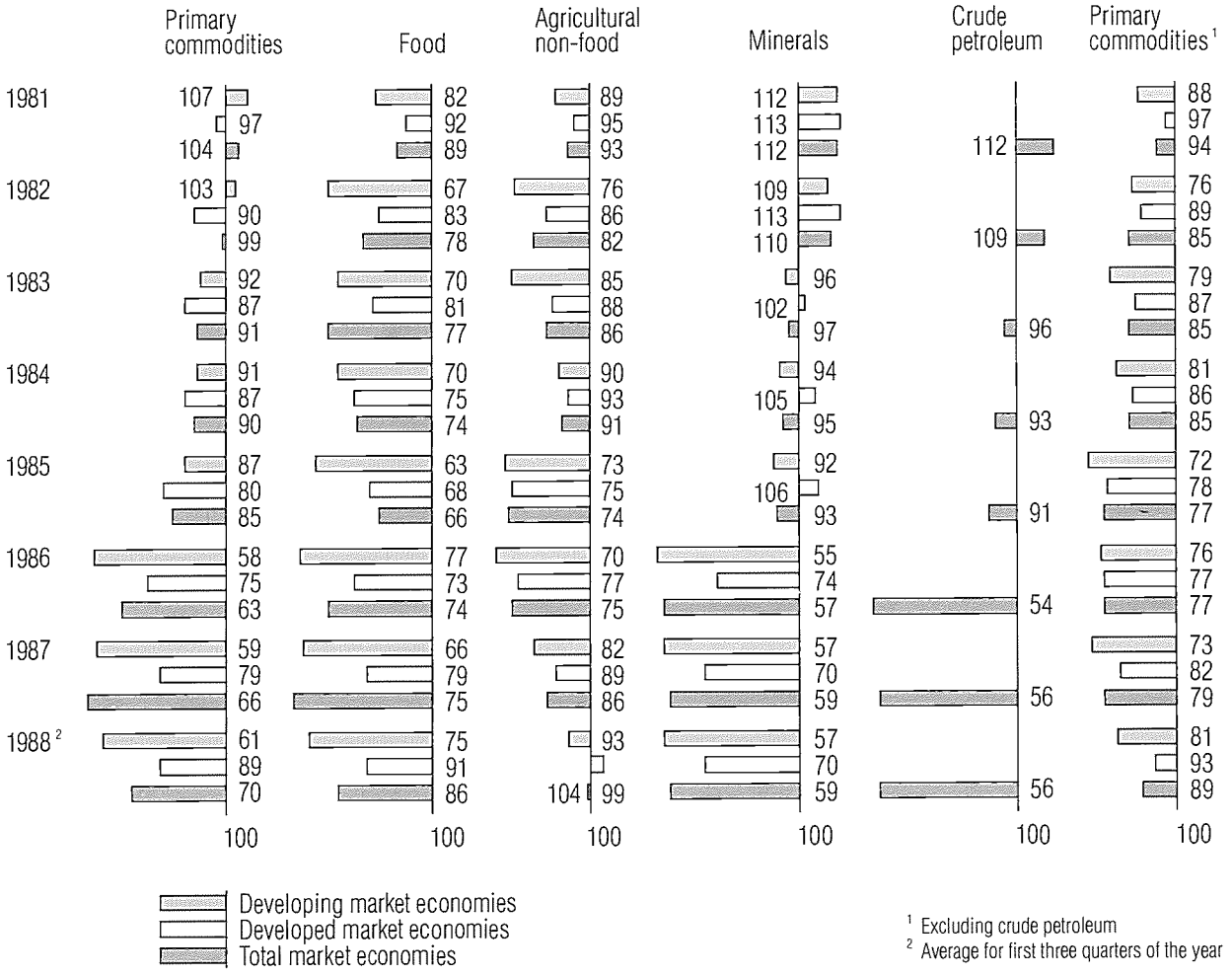
Trade and external accounts

World merchandise exports increased by approximately 5 percent in 1987, according to GATT—the fastest annual growth in volume during the 1980s except for 1984. This increase was two percentage points more than world output, and similar to the high rates of the 1970s. Manufactures, which represent over two-thirds of total

1. IMF estimates. According to the UN Economic Commission for Latin America and the Caribbean, regional GDP growth was only 0.7 percent.

Commodity price increases: finally on the way back up?

Changes in prices of primary commodities, 1980-1988 (1980 = 100)



[1] Excluding crude petroleum
[2] Average for first three quarters of the year

source: UN STATISTICAL OFFICE, MONTHLY BULLETIN OF STATISTICS, FEBRUARY 1989

Commodity prices rose sharply in 1987 after having fallen to their lowest levels since 1973 at the beginning of the year. This recovery continued during 1988. According to the World Bank's aggregate commodity price index (1980=100), during January-November 1988 the prices of 33 selected commodities (excluding petroleum and steel) rose almost 13 percent over average 1987 levels. Food commodity prices rose 17.7 percent, agricultural timber 5 percent, metals and minerals 35 percent in that period.

Oil prices recovered substantially from the low levels of mid-1986, but began to weaken again in mid-1987. In nominal US dollar terms, the price of crude oil (North Sea Brent) averaged US$26.50 a barrel in 1985, US$13.30 a barrel in 1986 and US$17.10 a barrel in 1987. The price fell during much of 1988, to a low of US$10.50 per barrel in October, but picked up subsequently, following the OPEC production control agreement in late November. Overall, crude oil prices averaged approximately US$14 a barrel in 1988, 18 percent less than the 1987 average.

Clearly, higher commodity prices are a godsend for many developing countries—and essential if the debt crisis is to be resolved. But these increases have already raised inflation fears in the industrialized countries—even though most prices are still well below 1980 levels. At their June 1988 Toronto Summit, the major industrial powers underlined their concern about the potential impact of rising commodity prices on their domestic inflation rates, by including a commodity price indicator on the list of key economic variables to be closely monitored. Furthermore, some experts believe that higher international prices will reduce pressures to liberalize agricultural trade.

Annual change in export and import volumes, 1980-1988 (%)

	Industrial countries		Developing countries		Latin America and the Caribbean		Africa		Near East		Asia	
	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports	exports	imports
1980	4.2	-1.5	-4.1	7.4	2.0	9.4	-1.6	9.2	-15.2	9.1	8.8	9.7
1981	3.8	-1.7	-5.9	8.0	6.7	4.0	-15.0	10.9	-17.7	16.9	8.8	7.5
1982	-2.1	-0.6	-7.7	-3.3	-3.0	-17.7	-4.9	-7.5	-20.1	5.9	1.1	2.2
1983	3.0	4.7	3.0	-2.4	7.6	-22.6	3.5	-10.3	-9.4	-2.5	10.5	8.7
1984	9.9	12.5	7.1	2.7	8.1	3.1	6.4	-0.2	-4.5	-6.1	14.2	7.9
1985	4.7	4.6	0.6	-0.9	0.6	1.5	6.7	-7.0	-9.4	-13.8	4.3	5.7
1986	2.6	8.3	10.5	-4.5	-0.8	3.2	6.1	-11.1	18.5	-21.7	17.6	2.0
1987	5.3	6.9	8.6	4.4	6.5	3.6	-2.9	-5.3	-1.3	-8.7	16.6	11.8
1988 preliminary	7.7	8.0	7.7	8.0	8.0	3.2	0.1	1.2	4.9	-1.8	10.9	14.3

source: IMF, WORLD ECONOMIC OUTLOOK, OCTOBER 1988

merchandise trade, grew by 5-6 percent and accounted for most of the overall gain. In dollar terms, GATT estimates a growth in merchandise trade of 16 percent to almost US$2 500 000 million. This large increase reflected higher dollar prices for several primary products and for oil during the first half of the year, as well as the continued depreciation of the US dollar.

Industrial country imports remained the main component of the expansion in world trade during 1987, although their volume increased more slowly than in 1986. The volume of developing countries' exports increased rapidly for the second consecutive year, because of both improved Latin American exports and yet another boom year in Asia, where exports have expanded by an average 12 percent yearly since 1983. The 15 most indebted developing countries performed well in 1987, with export volumes increasing by 10 percent and imports by 7 percent, after declines in 1986. Moreover, with export unit prices rising for the first time since 1981, the value of developing countries' exports increased by 20 percent in 1987. This was due largely to the temporary recovery in oil prices in early 1987, a more sustained increase in metal prices, which continued into 1988, and outstanding growth in manufactures exports by the newly industrialized countries.

Estimates for 1988 suggest another strong acceleration, to 7-8 percent, in the volume growth of world merchandise trade. An expansion of nearly 27 percent in the volume of United States' exports accounts for perhaps one-third of the total. Exports by the other industrial areas rose moderately.

Annual change in terms of trade, 1980-1988 (%)

	Industrial countries	Developing countries	Latin America and the Caribbean	Africa	Near East	Asia
1980	-7.3	16.6	7.4	17.0	41.5	-1.4
1981	-1.7	3.6	-4.6	1.6	13.8	-2.7
1982	1.9	-0.2	-4.7	-5.1	2.9	1.3
1983	1.5	-3.4	-3.0	-2.6	-8.5	0.2
1984	0.2	1.7	3.8	1.3	0.2	2.8
1985	0.5	-2.2	-2.7	-3.6	0.1	-2.9
1986	8.8	-19.6	-14.3	-26.7	-48.6	-7.7
1987	0.5	3.1	-0.9	2.2	11.6	2.9
1988 preliminary	1.2	-2.3	0.6	-4.0	-15.6	0.3

source: IMF, WORLD ECONOMIC OUTLOOK, OCTOBER 1988

Current account balances, 1980-1988 (US$ thousand million)

	All industrial countries	USA	Developing countries	Latin America and the Caribbean	Africa	Near East	Asia	Fuel exporters	Non-fuel exporters
1980	-58.1	1.9	30.6	-29.8	-2.2	92.5	-14.4	96.4	-65.8
1981	-16.3	6.9	-47.8	-42.9	-22.2	50.0	-19.1	34.8	-82.5
1982	-20.0	-8.7	-86.4	-42.4	-21.5	3.0	-17.4	-18.2	-68.2
1983	-17.5	-46.3	-63.1	-10.9	-12.1	-20.2	-14.8	-19.6	-43.5
1984	-58.1	-107.1	-33.3	-2.5	-8.0	-15.7	-4.3	-5.4	-28.0
1985	-48.6	-115.1	-24.3	-4.7	-0.2	-2.8	-13.5	2.3	-26.5
1986	-16.3	-138.8	-40.7	-16.9	-8.8	-18.2	5.1	-32.1	-8.6
1987	-42.9	-154.0	0.3	-11.3	-5.0	-5.2	20.9	-3.9	4.3
1988 preliminary	-45.2	-128.9	-17.6	-10.9	-7.9	-15.1	16.1	-22.9	5.3

source: IMF, WORLD ECONOMIC OUTLOOK, OCTOBER 1988

Developing countries' export volumes continued to expand at a healthy rate, although they did so less rapidly than in the two previous years. Strong demand in the industrial countries benefited once again the newly industrialized countries in Asia. Those countries exporting primary commodities also increased their export volumes.

The overall value of exports by developing countries, expressed in terms of SDR, increased only slightly in 1988 and their terms of trade deteriorated because of the sharp fall in world oil prices. However, for non-oil-exporting developing countries, the terms of trade improved for the first time since 1984 as a result of higher non-oil commodity prices.

Imbalances in international payments, although still serious and potentially destabilizing, began to improve gradually during 1987-88. Current account imbalances between the United States, Japan and the Federal Republic of Germany peaked in 1987 in nominal terms, began to decline in 1988, and were expected to fall further in 1989. In volume terms they dropped in 1987 and, considered in relation to rising GDPs, adjustment appears to have already begun in 1986.

Despite this improvement, the imbalances are still considered unsustainably large and require further reduction even though such an adjustment will not be without risks. In particular, reducing the United States' huge deficit will tend to undermine growth and employment among that nation's trading partners, which in turn could cause a global economic downturn.

The current account deficits of the developing countries shrank significantly in 1987 largely as a result of higher oil prices and adjustment measures by oil-exporting nations. But non-oil exporters also achieved an overall current account surplus for the first time in over 20 years. This surplus resulted largely from the strong export performance of Asian countries, but the other developing regions also reduced their current account deficits (mainly by curtailing imports).

In 1988, however, the current account position of the oil exporters again deteriorated, as oil prices turned downward. Even the newly industrialized countries in Asia experienced a reversal in their current account position, due to currency appreciations and measures to reduce their surpluses. By contrast, many primary commodity exporters continued to achieve moderate success in their efforts to reduce their current account deficits.

Inflation, interest rates, currency values

Consumer prices in the industrial market economies rose by 3 percent in 1987, slightly faster than in 1986. In 1988, they increased further to 3.3 percent, and are expected to increase by at least 3.5 percent in 1989. Consumer prices rose faster in the United States than the OECD average, due in particular to the weaker dollar, higher primary commodity prices, and high rates of capacity utilization. The drought in the mid-west also put only mild upward pressure on food prices.

In the other industrial countries, inflation rates in 1988 varied from 1 percent in Japan to about 5 percent in Italy and the United Kingdom. Despite these generally comforting figures, however, authorities in several countries tightened monetary

What do these global economic trends mean for Third World agriculture?

The main positive trend for Third World agriculture is higher prices for many commodities although not all key Third World export commodities have shared in the price rise. Lower energy costs have also compensated farmers for higher fertilizer and credit costs. More important—but far less positive—are the trends of slow growth in global demand for agricultural products. Present trends are unlikely to provide Third World agriculture with the stimulus to increase output, exports and consumption. Why not?

Reason 1: Domestic demand for food lags in the poor countries. Stagnant or declining per caput incomes in 1987 and 1988 in all developing regions except Asia mean that farmers in most poor countries will receive little domestic stimulus to increase output. Overall demand for food is expected to grow by only 2.5 percent per year in Africa, 2.0 percent in the Near East, 2.2 percent in Latin America and the Caribbean, and 3.5 percent in Asia and the Pacific. Such growth, Asia excepted, would be well below that of the 1970s.

Accelerating price inflation, especially in Latin America, may also depress domestic demand for food. Minimum wages have not kept up with food price increases in countries where economic adjustment programmes have required reduction in aggregate demand.

Reason 2: Export demand of other developing countries will lag for the same reasons and because of current account difficulties aggravated by the burden of debt servicing. High food commodity prices in world markets also make some exports too expensive for poorer potential importers.

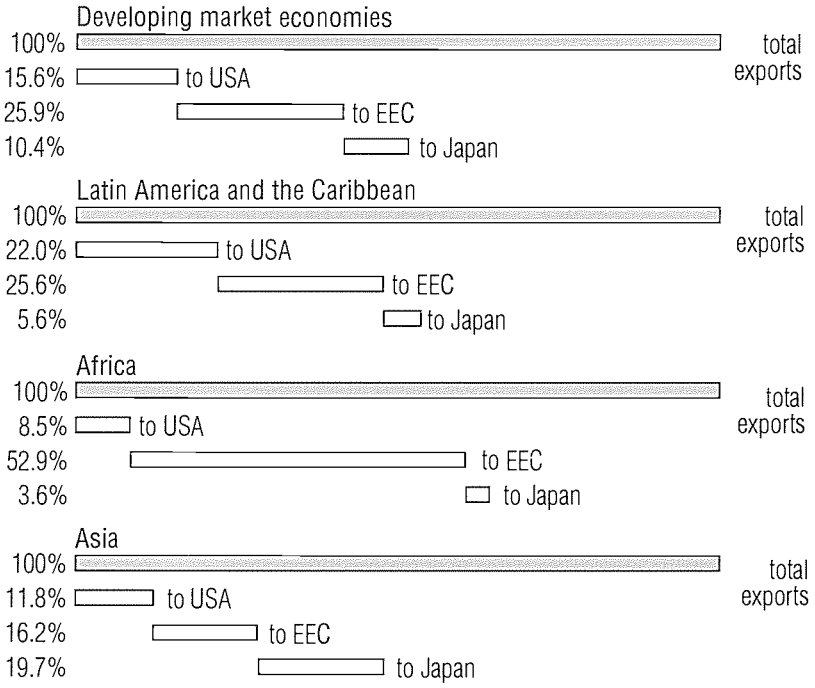
Reason 3: In the developed world, only the United States has increased agricultural imports substantially. Low population growth, already high per caput consumption, protectionism and other policies supporting domestic agriculture contribute to low demand for agricultural imports from the developing regions.

Reason 4: After a long economic expansion in the 1980s, the developed countries may be heading for a slowdown which would cut their imports demand. Third World exports would also suffer should the industrial countries reduce their trade imbalances. Reductions in the US budget and trade deficits would depress that country's demand for imports and, even if this were to be accomplished gradually, it would slow growth in other parts of the world. Furthermore, inflation fears in western Europe are likely to lead to tighter monetary policies and less growth.

Only in Japan might demand increase substantially but, since it accounts for only about 10 percent of world agricultural imports (compared to 16 percent for the United States and 26 percent for the EEC), overall demand will be weak. Furthermore, the countries most in need of increased exports are those—in Africa and Latin America—that trade least with Japan. Each of these developing regions sells only 4-5 percent of its total agricultural exports to Japan. East and Southeast Asian countries would be the main beneficiaries should Japanese demand increase—about 20 percent of all Asian agricultural exports go to Japan. Even these Asian countries would suffer, however, from weak US and EEC markets (which presently absorb nearly 30 percent of their agricultural exports).

A further threat to Third World agriculture could come from low oil prices which increase the competitiveness of petroleum-based substitutes for products such as cotton, jute and natural rubber. Continued oversupply of many agricultural products in world markets, as well as unstable commodity prices, add to agriculture's uncertain future for most exporters.

Agricultural exports, developing countries, 1985 (%)



source: UN MONTHLY BULLETIN OF STATISTICS, 26 JULY 1988

policies. They feared that rapidly increasing demand, high use of capacity, higher non-oil commodity prices, lower unemployment and demands for higher wages in some labour markets could reignite inflation.

In many developing countries, 1987's high inflation accelerated in 1988, particularly in Latin America, where stabilization programmes in several countries encountered severe difficulties and consumer prices reached historic highs. Higher commodity prices, the inability of many countries to maintain fiscal restraint, and strong growth in some manufacture-exporting countries all contributed to the inflationary surge.

In 1988 industrial countries, wary of inflation, raised interest rates which had come down substantially from the high levels of the early 1980s. These tighter monetary policies may dampen investment and economic growth, could cause financial difficulties and bankruptcies in certain sectors, particularly farming, and will aggravate the problems of indebted countries.

By January 1988, the real effective value of the US dollar had dropped 40 percent from its peak in March 1985. The depreciation continued through the first five months of 1988, when the dollar fluctuated around 1.35-1.40 per SDR, but it came to a halt in June, primarily as a consequence of the United States' improved trade position. The dollar remained relatively stable between June and October, at around 1.28 per SDR, but weakened again during the fourth quarter of 1988.

The currencies of most developing countries continued to depreciate in 1987, though more slowly than in previous years. According to the IMF, the real effective value of their currencies declined by 31 percent during the three years ending October 1987—a period of severe adjustment for many of them—but by only 4 percent in the last year of this period. While most effective exchange-rate fluctuations remained moderate in 1988, several inflation-stricken nations in Latin America and the Caribbean experienced real exchange-rate appreciations, despite repeated nominal devaluations. Rates also appreciated for those African countries with currencies pegged to the French franc or the South African rand.

Consumer price changes, 1980-1988 (%)

	Industrial countries	Developing countries	Africa	Near East	Asia	Latin America and the Caribbean
1980	11.8	26.8	16.2	16.8	13.1	55.7
1981	10.0	25.9	21.2	15.2	10.5	60.7
1982	7.4	25.4	13.1	12.7	6.4	66.8
1983	4.9	33.0	18.9	12.2	6.6	108.6
1984	4.7	38.6	20.4	14.8	7.3	131.8
1985	4.1	38.9	13.2	12.2	7.1	143.5
1986	2.3	29.8	15.3	11.4	7.8	88.3
1987	3.0	40.0	15.8	14.7	8.8	131.2
1988 preliminary	3.3	59.0	14.0	14.4	8.0	252.7

source: IMF, WORLD ECONOMIC OUTLOOK, OCTOBER 1988

The debt spiral: have some countries turned the corner?

Annual change in debt/service ratio, 1980-1988 (%)

	Capital-importing countries	Latin America and the Caribbean	Africa	Near East	Asia
1980	18.6	33.3	14.2	3.7	8.6
1981	21.5	41.8	17.2	4.8	9.7
1982	25.0	51.6	21.2	6.4	11.5
1983	22.0	40.8	23.0	7.8	11.0
1984	22.8	40.9	26.5	9.5	11.4
1985	24.0	40.3	29.2	9.9	13.1
1986	24.5	45.0	29.3	13.5	13.5
1987	21.2	35.5	24.8	12.3	13.7
1988 preliminary	20.6	42.8	26.2	12.8	10.6

source: IMF, WORLD ECONOMIC OUTLOOK, OCTOBER 1988

Oppressive external debt remains the main obstacle to satisfactory economic growth in many developing countries, particularly in Africa, and Latin America and the Caribbean. For developing countries as a whole, external debt increased 4 percent in real terms in 1987, reaching US$1 218 000 million by the end of the year. For capital-importing countries (all developing countries except the eight capital exporters of the Near East), external debt stood at about US$1 156 000 million in 1987 and was estimated to have reached US$1 178 000 million in 1988. Most of the increase derived from official creditors.

Even though total debt increased, however, debt-service ratios (external debt service payments as a share of exports of goods and services) improved overall in capital-importing countries. They declined from 24.5 percent in 1986 to 21.2 percent in 1987 and 20.6 percent in 1988, mainly because of expanded export earnings in 1987 and 1988. Nevertheless, debt-service ratios remained far worse than before the onset of the debt crisis in 1982, and 1988's improvement was not shared by all groups of capital-importing developing countries. Indeed, the debt-service ratio worsened again in 1988 for some of the most severely indebted and for capital-importing countries in Africa, the Near East, and Latin America and the Caribbean.

High debt-servicing payments, coupled with low levels of commercial bank lending and new investment, resulted in growing net transfers of resources from the poor nations to the rich (by World Bank estimates, no less than US$43 000 million in 1988, compared to US$38 100 million in 1987). Furthermore, many indebted countries have undertaken major adjustment efforts in order to reduce their debts. Frequently, these have entailed high social costs in terms of foregone economic growth, increasing poverty and hunger, and reduced imports. Unfortunately, these sacrifices often have not been met with the debt restructuring that would allow these nations to continue adjustment, but with renewed economic expansion and reduced social hardship.

Indebted sub-Saharan countries have benefited from long-term rescheduling by the Paris Club and additional resources through the IMF Structural Adjustment Facility (SAF) and the World Bank's Special Action Programme. At the Toronto Summit in June, the seven major industrialized countries agreed to provide additional debt relief for low-income countries. This effort by the Big Seven provides about US$500 million a year for the 34 low-income countries, most of which are in Africa.

The highly indebted, middle-income countries, however, still have enormous debt burdens, despite continuing adjustment efforts, further reschedulings and a search for new debt relief and debt conversion options, such as that announced by Japan at the IMF/World Bank meeting in September 1988, which will relieve the debts of middle-income countries by restructuring and converting loans into securities.

Ultimately, the only solution to the debt crisis will be to reverse the flow of resources from developing to developed countries. Recent developments in the overall economic setting—particularly higher interest rates in the developed countries—are anything but encouraging in this regard.

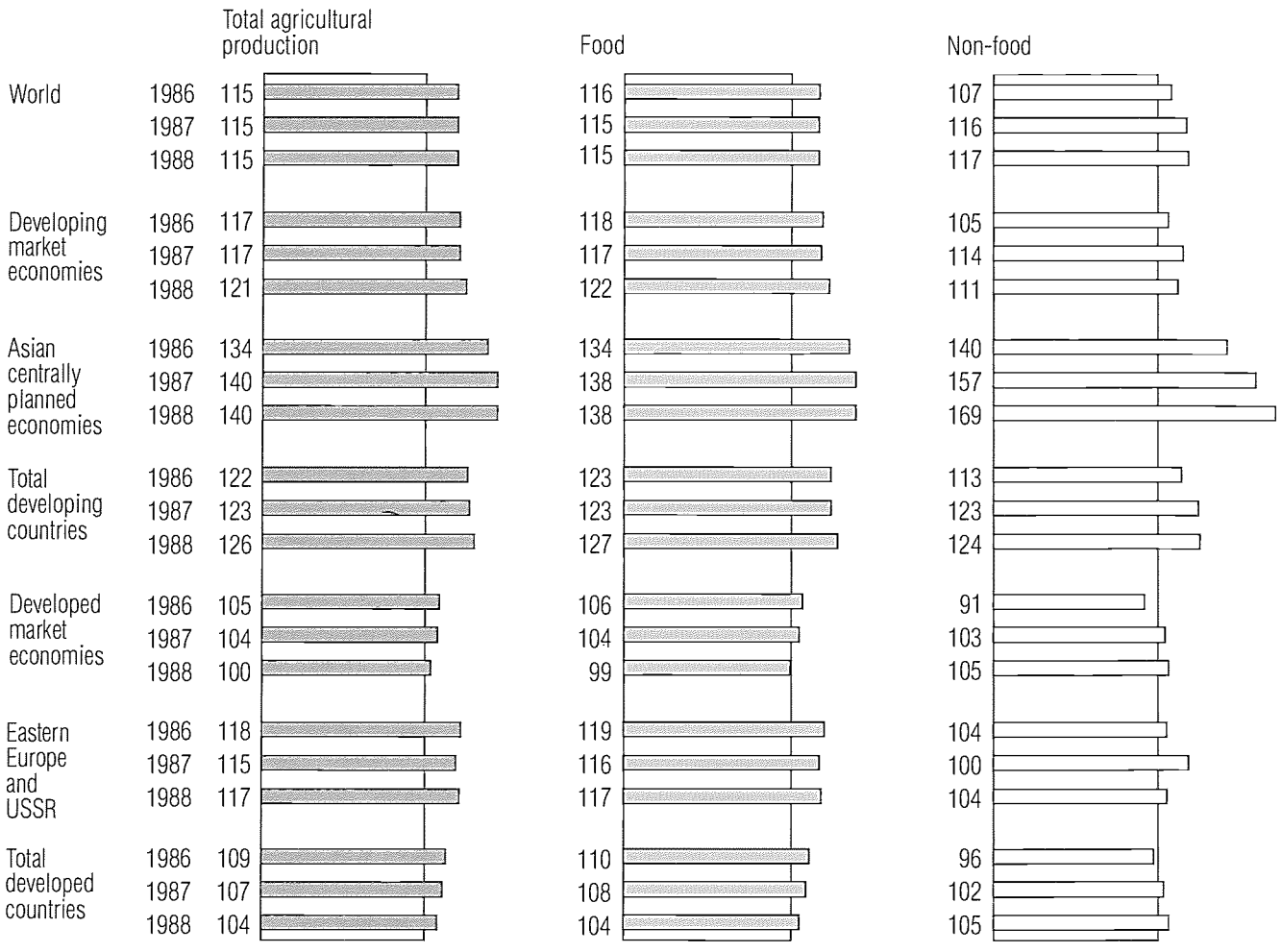
WORLD REVIEW

Chapter 2

AGRICULTURAL AND FOOD PRODUCTION

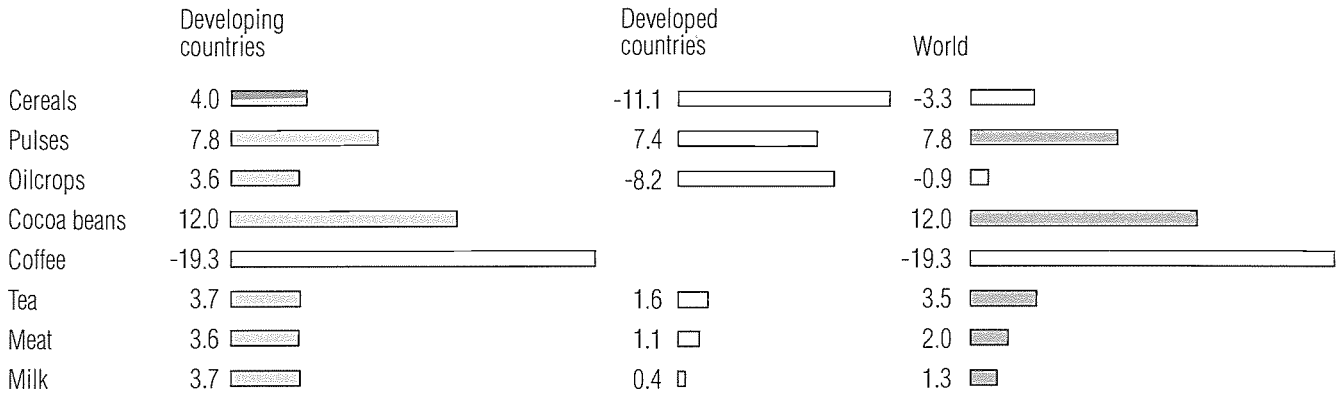
Global agricultural production stagnated in both 1987 and 1988: overall output remained at approximately 1986 levels. Output fell by about 5 percent in the developed market economies. Drought-stricken North America registered a large decline in food production. Western European output also declined. Oceania saw modest increases. Eastern Europe and the USSR recovered somewhat in 1988 from the previous year's poor performance, but only Bulgaria had a truly good year. Romanian and Czech production fell sharply in 1988. Polish output also declined. Production increased in Africa, the Far East and the Near East, where it had declined or stagnated in most areas in 1987. African per caput food production rose by 1 percent. Agricultural output in Latin America and

Agricultural production, 1986-1988 (1979-81 = 100)



source: FAO, STATISTICS DIVISION

Change in agricultural production, by commodity, 1987-1988 (%)



source: FAO, ESS

the Caribbean fluctuated, a strong output in 1987 being sandwiched between poor output in 1986 and 1988. Increases in food crop production in China slowed significantly in 1988 from the high growth rates of recent years, and livestock production rose only slightly.

Cereal production declined worldwide in 1988 to an estimated 1 743 million tons—3.3 percent less than the already low level of 1987. The sharpest drop occurred in North America, where drought reduced output by 27 percent. Production in Eastern Europe and the USSR dropped slightly (by 0.5 percent). In the Far East, however, cereal production increased by nearly 9 percent because of an excellent crop in India. China's cereal output declined by nearly 2 percent. African cereal production staged a strong and much-needed recovery of about 12 percent from 1987 shortfalls. Cereal crops, particularly wheat, fared poorly in Latin America, but Oceania registered significantly larger harvests.

Coffee production declined sharply in 1988 as a result of bad weather in Brazil and other Latin American and Caribbean areas, where output dropped nearly 30 percent. Sugar output changed little from the previous year's levels: small declines in the developed regions were offset by larger crops in the Far East, and in Latin America and the Caribbean. Cocoa production rose, as did that of pulses, in the main producing areas. Cotton lint production rose substantially—in Africa by 8 percent, in the Far East by 10 percent and in Latin America by 36 percent.

Meat production increased by an estimated 2 percent globally. Beef output increased substantially in Latin America and the Caribbean and in North America, but these gains were largely offset by reductions in western Europe. Milk production, which had declined in 1987 for the first time in 24 years, expanded modestly in 1988 with Third World increases offsetting reductions in western Europe.

Per caput food production continued to lag in much of the developing world: 56 out of 108 developing countries failed to increase per caput food production in 1988. This represented, however, an improvement over 1987, when 78 had failed to do so. Output increased substantially in several densely populated, mainly Asian, countries. India's food production rose by 6.1 percent; Sri Lanka's by 3.1 percent; Indonesia's by 2.8 percent; and Pakistan's by 2.7 percent. Several other populous countries, including Brazil and Ethiopia, increased

Change in per caput food production, 1987-1988 (%)

	Number of developing countries	Number of developed countries
More than 10%	6	1
5.01% to 10%	9	2
3.01% to 5%	10	2
1.01% to 3%	17	5
0.01% to 1%	10	5
-0.01% to -1%	18	6
-1.01% to -3%	19	8
-3.01% to -5%	10	1
-5.01% to -10%	6	2
Below -10%	4	2

source: FAO

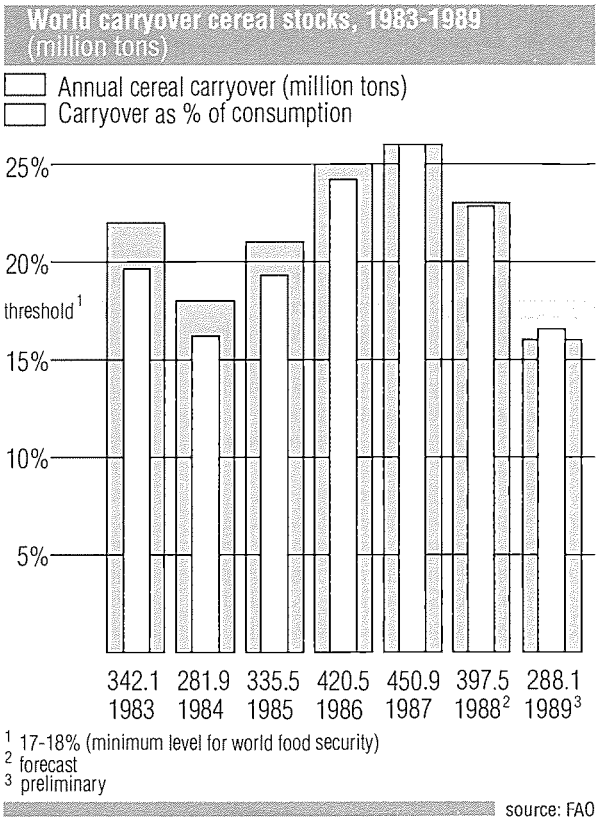
their output. But 29 African countries saw per caput food production drop again. Nearly two-thirds of African countries suffered setbacks, compared to just over half in Latin America and the Caribbean, a third in the Near East and a quarter in the Far East.

Cereal stocks and food security

Food security is expected to decline in 1989 because of weak cereal output in the main producing countries in 1988. Reduced availability for export, higher international prices and probable reductions of food aid supplies could create serious difficulties for low-income, food-deficit countries, many of whose import needs are increasing.

World cereal stocks are expected to fall to dangerously low levels in 1988-89, largely as a result of the drought in the United States. Carryover world cereal stocks at the end of 1987/88 were already low at only 398 million tons—52 million tons (12 percent) less than the previous year. By the end of 1988/89, cereal stocks are forecast to fall even further, to 288 million tons, consisting of 118 million tons of wheat (a 20 percent decline from previous levels), 129 million tons of coarse grains, (a 39 percent decline), and 41 million tons of milled rice (approximately the same very low level of the previous crop year). This would be the largest yearly drawdown in history, and would deplete stocks to only 16 percent of estimated 1989-90 world consumption. (FAO estimates world food security requirements at 17-18 percent.) Nearly all of this reduction would be in the main exporting countries, with the United States accounting for most of it. The wheat situation is particularly worrying with the

World food stocks plunge to dangerously low levels



Poor crops in the major grain-producing countries in 1988 undermine food security in 1989. When reserves fall prices rise and food aid for the poor countries gets scarcer.

Fewer food emergencies in 1988

As food output improved in 1988 in many developing countries, emergency situations became less frequent than in 1987. In January and February 1988, shortages afflicted 21 countries sufficiently to require additional and/or emergency food aid. By December 1988, only 16 countries (Angola, Benin, Bangladesh, Djibouti, Ethiopia, Haiti, Democratic Kampuchea, Laos, Lebanon, Malawi, Mozambique, Nicaragua, Sri Lanka, Somalia, the Sudan and Viet Nam) still had food emergencies.

Despite this general improvement, food shortages remained extremely severe in Bangladesh, the Sudan and Ethiopia. Bangladesh's famine was caused by the worst flood in years, which affected some 28 million people and caused grave damage to crops, property and infrastructure. In November 1988 a cyclone in southern Bangladesh caused further damage. In the southern Sudan, civil strife caused malnutrition and starvation, especially among displaced persons. In Ethiopia, food shortages resulting from the 1987/88 crop failure continued.

A hurricane late in 1988 caused extensive damage in Central America and the Caribbean. Nicaragua was hit hardest. A joint FAO/WFP/multi-donor mission there estimated losses to agriculture, livestock, forestry and fishing at US$110 million. Cereal output was expected to fall by some 18 percent from the previous year.

Assessing nutritional levels with "food balance sheets"

Precise assessments of national nutritional levels are difficult. Food consumption and household expenditure surveys are potentially the most accurate sources of information, but they are costly, and hence usually impractical for poor countries. Not surprisingly, coverage is incomplete.

An alternative, frequently more feasible, approach is FAO's "food balance sheet" (FBS), which examines each nation's food situation. FBSs provide, among other data, the country's average per caput dietary energy supply (DES) which indicates the amount of food available for human consumption in the country.

DES is an imperfect tool. As a measure of food availability, it does not assess food consumption directly and may be misleading, for example, in situations where food is available but not consumed (as frequently occurs when people are too poor to buy food). Attempts to assess food adequacy by comparing DES with requirement figures sometimes fail for these reasons. Furthermore, the question of which requirement figure is most appropriate is not always obvious. Should it be that for mere survival or should it refer to a particular level of activity?

Despite such limitations, DES is useful because it makes possible calculation of the incidence of malnourishment in a country, given specific assumptions about calorie supplies and distribution and minimum requirements. DES has been shown to correlate closely with all the main indicators of health and socio-economic development.

The methodology is soon to be presented in an FAO manual[1] which will explain how to calculate energy requirements of a household, a group of people or a population. It will even supply many basic data needed to apply the methodology (e.g. average body weights for different populations, 1985 demographic breakdowns by age and sex, energy activity indexes for various occupations) for users who do not have their own data.

Provisions are made for extra individual allowances (for example, policy-makers may wish to allocate more food for children to sustain better growth, or for adults to permit higher levels of physical activity). Such allowances can also be adjusted, if necessary, at the household, regional and/or national level to account for such factors as post-harvest losses in food production, processing, storage, distribution and in the preparation of food within the household.

This approach is useful because it separates analytically a country's real food requirements from national economic indicators. Since it focuses attention on nutritional needs rather than production, it may also suggest alternative ways to improve food consumption, for example through tax reforms, land redistribution and subsidies for the poor.

1. FAO, *Human energy requirements: a manual for nutritionists and planners*, Oxford University Press, 1989

ratio of exporters' carryovers to domestic and export requirements expected to fall even lower than during the world food crisis of the early 1970s.

A good harvest is needed to maintain current consumption trends, replenish depleted food stocks and re-establish minimum levels of global food security. FAO estimates that an unprecedented 12 percent increase in world cereal output would be required in 1989 to accomplish this. Such a goal will be reached only if normal weather conditions return and the major producers increase plantings substantially. For 1989, the United States has reduced its percentage of land set-aside to 10 percent of basic cereal land area in response to lower global supply, but early forecasts suggest that this will not be sufficient. Inadequate rains in early 1989 make it unlikely that production in the United States will increase sufficiently to permit more than a modest rebuilding of cereal stocks

Fertilizers

Fertilizer prices rose sharply during 1988, mainly because of increased imports by the major fertilizer-consuming countries of Asia and Latin America. Import demand from these regions increased because of favourable weather conditions and increased aid from financing agencies to buy fertilizer.

Urea prices increased on average by a third between October 1987 and October 1988. After remaining firm in the United States and possibly weakening in Asia, prices of urea and other nitrogenous fertilizers may have risen in late 1988,

Desert locusts: the threat continues

Desert locusts have become a serious problem in much of West, Northwest and East Africa, and now have spread into the Near East and Southwest Asia. An extraordinary migration in October 1988 invaded Cape Verde several times, and locusts have even reached the Caribbean in significant numbers. Millions of hectares of cereal crops have been threatened with devastation and the extent of the plague raised difficult questions about the most efficacious and environmentally sound means of control.

After unprecedented breeding in West Africa during the winter of 1987/88, large swarms born early in 1988 invaded northern Africa. Other swarms migrated to the western Sahel. Simultaneously, East African swarms escaped from winter breeding areas on the Red Sea coasts, invading parts of the Near East.

Unusually heavy rainfall in 1988 provided favourable conditions for reproduction in all the main summer breeding areas of Mauritania, Mali, the Niger and Chad, producing at least two enormous generations of locusts. Huge swarms grew larger between August and November, when they re-invaded the far west of the Sahel and then Morocco. Swarms from the central Sahel moved north into Algeria, Morocco and the Libyan Arab Jamahiriya, with some reaching the Syrian Arab Republic and Turkey by early December.

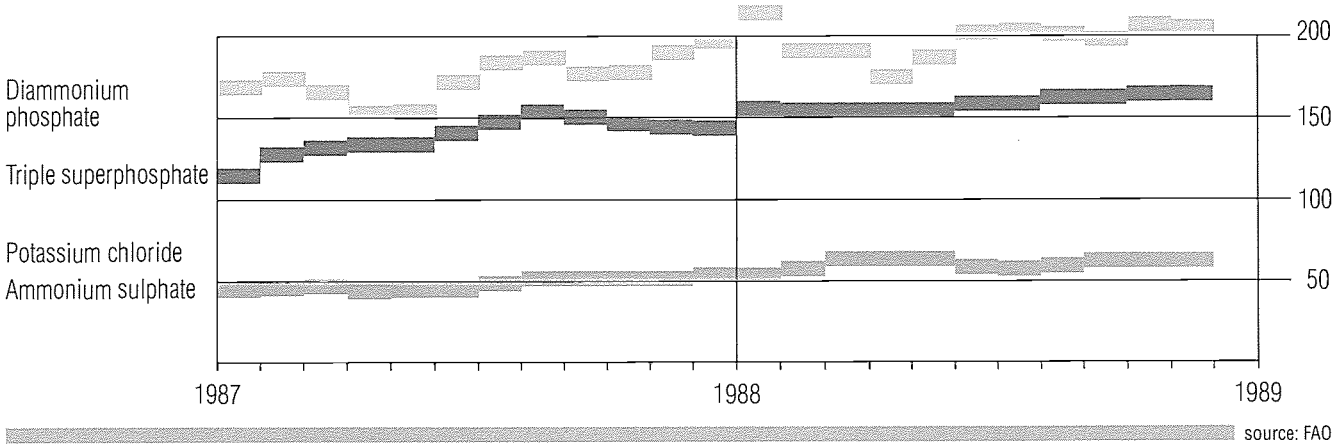
Breeding conditions were also favourable throughout eastern Africa during the summer and autumn. Many swarms were produced in the Sudan and some in Ethiopia. In October 1988, swarms crossed the Red Sea to Saudi Arabia, where further breeding occurred. There were minor invasions of Kuwait, Iraq, Iran, Bahrain and Qatar, followed by Turkey, Lebanon and Jordan. Fortunately, winter breeding conditions were not favourable at traditional sites on the Red Sea coast.

Massive control measures helped avert major crop losses in 1988. While severe local crop damage occurred in several West and East African countries, particularly in the Sudan, Senegal and Mauritania, bumper crops were harvested in most Sudano-Sahelian countries. But last year's successful containment does not mean that the tide has turned in the fight against desert locust plagues. New generations will continue to breed in large numbers in 1989 and possibly for several years to come. Large-scale international emergency control campaigns will still be needed. As it has in the past, FAO will coordinate the Desert Locust Campaign through its Emergency Centre for Locust Operations (ECLO). The cost of the control campaigns for 1988/89 has already exceeded US$200 million.

In early 1989, the prospects for the year were unpredictable, for several reasons. First, the plague was much more widespread than it had been 12 months earlier, and was therefore potentially capable of spreading to even more countries. Second, in 1988 the locusts proved to be more mobile than in the past, making it more difficult to foresee where they might go. Third, in many countries monitoring of the swarms is still inadequate for accurate assessment of size, location and movement. Finally, control operations in several key areas had failed to eliminate the major population. Nevertheless, there was cautious optimism for 1989.

Early in 1989, FAO estimated that while large-scale movement into West Africa from the Maghreb and the east might lead to the invasion of 25 million hectares by the middle of the year, it was more likely that less than 2.5 million hectares would be involved. This compares favourably with earlier estimates made in mid-1988 for some 12 million hectares. A major reason for this more optimistic outlook is the reduction of West African locust populations following their exodus over the Atlantic in October. This exodus substantially reduced the likelihood of a large-scale invasion of Northwest Africa.

Export prices of fertilizers, 1987-1988 (US$ per ton)



source: FAO

as large Asian countries, as well as North America and Europe, increased their consumption. Ammonium sulphate supplies remained tight, and prices increased by more than 20 percent in western Europe and 45 percent in the Far East during the year ending November 1988.

Prices of phosphatic fertilizers were more stable. Only slight price changes occurred in the markets for both diammonium phosphate and triple superphosphate. The US Gulf and North African spot prices for these fertilizers increased by about 8 to 14 percent during the one-year period to November 1988. In the United States, weak domestic demand, rising inventories and limited export demand prevented big price rises. This situation could change as a result of purchases of diammonium phosphate planned by some major Asian and Latin American countries.

Potash prices rose because of large commitments made in the early months of 1988. Potassium chloride prices increased 9 percent at the start of the third quarter of 1988; the spot price of North American potash was 22 percent higher in November 1988 than a year earlier. Potash suppliers were seeking still higher prices for remaining contracts in late 1988.

WORLD REVIEW

Chapter 3

AGRICULTURAL TRADE

Global agricultural trade—crops, livestock, fisheries and forestry—grew by 11.1 percent in 1987, bringing the total for 1986-87 to an impressive cumulative total of 23 percent. Since trade in other economic sectors grew even faster, however, the long-term decline in agriculture's share of world merchandise trade continued: to 14 percent in 1986 and 13 percent in 1987. Among the main agricultural subsectors, trade expanded most rapidly in fisheries and, to a lesser extent, forestry. Trade in crops and livestock grew somewhat more slowly (10 percent). Nevertheless, this was the strongest increase for crops and livestock of any consecutive two years since the commodity boom period of 1977-80.

The 1987 increase in the crop and livestock trade was concentrated in the developing areas of Asia and, especially, in the developed market economies. Developed country exports rose about 15 percent, while developing countries' exports declined 1 percent overall. Both groups of countries, however, significantly expanded the value of their imports. Once again, this increase was concentrated in the industrial countries, with strong growth also in Asia, mainly in China and, to a lesser extent, the Near East.

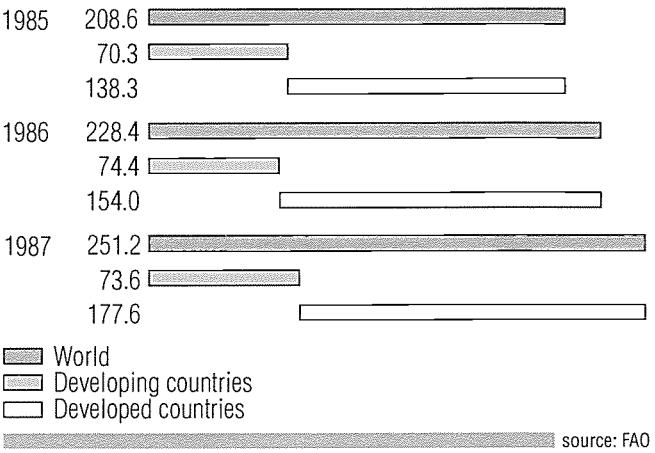
These changes produced significant shifts in the structure of agricultural trade. In the early mid-1980s the developing countries increasingly became net exporters of crops and livestock products (in most cases because of austerity policies which reduced their imports rather than an expansion in exports). Export/import ratios increased steadily from 94 percent in 1981 to nearly 125 percent in 1986. But with the export setback of 1987, which coincided with sharp increases in imports, their export/import ratio fell again to 113 percent.

The opposite occurred in the developed market economies. After a small net surplus in crop and livestock products in 1981, they returned to their traditional position as net agricultural importers. By 1986, their export/import ratio had fallen to 87 percent. In 1987, however, the ratio began to rise again (to 89 percent) as a result of booming exports. A major component was the sharp increase in exports by the United States, accompanied by a reduction in that country's imports. At the same time EEC exports grew even faster than strongly accelerating imports.

The developed centrally planned economies continued to register large deficits in agricultural trade (only Hungary, Bulgaria and, to a lesser extent, Romania export significantly more than they import), but their deficits narrowed in 1987. Agricultural exports expanded strongly for the second year in a row for the German Democratic Republic, Poland and, especially, the USSR. In these three countries, export earnings from crops and livestock products rose by a total of about 25 percent during 1986-87.

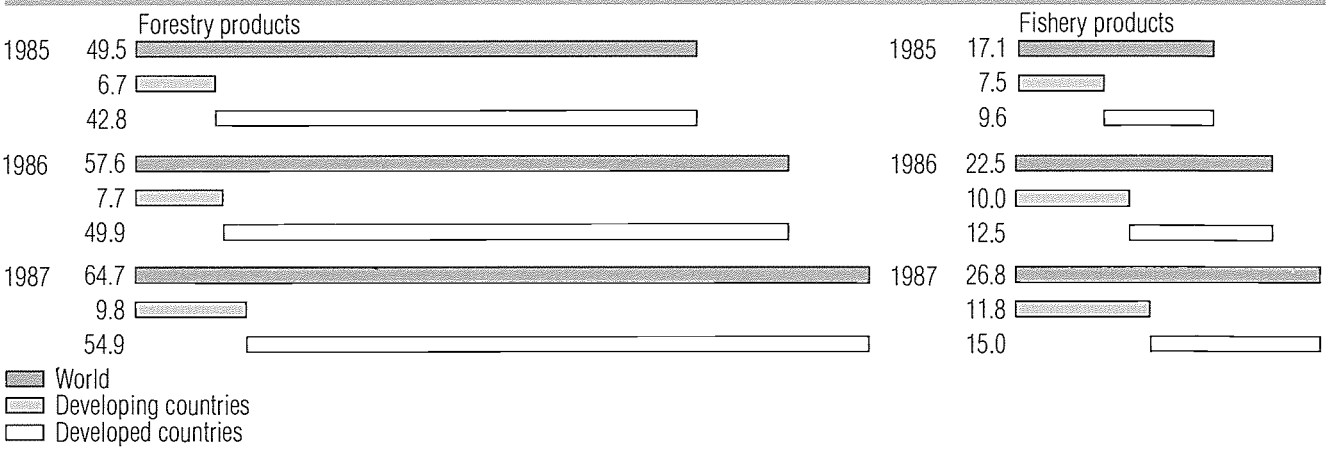
The 1 percent overall decline in the value of agricultural exports by the developing countries conceals far worse performances for many individual countries. The general decline would have been much larger had it not been for the good export performances of a relatively small number of countries in each region: Brazil, Cuba and Chile in Latin America and the Caribbean; the Republic of Korea, Malaysia, Thailand and Indonesia in Asia; and Algeria, Tunisia, the Gambia and Benin in

Value of exports of crops and livestock, 1985-1987
(US$ thousand million)



source: FAO

Value of exports of forestry and fishery products, 1985-1987 (US$ thousand million)



source: FAO

Africa. Of 117 developing countries, 75 earned less from agricultural exports in 1987 than they had the previous year (only 46 had experienced declines in 1986). The weakest performance was in Africa, where 76 percent of the countries saw their exports decline, followed by Latin America and the Caribbean, where 67 percent fared less well in 1987 than in 1986. In the Far East and Near East, roughly equal numbers of countries recorded increases and decreases in the value of their agricultural exports.

Despite buoyant growth in agricultural trade in 1987, most developing countries experienced stagnant or declining export earnings from agriculture, largely as a consequence of low prices for several key commodities during much of the year. Of the 75 countries whose agricultural exports declined in value in 1987, about one-third could blame these declines primarily or entirely on lower export prices. Depressed prices for coffee and other exports caused earnings to drop throughout Latin America, especially in Ecuador, Mexico, Costa Rica, the Dominican Republic and Honduras. Many countries earned sharply less from their exports despite increased volumes.

In Africa and the Near East, lower prices and the inability of countries to compensate by increasing export volumes conspired to reduce earnings substantially. In 21 African countries, lower export earnings were caused primarily by falling export volumes. In 15 countries the fall was attributable mainly to lower export prices. In several countries, including Angola, Chad, the Central African Republic, Côte d'Ivoire, Nigeria and Togo, both factors were important in significantly reducing agricultural export earnings. In the Near East, lower volumes were usually the most important factor. In almost every country in the region where agricultural export earnings declined in 1987, including Iran, Iraq, Jordan, Lebanon, Oman and the Syrian Arab Republic, the decline was due primarily to lower export volumes. Only in Saudi Arabia, the Sudan and Turkey were lower average prices fully offset by significant increases in the quantities exported.

Developing countries increased their food import volumes in 1987, after having cut them the previous year. In 1986, about two-thirds of the developing countries had reduced import volumes; in 1987, 62 percent increased them. In the Far East, Near East and in the Asian centrally planned economies, domestic production shortfalls were the main cause, with food import volumes varying inversely with domestic per caput food production.

This correlation between poor domestic output and increased imports was weaker, however, in Africa and Latin America and the Caribbean, where countries lacked the necessary foreign exchange to increase imports when domestic production lagged. For many countries, food imports declined in volume, but continued to absorb a very high, or even increasing, share of total export earnings. This was the case for Lesotho, Liberia, Rwanda, Senegal, Nepal, Afghanistan and the Yemen Arab Republic. Nevertheless, most countries benefited from lower food import prices in 1987 compared to the previous year.

FAO forecasts that the world cereal trade will grow to 206 million tons in 1988-89—9 million tons more than the previous season but well below the record levels of 1984/85. This represents the net

result of a 5 percent fall in wheat imports (from 103 to 98 million tons) and a 16 percent increase (from 83 to 96 million tons) of coarse grain imports. Rice imports are also expected to rise by 12 percent to 12 million tons in 1989.

Wheat trade reductions are expected to result from a 7 million ton decline in imports by the USSR relative to 1987/88, as well as smaller reductions by western European countries. Wheat imports by developing countries are expected to increase, though less rapidly than in the previous season. Coarse grain (mainly maize) imports by the USSR are expected to double to 21 million tons in 1989, following 1988's poor cereal harvest. Demand from the principal importing developing countries—mainly in Asia—should remain stable. World trade in rice in 1989 is likely to increase both because of increased supplies in exporting countries, and growing demand from many importers.

It is difficult to estimate the total growth of agricultural trade for the whole of 1988 from the information available in early 1989. The past is not a good predictor of current or near future events, as patterns of world output have undergone significant changes in recent years. In particular, compared to the 1960s and 1970s, economic growth in the 1980s has been relatively stronger in the developed than in the developing countries. In the 1970s, for example, the developing countries grew, on average, 2.5 percentage points more than did the developed countries, but in the 1980s this gap disappeared (in the period 1983-87, the developing countries' economic growth was significantly

The Uruguay Round of multilateral trade negotiations—implications for agriculture

The General Agreement on Tariffs and Trade (GATT) began its most recent round of multilateral trade negotiations in early 1987 in Uruguay. The negotiations are expected to last four years, and will address, among other things, the following areas: tariffs, non-tariff barriers, agriculture, natural resource-based products, tropical products, textiles and clothing, subsidies, safeguards, intellectual property rights, and trade-related investment measures. Other groups have also been established to examine other issues, such as the overall functioning of the GATT system. The implications for world agricultural trade could be substantial, as the Uruguay Round will set the framework for agricultural trade relations for years to come.

The stakes are high for both industrialized and developing countries, as the Round could either succeed or fail to promote significant agricultural policy reforms and expanded international agricultural trade. A recent GATT study (International Trade, 1987/1988) concludes that agricultural protectionism in the north has a powerfully negative impact not only on farm trade, but also on all merchandise trade and worldwide economic growth.

A number of perspectives on future agricultural trade policy have been expressed in the negotiating group on agriculture, with differences emerging both between the developed and developing countries, and among the members of each group. Some countries (e.g. the United States) advocate the rapid elimination of all domestic agricultural support programmes, while others (e.g. those of the EEC) suggest a more restrained and partial dismantling of such efforts. Both those developing countries that are net food importers and those for whom agriculture plays an important developmental role have requested special treatment in the negotiations on agriculture.

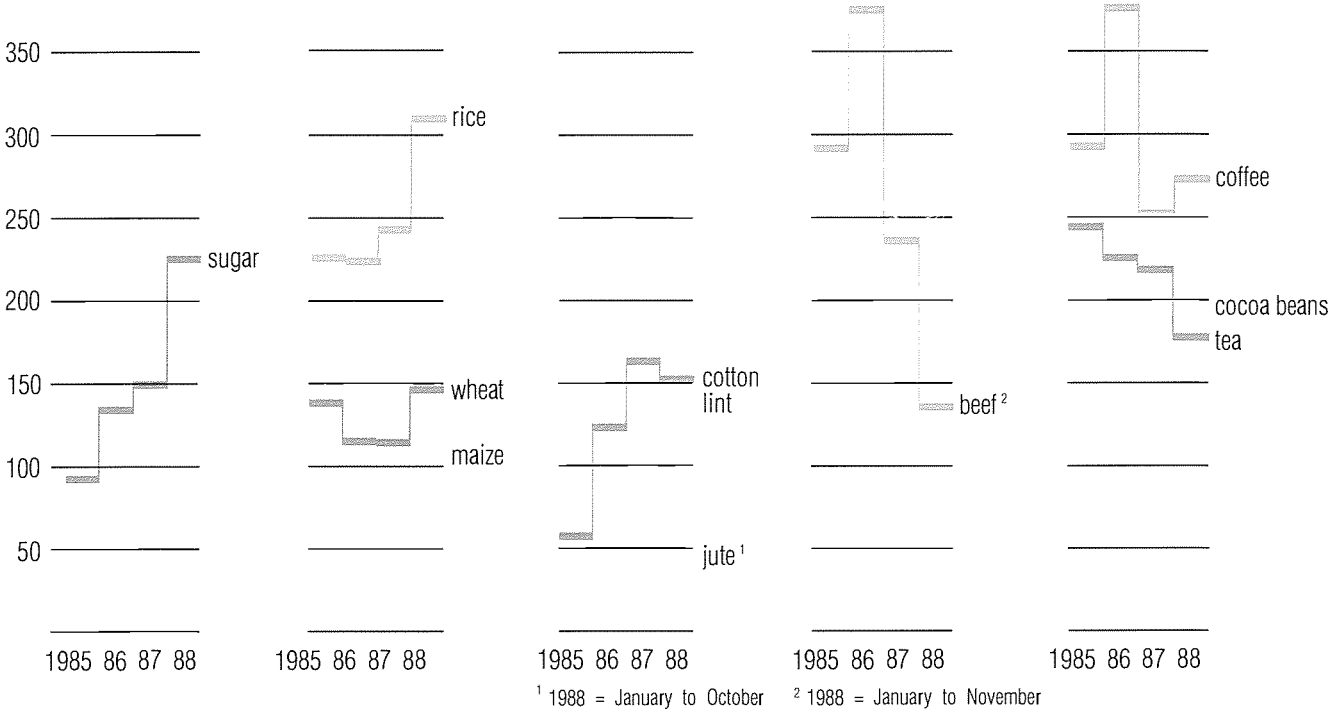
During 1988, negotiators dedicated much attention to the still unresolved question of how to measure the trade-distorting support many countries provide to their domestic agriculture. They also focused on how to take short-term remedial action to alleviate existing supply/demand imbalances, while still pursuing the long-term objective of freer trade.

Sharp differences emerged between developed and developing nations in the negotiating group on tropical products. While some industrialized nations argued that all nations must share the costs of trade liberalization ("burden-sharing"), many developing countries insisted that this would be contrary to GATT's provisions for special, more favourable treatment for developing countries.

The negotiating group on natural resource-based products identified several issues related to trade in raw materials, but has not yet decided which of these it will address, or how. Countries still disagree as to which products should be covered, and whether or not forestry and fisheries should be considered.

As the negotiations entered their crucial second half, a ministerial level mid-term progress review was held in Montreal, Canada, during the week of 5 December 1988. It was evident at Montreal that, despite some progress in other areas, the United States and the EEC remained far apart on a number of issues, including agricultural policies. Their failure to reach an agreement on farm reform, textiles and clothing, and intellectual property rights resulted in an adjournment, until April 1989, of the mid-term review. A tentative accord, however, was reached on tropical products, although this agreement to reduce tariffs and other forms of protectionism would not be fully implemented until after GATT reassembled in April 1989.

Export prices of selected commodities, 1985-1988 (US$ per ton)



[1] 1988 = January to October [2] 1988 = January to November

source: FAO

stronger than that of the industrialized countries only in 1986). Furthermore, farm support and protectionist policies in the developed countries have blunted the impact on agricultural trade of economic growth. Thus the continued expansion of the world economy in 1988 should not be expected to have a significant impact on the volume of agricultural trade.

Nevertheless, value growth of agricultural trade is estimated to have continued at a strong pace in 1988, almost entirely as a consequence of higher prices, not volume increases. Price increases were strong for cereals, feeds and some livestock products, but not for tropical beverage crops and agricultural raw materials. Thus, as in 1987, growth was to the advantage primarily of the developed countries.

Agricultural export prices and terms of trade

Despite price surges by many agricultural commodities, the net barter terms of trade (i.e. relative unit prices) continued to decline in 1987 for agricultural exporters in general, as the prices of non-agricultural exports rose more.

Most agricultural commodity prices rose sharply in late 1987 and in 1988, having fallen previously to the lowest levels in many years. Strong growth and demand in the major importing countries, plus crop shortfalls in drought-stricken North America, contributed to these price rises. Of the major commodities, only cocoa, cotton, plywood, and a limited number of fruits and animal products failed to participate in the price recovery.

Cereal price rises were particularly strong. Wheat averaged 28 percent higher in 1988 than in the previous year, maize 41 percent, rice 27 percent. Some developing countries benefited from the strong recovery in the prices of several agricultural raw materials which are their most important exports. Sugar prices strengthened as stocks fell to their lowest since 1980/81. But many tropical beverage prices remained depressed, as surpluses glutted the markets. Tea prices stayed low for the third year in a row, and cocoa dropped another 21 percent below 1987 levels. Coffee prices in 1987/88 remained well below the temporary peak of 1986, but firmed in 1988 following expectations of a sharp drop in Brazilian harvests in 1988/89.

Against this mixed picture for agricultural prices, manufactures prices surged by nearly 14 percent in

1987, consolidating the strong recovery of the previous year. Prices of crude petroleum also recovered from 1986's depressed levels, although they subsequently fell again. Taken together, manufactures and oil rose more than did agricultural tradables, revealing a deterioration in the net barter terms of trade for agriculture in 1987. For developing country agricultural exporters, this marked the third consecutive decline, depressing their agricultural terms of trade on average to levels about 20 percent below those of 1979-81.

Africa and Latin America and the Caribbean suffered the sharpest declines in agricultural terms of trade in 1987 because of depressed markets for major tropical products during much of the year. In the Near East, higher cotton prices were more than offset by lower prices for tobacco, cereals and other exports, producing a sizeable net deterioration in the region's agricultural terms of trade. By contrast, the terms of trade remained stable for Far East countries, thanks to stronger export prices of cotton, jute, rice, rubber, forest products and some vegetable oils.

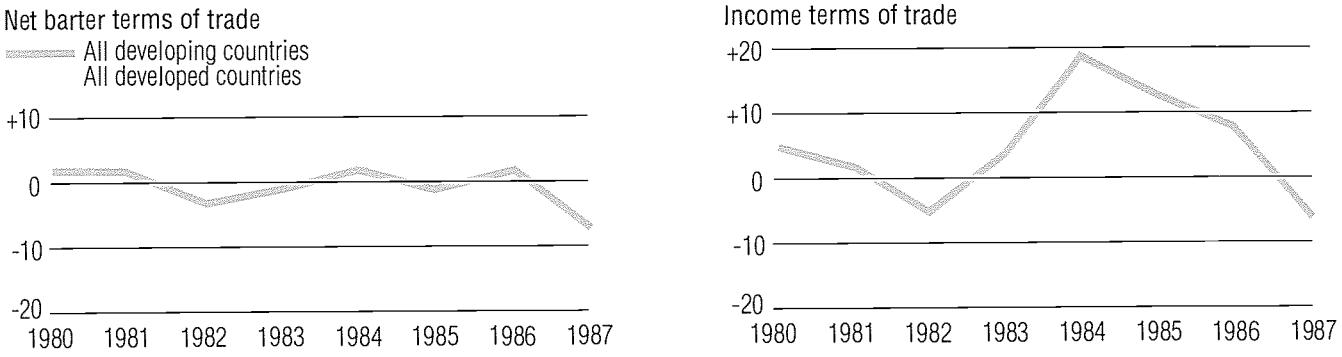
As terms of trade worsened for most developing nations in 1987, export volumes also dropped by 3.5 percent. Hence both price and volume factors contributed to a pronounced (13 percent) decline in the actual purchasing power of their agricultural exports (income terms of trade). Particularly worrying is the fact that during 1987, declines in income terms of trade were sharpest precisely in those regions where foreign debt is most severe, and where expansion of real earnings from agricultural exports is most crucial to economic recovery—Africa and Latin America and the Caribbean. For Africa, the decline largely erased three years of relative recovery after the serious setback of 1981-83. By 1987, African agricultural export earnings could afford only 82 percent of the non-agricultural imports which the region had imported on average during 1979-81. Latin America and the Caribbean also fared poorly, as the income terms of trade improved in 1984/85 but declined in 1986 and collapsed in 1987.

The situation was less dire in the Near East, where a sharp fall in net barter terms of trade was cushioned by increased export volumes. However, in Asia, the income terms of trade deteriorated because of lower export volumes.

The fall in export prices of many temperate zone agricultural products contributed to a large decline in 1987's barter terms of trade for developed country agricultural exporters, and in particular for North America. Western Europe, however, was able to compensate with expanded agricultural export volumes, permitting that region to improve its income terms of trade.

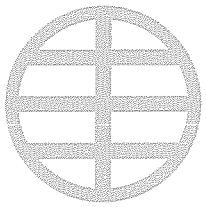
Complete trade data for 1988 are not yet available, making it impossible to indicate the changes in terms of trade and purchasing power of agricultural exports for the whole of 1988. However, 1988 price rises exceeded those of 1987 for most major traded agricultural commodities. Manufactures prices had increased only 4 percent by the second quarter of 1988, and crude oil had fallen by 18 percent below the levels of 1987. Under these circumstances, it is reasonable to assume a significant improvement in the overall terms of trade for agricultural exports in 1988.

Terms of trade of agricultural exports for manufactured goods and crude petroleum, 1980-1987 (1979-81=100)



Net barter terms of trade refer to the relative unit prices of products.
Income terms of trade refer to the actual purchasing power of countries' exports, since they also take into account changing export volumes, and hence the total amount of foreign exchange earned by exports and available to pay for imports

source: FAO



WORLD REVIEW

Chapter 4
FOOD AND EXTERNAL ASSISTANCE TO AGRICULTURE

Official external financing commitments for agriculture declined sharply in 1987, to an estimated US$13 400 million (7 percent or $1 000 million less than in 1986). This decrease, however, must be seen in the light of exceptionally high commitments made by the World Bank in the previous year, 1986 ($5 500 million). Most other multilateral donors increased their activity somewhat in 1987, while preliminary data on bilateral aid commitments indicate a small decline. Total official dollar commitments were nearly 8 percent higher in 1987 than the average for 1984-86, but in constant 1980 prices they decreased by 14 percent, reflecting the weakness of the US dollar in 1987.

Concessional aid commitments increased substantially in dollar terms in 1987 from 1986's low levels. This reflected both higher commitments by the International Development Association (IDA is the World Bank's soft loan "window") and record efforts by the African Development Fund and the Asian Development Bank (US$480 million and US$797 million respectively, at current prices). However, in constant 1980 prices, the 1987 increase in concessional commitments was only 2 percent above the 1984-86 average.

Early estimates suggest that IDA concessional commitments grew again in 1988, surpassing the $1.4 billion committed in 1987. IDA commitments for 1988 amounted to an estimated $1.5 billion. Depleted funds, however, caused concessional commitments by the Inter-American Development Bank (IDB) to fall again in 1987 for the seventh consecutive year. Disbursements fell for the third year in a row. Repeated consultations among funding bodies during 1987 and 1988 have not yet produced agreement on how to replenish IDB's resources.

Multilateral concessional lending to the developing countries of Africa increased sharply in 1987, to 125 percent of the 1984-86 average in constant 1980 prices. This was largely in response to the appeal of the UN Programme of Action for African Economic Recovery and Development (UN-PAAERD). IDA's lending to Africa increased to 29 percent of its total agricultural lending in 1987 (from 23 percent during the three-year period 1984-86). IDA's lending to Africa in 1988 is also believed to have increased, based on preliminary figures for the first six months of the year.

African Development Fund (ADF) lending increased by 93 percent in 1987 over the previous three years' average, at constant prices. This represented 42 percent of total multilateral concessional lending to Africa. The fund will have an additional $1 billion available for lending during 1988-90, making it highly likely that its commitments to agriculture will rise. Concessional lending to Asian and Pacific agriculture in 1987 was some 60 percent higher than such lending to Africa. While concessional aid to Africa grew rapidly, however, assistance to these countries was stable in real terms.

Even as total multilateral concessional aid to agriculture increased in 1987, from $2.5 billion to $3.8 billion, non-concessional multilateral commitments declined sharply, from $6.2 billion to $4 billion, reflecting the World Bank lending $2 billion below 1986's exceptionally large effort.

Actual disbursements of multilateral loans are estimated to have fallen 5 percent in 1987, at current prices, from 1986's $6.2 billion to $5.9 billion in 1987. Disbursements of concessional loans and grants also fell 4 percent from $2.8 billion. Disbursements of multilateral concessional lending to Africa increased in current terms in 1987 by 10 percent, but fell 4 percent relative to 1986 in 1980 prices.

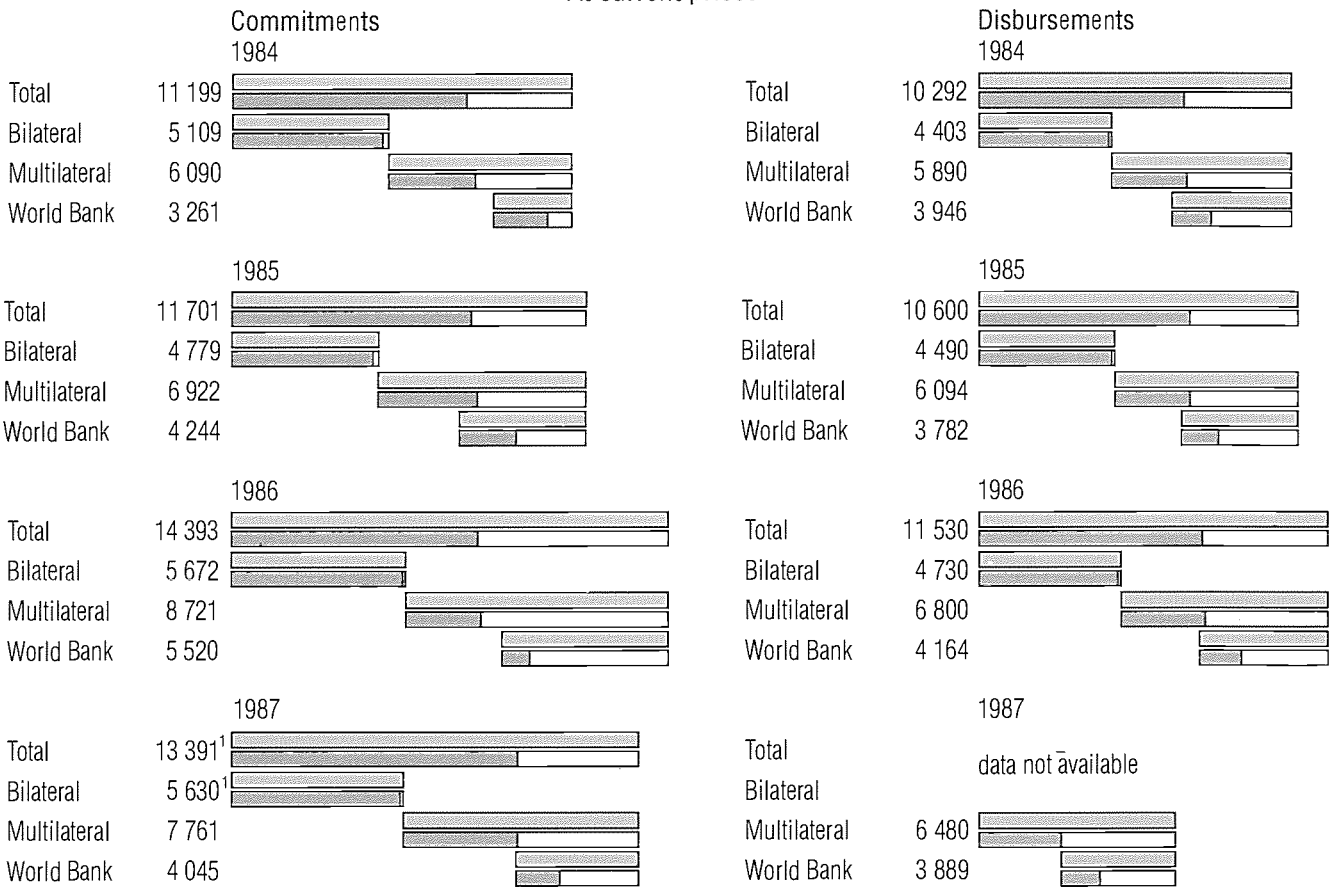
Total World Bank lending to all sectors is expected to rise by about 10 percent a year over the next five to six years, as a consequence of April 1988's increase in the Bank's total authorized capital from $74.8 billion to $171.4 billion, its third general capital increase. This expansion should benefit agriculture significantly, given the Bank's traditional emphasis on that sector (the Bank dedicated more than 20 percent of its lending to agriculture in 1987/88).

Commitments and disbursements of official external assistance to agriculture (broad definition), 1984-1987
(US$ million)

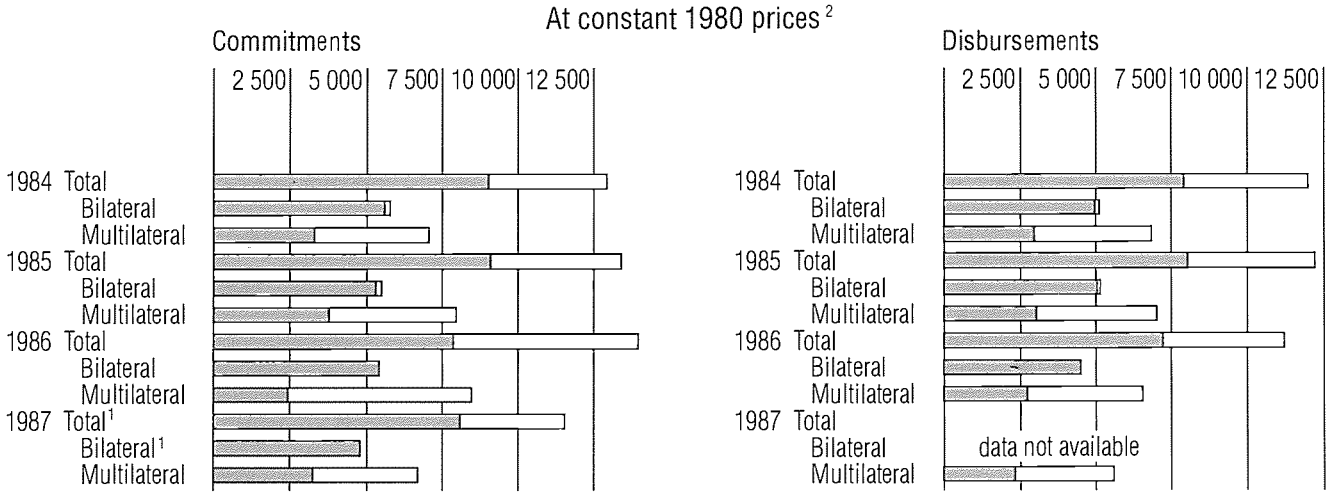
Total
Concessional
Non-concessional

[1] Preliminary and including partial estimates
[2] Deflator used: UN index of unit values of exports of manufactured goods, 1980=100

At current prices

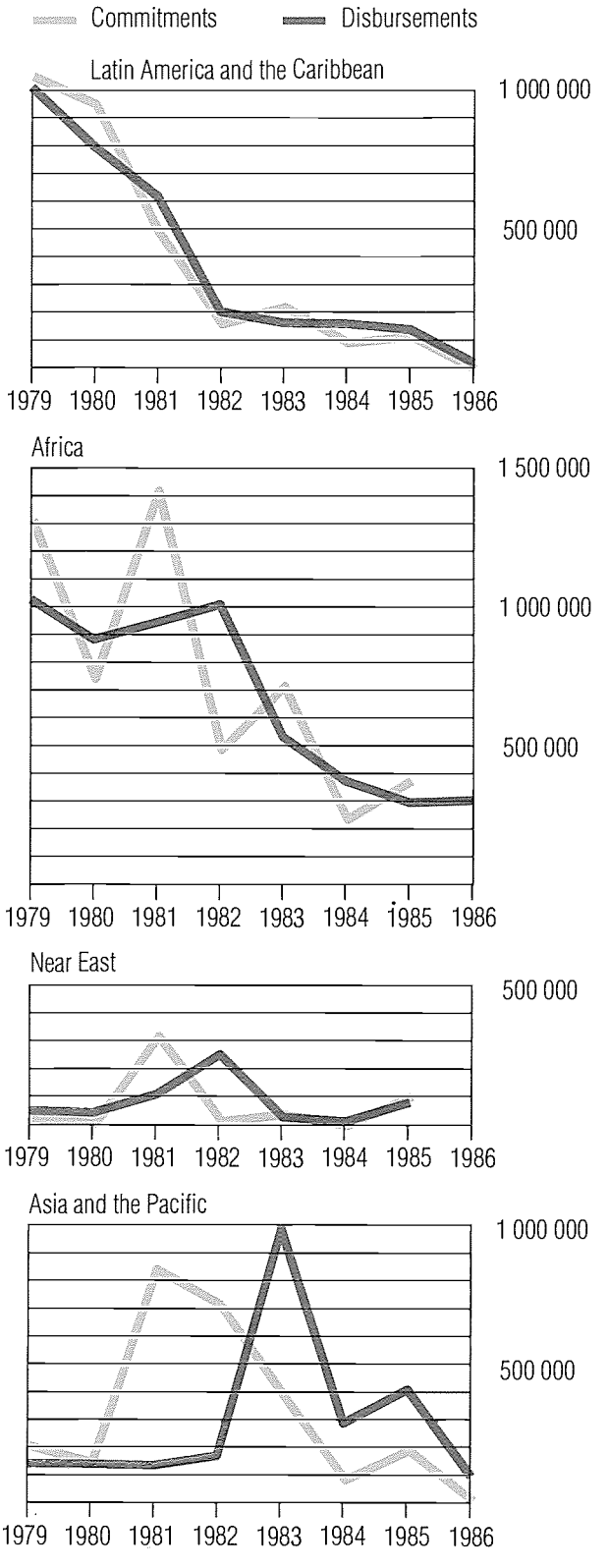


At constant 1980 prices [2]



source: FAO AND OECD

Private lending to third world agriculture, 1979-1986
(US$ thousand)



source: WORLD BANK

Agriculture is also likely to benefit, albeit indirectly, from the IMF's new Compensatory and Contingency Financing Facility (CCFF), which was established in August 1988 to help protect economic adjustment efforts from such external shocks as lower export receipts, and higher import prices and interest rates. In contrast to the Fund's traditional *ex post* balance of payments support for temporary shortfalls in export earnings, CCFF will be able to intervene *ex ante* to protect adjustment efforts before foreign exchange shortages occur. Together with IMF's new Extended Fund Facility (EFF), CCFF will help provide greater economic stability in developing countries, by reducing the international vulnerability of longer-term adjustment programmes. This improved stability should promote more vigorous and sustained economic growth—which will also benefit agriculture.

External private lending to agriculture

Private lending to agriculture, such as commercial bank loans and suppliers' credits, collapsed in the 1980s.[1] This important traditional source of development financing still showed no signs of improvement in 1986, the last year for which data are available. In 1986, commitments to agriculture[2] stood at only $102 million, 13 percent of 1985's already low level, and a small fraction of the $2-3 billion average annual flows for 1979-81, the peak years. Actual disbursements, however, had not yet fallen as far, due to the residual effects of past commitments. Preliminary estimates for 1986 suggest total disbursements of $479 million. This would be equal to about one-fourth of the disbursements of 1980.

Food aid

Food aid is expected to drop during 1988-89. Preliminary FAO estimates of cereal food aid volume suggest a 3.3 million ton decline from the previous season. This is due primarily to the higher market prices brought on by poor crops in many donor countries (many food aid commitments are

1. This issue was treated in detail in the special chapter "Financing agricultural development" in *The State of Food and Agriculture, 1986.*

2. Defined broadly to include rural development and infrastructure, agro-industries, manufacture of inputs, and regional development.

made in money, not volume terms). At 9.8 million tons, cereal food aid shipments would drop to the lowest level since 1983/84, and would fall below the 10 million-ton level established by the 1974 World Food Conference. However, they would remain above the minimum commitment of 7.6 million tons of cereals established under the Food Aid Convention (FAC).

Food aid from the United States will drop under both of that country's official programmes, the PL480 programme and the Section 416 programme. Not only was funding reduced for PL480 in fiscal year 1989, but because of higher food prices the programme will provide only about 5.3 million tons of food in 1989, compared to nearly 6.8 million tons in fiscal year 1988. The 1.4 million tons provided by the United States under Section 416 during fiscal year 1988 will also decline in fiscal year 1989.

The EEC, Canada and Japan will all reduce their food aid as well in 1988/89—by an estimated 18 percent from the previous year's levels, to a total of 3.38 million tons compared to 4.10 million tons in 1987/88.

Food aid shipments to the low-income food-deficit countries will fall to an estimated 8 million tons in 1988/89, from 10.6 million tons in both 1987/88 and 1986/87. This decline will force these nations to spend more of their scarce foreign exchange on food imports rather than developmental inputs. As a consequence of these donor cutbacks, the proportion of LDCs' food imports covered by food aid is expected to continue to decline—from 19 percent in 1987/88 to about 14 percent in 1988/89.

Sixty-five World Food Programme (WFP) emergency operations, costing a total of US$254 million, were approved in 1988. Forty-one of these were in Africa, ten in Asia, eight in the Near East and six in Latin America and the Caribbean. About 69 percent of WFP emergency assistance in 1988 was used for refugees, returnees and displaced persons. The rest, 31 percent, went to victims of drought and other natural disasters.

Pledges to WFP's regular resources for the 1987–88 biennium fell short of their target. By the end of 1988, only $1 239.8 million (89 percent of the $1 400 million target) had been pledged. Of the sum raised, $947.7 million was in the form of commodities, and $292.1 million in cash. For 1989–90, total pledges announced by early 1989 amounted to 60 percent of the $1 400 million target.

Total pledges to the 1988 International Emergency Food Reserve (IEFR) from 23 donors amounted to 462 917 tons of cereals and 92 088 tons of non-cereal food commodities. Over 90 percent of the pledged total was to be channelled multilaterally through the WFP. Non-cereal commitments were significantly higher than the 60 030 tons reached during 1987, but pledges in cereals were well below the 1987 level of 663 752 tons. Throughout 1988, IEFR resources were under continual strain, with uncommitted resources consistently at very low levels. As of early December 1988, the Reserve was totally exhausted, and was forced to utilize 1989 pledges to meet immediate needs. By early 1989, announced pledges to the 1989 IEFR amounted to 250 310 tons of cereals and 8 022 tons of other foods.

WORLD REVIEW

Chapter 5

FISHERIES

The world fish catch levelled off in 1987, after ten years of steady growth. The world harvest in 1987, 92.7 million tons, exceeded only marginally the record 92.4 million tons of 1986. This levelling off had been expected. Quota controls limited the output of a number of important fisheries and, even more importantly, El Niño warm currents in the Southeastern Pacific substantially reduced catches of small pelagic species in South America. Production fell by 32 percent in Ecuador, by 30 percent in Peru and by 14 percent in Chile. In other parts of Latin America, output continued to expand, especially in Argentina, which boosted its production by 33 percent, Panama (by 30 percent) and Mexico (by 9 percent). Overall, Latin American output fell by some 2 million tons, causing a 17 percent reduction in the region's production of fish meal. Food fish harvests, however, were not seriously affected.

Japan and the USSR, the world's two largest producers, reported catches of 11.8 and 11.2 million tons respectively—very close to their 1986 levels. China, the world's third largest producer, increased its catch by 16 percent, mainly as a result of further expansion in freshwater aquaculture and the development of long-distance marine fisheries. United States' production surged 16 percent, aided by the expansion of at-sea trans-shipment operations in the North Pacific. Joint venture enterprises were also a major factor behind a further 25 percent increase in landings by New Zealand, whose production has now risen nearly fivefold over the last ten years.

The most spectacular growth, however, was in the anchovy and pilchard fisheries off southern and

Catch of fish and all other aquatic organisms, except whales and seaweed, 1985-1987 (million tons)

	1985	1986	1987
World total	86.0	92.4	92.7
All developing countries	43.8	48.8	48.3
Developing market economies	34.5	38.2	36.4
Latin America	13.7	15.9	13.9
Africa	3.4	3.7	4.0
Near East	1.3	1.3	1.4
Far East	15.9	17.0	16.7
Asian centrally planned economies	9.4	10.6	12.0
All developed countries	42.2	43.6	44.3
Developed market economies	30.3	31.0	31.9
North America	6.2	6.5	7.2
Western Europe	11.7	11.4	11.3
Oceania	0.5	0.5	0.6
Japan, South Africa and Israel	12.0	12.6	12.8
Eastern Europe and USSR	11.8	12.6	12.5

source: FAO

southwest Africa. Favourable environmental conditions made possible large catch quotas. As a consequence, catches almost trebled compared to 1986, resulting in a doubling of fish meal production and a notable increase in the output of canned fish. Elsewhere off West Africa, experiences varied. Ghana and Senegal saw continued healthy growth in their fish output (16 percent and 5 percent, respectively), but Morocco and Côte d'Ivoire experienced declines (by 18 percent and 3 percent, respectively).

Catches rose in several Asian countries. The Philippines, Malaysia, Indonesia, Pakistan and Sri Lanka, for example, all reported bigger catches. Only Thailand saw its output fall—by 15 percent. Elsewhere in Asia, catches were generally stable.

Output declined or remained stable in most European and Scandinavian countries. In Norway, despite a 14 percent increase in the cod catch, total production remained at the same level as 1986. Production fell from between 2 percent and 4 percent in all EEC nations except Ireland, where output rose by 8 percent, and the United Kingdom, where it increased by 12 percent, boosted by direct landings in foreign ports and over-the-side sales of mackerel and other species not highly regarded by the domestic market.

Aquaculture continued to make an important contribution to fish and shellfish supplies. This was particularly the case for carp, tilapia, eel, trout, salmon, molluscs and crustaceans. Asian aquacultural production of shrimp grew particularly rapidly.

Trade

International trade in fish and fishery products continued to grow rapidly. Volume increased by 6 percent, but in dollar terms, trade grew by 22 percent to a new record (US$28 000 million). Since 1981, total world fish trade has expanded by over 50 percent in volume and by about 75 percent in dollar terms. Exports by developing countries have grown even faster—by 75 percent in volume and nearly 100 percent in dollar terms.

Canada, the world's largest exporter of fish and fishery products, increased its exports by 19 percent in 1987 and earned more than US$2 000 million. Other nations achieving export growth above the world average were the United States (26 percent), Denmark (28 percent), the Republic of Korea (37 percent), Thailand (25 percent), Norway (28 percent) and Iceland (25 percent).

Strong world demand stimulated fish trade, further boosting prices for the most preferred species and products. Japan remained the leading purchaser of fish and fishery products, its imports rising in 1987 by nearly 30 percent to an aggregate value of $8 600 million. United States' imports, mainly of shrimp, tuna, scallops, lobsters and salmon, also increased by 19 percent to $5 600 million. EEC members imported $8 500 million worth of fish products, mainly from one another—an increase of 32 percent. Despite a nearly 5 percent decline in fish meal and oil production in 1987, the fish meal trade remained at the previous year's level in both value and tonnage.

Change in volume, value and unit value of fish and fishery products, 1985-1987 (1979-81=100)

	1985	% change 1985-86	1986	% change 1986-87	1987 preliminary
Volume					
Total developing countries	141.6	16.1%	164.4	9.8%	180.5
Total developed countries	128.4	6.7%	137.0	3.6%	141.9
World total	133.6	10.3%	147.4	6.2%	156.6
Value					
Total developing countries	124.6	37.0%	170.7	21.2%	206.9
Total developed countries	106.7	29.9%	138.6	22.3%	169.5
World total	114.0	33.1%	151.7	21.8%	184.7
Unit value					
Total developing countries	89.0	17.1%	104.2	10.7%	115.3
Total developed countries	83.5	23.5%	103.1	18.9%	122.6
World total	85.6	14.6%	103.1	14.6%	118.2

source: FAO

Outlook

Preliminary indications for 1988 suggest no marked change in the total world catch. The passing of the El Niño phenomena may have led to some growth in catches of small pelagic species in the eastern Pacific, but stricter regulation of fisheries will limit the increase. Total allowable catches have been reduced also for some of the most important North Atlantic fish, including cod and whiting, and Canada anticipates restriction on most demersal species.

Consistently strong demand and short supplies for many species seem likely to keep prices high and stimulate the fish trade further.

Policy issues

Fish prices have been rising sharply in many countries, especially relative to those for meat and other forms of animal protein. This trend has provided an incentive to increase aquaculture production, which already accounts for about 10 percent of total fisheries output (including seaweeds and aquatic plants) and may well double by the end of the century.

Interest in the farming of shrimp and prawns continues to increase, but fish farming offers the greatest potential for substantial growth in aquaculture. Culture-based fisheries in reservoirs, lakes and coastal areas could provide major increases in harvests. Such efforts, however, require more encouragement. National policies for aquaculture are essential, as are local management schemes to control access to capital and ensure adequate returns on investment. In many areas, better distribution and marketing facilities are also needed. Many coastal fisheries could be improved through community-level integration of aquaculture production of fish and molluscs with enhancement of the coastal environment and consequent improvement of the natural fisheries. Few countries have exploited adequately this promising area.

Furthermore, recent technological improvements in tracking offshore fish stocks may improve the profitability of the sea-ranching of salmonids and other species, and may at the same time blur even further the distinction between culture and capture fisheries.

WORLD REVIEW

Chapter 6

FORESTRY

Production and trade of forestry products expanded significantly in 1987 and 1988. At the same time, awareness of the fragility of the world's forests grew, as did understanding of the forest's importance for food security.

Production and trade

During 1987, world production of roundwood and all categories of wood products increased by 3.0 to 5.4 percent. The volume of world trade in forest products increased by 24 percent in 1987. Exports by developing countries increased 23 percent, while their imports increased 15 percent. Exports of industrial wood, sawnwood and wood-based panels increased by between 9.0 percent and 12.2 percent in volume. Prices of forestry products were also generally higher in 1987.

Demand for forest products grew rapidly in 1987, sustained by strong housing markets in the major industrialized countries, particularly in North America where housing demand was close to the record level of 1986. In Japan, wood housing starts increased by 17 percent over the previous year. World output of mechanically processed wood products reached unprecedented levels, as a result of increased demand in the construction sector.

North American exports grew rapidly, stimulated by both rising international demand and the weak dollar. North America's share of world trade in coniferous logs and sawnwood grew particularly rapidly. For example, North American coniferous sawnwood exports to Japan increased by 45 percent. In 1988, Japan's high rate of housing construction continued and the rate in Europe increased considerably. Developing country consumption also continued to grow. In the United States, however, demand slackened as a consequence of fewer housing starts.

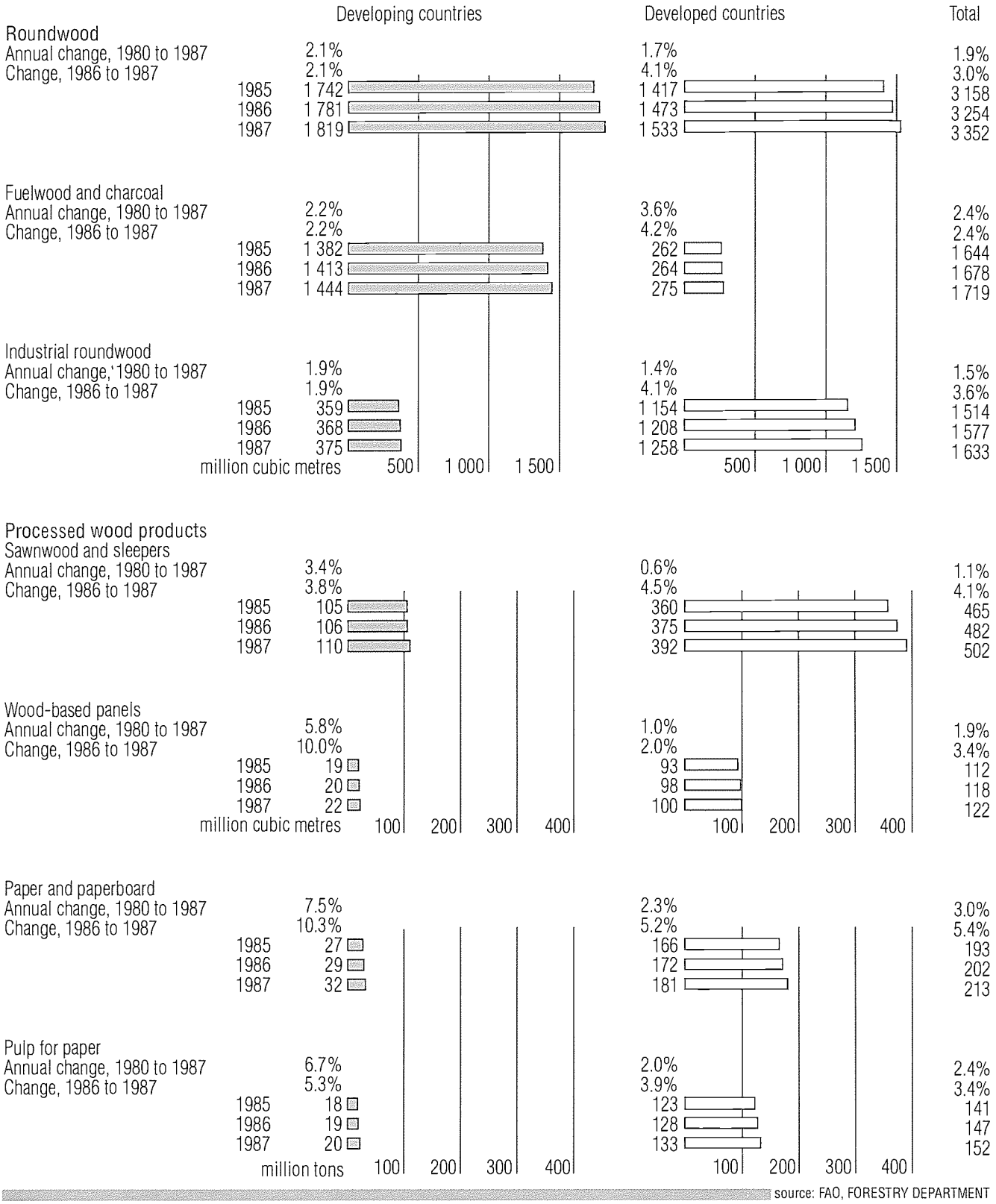
Trade in tropical timber, an important export for many developing countries, grew in 1987. The total value of tropical wood exports increased from around US$6 000 million to more than US$8 000 million. In volume terms, global exports of all kinds of logs increased 10 percent while unit values increased by some 40 percent. Southeast Asian producers expanded their exports of sawnwood and plywood for the third year in a row to 25-30 percent above 1986 levels. Unit values also increased 20 percent. African exports were stable, but Ghana, the Congo and Equatorial Guinea increased their exports substantially. Latin American exports of

Developing nations reduce imports of paper through recycling and use of domestic sources of non-wood raw materials

Developing countries account for only 15 percent of world paper production and most production is concentrated in a few major producers. But since paper imports drain foreign reserves, many developing countries have sought to increase domestic production. As a result of such import substitution, the Third World has become about 85 percent self-sufficient in paper. Annual growth of developing country production has averaged about 8 percent over the past decade compared to a world rate of only 3 percent. Only one-third of developing country paper production depends on wood fibre; another third comes from non-wood fibres such as straw, bamboo and bagasse; and the final third comes from recycling waste paper.

This emphasis on recycling and non-wood fibres is both economically and ecologically advantageous because it helps conserve both material and financial resources, but it requires special efforts in design, financing, planning, supplying, marketing and the procurement of raw materials. In particular, the small scale of the industry and the raw materials used necessitate mill design which ensures adequate chemical recovery and effluent control to protect the local environment.

Output of main forest products, 1985-1987



source: FAO, FORESTRY DEPARTMENT

Volume of exports of main forest products, 1985-1987

		Developing countries	Developed countries	Total
Industrial roundwood				
Annual change, 1980 to 1987		-3.6%	2.0%	-0.1%
Change, 1986 to 1987		17.2%	7.3%	10.0%
Volume (million cubic metres)	1985	29	75	104
	1986	28	77	105
	1987	33	82	115
Sawnwood and sleepers				
Annual change, 1980 to 1987		1.0%	2.0%	1.9%
Change, 1986 to 1987		19.4%	7.6%	9.0%
Volume (million cubic metres)	1985	9	76	86
	1986	10	77	87
	1987	12	83	95
Wood-based panels				
Annual change, 1980 to 1987		9.0%	1.8%	4.3%
Change, 1986 to 1987		17.1%	8.9%	12.2%
Volume (million cubic metres)	1985	7	12	19
	1986	8	12	20
	1987	10	13	23
Paper and paperboard				
Annual change, 1980 to 1987		19.0%	4.1%	4.5%
Change, 1986 to 1987		10.5%	7.9%	7.8%
Volume (million tons)	1985	1	39	41
	1986	2	42	44
	1987	2	45	47
Pulp for paper				
Annual change, 1980 to 1987		3.9%	3.0%	3.0%
Change, 1986 to 1987		-10.5%	6.9%	5.4%
Volume (million tons)	1985	2	19	21
	1986	2	20	22
	1987	2	22	23

source: FAO, FORESTRY DEPARTMENT

Forest conservation and management: still a long way to go

Management of forest resources remains inadequate in most countries. A recent survey carried out for the International Tropical Timber Organization (ITTO) confirmed previous FAO assessments that only a small percentage of moist tropical forests is effectively managed. While this survey may underestimate the efforts of governments to survey and designate the use of tropical forests, it nevertheless reflects the limited resources available to forestry organizations to assess properly how forests should be used and managed so that indeed they are so utilized.

If properly used and managed, tropical forests can continue to provide massive amounts of energy, as well as jobs and income. They are a strong potential base for generating economic wealth and social development, and a storehouse of genetic resources to meet future needs. More effective strategies and sustained commitment are therefore needed for conservation, reforestation and forest management, as well as for ensuring the appropriate integration of forestry into land use and rural development programmes. Forestry management must be harmonized with other land uses such as agriculture to ensure sustainable development.

FAO meeting highlights importance of forestry for food security

Forests are fundamental to food security: forest products make an irreplaceable contribution to both the cash and the subsistence economies of poor nations. While national production statistics sometimes underestimate the contribution of forests (which are often particularly important in the informal economy), it is no exaggeration to say that for many nations forests are the difference between food security and hunger.

This centrality of forests was made evident in a 1988 FAO Expert Consultation hosted by the Indian Government. The meeting of 57 participants from 27 countries explored the various contributions made by the forests to food security in developing nations.

The meeting revealed that in many areas, tree fruits, leaves, nuts and other tree foods are essential components of local diets. A study of one northeast Thailand community showed that 60 percent of all food came from forests. In rural Java, one community acquired a similar percentage of its food from agroforestry.

Forests and trees are also essential to agricultural cash economies. Studies from Costa Rica showed the importance of tree shade to coffee production. A Nigerian study demonstrated the importance of forest organic matter to soil fertility. A wide range of studies from nations as diverse as Argentina, China, the Niger, Tunisia, the Antilles and Papua New Guinea showed that tree shelter-belts increased crop production by 30 to 200 percent, depending on the area. Other studies showed how trees protect and improve soil fertility by reducing salt concentrations, by draining marshes and by stabilizing dunes.

Forests are also important for livestock. Tree fodder is a major source of nutrition for the animals of the world's 30-40 million pastoralists. In the Sahel, *Acacia albida* is believed to provide 30-40 percent of all livestock feed in the dry season, while in Mexico *Prosopis tamarugo* was the main dry season fodder. In tropical Africa, no less than 75 percent of all indigenous tree species are used for browse.

The forest is an essential source of animal protein in many nations. In Nigeria, communities living near forests obtain more than 80 percent of their meat from bushmeat, which is about the same percentage as for the Peruvian Amazon. Indeed, over 40 percent of total Peruvian meat consumption comes from forest wildlife.

The forests also provide cash incomes for millions of poor rural dwellers throughout the Third World. Many small-scale forest enterprises provide the income to purchase food for millions of smallholders and landless poor. A study from lowland villages in the Philippines showed that 73 percent of all households depended upon rattan collection as their primary source of cash income. In northeast Brazil, millions of poor farmers rely on cash from the sale of babassu palm kernels. The palm also provides them with thatch, material for basketry and charcoal. In Zambia, informal forest-based processing enterprises provide an estimated 600 000 people with employment per annum—significantly more than the formal forestry sector. Case-studies in six countries revealed that small-scale forest industries, averaging between two and four employees, were the second largest source of jobs.

Statistics such as these underline the importance of trees and forests for rural economies, and in particular for the increasing numbers of people living in the subsistence economy. Clearly, national, regional and global food security strategies must review forest policies and the planting and management of forests to ensure that this irreplaceable resource is adequately developed and protected.

sawnwood and panels, which constitute around 8 percent of total tropical exports of those products, also grew.

The pulp and paper industry continued to grow at a healthy pace in 1987 and 1988. Developed country output of paper and paperboard rose by some 5 percent per annum. The industry in the developing countries grew more rapidly, led by Southeast Asia. Buoyant trade in pulp and paper in 1987 benefited all the major producers. The United States and Canada both increased their exports by about 10 percent. In Europe, trade in pulp increased by 5 percent. Trade in paper went up 10 percent. Paper exports by the Republic of Korea advanced by 40 percent while its imports of pulp and waste paper went up by a more modest 15 percent. Prices for

The Tropical Forestry Action Plan (TFAP): international cooperation to save the forests

The FAO-coordinated Tropical Forestry Action Plan emphasizes five priority areas of action to promote sustainable tropical forestry:

- forestry in land use;
- forest-based industrial development;
- fuelwood and energy;
- conservation of tropical ecosystems;
- strengthening of institutions.

The Plan provides the framework for an internationally coordinated approach to the tropical forest crisis. It seeks to improve the lives of rural people; improve food production and security; rationalize shifting cultivation; ensure sustainable use of forests; increase supplies of fuelwood; and expand income and employment opportunities.

At the second Bellagio conference on tropical forestry, held in London in December 1988, proposals were put forth to strengthen international cooperation in tropical forestry research. An international framework was proposed to plan, coordinate and support an expansion of research—with a doubling of funding by 1995.

So far, 56 countries have begun reviewing their forestry strategies and programmes in the framework of the TFAP. Discussions will continue between national authorities and the international donor community on national forestry development plans.

pulp and paper increased by up to 25 percent.

Wood: still a major Third World energy source

Wood is the largest renewable source of energy, currently accounting for 5 percent of world energy. In the developing countries, it accounts for nearly 20 percent. The greatest dependence on wood as a source of energy is found in the less developed countries and in Africa, where fuelwood often accounts for 80 percent of total energy consumption. In the the Far East, the average is 30 percent and in Latin America 15 percent.

When income levels rise, especially in urban areas, people tend to substitute wood with fossil fuels and electricity. Poorer urban groups and rural dwellers remote from modern supply infrastructure continue, however, to remain heavily dependent on wood, often complemented by crop waste. But expanding populations and deforestation have depleted local supplies in many areas, pushing wood fuel costs up.

Lower oil prices in the late 1980s are likely to increase demand for petroleum-based fuels in the developing nations. This may ease slightly the increasing demand for firewood. In the early mid-1980s, when fuel prices rose sharply and remained at high levels, the reverse occurred; developing countries cut their imports and relied more on wood. Those developing countries with domestic fossil fuel sources were able to increase consumption by expanding their own production, but the lower-income countries dependent on fuel imports were forced to consume more wood.

Deforestation: a growing threat to the environment

Deforestation proceeds at an alarming rate in many parts of the world. Developing countries in the tropics are experiencing the most rapid rates of deforestation, with an average loss estimated at 11 million hectares per year. Damage is also considerable in non-tropical areas. For example, in 1988, fires in North America destroyed some 2 million hectares.

Population growth is a major cause of deforestation in the Third World, particularly through land clearance for agriculture. Overcutting forests for fuelwood and burning forest for livestock grazing are also serious problems. Timber harvesting exceeds sustainable capacity in many areas, and road systems built for logging often provide access to land for those interested in converting it to agricultural use.

In many countries the destruction of forests leads to soil erosion, wildlife depletion (often even the extinction of species) and other forms of irreparable environmental damage. Burning wood for fuel or clearance also releases carbon dioxide into the atmosphere, contributing to a variety of environmental dangers, above all the greenhouse effect. Worldwide, about 5 percent of energy comes from the combustion of wood, dung and similar organic materials, while forest fires and clearance consume an equivalent quantity of biomass. Regrowth of forests would help to absorb the rising levels of carbon dioxide.

Deforestation in the Amazon has reached serious proportions, as revealed by satellite photographs.

Ranchers and agricultural settlers have been destroying forests that indigenous populations and rubber tappers depend on for their livelihood. This has resulted in political conflict and even violence.

Efforts have begun (in both the north and the south) to fight deforestation in the Amazon and elsewhere. The Brazilian Government, for example, has designated large parts of the country as protected areas, parks and zones for the exclusive use of forest-dwellers and forest-dependent communities. Recently, greater constraints have been placed on forest clearing. In 1988 a presidential decree established a programme called "Our Nature" to develop and implement policies for more rational use of the Amazon. The Brazilian Government also appealed to the international community for support in the development of a conservation programme.

In southern Thailand, excessive logging is believed to have caused disastrous flooding and the government has banned further logging. Serious depletion of forests and a relentless demand for fuelwood led the Indian Government to publish a "National Forest Policy" in 1988, aimed at promoting sustainable economic growth and environmental stability

Conservation groups in industrialized countries have tried to discourage tropical deforestation by proposing such measures as embargoes on the import of tropical timber not certified to have come from forest areas managed on a sustainable basis. The European Parliament has called for regulations on the importation of Southeast Asian tropical timber, and some EEC business groups have proposed taxing tropical timber imports to raise funds for reforestation and conservation management of tropical forests. The United States has introduced environmental guidelines for all projects in tropical forest areas receiving United States' Government financing.

PART TWO

REGIONAL REVIEW

PART TWO of *The State of Food and Agriculture* reviews the economic and agricultural performance of both the developing and the developed regions. It also examines the policies and other factors that have influenced such performance. Selected indicators of economic and agricultural performance at the regional and subregional levels are presented in tabular form, with countries organized by regional and, in some cases, by economic category (for example, West Africa/low-income, West Africa/mid-income). Within each category, countries are listed in rank order according to per caput dietary energy supply.

REGIONAL REVIEW

Chapter 1

AFRICA

Mid-term review of the UN Programme of Action for African Economic Recovery and Development

Africa's economic performance in the 1980s is summarized in Table 2.1. The most striking aspects of the continent's difficult experience in this period were the following:

- Overall GDP growth was nil (-0.08 percent), representing a decline of 3 percent per year in per caput terms. West African mid-income countries, especially Nigeria, fared even worse, experiencing a regional GDP drop of 4.2 percent (4.7 percent for Nigeria). This represents a per caput decline of approximately 8 percent in the subregion. Northwest and Central Africa were the only parts of the continent where regional per caput GDP increased.
- Agricultural GDP growth averaged less than 1 percent per year overall. This poor performance, however, was better than that of other sectors.
- Agricultural production grew by 1.9 percent per year during 1981-87, well below the rate of population growth. This represents a 1.2 percent yearly decline in per caput terms. West African countries, both middle- and low-income, and the Sahel, were the only regions that performed better than this. Agricultural growth was very slow in most of southern Africa. The continent's performance was again disappointing in 1987, when per caput agricultural output fell nearly 5 percent. Production improved, however, in 1988, particularly in southern mid-income, east and northwest nations.
- Agricultural export values declined by 1.8 percent on average during 1981-87. The fall was greatest in the northwest (3.8 percent), and in the central and the southern low-income countries (both 3 percent).
- Food import volumes grew rapidly in most parts of the continent, particularly in central (5.6 percent in the period 1981-87) and west low-income (4.8 percent) countries, as a result of the 1983-84 drought.
- Sharp declines occurred in the overall value of both merchandise exports (6.4 percent per year) and imports (4 percent).

The UN Programme of Action for African Economic Recovery and Development (UN-PAAERD) 1986-90 was initiated by the UN General Assembly's Special Session on Africa, held from 27 May to 1 June 1986, to cope with the continent's deep and worsening economic crisis. It was based on a twin commitment:

- an undertaking by African governments to reform economic and especially agricultural policies;
- an agreement by the international community to provide an additional US$5 400 million per year in funding for the programme for 1986-90.

As UN-PAAERD reached its mid point in 1988, the UN Secretary-General presented a progress report to the 43rd Session of the UN General Assembly. The report considered the main issues facing Africa today—debt, domestic economic policy reform, and agricultural performance.

Debt

Africa's mounting debt burden is its most oppressive constraint on development. Declining prices for oil and other primary commodities, combined with rising interest rates, have produced an average yearly increase in total debt of about $20 000 million. According to the Economic Commission for Africa (ECA), total debt rose from $152 000 million[1] to about $218 000 million between 1984 and 1987, with sub-Saharan Africa's debt rising from $81 000 million to $118 000 million.[1]

Sub-Saharan Africa's debt-service ratio rose from 26.1 percent in 1984 to 43.3 percent in 1987, according to the Economic Commission for Africa, meaning that merely servicing the debt absorbs almost half the value of the region's exports. Clearly, under such circumstances, development becomes almost impossible, as resources which could buy essential developmental inputs are diverted to debt repayment.

The prospects are not good for an immediate

1. *ECA Survey of economic and social conditions in Africa, 1986-87.* E/ECA/CM.14/4. 4 March 1988.

Table 2-1: Africa, selected indicators of economic and agricultural performance by country groups, 1980-1988 (% change)

Country and country groups	Total population 1981-1988	Agricultural labour force 1981-1988	Total GDP 1980-1986	Agricultural GDP 1980-1986	Total exports $ value 1981-1987	Total imports $ value 1981-1987
Tunisia	2.12	-0.59	3.06	-0.21	0.33	-1.76
Algeria	3.15	0.61	3.27	1.23	-8.45	-5.19
Morocco	2.44	1.02	3.01	3.22	2.26	0.16
Northwest	2.69	0.68	3.13	0.99	-5.75	-3.37
Senegal	2.64	1.63	3.09	2.98	7.92	1.21
Niger	2.93	1.91	-2.62	1.15	-6.35	-9.70
Gambia	2.04	0.90	4.27	5.37	0.06	-3.20
Mauritania	3.03	2.05	1.15	3.29	13.84	6.88
Burkina Faso	2.52	1.71	0.84	0.99	-1.58	0.12
Guinea-Bissau	1.99	0.80	4.47	7.87	13.84	0.98
Mali	2.90	1.99	1.32	0.77	4.11	2.35
Chad	2.37	0.79			-0.01	16.21
Sahel	2.68	1.65	0.83	0.99	2.35	-0.05
Togo	3.03	1.79	-1.39	1.43	-5.07	-7.04
Benin	3.06	0.77	3.14	0.64	21.47	18.89
Sierra Leone	1.85	0.09	1.67	0.47	-4.44	-8.42
Guinea	2.41	0.82			3.98	4.34
Ghana	3.33	1.57	-0.21	0.13	-4.17	-1.28
West low-income	2.90	1.08		0.18	-2.12	-1.25
Côte d'Ivoire	3.64	1.05	-1.46	0.87	1.42	-4.69
Liberia	3.24	1.68	-1.61	0.38	-6.51	-9.88
Nigeria	3.45	2.17	-4.65	0.66	-14.49	-8.34
West mid-income	3.47	2.06	-4.32	0.62	-11.81	-8.21
Congo	2.67	1.35	8.23	-0.87	4.49	11.42
Gabon	1.76	-0.40	-0.23		-3.58	6.22
Zaire	3.02	1.44	1.55	0.93	19.49	5.22
Cameroon	2.78	0.54	6.42	2.57	0.22	2.55
Central African Republic	2.36	0.0	0.61	1.94	6.69	23.63
Central	2.88	1.08	3.14	1.45	-1.28	3.39
Tanzania	3.63	2.26	0.85	1.08	-3.09	-2.43
Uganda	3.44	2.18	1.82	1.29	8.56	-3.13
Burundi	2.87	1.95	2.92	1.89	8.55	4.16
Kenya	4.24	3.00	3.74	3.32	-4.01	-4.15
Somalia	2.66	1.05			8.36	-6.07
Rwanda	3.38	2.62	1.65	-0.17	10.96	3.87
Ethiopia	2.62	1.18	3.39	-0.11	2.29	6.29
East	3.25	1.95	2.57	1.32	-1.25	-1.86
Malawi	3.23	1.56	0.90	1.63	0.71	-4.74
Mozambique	2.81	1.70			-11.21	-3.81
South low-income	2.95	1.66	0.90	1.63	-4.68	-4.75
Swaziland	3.11	1.12	3.19		-3.90	-7.10
Lesotho	2.59	1.22	4.77	0.80	-9.25	-1.67
Botswana	3.84	2.25	11.69	-9.17	20.40	3.86
Zambia	3.41	2.65	-2.48	3.25	-12.37	-6.21
Zimbabwe	3.60	2.10	2.12	0.47	-4.74	-2.34
Angola	2.60	1.23			2.72	3.57
South mid-income	3.17	1.82	1.77	0.53	0.22	-1.55
Mauritius	1.82	0.89	4.49	7.42	14.28	9.49
Madagascar	2.88	1.45	-2.43	1.64	-3.79	-6.42
Comoros	3.12	2.02			27.25	5.99
Islands	2.79	1.45	-0.67	-0.36	7.28	2.33
Africa	3.10	1.72	-0.08	0.74	-6.40	-3.99

source: FAO

Table 2-1: Africa, selected indicators of economic and agricultural performance by country groups, 1980-1988
(% change)

Country and country groups	Agricultural production 1981-1987	Agricultural production 1987-1988	Agricultural exports $ value 1981-1987	Agricultural imports $ value 1981-1987	Food imports volume 1981-1987
Tunisia	4.51	-17.64	9.92	-2.32	6.05
Algeria	2.05	0.85	-11.86	-2.17	4.51
Morocco	2.13	35.92	-4.22	-2.10	5.20
Northwest	1.89	9.04	-3.82	-2.74	3.28
Senegal	9.55	-9.31	13.45	-0.66	2.30
Niger	-0.11	1.90	0.99	3.35	16.48
Gambia	8.27	-4.75	5.86	4.69	14.95
Mauritania	1.29	4.50	-3.85	5.33	7.36
Burkina Faso	5.20	1.91	1.45	1.04	10.32
Guinea-Bissau	9.41	-6.85	11.82	11.04	15.86
Mali	2.39	6.20	-3.70	8.24	13.12
Chad	2.45	1.32	-1.95	35.88	39.46
Sahel	3.05	-0.51	-2.69	0.54	5.73
Togo	1.15	4.54	4.44	1.67	10.02
Benin	4.72	11.22	33.89	5.10	4.60
Sierra Leone	1.68	-0.86	-1.32	3.23	4.90
Guinea	1.09	-0.81	1.73	3.98	8.53
Ghana	5.06	-0.69	-1.53	-0.85	7.16
West low-income	2.31	3.28	0.33	0.32	4.78
Côte d'Ivoire	4.53	4.79	1.23	-1.27	2.47
Liberia	1.75	2.08	-3.75	-2.90	2.57
Nigeria	2.56	0.22	-6.37	-13.40	-7.66
West mid-income	2.52	2.40	-1.03	-10.07	-5.37
Congo	1.34	1.60	10.96	2.56	7.31
Gabon	1.04	1.61	-9.39	0.97	8.74
Zaire	2.41	2.04	5.37	6.28	7.48
Cameroon	1.83	4.93	-4.88	8.00	9.12
Central African Republic	-0.23	2.15	-4.98	3.31	2.90
Central	1.90	3.33	-3.04	2.95	5.59
Tanzania	2.21	-9.32	0.12	-7.86	-4.09
Uganda	1.63	9.07	1.08	0.69	7.21
Burundi	4.18	1.96	7.68	-2.57	4.99
Kenya	3.34	4.19	1.27	-3.36	14.78
Somalia	3.16	4.79	9.70	0.79	11.20
Rwanda	0.84	1.18	15.80	2.77	6.90
Ethiopia	0.81	9.70	-1.08	24.98	24.09
East	1.67	5.01	0.01	-0.96	3.00
Malawi	1.06	3.93	1.01	-14.28	-6.13
Mozambique	0.11	-1.57	-9.99	6.43	5.73
South low-income	0.21	0.79	-2.95	3.11	3.69
Swaziland	2.71	-0.73	-1.32	8.51	4.86
Lesotho	0.03	12.87	-19.81	-0.57	-0.11
Botswana	0.77	8.01	6.94	2.47	6.39
Zambia	2.38	4.88	26.50	-15.69	-12.60
Zimbabwe	2.40	26.67	4.66	5.06	40.17
Angola	-0.17	-0.18	-21.11	-2.80	-0.51
South mid-income	1.07	11.50	-0.65	-4.50	-2.13
Mauritius	5.06	0.96	5.66	-3.07	0.96
Madagascar	1.89	-0.39	-0.28	-1.37	13.96
Comoros	2.25	2.35	146.62	3.41	15.36
Islands	1.63	-0.70	2.39	-3.69	2.71
Africa	1.91	4.08	-1.84	-3.91	0.55

source: FAO

improvement in this situation. The World Bank recently calculated that for the 22 most seriously indebted African countries, debt-service ratios will more than double during 1988-90, compared to their average over the previous five years.

The patent untenability of African burgeoning debt—and the need to find immediate remedies—was emphasized in a report by the UN Secretary-General's Advisory Group, published in February 1988, entitled Financing Africa's Recovery. This report, also known as the "Wass Report", said Africa would need another US$5 000 million a year for several years in additional financing to service its debt. It showed a $6 500 million/year net deterioration in sub-Saharan Africa's financial position between 1979-81 and 1985-87. Terms of trade losses accounted for $2 800 million, increased interest charges $2 100 million, reduced net credit $2 400 million, and reduced net direct investment $200 million—for a total loss of about $7 500 million, partially offset by about $1 000 million in increased official grants.

The international community has begun to recognize the seriousness of the African debt crisis and to seek ways of resolving it. The major industrial powers, first at their June 1987 Venice Economic Summit and then at their June 1988 Toronto Summit, noted that Paris Club creditors are rescheduling debts, offering extended grace and repayment periods. They also estimated that $15 000 million of the $18 000 million mobilized through the IMF's Structural Adjustment Facility (SAF), World Bank-based cofinancing programmes and the fifth replenishment of the African Development Fund would favour the poorest and most indebted countries in sub-Saharan Africa. Indeed, multilateral commitments to African agriculture rose sharply in 1987 (see PART ONE: Chapter 4).

At the Toronto Summit, the major industrial powers proposed various means to ease debt service, including concessional interest rates, longer repayment periods and partial write-offs of debt service. Some creditor governments have also written-off or otherwise reduced the burden of loans for development assistance. The industrial nations favour a case by case approach to the problem, with the Paris Club the main forum for negotiations.

Such initiatives are clearly a step forward, but they may not be sufficient to achieve the substantial and rapid reductions in indebtedness necessary for healthy economic growth to begin again. Only a major international assault on the debt spiral can hope to reverse Africa's economic decline and the heavy social costs that accompany it.

Domestic economic policy reform

The UN-PAAERD committed African countries to a variety of economic policy reforms, particularly regarding agriculture, in order to restore that sector's traditional key role in promoting growth and development. Often these reforms are part of structural adjustment programmes promoted by IMF and the World Bank. By late 1987, 36 African countries were under standby or extended arrangements of the World Bank or the IMF's Structural Adjustment Facility.

Exchange rate realignment is almost always a central element in these adjustment efforts, since most African countries had overvalued their currencies in the 1970s, producing a variety of economic inefficiencies and obstacles to growth. Devaluations of 35 African currencies, averaging 10–11 percent per year against the SDR, took place during 1980-87. During 1986-87, only 13 of the 35 currencies appreciated against the SDR (those tied to the French franc or the South African rand).

Currency devaluations have stimulated the production of tradable goods, including agricultural products. This is because overvalued currencies frequently made imports too cheap and exports too expensive, thereby undermining domestic production. Higher producer prices stimulate agriculture. However, if food prices rise and subsidies for the poor are simultaneously cut (as typically required by adjustment programmes), people may go hungry, domestic demand may drop, and agriculture may become increasingly oriented toward exports rather than food. While boosted exports may ease somewhat the debt problem, the social cost in terms of aggravated poverty and hunger is high.

Clearly such reforms—whether beneficial or not in the long run—are politically difficult in the short term. They raise prices of imported goods and of products—often including food—that compete with imports. Both the poor and the politically influential middle classes, who are hurt immediately by devaluations, may not see the benefits of improved economic efficiency for several years.

Adjustment programmes also usually require governments to cut agricultural input subsidies, in order to reduce deficits. The consequences of this are not always positive, since such cutbacks may cause agricultural production to decline. Increased farmgate prices for fertilizers have caused significant

declines in their use in recent years, retarding agricultural output. Not only is this an obvious drawback in itself but, by reducing longer-term government tax revenue, it aggravates the budget deficit.

Another major policy reform has been to reduce the state's role in the distribution of inputs and in marketing output, by dismantling government monopolies and allowing the private sector to assume these functions. The results of these reforms so far have been mixed. Elimination of government monopolies has sometimes lowered costs and encouraged the formation of farmer cooperatives, but private entrepreneurs have not always proved capable or sufficiently motivated to take on so many new responsibilities in the short term. As a consequence, simply liberalizing agricultural markets in Africa has not always improved efficiency and lowered marketing costs. The private sector needs both incentives and time to learn, adjust and mobilize resources.

Agricultural performance

In 1985, agricultural production recovered from the drought which had decimated agriculture in several countries during 1983-84. Since then, however, Africa's agricultural performance has again lagged. In 1986-88, agricultural growth averaged a sluggish 1 percent a year—well below the 2.5 percent six-year average of 1980-85. Of the seven subregions defined by UN-PAAERD, only three equalled or slightly exceeded their 1980-85 average. Clearly this marks a setback for the programme, which had assigned to agriculture the central role for economic recovery.

Agricultural exports remained generally sluggish, except in 1986 which was the best export year of the 1980s. On average, coffee export volumes declined 1.2 percent yearly during 1986-88, after having increased by 2.5 percent per year in 1980-85. In value, these had fallen about 1 percent yearly in 1980-85, a decline which accelerated to nearly 3 percent per year during 1986-88. Cocoa exports fared better, however. While the growth in exports decelerated in volume terms, their value rose 4 percent per year in 1986-88, compared to a 0.5 percent annual decline during 1980-85. Short-term prospects are mixed: cocoa markets slipped in 1988/89, while coffee prices were strengthening.

Clearly it is difficult to assess yet the impact of UN-PAAERD on agricultural development. The increased sensitivity of the major donor countries to Africa's debt problem is certainly a change for the better, but its benefits remain to be realized. Many African countries have also adopted far-reaching policy reforms regarding agricultural pricing, marketing and input distribution but, once again, the benefits of these changes will accrue only over time.

More immediate benefits may result from recent increases in non-oil commodity prices, which should accelerate economic growth and raise domestic demand for food and agricultural products. This highlights, of course, a fundamental reality—the success of UN-PAAERD depends to a large extent on global factors beyond the control of the Africans. The international terms of trade are an aspect of the problem which UN-PAAERD cannot control, but whose impact on African development will be as important as that of domestic economic reforms and debt relief.

REGIONAL REVIEW

Chapter 2

ASIA AND THE PACIFIC

Trade, adjustment and the monsoon

Asia's generally positive economic and agricultural record in the 1980s is presented in Table 2.2. The outstanding traits of that record may be summarized as follows:

- Economic growth was strong (averaging 7 percent a year, or 5.3 percent per caput) and fairly well balanced between the various subregions of Asia . GDP growth was particularly strong in China (9.3 percent) and the Republic of Korea (8.8 percent). Some countries, however, notably the Philippines (0.6 percent), had low rates of economic growth.
- Agricultural GDP also grew at an impressive 5.4 percent per year. Combined with the slow growth of the agricultural labour force, this indicates a rapid increase in productivity (about 4 percent a year overall). This was even higher in China (6.9 percent), but much lower in India (1.1 percent).
- Total merchandise trade grew rapidly, with China, the Republic of Korea and Thailand exhibiting particularly dynamic growth.
- Agricultural trade trends varied widely, and growth in exports and imports was generally low. India increased its food imports substantially (by 8.3 percent a year), as did China (nearly 10 percent) and several South Asian countries.
- Agricultural production in 1981-87 grew by 3.8 percent a year, buoyed by China's high rate (5.3 percent). But other subregions grew at slower rates, ranging from about 2.4 to 2.9 percent.
- Agricultural production slipped severely in 1987 for every subregion but China, because of an unfavourable monsoon. It improved in 1988 in India, East and Southeast Asia, but stagnated in China, again due to bad weather.

Table 2-2: Asia and Pacific, selected indicators of economic and agricultural performance by country groups, 1980-1988 (% change)

Country and country groups	Total population 1981-1988	Agricultural labour force 1981-1988	Total GDP 1980-1986	Agricultural GDP 1980-1986	Total exports $ value 1981-1987	Total imports $ value 1981-1987
Fiji	1.79	0.43	3.21	8.15	-1.42	-4.96
Republic of Korea	1.62	-1.44	8.80	7.37	15.70	9.61
Singapore	1.13	-3.06	6.81	-2.42	6.23	5.00
Malaysia	2.35	0.35	4.99	3.50	5.73	2.92
Indonesia	1.89	0.74	4.72	2.88	-6.50	3.77
Thailand	1.87	1.34	4.22	2.82	9.67	6.01
Philippines	2.38	1.48	0.58	2.10	0.30	-0.73
Papua New Guinea	2.54	0.83	–	2.26	2.91	1.21
Brunei	4.29	3.36	–	–	-9.93	2.93
East and Southeast	1.95	0.82	5.30	3.62	5.42	5.19
Myanmar	1.94	0.71	4.97	5.20	-6.57	-2.25
Sri Lanka	1.68	1.25	4.80	3.15	5.25	0.21
Pakistan	2.79	1.99	6.35	2.30	7.99	1.99
Nepal	2.34	2.17	–	5.83	3.11	7.94
Bangladesh	2.72	1.97	3.85	3.18	7.49	2.86
Bhutan	2.04	1.75	–	–	0.0	0.0
South	2.55	1.76	5.35	3.35	5.53	1.60
India	1.88	1.51	5.18	2.65	4.36	2.36
China	1.22	1.30	9.34	8.22	12.01	13.69
Asia and Pacific	1.67	1.34	7.00	5.40	6.42	5.67

source: FAO

Three factors have shaped the economic performance of Asian nations in recent years.[1] Strong growth in merchandise trade was the key to impressive expansion for several countries. For the newly industrialized East Asian economies, rapid growth of manufactures, often in competition with Japan's, allowed unusually high growth rates.

For other Asian nations, changing oil and non-oil commodity prices were the main determinants of merchandise trade performance. Generally weak oil prices hurt exporters, but helped importers. Price increases for such agricultural raw materials as jute, timber and rubber helped several exporter countries, especially during 1987-88. Prices of most minerals and metals also rose, though less rapidly. Prices of food commodities, particularly rice, were low until late 1987, and tropical beverage prices were also generally weak.

Economic adjustment programmes were the second major factor determining economic performance. Successful economic adjustment in the Philippines and Singapore permitted economic recoveries in 1987-88, after the declines or very slow growth rates during 1984-86. China also recovered in 1987-88, after having held back growth in 1986 to reduce inflationary pressures and the current account deficit.

The weak southeast monsoon of 1987 was the third major factor, negatively affecting most the region in both 1987 and 1988. Drought hurt the economies of India, Pakistan, Sri Lanka and Nepal, while floods devastated eastern India and Bangladesh. Bad weather in 1987 also hurt agricultural production in Indonesia, Thailand and, to a lesser extent, China.

The impact of the recent drought was less than that of previous ones: irrigation and improved farming practices have made Asian agriculture less dependent on the weather. Government efforts to protect economic activity from the drought were helpful as well. Nevertheless, these natural disasters have increased pressure to improve natural resource management, through such measures as water harvesting in drought-prone areas, and catchment protection in flood-prone river basins.

Economic performances in the developing Pacific island economies continue to be influenced by volatile commodity prices and adverse weather. Rising commodity prices and improved flows of international assistance promise some improvement in the late 1980s for these nations.

1. See also ESCAP, *Economic and Social Survey of Asia and the Pacific, 1987*. Bangkok, 1988.

Table 2-2. Asia and Pacific, selected indicators of economic and agricultural performance by country groups, 1980-1988 (% change)

Country and country groups	Agricultural production 1981-1987	Agricultural production 1987-1988	Agricultural exports $ value 1981-1987	Agricultural imports $ value 1981-1987	Food imports volume 1981-1987
Fiji	2.23	0.77	-2.97	-0.58	2.89
Republic of Korea	2.33	2.88	-1.44	3.99	9.14
Singapore	0.33	-0.53	4.20	2.82	3.35
Malaysia	5.25	4.92	1.60	1.17	6.58
Indonesia	3.73	4.43	1.35	-3.31	-3.04
Thailand	1.86	5.85	2.81	1.83	-2.01
Philippines	0.54	-0.07	-7.55	1.31	1.60
Papua New Guinea	2.31	1.75	0.42	-2.49	3.04
Brunei	8.25	7.94	23.07	8.00	5.33
East and Southeast	2.35	3.64	-0.05	1.14	2.87
Myanmar	5.02	3.81	-10.34	-10.21	-6.05
Sri Lanka	0.12	5.17	0.95	-3.23	1.81
Pakistan	4.63	4.03	3.38	5.42	13.92
Nepal	2.95	-1.55	-0.55	11.92	5.61
Bangladesh	1.49	-3.33	-1.77	4.07	9.47
Bhutan	5.08	2.98	1.22	8.36	15.44
South	2.85	1.38	-0.91	1.43	4.97
India	2.79	8.03	-0.83	2.08	8.26
China	5.32	-0.12	10.72	-3.00	9.96
Asia and Pacific	3.75	2.75	1.52	-0.76	3.69

source: FAO

India: progress slows down because of bad weather

Drought and floods plagued India in 1987, undermining the nation's Seventh Five Year Plan (1985-90). The failure of the 1987 monsoon was the fourth in a row, and provoked the most serious drought in years.

While foodgrain output (rice, wheat, coarse grains and pulses) dropped an estimated 6-10 percent (9-12 million tons), the losses were fewer than in earlier droughts, mainly because of increased irrigation. In 1988, better weather led to a strong recovery in overall food production, with output returning to 1986 levels. Paddy output was expected to be excellent despite flood damage in several regions in late 1988. The wheat harvest, however, was poor, due to shortages of irrigation water, which hurt the spring crop. The year's production declined 2 percent.

Several disappointing agricultural years in a row did not undermine India's economic growth rate, even though agricultural output declines often led to slowdowns in other sectors. Sustained by industry, India's GDP growth was 4.9 percent in 1986 and 4.1 percent in 1987. In 1988, GDP growth slowed to 1.5 percent, largely as a result of the delayed impact of 1987's sharp decline in agricultural output (7 percent).

The 1987 drought also caused inflation to increase by more than 10 percent in 1987-88. It aggravated both the budget deficit, which had risen to more than 8 percent of GDP, and the balance-of-payments difficulties. Foreign exchange reserves fell in 1987-88 for the first time since 1980-81.

Impact of the drought

Foodgrain production including rice, wheat, coarse grains and pulses, has not increased since the record year 1983/84. Output in 1986-87 was only 144 million tons, 4 percent less than 1985-86, and 5 percent below 1983-84. While the rabi (November-May) crop was better than expected (about the same level as 1986/87), anticipated 1987-88 foodgrain output was at least 5 percent less than 1986/87's mediocre performance.

Improved irrigation of the rabi crop helped contain these losses. Previous droughts, such as occurred in 1965-66 when foodgrain output declined almost 20 percent, were much more destructive. Nevertheless, four years of stagnation in foodgrain production have taken their toll, raising concern among agricultural policy-makers about the nation's food security.

Increasing foodgrain production

To improve foodgrain production and food security, the Indian Planning Commission recently established a task force to study the nation's foodgrain structure and advise on setting priorities.[1] The task force determined that development resources should be focused on 169 districts with the highest agricultural potential—India has over 500 districts.

In the short term, support prices for wheat and rice were increased for the 1988/89 season: the procurement price of wheat increased by Rs6 to Rs173 per 100 kg, and that of rice by Rs10 to Rs160 per 100 kg. This should boost production.

To reduce India's longer-term vulnerability to adverse weather conditions, its Eighth Five Year Plan (1990–95) will contain four main elements. The first is to increase the land under assured irrigation. Significant progress has already been made in recent decades, with the total irrigated area having risen from about 17 percent of agricultural land in the early 1950s to about 30 percent. But much of this newly irrigated land can still become dry during droughts, since it depends on groundwater reserves which may be depleted during dry years. To cope with this situation and guarantee that existing irrigation potential will always be functional, the Seventh Five Year Plan emphasizes large and medium-sized irrigation projects, which will provide irrigated land with assured water sources even during severe droughts.

The second and third main elements seek to improve output in the 70 percent of cropped area which is still rainfed. To this end, agricultural strategy stresses full exploitation of groundwater in high rainfall areas such as the Gangetic region, to achieve more multiple cropping. The National Watershed Development Programme for Rainfed Agriculture was started in 1986/87, and is being strengthened with this objective in mind. For rainfed agriculture in water-scarce areas, the strategy is to:

- improve water management
- sharpen the focus of rural employment and area development programmes
- improve agricultural research on rainfed and dryland agriculture
- promote reforestation to reduce depletion of water and soil resources.

The fourth element of national strategy will be to give greater emphasis in agricultural planning to regional differences. Future agricultural development strategies will be based on 15 spatial zones with different agroclimatic features.

The debate over Indian agricultural and rural development policy is strongly influenced by the issue of poverty and hunger alleviation. While the percentage of the rural population below the poverty line has fallen by about 11 percent in six years, from 51 percent in 1977/78 to about 40 percent in 1983/84, no less than 220 million Indians continue to live in absolute poverty. Furthermore, large regional disparities remain, mainly because the benefits of the Green Revolution have not been evenly distributed geographically.

As a result, agricultural policy-makers must choose between efficiency and equity, with the goal of national food security sometimes in conflict with that of poverty and hunger alleviation. Shifting emphasis to rainfed agriculture, for example, will help the poorest regions and individuals most. But such efforts may be less effective than strengthening irrigated agriculture in improving overall national food security.

1. *Framework Action Plan for Foodgrains*, Report of the Task Force Planning Commission, 19 March 1988

The People's Republic of China

China's economy grew by more than 9 percent in 1987, after two years of slower growth as a result of government efforts to reduce the balance-of-payments deficit. But price inflation remains a major concern (it was officially estimated at 7.5 percent in 1987, but may have reached 20 percent in some areas). Prices of certain food products such as pork have risen even more.

Increases in grain production have become the symbol of successful agricultural policies, having risen to a record 407 million tons in 1984 (including cereals, pulses and tubers). However, partly as a consequence of unfavourable weather, output dropped in 1985 and 1986. For a country which must feed over 1 000 million people, and where arable land accounts for less than 10 percent of total area, this was a major disappointment. Grain production increased to 401 million tons in 1987, but remained below target. The government hopes to increase ouput to 500 million tons by the year 2000.

Despite the successes of recent years, the government is concerned about declining growth rates for some agricultural products. For example, grain and cotton output grew by 5 percent and 16.9 percent respectively during the period 1979–83, but by only 1.1 percent and 1.2 percent respectively during 1984-87. In 1987, pork production declined. Such poor performances raise doubts about the longer-term productivity prospects for agriculture, and call for the following policy issues to be addressed.

Following the economic reforms, agriculture's share of public sector investment slumped from ¥RMB 6 900 million in 1979 (about 12-13 percent of total investment) to ¥RMB 3 600 million in 1981. Since then, it has again increased (to ¥RMB 7 500 million in 1986), but this still represents only 4-5 percent of total public investment. Much of China's agricultural infrastructure, such as irrigation and drainage works, is 20-30 years old and is deteriorating.

Lower investment levels are reflected in reduced use of land and most other factors. In 1986, the sown area was 3.9 percent less than in 1979. The irrigated area had declined by 1.8 percent, labour use by 1.2 percent and tractor use by 11.4 percent. Although total fertilizer consumption rose 30 percent between 1980 and 1986, the use of green and organic manures declined. The desired growth of "sideline" rural activities, including light industries, has been striking, but may be withdrawing too many resources from agriculture. As a consequence, the government is seeking to restore agricultural investment and to improve farming practices.

Problems of input supply are a major concern, particularly for fertilizers, but also for other inputs such as agrochemicals and plastic sheeting used in the production of horticultural crops. Prices of these inputs have escalated in recent years.

Fertilizer availability remains a problem. Despite considerable investment in new fertilizer capacity in the late 1970s and early 1980s, it was inadequate to cope with fast-rising demand. Furthermore, many traditional small-scale ammonium bicarbonate plants have been closed in recent years because they consumed too much energy and produced low-grade fertilizers. While the larger plants produce higher-quality fertilizer at lower cost, distribution problems have been aggravated by the closing of decentralized smaller factories.

The government faces a dilemma regarding foodgrain pricing policy, as it seeks simultaneously to increase food production (which would suggest higher prices) and to fight inflation (which would call for lower prices). The government is also trying to phase out foodgrain subsidies, which currently cost no less than ¥RMB 20 000 million a year.

Average producer prices have risen in recent years. While the official contract prices for grains have risen only slightly, contracted amounts have fallen from 79 million tons in 1985 to 50 million tons in 1987 and 1988. Since the government buys large additional quantities of grains at above contract prices to meet its rationing needs of about 65 million tons per year, actual producer prices have risen more than the contract price. The authorities plan to raise contract prices gradually.

Changing eating habits are also of concern. Domestic demand for meat has risen, requiring pork rationing in many cities. While impeding this demand will be politically unpopular, it may be necessary, because livestock consume cereals which could be used for human food.

The government is concerned about the rising demand for imported foods, which requires increased expenditure of precious foreign exchange. For example, demand is shifting from rice to imported wheat. China imported a record 15.3 million tons of wheat in 1987/88 and this is expected to increase to 16 million tons in 1988/89. Demand for sugar and vegetable oils is also rising rapidly. In 1987, sugar imports rose to nearly 1.9 million tons, having fallen to 1.2 million tons in 1986, and edible vegetable oil imports more than doubled to 520 000 tons.

The loss of 250 000-500 000 ha/year of arable land, mostly to construction, is another major problem for China. Even though the nation possesses about 93 million ha of arable land, losses are mostly of high-quality land on the outskirts of cities. Taxation has been introduced to discourage this loss, but the demand remains high.

An associated problem in some areas is land fragmentation. The government is encouraging consolidation, which is necessary if improved farming technologies are to be used, but so far, it has taken place in only 5 percent of the land.

Government policy regarding land tenure varies according to circumstances. In areas of lower agricultural potential, peasants are granted leases for up to 50 years. If they leave the land to take non-farm jobs, they may "sell" their land entitlement to specialized households involved in agriculture. Alternatively, small farmers are free to form cooperatives, or to work the land of others who have taken nearby non-farm jobs but wish to retain their entitlement to the land.

REGIONAL REVIEW

Chapter 3
LATIN AMERICA AND THE CARIBBEAN
Economic crisis and the prospects for agriculture

The 1980s were critical years for most of Latin America and the Caribbean. Their dismal economic record is presented in Table 2.3. The most important aspects of that record can be summarized as follows:

- The 1980s were a "lost decade" for socio-economic progress, with GDP growth averaging less than 0.5 percent per year between 1980 and 1986. This represents a decline of nearly 2 percent yearly in per caput terms. By the mid-1980s, no less than 12 of the 30 countries had seen their GDP drop to below their average level for the late 1970s. Only nine had increased per caput GDP.
- GDP growth accelerated during 1984-1986 to more than 3.5 percent yearly, but slowed

Table 2.3: Latin America and the Caribbean, selected indicators of economic and agricultural performance by country groups, 1980-1988 (% change)

Country and country groups	Total population 1981-1988	Agricultural labour force 1981-1988	Total GDP 1980-1986	Agricultural GDP 1980-1986	Total exports $ value 1981-1987	Total imports $ value 1981-1987
Mexico	2.55	1.21	-0.27	1.73	6.63	-2.36
Brazil	2.19	-0.26	1.79	0.36	4.49	-5.21
Cuba	0.76	0.15	–	–	2.53	5.42
Trinidad and Tobago	1.60	-0.63	-4.61	4.12	-12.22	-11.63
Costa Rica	2.59	0.34	0.27	3.07	2.01	-0.45
Jamaica	1.48	1.37	1.23	1.82	-4.54	1.91
Dominican Republic	2.31	0.88	1.78	1.92	-2.64	3.15
Nicaragua	3.39	1.89	0.70	1.67	-7.66	-1.47
Guyana	1.88	1.04	-3.51	0.86	-5.01	-3.82
Panama	2.16	0.54	2.53	1.87	0.80	-0.80
Guatemala	2.88	1.85	-1.18	–	-6.40	-9.87
Honduras	3.33	2.89	0.99	1.62	2.82	5.42
El Salvador	3.04	1.60	-2.21	-2.37	-7.45	0.05
Haiti	2.59	1.10	-1.27	–	-0.18	2.96
Central and Caribbean	2.30	1.31	-0.51	1.22	-2.99	-0.04
Colombia	2.13	0.53	2.59	2.39	5.45	-0.84
Venezuela	2.79	-0.48	-0.12	1.77	-10.27	-0.06
Peru	2.60	1.43	1.28	3.24	-0.51	5.46
Bolivia	2.75	1.59	-3.03	-1.54	-8.23	6.26
Ecuador	2.88	0.61	1.18	1.56	-2.15	1.20
Andean	2.52	0.82	0.75	1.95	-6.16	0.11
Argentina	1.55	-1.16	-0.17	2.65	-0.77	-8.75
Paraguay	2.97	2.48	0.69	2.69	4.41	4.90
Uruguay	0.72	-0.72	-1.77	-0.67	2.67	-3.03
Chile	1.56	-0.37	-1.23	3.29	2.18	-0.28
Southern Cone	1.60	-0.17	-0.46	2.52	0.21	-5.36
Latin America	2.27	0.56	0.42	1.44	-0.23	-3.16

source: FAO

again in 1987 with the decline in economic growth to an estimated 2.5 percent.

- A sharp deterioration occurred in 1988, as economic growth rates dropped to an average below 1 percent, and inflation accelerated to unprecedented levels.
- Agricultural GDP rose much faster than total GDP, but not enough to offset population and demand growth. Agricultural labour force productivity increased modestly.
- Agricultural production growth dropped sharply in 1982 and 1983, after strong expansion in 1980 and especially 1981. A very uneven recovery then followed, with another disastrous year in 1986, excellent harvests in 1987 and yet another shortfall in 1988.
- Worsening terms of trade led to a decline in the value of merchandise exports, despite substantial increases in volume. Export earnings from agriculture stagnated even though volumes increased moderately. The overall terms of trade fell by a cumulative 15 percent between 1981 and 1987. Growth in the value of imports stagnated overall. In some countries and periods (particularly in 1982 and 1983) imports, including food imports, were cut sharply. Exports were estimated to have recovered strongly in 1987 (by 14 percent), partially offsetting the sizeable reversals of 1986 and 1987. Preliminary estimates suggest that exports will expand sharply again in 1988, in both volume (about 10 percent) and value (15 percent) terms. Import values are expected to increase by 10 percent.

Table 2-3. Latin America and the Caribbean, selected indicators of economic and agricultural performance by country groups, 1980-1988 (% change)

Country and country groups	Agricultural production 1981-1987	Agricultural production 1987-1988	Agricultural exports $ value 1981-1987	Agricultural imports $ value 1981-1987	Food imports volume 1981-1987
Mexico	1.74	-2.15	5.23	-5.30	1.15
Brazil	3.98	2.11	-0.16	-2.41	-3.11
Cuba	2.27	-0.18	2.99	-3.37	-0.48
Trinidad and Tobago	-2.07	18.82	-7.86	-0.35	4.56
Costa Rica	1.62	0.36	1.88	-6.08	-0.68
Jamaica	2.12	0.74	6.56	-2.28	1.45
Dominican Republic	1.29	-0.03	-0.95	2.28	9.12
Nicaragua	-0.40	0.88	-7.94	-4.31	2.53
Guyana	-1.80	-4.45	-3.51	-7.74	19.83
Panama	2.34	-2.59	-1.09	-0.54	2.38
Guatemala	0.44	5.87	-5.69	-1.28	4.64
Honduras	1.54	4.45	0.59	-1.97	0.79
El Salvador	-2.71	-4.64	-7.82	-3.34	1.49
Haiti	1.03	1.85	-5.85	1.32	2.00
Central and Caribbean	0.58	1.03	-0.14	-2.82	1.00
Colombia	1.91	3.55	-0.15	-5.36	4.13
Venezuela	1.55	6.36	6.08	-3.13	-0.48
Peru	3.10	2.30	1.29	6.58	9.38
Bolivia	2.68	6.34	-7.52	-2.59	0.54
Ecuador	2.91	-3.48	4.01	-4.95	1.69
Andean	1.67	1.70	0.20	-3.50	0.44
Argentina	1.29	1.74	-4.05	-2.03	-1.32
Paraguay	4.28	11.44	0.48	-6.83	17.43
Uruguay	2.11	1.97	-0.63	-2.99	18.01
Chile	2.83	4.61	10.91	-15.32	-16.28
Southern Cone	1.55	3.19	-2.81	-10.97	-11.83
Latin America	2.27	1.53	-1.31	-6.03	-2.61

source: FAO

- External debt grew slowly in 1987 and 1988. Debt-service ratios declined overall in 1987 but increased sharply in 1988. In 1987, the net outward transfer of resources declined slightly, but still accounted for 16 percent of exports, according to the UN Economic Commission for Latin America and the Caribbean (ECLAC). In 1988, the situation worsened: a sharp decline in net capital inflows coupled with higher debt-service payments pushed net resource transfers to nearly 25 percent of the value of exports.

These developments illustrate the severity of the region's economic crisis in the 1980s, and have stimulated a reappraisal of past development strategies and the role of the agricultural and rural sectors within them. The crisis has also led to a search for more sustainable approaches to development in general and agricultural and rural development policies in particular.[1]

The poor economic performance of Latin America and the Caribbean is particularly unfortunate in view of the high expectations prior to the 1980s. From the end of the Second World War until the late 1970s, the region seemed capable of the rapid and sustained economic growth necessary for development. Some experts saw the region as poised for a take-off that would soon bring it close to industrialized country standards of living. There were significant signs of improvement in human welfare, including growing per caput food supplies, higher life expectancy, lower infant mortality and increased primary school enrolment.

External factors, above all worsening terms of trade and the burden of foreign debt, stopped Latin American and Caribbean development in its tracks in the 1980s, exposing the structural weaknesses of the region's economies, and the unsustainability of the development strategies then being pursued.

The external factors that undermined the region's development hopes in the 1980s were:

- negative net capital flows to the region from the early 1980s onward. This was the result of the sudden shut-off of private foreign lending and the simultaneous increase in debt service costs, primarily because of rising international interest rates;
- large price declines for most of the region's principal primary commodity exports.

In addition to these external factors, mistaken development strategies had weakened the region's capacity to respond to the economic challenges of the 1980s. Most countries had stressed industrialization and neglected agriculture. This undermined rural economic and social development and exposed their economies to the vicissitudes of international events.

The cornerstone of most development strategies had been to substitute imported manufactured goods with domestic production. Governments overvalued their own currencies and kept out foreign industrial imports with tariffs, quotas and outright bans. These policies were usually focused on domestic urban markets, again to the neglect of rural areas and agriculture. While some industry did develop, it tended to be high-cost and inefficient, and unable to compete internationally and generate export-led growth. Rather, such protected, "hot-house" industrial structures were dependent upon continual import financing for much of their capital requirements, inputs and technology.

Such financing could in theory have been generated by the traditional exporting sectors (in most countries agriculture and/or mining), but in practice increasingly took the form of money borrowed abroad—leading to the accumulation of debt. This was in large part possible because the excess liquidity of many foreign banks in the 1970s made them eager to lend.

Despite the fact that governments de-emphasized agriculture, the sector grew by 3.0-3.5 percent a year during the 1960s and 1970s, providing many nations with needed export earnings and keeping the demand for food imports down. But pressures to commercialize farming encouraged the emergence of a dual agricultural structure in most countries. Modern large and medium-size farms utilizing improved technology and more agricultural inputs served the export and urban markets. The small farmer was bypassed by these innovations and continued to produce staple foods such as cassava, beans and maize by traditional means. At the same time, the number of small-scale peasant farms increased, while their average size decreased.

While there were exceptions to this rule, in most countries small-scale backward agriculture was, and is still, widespread, as was the rural poverty associated with it. This dual economy, in which peasant farming, like the informal urban economy, came to play the role of a surplus labour reserve for the more "modern" sectors, was both inequitable and vulnerable to external destabilization. This

1. See FAO's study, "*Potentials for Agricultural and Rural Development in Latin America and the Caribbean*", presented at the 20th FAO Regional Conference in October 1988

became evident in the early 1980s, when prices for the region's main exports fell and the foreign creditors who had financed industry pulled back.

The economic crisis of the 1980s demonstrated the importance of agriculture to the development hopes of Latin American and Caribbean nations. When international financing dried up, industry went into severe crisis, but agriculture proved more resilient because it was largely oriented to food production, had a big subsistence component and required few imported inputs. Furthermore, new macro-economic policies arising from structural adjustment and stabilization programmes stimulated agriculture to move into new export and import substitution markets. Expanding agriculture also became central to alleviating poverty, since most of the poor live in rural areas.

These factors—agriculture's greater resiliency in the face of international instability, its export and import-substitution potential, and its role in fighting poverty and hunger—have led to a reappraisal of development strategies. Greater emphasis is now placed on agriculture and rural development. Given the relatively plentiful natural resources of the region and their ecological diversity, there is considerable potential to expand into a wide range of markets. Land reform and redistribution could also offer substantial possibilities for equitable growth in this part of the world. The present unequal distribution of land and productive assets in Latin America and the Caribbean seriously undercuts both production and equity.

Reviving Latin American and Caribbean agriculture

Relaunching the economies of Latin America and the Caribbean will require substantial increases in demand for the region's agricultural products. Such increases could come from either higher domestic demand or growth of exports. In both cases the potential for growth is substantial—but the political obstacles to releasing it are daunting.

As regards domestic demand, population growth is expected to slow to about 2 percent per year for the rest of the century (from about 2.3 percent in 1980-85). This means that the only hope for stronger domestic markets would be to increase the purchasing power of the lower income groups. Existing trends promise only very slow growth of per caput incomes. Only stronger, more equitable economic growth could provide the stimulus needed—and this would require political choices, such as land reform, that most Latin American and Caribbean nations have so far been unwilling or unable to make.

Food demand growth in the region averaged about 3.3 percent per year during the 1960s and 1970s, but decelerated to only 1.9 percent during 1980-86, primarily because of worsening poverty. FAO estimates that reducing malnutrition by a modest 10 percent by the year 2000 would require a 200 kcal increase in per caput daily food consumption (from 2 700 to 2 900 kcal). This would imply a 2.8 percent yearly growth in domestic food demand, lower than the rate of the 1970s but substantially above the slow growth of recent years.

Such an improvement is possible only if per caput incomes increase and governments reorient their policies to achieve a more equitable distribution of wealth and income, so that the poor can afford to eat more.

Exports could also provide a major stimulus to Latin American and Caribbean agriculture—but are unlikely to do so under present international political circumstances. Foreign markets currently absorb about 20 percent of the region's crops and livestock production, but demand from Eastern Europe and the USSR and developing countries is structurally weak, at least in the short- and middle-run, while slow population growth, existing high levels of consumption and agricultural protectionism all limit the growth of exports to the developed market economies.

Theoretically, considerable scope exists for increased consumption and imports in other developing countries and Eastern Europe, but major increases in exports to these nations from Latin America and the Caribbean are unlikely. Except for a few commodities such as sugar, they account for only about one-third of the region's agricultural exports. Limited income growth and widespread balance-of-payments problems will continue to restrain the growth of their imports for years to come.

The only immediate possibility for a relaunching of exports would be to the developed market economies—but this would require reduced restrictions on their agricultural imports. It probably would also necessitate major cuts in their agricultural support policies, which generate huge surpluses that are disposed of as food aid or at heavily subsidized prices on world markets—thereby undercutting potential demand for Latin American and Caribbean exports to third country markets.

A revival of agricultural exports is unlikely unless the industrialized countries open their markets to such key Latin American and Caribbean exports as cereals, beef, vegetable oils and oilseeds, sugar and citrus, and if they reduce subsidies on other products sold on world markets. Most developed countries would find such a liberalization politically very difficult. Nevertheless, some progress may be made at the ongoing Uruguay Round of multilateral trade negotiations.

REGIONAL REVIEW

Chapter 4

THE NEAR EAST

Uneven progress

Economic and agricultural performance in the Near East has been mixed in the 1980s, as shown in Table 2.4. The main developments were the following:

- The oil exporting countries suffered GDP declines, while non-oil exporters' GDPs grew.
- Export values declined significantly for all categories except the middle-income nations. They plummeted 15.4 percent for the oil exporters.
- Agricultural production failed to keep pace with population growth in all categories. It was particularly poor in the low-income countries during 1981-87.
- The value of agricultural exports grew substantially for some oil-exporting and middle-income countries, but declined or grew sluggishly elsewhere. The volume of food imports grew faster than in any other developing region.

Near Eastern economic activity made a modest recovery in 1987, after the severe blow received in 1986 when oil prices dropped sharply. After declining 3 percent in 1986, regional output expanded by an estimated 2.5 percent in 1987. Despite this improvement, aggregate output for the region was still almost 3 percent below 1985's level, and the long-term decline or stagnation in real incomes which began in the early 1980s has continued. It is unlikely that 1987's moderate improvement in aggregate output will lead to a fundamental shift in the economies of the region toward sustained recovery.

The precipitous fall in oil prices, from US$28 per barrel in early January 1986 to $9.2 per barrel at the end of July of that year, drastically cut the external revenues of the oil-exporting countries. OPEC's subsequent production restraint was then able to maintain a $17 per barrel marker price throughout most of 1987, but in 1988 prices fell again, to an average of $14 per barrel. Total oil revenues dropped 30 percent in 1986, but increased by nearly 13 percent in 1987. However, although this rebound in oil revenues in 1987 reduced current account and fiscal imbalances, it failed to restore confidence. Investment and private consumption lagged and the exodus of capital continued unabated. To stay this capital flight, several governments increased their issues of treasury bonds.

Import volumes are also believed to have continued to fall in 1987, after declining by nearly 2 percent per year from 1980 to 1986. For the oil exporters, this decline was much larger—about 10 percent. Imports by the non-oil countries fell by 13 percent in 1986. They are not likely to have grown significantly since because of import-reduction policies undertaken as part of structural adjustment programmes. Output and investment—and hence potential productive capacity—are believed to have suffered severely as a consequence of reduced imports of productive inputs.

Structural adjustment

The intensity and duration of external shocks since the late 1970s induced several non-oil exporters in the region to adopt economic adjustment policies aimed at reducing their large current-account deficits. While these policies included short-term restraints on demand to slow the growth of imports, they emphasized longer-term supply-side adjustments to boost earnings from agricultural and, in some cases, energy exports.

Governments believed they could afford to stretch out adjustment periods this way, both because of the short-term availability of external financial resources and because they failed to foresee the worsening of the international market situation which took place in the 1980s and undercut most of their exports. They actively promoted expansion of the agricultural and energy sectors, expecting that shortfalls in export earnings would be temporary and that export markets would remain open.

Growing protectionism and the end of easy credit forced these nations to adopt more painful adjustment programmes that emphasized demand and import restraint. Such policies have cut output

Table 2.4: Near East, selected indicators of economic and agricultural performance by county groups, 1980-1988 (% change)

Country and country groups	Total population 1981-1988	Agricultural labour force 1981-1988	Total GDP 1980-1986	Agricultural GDP 1980-1986	Total exports $ value 1981-1987	Total imports $ value 1981-1987
United Arab Emirates	5.22	-1.29	-4.96	11.38	-2.90	-2.57
Kuwait	5.13	2.53	-0.06	12.47	-9.79	-2.41
Oman	4.20	3.09	-2.42	–	1.09	9.76
High-income	4.89	1.73	-2.47	11.53	-6.01	-1.17
Libya	3.86	-0.85	-5.75	5.65	-16.21	-3.56
Iran	2.88	0.38	–	–	1.71	-0.84
Saudi Arabia	4.13	1.94	-5.62	9.54	-17.50	-4.65
Iraq	3.54	-0.41	–	–	-13.88	-9.56
Oil exporters	3.25	0.56	-5.88	8.47	-15.43	-5.43
Cyprus	1.15	-1.23	5.43	1.30	3.02	3.29
Eygpt	2.40	1.37	4.90	1.62	6.99	21.66
Syria	3.66	0.45	1.90	-1.55	13.65	-6.78
Turkey	2.08	0.28	5.10	3.48	21.42	9.11
Lebanon	0.81	-2.43	–	–	-13.19	-6.99
Jordan	3.87	-1.00	5.59	-0.14	3.00	-0.06
Mid-income	2.38	0.59	4.64	2.34	10.33	7.41
Democratic Yemen	2.90	0.50	–	–	-2.90	0.90
Yemen	2.82	1.87	3.14	0.28	13.95	-5.59
Afghanistan	2.21	1.08	–	–	5.26	13.26
Sudan	2.91	1.18	3.54	7.44	-1.22	-9.63
Low-income	2.63	1.21	3.36	5.51	-1.34	-3.15
Near East	2.74	0.76	-1.39	3.30	-10.63	-1.10
All regions	1.99	1.34	2.60	3.79	-2.56	0.47

Country and country groups	Agricultural production 1981-1987	Agricultural production 1987-1988	Agricultural exports $ value 1981-1987	Agricultural imports $ value 1981-1987	Food imports volume 1981-1987
United Arab Emirates	0.0	0.0	-2.43	2.13	11.54
Kuwait	0.0	0.0	-2.50	1.93	6.96
Oman	0.0	0.0	3.42	6.41	15.60
High-income	0.0	0.0	-3.31	2.30	9.66
Libya	7.46	5.85	0.0	-2.51	2.45
Iran	3.18	-0.15	24.93	2.00	6.10
Saudi Arabia	7.49	32.24	6.33	-0.65	9.67
Iraq	3.44	5.37	15.85	0.01	6.79
Oil exporters	3.03	2.97	12.03	-0.70	6.68
Cyprus	-0.71	8.92	3.78	0.70	8.33
Eygpt	4.65	1.34	1.66	7.48	6.69
Syria	0.74	12.07	-1.68	4.43	16.23
Turkey	1.94	2.47	5.41	29.06	67.56
Lebanon	1.66	4.05	-8.73	-3.71	-3.15
Jordan	2.63	3.12	-6.27	1.58	1.16
Mid-income	2.16	3.46	2.28	6.02	6.97
Democratic Yemen	1.53	0.41	-1.64	-2.97	1.97
Yemen	1.47	1.79	1.92	-5.32	4.84
Afghanistan	0.77	-4.33	1.15	4.03	13.72
Sudan	1.54	12.04	-0.28	-2.78	12.00
Low-income	1.57	2.24	-0.91	-4.53	4.81
Near East	2.22	3.18	1.51	1.27	6.75
All regions	3.08	2.66	-0.37	-1.79	2.72

source: FAO

Policy reforms are needed to spur investment in Near Eastern agriculture

Faster economic and agricultural growth in the Near East will require above all increased private and public investment. In theory, these resources could come from either more domestic savings or increased foreign investment. Some policy reforms have already been adopted to stimulate both, but more will be needed. Stagnating and generally low incomes continue to limit domestic savings, and while most oil exporters enjoy good credit ratings, foreign investors are wary of indebted non-oil exporters.

Sound domestic policies to increase savings and attract official and private capital from abroad are therefore essential. Non-oil exporters need to increase their export earnings, both to generate domestic savings and to regain the confidence of foreign investors. But despite recent commodity price increases, markets remain depressed for many of the commodities that they export. Until export earnings improve, stimulating income and savings growth and improving creditworthiness, the prospects for investment will remain poor.

Agriculture is a priority for most countries of the region. A number of policy measures have already been adopted to spur the sector's development. In the oil-exporting countries, agriculture has benefited from infrastructural investments and generous farm subsidies. Non-oil countries have also adopted measures to improve producer incentives and attract private agricultural investment.

A number of other policy reforms, however, should be adopted to realize the region's agricultural potential:

- Irrigation is the key to agricultural development. Unfortunately, most countries lack the foreign exchange to finance major improvements in irrigation and sufficient foreign capital is not likely to be forthcoming. Nations must seek to go forward as rapidly as financial limitations permit, making investments with care to ensure maximum returns.
- Policy measures which improve the profitability of farming should be adopted, particularly those which raise producer prices and reduce input costs. Institutional reforms to protect farmers from such problems as environmental degradation, drought and desertification should also be intensified. These measures, of course, would raise farm incomes, spurring domestic savings and investment. Even more important, they would attract more foreign investment.
- Strengthening and streamlining research and extension services could produce substantial improvements in agricultural production and rural living standards, and would also have a positive effect on investment. Better research and extension in the Near East could resolve many technical constraints on increased output, at a relatively low cost, since many improved farming practices and technological advances simply have not yet got to the farmers because of severe shortages of qualified research and extension staff.
- Finally, several countries in the region need to improve their capacity to formulate, execute and monitor agricultural development plans, policies, programmes and projects. Inadequate ability to perform these functions often prevents them from making desirable agricultural investments.

and employment, depressing real wages. Interest rates have risen, subsidies have been reduced or eliminated, and the consumption levels of the poor have fallen. Many adjustment programmes have provoked serious popular opposition; some governments are having difficulty maintaining the domestic political support needed to continue them.

Agricultural performance

Agricultural output rose 3.2 percent in 1988, after stagnating in 1987. This regional average, however, masks divergent trends: several countries that had experienced sharp drops in agricultural output in 1986 made strong recoveries in 1987. Preliminary estimates predicted a 32 percent increase in Saudi Arabia's output, although later figures may show this to have been somewhat exaggerated. The Sudan and Iraq also made strong recoveries, primarily because of good cereal harvests. In countries such as the Syrian Arab Republic, Yemen and Turkey, where about 70 percent of cultivated land is rainfed, agricultural production slipped in 1987, mainly because of unfavourable weather. In 1988, output improved with the return of more favourable weather. Egyptian production was more stable, thanks to its extensive irrigation, although even Egypt is vulnerable to drought—in 1988, production suffered from water shortages in the Nile's catchment area.

REGIONAL REVIEW

Chapter 5
EASTERN EUROPE AND THE USSR
The impact of economic reform

The Soviet Union's far-reaching programme of economic reforms, which began in 1985, gave a powerful new impetus to similar policy changes in Eastern Europe, notably in Hungary, Bulgaria and Poland, where important initiatives had already begun. The new course of Soviet policy has radically changed the economic and agricultural environment, influencing the functioning of all the centrally planned Eastern European economies.

The overall economic situation

Economic growth has continued although Net Material Product (NMP)[1] growth in Eastern Europe and the USSR fell in 1987 to 2.6 percent, after having risen an average of nearly 4 percent per year between 1983 and 1986 (Table 2.5). NMP expansion slowed in all countries except Hungary, although Bulgaria's rate remained a healthy 5.1 percent, only slightly below 1986's impressive 5.3 percent. Poor agricultural performance was a major reason for this overall slowdown in 1987's NMP growth, because it also depressed industries which process agricultural products.

Consumer prices continued to increase slowly in the USSR (1.6 percent) and barely in Czechoslovakia (0.1 percent) in 1987. Poland's already high price inflation worsened considerably, from 17.3 percent in 1986 to 26 percent in 1987; it is believed to have surged again in 1988. Hungary's inflation also increased in 1987, from 5.3 percent to 8.6 percent. In both countries, these increases were partly the result of price policy reforms.

The region's export volumes increased faster than overall output in 1987 (3.1 percent), but more slowly than in 1986 when they had grown by 5.0 percent. Import volumes again fell, reflecting strong contraction in Soviet and Romanian import demand. As a consequence of these changes, the region returned to its traditional positive balance of trade, after the deficit of 1986.

Provisional 1988 major economic indicators suggest a strong upsurge in economic activity for the region as a whole after the poor performance in 1987. Growth in output for the first half of 1988 was estimated at around 4.8 percent on an annual basis, with industrial production rising 4.6 percent. If maintained, this would represent the highest growth rate of the 1980s.

Despite this growth, problems remained on the road to reform, with structural changes for industry proceeding less rapidly than planned. The significant increase in investment underlying 1988's recovery in product growth was not accompanied by commensurate gains in productivity. In the USSR, the implementation of economic reform programmes continues to encounter a variety of obstacles, most notably in the area of factory management, which has had difficulty in adapting to the decentralization of decision-making at present under way.

Agricultural production in 1987

The agricultural production of Eastern Europe and the USSR declined in 1987 for the first time since 1981. The drop was moderate (-1.0 percent) in the USSR, but severe (-3.4 percent) in Eastern Europe (Table 2.6). Regional crop output fell almost 3 percent, while livestock production increased slightly. Overall, cereal output remained virtually unchanged. Declines were sharpest for potatoes (-10 percent) and fruit (about -20 percent).

Bulgarian agricultural output declined 4.5 percent in 1987, as a result of particularly unfavourable weather conditions, similar to those that had damaged output even more severely in 1985. Output of all major crops dropped significantly in 1987, while livestock production was stable. Cereal output is highly dependent on rainfall in Bulgaria. In response to this problem, the government allocated significant additional resources in 1988 to develop and expand irrigation.

1. NMP of the centrally planned economies differs from GDP, since it excludes the value of consumption of fixed capital and of services such as public administration, personal and professional services, etc.

Table 2-5. Eastern Europe and USSR, annual changes in selected economic indicators, 1981-1987 (%)

	1981	1982	1983	1984	1985	1986	1987
Net material product [1]							
Bulgaria	5.0	4.2	3.0	4.6	1.8	5.3	5.1
Czechoslovakia	-0.1	0.2	2.3	3.5	3.0	2.6	2.0
German Democratic Republic	4.8	2.6	4.6	5.5	5.2	4.3	3.6
Hungary	2.5	2.6	0.3	2.5	-1.4	0.9	2.3
Poland	-12.0	-5.5	6.0	5.6	3.4	4.9	2.0
Romania	2.2	2.7	3.7	7.7	5.9	7.3	4.8
USSR	3.3	3.9	4.2	2.9	3.5	4.1	2.3
Eastern Europe and USSR	1.7	2.8	4.1	3.6	3.5	4.2	2.6
Consumer prices							
Bulgaria	0.4	0.3	1.4	0.7	1.7	3.5	...
Czechoslovakia	0.9	4.7	1.1	0.9	1.3	0.4	0.1
German Democratic Republic	0.2	–	–	–	-0.1	–	–
Hungary	4.6	6.9	7.3	8.3	7.0	5.3	8.6
Poland	24.4	101.5	23.0	15.8	14.4	17.3	26.0
Romania	2.0	17.0	5.5	0.9	-0.4	-0.1	–
USSR	1.4	3.4	0.7	-1.3	0.7	2.0	1.6
Eastern Europe and USSR	...	...	...	...	...	...	...
Export volumes							
Bulgaria	8.4	11.3	4.4	11.6	3.9	-5.5	3.3
Czechoslovakia	0.5	6.1	5.7	8.5	2.6	1.8	3.7
German Democratic Republic	8.4	5.4	10.6	2.1	2.1	0.5	0.8
Hungary	2.6	7.3	9.4	5.8	-0.3	-2.2	3.7
Poland	-19.0	8.7	10.3	9.5	1.3	4.6	4.6
Romania	11.3	-8.3	3.2	15.9	0.3	8.9	-3.2
USSR	1.9	4.5	3.3	2.5	-4.0	9.3	4.2
Eastern Europe and USSR	1.4	4.8	5.4	5.5	-0.9	5.0	3.1
Import volumes							
Bulgaria	9.3	3.2	5.2	5.6	11.7	-3.8	1.8
Czechoslovakia	-6.9	2.9	2.0	4.8	4.6	2.9	4.3
German Democratic Republic	-1.3	-4.7	5.3	3.6	3.1	4.7	2.3
Hungary	0.1	-0.1	3.9	0.1	1.1	2.1	3.2
Poland	-16.9	-13.7	5.2	8.6	7.9	3.6	4.9
Romania	-7.2	-22.4	-3.8	10.5	8.5	15.0	-17.6
USSR	6.4	9.7	4.0	4.4	4.6	-5.0	-2.2
Eastern Europe and USSR	-0.1	1.3	3.7	4.9	5.3	-0.6	-0.8

[1] The aggregate Net Material Product for the centrally planned economies differs from Gross Domestic Product primarily in excluding the value of consumption of fixed capital and of non-material services such as public administration and personal and professional services and similar activities.

source: UN/ECE, ECONOMIC SURVEY OF EUROPE IN 1987-88, NEW YORK,1988

In Czechoslovakia, agricultural production declined 11.2 percent in 1987 despite improved output of cereals and oil-bearing crops. The government has given top priority to grain crops, enabling the country to reduce drastically grain imports, especially imports of feed grains. Economic reforms currently under way include a major restructuring of management and productive organization of farming and agricultural processing. The government hopes this will improve both cost-efficiency and the incentives for farming activity.

In the German Democratic Republic, agricultural production was stable in 1987. Cereal output declined slightly from 11.7 million tons in 1986 to 11.5 million tons in 1987. At 45-46 quintals per hectare, however, average cereal yields remained

high by international standards. While elsewhere in Eastern Europe market-oriented reforms go forward, in June 1987 the Government of the German Democratic Republic reaffirmed its continued commitment to cooperatives and state farms. The government has also emphasized the need for agricultural intensification in order to conserve natural resources and preserve the environment.

Hungarian agricultural output was also stable in 1987. Cereal production, which reached its peak in 1984 (14.1 million tons), continued its decline mainly because of decreasing yields. The government planned to reduce the area under wheat in 1988, and increase that of maize and feed crops by the same amount. In September 1987, Parliament adopted the Triennial Stabilization Programme which aims to improve the Hungarian economy's openness and responsiveness to world market conditions. The programme, based largely on price and tax reforms, became operational in January 1988.

After seven years of continuous expansion, agricultural production in Poland decreased by 3.6 percent in 1987, mainly because of unfavourable weather conditions. The long, cold winter destroyed about 25-30 percent of the orchards. As a result, fruit output declined by almost 50 percent. Cereal production, however, increased to a 26 million ton peak. Economic reforms seeking to make agricultural prices more responsive to market forces have cut agricultural subsidies drastically. Subsidies of farming inputs of industrial origin will also be reduced gradually.

In Romania, total agricultural production fell by 1.4 percent in 1987, continuing wide fluctuations in annual output, but substantially improved cereal yields led to another record harvest—over 30 million tons. This brings the total increase in cereal output over the past two years to 36-37 percent. Romania's 1988 plan intends to increase significantly total agricultural production. Increased areas and the introduction of improved hybrid seeds should result in even higher cereal output. The plan also hopes to expand the output of livestock products, through larger herds and improved breeding efficiency. The goal of paying off the nation's large foreign debt by 1990, however, is a serious investment constraint. By mid-1987, the debt had been reduced to US$3 000 million; the government intends to cut it further by continuing to expand exports and ration consumption of energy and all main food products.

Agricultural production in the USSR was stable in 1987, following the good harvests of 1986. Crop output fell in 1987, but this was offset by an increase in livestock production. Despite a slight decline in total agricultural output, a good cereal harvest of 211.3 million tons was achieved, up from 210 million tons in 1986. This marked the first time that grain output exceeded 200 million tons in two consecutive years. These relatively large harvests were achieved despite bad weather in some areas in both years. A harsh winter and wet summer hampered sowing and harvesting, thereby impeding the realization of 1987's production target of 232 million tons. The increases in Soviet cereal output of 1986-87 were achieved exclusively through higher yields; the area sown decreased between 1981 and 1987 at an annual rate of 1.0 to 1.5 percent. Nevertheless, at 18 quintals per hectare, cereal yields in the USSR are still the lowest in the region. Sugar-beet production increased 13 percent in 1987, and more sunflower seed was produced than in over a decade—up 15 percent from 1986.

The steady growth of USSR livestock output of recent years continued in 1987, with total meat production increasing more than 3 percent. Some reduction in livestock numbers occurred, largely due to economic and management reforms which have induced farmers to slaughter less productive stock.

USSR economic reform has introduced sweeping changes in agriculture. The nation's agricultural administration was restructured, beginning in November 1985. A comprehensive package of policies was introduced in March 1986 to streamline management of the agro-industrial complex and improve performance. It included wage incentives, bonuses and credit, as well as new rules for the operation of the agricultural economy. The reform process was accelerated in 1987, with the establishment of a closer link between output and income and the adoption of profitability as a basic criteria for farm operations. Centrally fixed targets are giving way to more local independence and responsibility for planning, investment and financial control.

1988 production estimates for Eastern Europe and the USSR

Preliminary estimates for 1988 show a weak recovery in total agricultural and food production in the region (Table 2.6). Output of non-food products, especially cotton, however, increased substantially. Most individual countries performed at close to the

Table 2-6: Eastern Europe and USSR, annual changes in agricultural and food production, 1985-1988 (%)

	1985	1986	1987	1988[2]
Agricultural production				
Bulgaria	-11.6	11.4	-4.5	3.7
Czechoslovakia	-0.1	3.7	-11.1	-0.6
German Democratic Republic	6.1	2.6	0.4	1.4
Hungary	-5.8	1.6	0.2	1.0
Poland	2.3	6.4	-3.6	0.2
Romania	-5.7	13.5	-1.4	-3.1
USSR	0.7	6.6	-1.0	1.6
Eastern Europe and USSR[1]	0.5	7.3	-2.0	1.1
Food production				
Bulgaria	-12.0	12.9	-5.7	3.9
Czechoslovakia	-0.1	3.9	-11.2	-0.6
German Democratic Republic	6.3	2.9	0.1	1.3
Hungary	-5.8	1.6	0.1	1.0
Poland	2.1	6.5	-3.3	0.5
Romania	-5.7	13.7	-1.4	-3.3
USSR	0.2	7.3	-0.7	1.4
Eastern Europe and USSR[1]	0.1	7.9	-1.9	0.9

[1] Including Albania
[2] Preliminary

source: FAO

regional average. The only exceptions to this were Bulgaria, where production recovered significantly from 1987's setback, and Romania, which suffered even worse crop shortfalls than those of the previous year.

Regional cereal production fell again in 1988 to an estimated 287 million tons, almost 17 million tons less than 1986's record output. Wheat production increased by about 4 percent, but coarse grains declined by about 10 percent. In the USSR, preliminary figures suggest a decline in the grain harvest to 195 million tons, after two consecutive years in which output exceeded 200 million tons. Despite this decline, however, production remained above the average level of the early 1980s. The shortfall occurred largely because of drought in the Volga river basin and floods in the central Asian republics.

Several countries in the region, in particular Bulgaria and Romania, and to a lesser extent the USSR, continue to be subject to pronounced year-to-year fluctuations in food and agricultural output. Good harvests tend to alternate with bad ones, producing long-term stagnation or at best very slow growth in agricultural production during the 1980s. The German Democratic Republic has been a notable exception: it has maintained a fairly steady growth rate in agricultural output (2 percent per year) during the 1980s—the highest in the region.

Main issues in economic and agricultural policy

The pace of economic reform quickened in 1987 in most countries of the region. Awareness continued to grow that economic and social progress require even greater changes in the way Eastern European economies function. Centralized planning, management and resource control are giving way increasingly to market incentives, albeit that the pace and scope of this process differs. Reforms in agricultural management have been particularly far-reaching in most countries.

The changes taking place in the USSR are very important. Economic enterprises are acquiring more and more autonomy, as the traditional mandatory planning indicators based on production targets are replaced by a more limited scheme of state orders. In Hungary, changes in macro-economic planning and enterprise management were accompanied by the introduction of a value-added tax for enterprises and a progressive personal income tax. In Poland, a

radical phase of economic reform is under way. This initially included an extensive restructuring of the price system, but consumer resistance forced the government to slow down the pace of reform. Poland's high foreign debt also continues to restrain the pace of economic reforms. In Bulgaria, enterprises are freer to set prices, salaries and targets, and a total reform of the pricing system is on the national agenda. Major reforms are also taking place in Czechoslovakia, which is attempting to restructure its economy and improve economic management. The government is examining ways to make enterprises responsible for their own financing, and to give them more independence regarding production decisions. Only the German Democratic Republic and Romania have not announced major alterations in their economic and management systems.

As regards agriculture, policy-makers of the region currently emphasize the following areas for priority action:

- Decentralization of decision-making and greater attention to market forces. The main thrust of the reforms is to increase production through gains in productivity brought about by a radical restructuring of agricultural management. Decision-making is being decentralized, economic incentives are being strengthened, and greater reliance is being given to market mechanisms.
  An intense debate is also under way on how to reduce consumer subsidies, which have kept most basic foodstuffs prices lower than production costs, putting an undesirable burden on the state. Price reform cannot be too rapid, however, as it is inevitably inflationary and in some countries potentially destabilizing. Excessively rapid removal of subsidies could also have negative effects on savings, wages, pensions and the functioning of taxation systems. The experiences of Hungary and Poland, where cuts in subsidies aggravated inflation, illustrate the need for caution when undertaking such reforms.
- Opening contacts with international markets. This can be achieved only if competitiveness *vis-a-vis* western markets improves. This in turn will require price reforms and full convertibility of currencies.
- Self-sufficiency in food and agriculture. Food security is a major goal of all countries of the region. The need to reduce imports is particularly compelling in the light of the severe foreign exchange shortages they face.
- Modernization of agriculture. Across the region, governments are recognizing the need for major efforts to overcome backwardness through the introduction of modern farming technology.
- Sustainable agriculture and environmental protection. The need to increase production puts additional pressure on the environment. Governments recognize that they must develop the capacity to increase output while respecting ecological limits, if such production increases are to be sustainable over time.

REGIONAL REVIEW

Chapter 6

THE DEVELOPED MARKET ECONOMIES

Supply of agricultural products in the developed market countries continued to exceed demand in 1987. Prices were low, especially for cereals and oilseeds, although dairy and meat prices strengthened a little as production controls began to take effect. Real farm incomes declined, despite increased assistance, and above all price supports. In all countries, calls for reform continued to grow as policy-makers recognized the need for freer agricultural markets and better international policy coordination.

In 1988, markets for most temperate-zone agricultural commodities changed dramatically. Output dropped sharply and prices rose significantly, especially for cereals, oilseeds and dairy products. These changes resulted mainly from the drought in North America and from supply adjustment measures introduced by the EEC and some industrial countries. Developed countries' agricultural export earnings rose, and stocks, especially of cereals, were sharply reduced.

The 1988 decline in agricultural, especially food, output extended to most of the developed market economies. Of the major subgroups, only Oceania and the non-EEC countries of western Europe increased output (Table 2.7).

Despite 1988's more balanced supply/demand situation and tighter agricultural markets, policy-makers remained concerned about the high cost of the price supports and subsidy programmes used extensively to support farm incomes. Interest continued to grow in shifting the emphasis of agricultural policies away from farm income support toward environmental objectives, such as compensation for reducing land use and assisting farmers on marginal land in finding alternative employment.

The outlook for 1989 is for reduced crop supplies, firm demand and higher agricultural prices. Some expansion in output may occur in the second half of the year, however, should favourable weather return to the major producing countries, halting the reduction of stocks. World supplies of animal products are expected to remain large, and livestock price increases will be modest as a consequence.

The United States of America

The United States' agricultural production declined for the third consecutive year in 1988. A sharp fall of 10 percent in food output reflected the devastation of the cereal harvest (down 29 percent) caused by the most severe and widespread drought in 50 years. Non-food production declined moderately, following 1987's 34 percent increase. The exceptional output of 1987 had resulted from record cotton yields.

Agricultural exports continued to expand in crop year 1987/88 (October-September) despite the stronger dollar and the drought. Soybeans remained the most important agricultural export commodity. Wheat exports increased sharply, more than any other commodity. Exports of high-value products such as grapefruits, tree-nuts, raisins, feeds and fodders reached record levels.

Wheat export values rose 55 percent—reflecting increases in both prices and volume. Wheat export volumes increased by 12 million tons. Exports to the USSR more than doubled to a record 9 million tons; those to China rose by 5 million tons. Exports also increased to Latin America and Eastern Europe. Wheat exports were encouraged by the implementation of the 1985 Food Security Act, in particular by the Export Enhancement Programme (EEP) which awards large bonuses to exporters for sales to some nations. In 1987/88 bonuses were US$32 per ton for wheat sales to the USSR and $42 per ton for sales to China, with an average selling price of $106 per ton.

The value of agricultural imports also expanded in 1987/88, to a record US$21 000 million. Price increases accounted for nearly all of the higher import values.

The drought did not cause the sharp increases in consumer prices for food that had been feared. The 1988 consumer price index for food increased 4.1 percent—about the same as in 1987. Food supplies

Table 2-7: Developed market economies, annual changes in agricultural, food and non-food production, 1985-1988 (%)

	1985	1986	1987	1988[1]
Agricultural production				
Developed market economies	2.0	-1.9	-0.9	-4.6
North America	5.9	-5.2	-2.8	-11.2
USA	4.9	-6.3	-1.6	-9.6
EEC (12 countries)	-1.6	0.5	1.5	-0.7
Other western Europe	-4.7	3.5	-5.7	1.0
Oceania	2.9	0.9	-0.7	3.8
Japan	0.5	-0.2	-4.5	-1.7
Food production				
Developed market economies	1.9	-1.5	-1.5	-4.9
North America	6.1	-4.4	-4.1	-11.6
USA	5.4	-5.2	-3.3	-10.1
EEC (12 countries)	-1.7	0.5	1.6	-0.7
Other western Europe	-4.8	3.4	-5.5	1.0
Oceania	1.0	1.1	-1.3	2.2
Japan	0.9	-0.1	-4.4	-1.7
Non-food production				
Developed market economies	4.5	-11.6	12.7	2.6
North America	0.9	-23.3	32.9	-2.8
USA	-3.0	-25.0	34.4	-2.1
EEC (12 countries)	4.9	3.6	-6.7	1.3
Other western Europe	6.1	12.4	-21.9	7.2
Oceania	12.9	-0.3	1.8	11.1
Japan	-7.2	-3.4	-7.1	-0.5

[1] Preliminary

source: FAO

remained ample, in part because of plentiful supplies of red meat and poultry.

In the light of supply cuts caused by the drought, the government in 1989 lowered the land area reduction requirements for participation in farm support programmes for most crops. For wheat, the requirement for participation in the Acreage Reduction Programme (ARP) was reduced from 27.5 percent of planted land area to 10 percent; for maize from 20 percent to 10 percent. The paid land diversion (PLD) was reduced from 10 percent to zero.[1]

Higher prices expected in 1989 should encourage agricultural production. Even though most drought years have been followed by good years, the 1989 season was off to an unfavourable start, and both domestic and international demand are expected to be strong. Thus stocks are not likely to be rebuilt rapidly, and prices will remain high.

The European Economic Community

EEC agricultural production declined slightly in 1988, according to preliminary estimates. This was the result of an overall drop in output of roots, tubers, oilcrops, fruit and milk, which more than offset increases in cereals, sugar and pulses. Cereal output among the 12 EEC members is estimated to have risen by about 7 percent to 167 million tons. If

1. Both PLDs and ARPs are voluntary, but only participating farmers qualify for deficiency payments and commodity loans. ARPs are uncompensated, whereas PLDs pay producers for idled land area.

this estimate holds, production will exceed the Community's 160 million ton "trigger level", thereby reducing guaranteed prices by 3 percent for the 1989/90 season. Harvests were particularly good in the Federal Republic of Germany, Spain and France.

Milk production fell nearly 4 percent in 1987 and another 2 percent in 1988. This, plus increased consumption of fresh milk and expanded output of cheese and whole milk powder, caused butter and skim milk powder production to drop sharply. Sugar output decreased nearly 7 percent in 1987 as a result of lower yields and a 3 percent reduction in cultivated area. Despite further reductions in beet land area, output was estimated to increase 3 percent in 1988. Production of oil-bearing crops also fell by more than 5 percent in 1988, from 1987's record output of almost 6 million tons oil equivalent, an increase of more than 40 percent over 1986.

Policy issues

The Common Agricultural Policy (CAP) of the European Economic Community is the Community's largest budget item. EEC agriculture is highly subsidized, and most of the CAP is concerned with various farm support programmes. The high costs of the CAP have led to calls for reform in the 1980s. This section reviews the major elements of the CAP and the types of changes taking place.

Production quotas for dairy products and sugar

To maintain market balance and to restrain overproduction in the milk sector, the EEC employs:

- a production quota introduced in April 1984;
- a flexible price support policy which includes a coresponsibility levy on producers.

The system sets a production limit for each farmer or dairy. If the producer exceeds his limit, he must pay a levy on the overproduction equal to 100 percent of the target price.

Following an agreement reached in December 1986, the Community reduced milk quotas by 8.5 percent during the period 1987-89. The EEC also adjusted the system of penalties for overproducing farmers, with the aim of reducing output by 9.5 percent. Despite these efforts, however, current quota levels (96 million tons) still exceed unsubsidized sales of dairy products by a wide margin. Such sales have averaged only about 73 million tons in recent years. In March 1987 the Community also began limiting its intervention purchases of butter and skim milk powder.

Milk production has fallen from 129 million tons in 1983 to 120 million tons in 1988. This decline, together with drastic measures of surplus disposal, has nearly eliminated government-held stocks of skim milk powder; they fell from 708 000 to 13 000 tons between October 1987 and October 1988. Butter stocks also fell substantially—from 1 006 000 tons to 83 000 tons—during the same period. The 80 percent reduction in butter stocks was largely the result of subsidized sales to the USSR and to animal feed manufacturers. Dairy cow herds were cut by some 8 percent between 1983 and the end of 1986, to 23.9 million head, with an expected overall reduction of some 17 percent by the end of 1988.

As a consequence of these events, EEC spending on the dairy sector is expected to decline to 4.9 billion European Currency Units (ECUs) in 1989. While still high, this represents an 18 percent decline from the 6 billion ECU spent in 1987.

To control sugar production, the Community has imposed output quotas on each member nation, which in turn are allocated to refineries. These quotas[2] are fixed for five years, beginning with crop year 1986/87, and forward planning is required of farmers and processors. To contain costs, the system is self-financed. Each year, the costs of disposal of surpluses on world markets are passed back to producers through a special levy, which in 1987/88 was about 3.2 percent of the intervention price. Since the establishment of the EEC sugar regime in 1981/82, producers have had to pay the costs of losses resulting from the disposal of their "C" quota sugar—surplus production sold on world markets. On sugar exported up to the quota, producers receive export restitutions. Since quotas will remain fixed until 1990/91, EEC producers will continue to be insulated from most international price fluctuations. They will feel the direct effect of fluctuations only for "C" quota production. This in turn may encourage growers to produce more sugar.

The Community also imports 1.4 million tons of sugar per year—almost 13 percent of its annual consumption—from India and countries included under the Lomé Convention. These imports, part of the EEC's development commitment, are fixed at

2. The EEC has two sugar quotas which benefit from minimum price guarantees. The "A" quota corresponds to the Community's estimated consumption. The "B" quota, designed to assure an extra margin plus some surplus, is defined as a varying percentage of the "A" quota. Sugar produced in excess of this amount is referred to as non-quota or "C" quota sugar; it is not eligible for export subsidies or price support. It may not be sold in the EEC.

EEC prices, but Community producers may re-export them in addition to their "A" and "B" quota exports, and may receive export restitutions.

Cereal and oilseed policies

Over the past decade, the EEC has gone from being the world's leading importer to being the second largest exporter of cereals. Cereal production expanded dramatically because of technological innovations and, above all, high price supports. The Community's farm budget spends more on the cereal sector than on any other except the dairy sector. It rose almost threefold between 1984 and 1987.

In 1986, in order to reduce output and cut budget costs, the Community began a major reform of its policies regulating cereal markets by:

- reducing intervention prices;
- introducing a coresponsibility levy on cereal production exceeding reference levels;
- modifying intervention arrangements, which previously bought cereals only when the average Community market price was below the intervention price; and
- tightening the criteria which qualify cereals for intervention.

In February 1988, the Community tightened up further by introducing a "budget stabilizer" which set a 160 million ton "maximum guaranteed quantity" for each of the four marketing years beginning with 1988/89. An additional 3 percent coresponsibility levy (reimbursable if the 160 million ton threshold is not exceeded) was imposed. Furthermore, should the threshold be exceeded, the intervention price for the following year will fall 3 percent automatically.

The Community has also adopted other means to discourage cereal production. For example, farmers are exempted from basic coresponsibility and other levies if they take at least 30 percent of their arable land out of cereals.

The Community is the world's leading importer of oilseeds and oilseed products, such as oilcake for feed uses. There are no import restrictions on such products, except for some low customs duties.

Oilseed output expanded by 90 percent between 1984 and 1987, but still represents only some 2 percent of total EEC agricultural production. The Community sets target prices for soybeans, sunflowerseed and rapeseed, and growers are paid the difference if world market prices fall below them. The cost of such support has been growing rapidly, from 1 700 million ECU in 1984 to well over 4 000 million ECU in 1987, making oilseeds the third biggest item of the farm budget after dairy and cereals.

The new oilseeds stabilizer mechanism agreed to in February 1988 cuts the target price automatically whenever production exceeds the "maximum guaranteed quantity" (2 million tons for sunflowerseed, 4.5 million tons for rapeseed and 1.3 million tons for soybeans). For every 1 percent of production above these limits, prices will be cut by 0.45 percent in 1988/89 and 0.5 percent in each of the following seasons up to 1990/91. There is no limit to potential price cuts, which will be directly proportional to overproduction. Furthermore, cuts are made in the same marketing year as the overproduction and not, as for cereals, in the following season.

Recent policy developments

Massive oversupply of agricultural products and, above all, the high cost of maintaining the Common Agricultural Policy led, at the February 1988 Brussels Summit, to reforms of the CAP and the Community's system of finance. Community leaders adopted a series of measures to solve the immediate budget crisis, increase revenues in the mid-term, provide additional funds for structurally weak areas and impose a ceiling on total expenditures for agricultural price supports. To contain the 1987 budget deficit, price support increases were postponed until 1988. In addition to the measures on specific crops discussed above, the Community's total expenditure was limited to 1.2 percent of GNP. Growth of spending on agriculture was capped at 74 percent of Community GNP growth. The Brussels agreement also covered programmes for early retirement of farmers, and measures were adopted to promote the development of less-favoured, mountain and hill areas. New environmental regulations were also introduced.

Canada, Oceania and Japan

Following a major shortfall in 1987, Canadian agricultural output dropped again (by 12.6 percent) in 1988. Cereal output fell by almost 36 percent, bringing the cumulative decline during 1987-88 to nearly 47 percent. Below-average rain and high temperatures affected most crops sown in the spring of 1988 in the southern prairies. Livestock producers were affected by poor range and pasture conditions, as well as rising feed costs.

The Canadian Government remains committed to the liberalization of agricultural policies, especially

as they relate to grains. Feedgrain price changes are fully transmitted to the livestock sector to ensure better allocation of resources between commodities. Dairy support prices, however, have been increased.

Recently, the government has intervened to support incomes and stabilize prices, but these short-term measures have been costly. Grains and oilseeds have been the most favoured crops. The Special Canadian Grains Programme was announced in December 1986 to provide direct income support to farmers hurt by declining world prices. The programme was extended for the 1987/88 crop.

The Free Trade Agreement concluded with the United States in early 1988 will drastically liberalize trade, including agricultural trade, between the two countries. All tariffs and some non-tariff barriers will be eliminated by the year 2000. Since most of the agricultural trade between them consists of fruit and vegetables, these areas will benefit most from the agreement.

Australian food output increased by about 4 percent in 1988. The rise in non-food production was much larger (15.3 percent), stimulated by continuing strong demand for wool. Cereal output rose 11 percent, recovering somewhat from a severe setback in 1987. Nevertheless, the overall trend for the 1980s remains one of stagnation in cereal output. Meat production remained virtually unchanged, but milk output rose by 5 percent—twice the average growth rate of the 1980s.

Average farm income was expected to rise 68 percent in 1987/88, primarily because of increased revenues from wool, pay-outs from past wheat crops, and higher beef and dairy prices. Farm costs were expected to rise somewhat, mainly because of higher interest payments. The rise in farm income helped reduce average farm debt in both 1986/87 and 1987/88. Nominal land values started to climb again after having fallen for several years in a row.

High levels of support to the Australian dairy sector continued, but new marketing regulations were introduced in 1986 to begin phasing down discriminatory domestic prices and to improve the response of individual exporters to market signals. Tariffs were reformed on imports of fresh and processed vegetables, and many input subsidies were reduced or removed. All other major commodities were already largely exposed to world market prices.

New Zealand food production was stable in 1988, remaining at the level of 1987. Non-food output increased only marginally. In 1988, the farm sector suffered severely as a result of the worst drought in history, which imposed heavy financial losses and cost the sector an estimated 11 000 jobs.

Since 1984 the New Zealand Government has introduced a wide range of liberalizing reforms to improve competition and the allocation of resources between sectors, including agriculture. The government has reduced compensation to farmers for low agricultural prices and natural disasters, and since 1986 there have been no new government- or consumer-funded price and income supports for major commodities. As a consequence, both budget expenditures and farm incomes have declined gradually.

The New Zealand Government has, however, introduced measures to promote the restructuring of agriculture and to protect farmers from its effects. For example, the Rural Bank Discounting Scheme was introduced to improve farmers' equity positions and to help farmers who are no longer economically viable to leave the land. New Zealand has also seen some productive diversification, with new products such as deer meat and kiwi fruit increasing in importance.

After having declined 4.5 percent in 1987, Japanese agricultural production decreased a further 1.7 percent in 1988. Once again, the shortfall was primarily a result of significant declines in cereal production. Livestock output increased slightly, after stagnating in 1987.

Japan is the world's largest net importer of agricultural products, and the government has no export subsidies. In recent years, Japan has helped reduce tensions over international agricultural trade by opening its import markets, for example for beef. The basic orientation of agricultural policy is to reduce public support, improve farm structures and increase productivity. Policies are being introduced to reduce domestic prices and production, especially in the dairy, meat and cereal sectors.

PART THREE

SUSTAINABLE DEVELOPMENT AND NATURAL RESOURCE MANAGEMENT

SUSTAINABLE DEVELOPMENT AND NATURAL RESOURCE MANAGEMENT

Introduction

THE NATURE OF THE PROBLEM

Development that destroys the natural resources that sustain it is not development... In its 1987 report *Our Common Future* the World Commission on Environment and Development (the Brundtland Commission) emphasized the central necessity of agricultural sustainability.[1] This was an important step, above all because it reflected growing awareness among political leaders of the need to promote environmentally sound development.

Environmental damage hurts everyone, but above all it hurts the rural poor in developing countries, who depend most immediately on the natural habitat for their survival. The poor are also the first to suffer when access is restricted to overexploited or degraded resources. Top priority needs to be given, therefore, to promoting sustainable development, particularly sustainable agricultural production systems. Increasing agricultural, forestry and fishery output today at the cost of degraded soil, ravaged forests and depleted fish stocks tomorrow must be seen as the antithesis of development.

While consensus has grown around this principle, much remains to be done to ensure that it influences development promoted by governments and international agencies. Today's challenge is to reach a consensus on prerequisites for sustainable agriculture, to build a solid phalanx of national and international political support for clearly defined, well-understood objectives, and to put them into operation. A key objective for both developed and developing countries must be the better integration of environmental considerations into agricultural and economic policies. In the case of many developing countries a complementary objective must be the slowing down of population growth.

What is "sustainability"? What is to be sustained? Economists might stress sustaining economic growth and consumption levels of food, firewood and other necessities. Ecologists and biologists might argue that it is the biosphere that needs to be sustained. They would seek to preserve above all genetic and biological diversity. Anthropologists and sociologists might stress demands on the environment that are culturally determined. For example, cultural preferences for meat and crop foods sometimes promote deforestation and soil depletion, while preferences for fish may put pressure on the marine environment. Some critics would go much further and argue that what we are really proposing to sustain is the present international division of wealth and power, which imposes different—and inequitable—environmental demands on rich and poor countries. Most will agree, however, that the concept of "sustainability" also includes ethical considerations: what happens today carries implications for generations as yet unborn.

The problem of defining sustainability can complicate the construction of a global effort: it is difficult to make long-term strategic and policy choices in favour of a concept that is not clearly defined, or for which no universally accepted definition exists. FAO has therefore formulated its own definition, which was approved by the FAO Council in 1988. It states:

> "Sustainable development is the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable."

Fortunately, most environmental threats to food production would fit any definition of what needs to be sustained. Moreover, despite their differences on how to define sustainability, the economist, the ecologist and the anthropologist would all agree that

1. The World Commission on Environment and Development (WCED), *Our Common Future*, Oxford University Press,1987. The sustainability concept first came into prominence in 1980, with the World Conservation Strategy of the International Union for the Conservation of Nature and Natural Resources (IUCN).

Alternative definitions of sustainable development

"Development which meets the needs of the present without compromising the ability of future generations to meet their own needs ..." (*WCED*, 1987, p.43)

" ... sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both currrent and future potential to meet human needs and aspirations." (*WCED*, 1987, p. 46)

"Sustainable development ... is a pattern of social and structural economic transformations (i.e. 'development') which optimizes the economic and other societal benefits available in the present without jeopardizing the likely potential for similar benefits in the future." (R. Goodland and G. Ledec, Neoclassical Economics and Principles of Sustainable Development, *Ecological Modelling*, Vol. 38, Nos. 1/2 1987)

" ... development that maintains a particular level of income by conserving the sources of that income: the stock of produced and national capital." (P. Bartelmus, Accounting for Sustainable Development, UN/DIESA Working Paper No. 8, 1987)

" ... sustainability ... the ability to maintain productivity, whether of a field, farm or nation, in the face of stress or shock." (G. Conway and E. Barbier, After the Green Revolution, *Futures*, Special issue, 1988)
(*Editorial note:* Stress implies, for example, increasing salinity, soil erosion or indebtedness. Shock could be a large increase in input or energy prices, or a rare drought.)

"Sustainable development is economic change subject to the constancy of natural capital stock—the stock of environmental assets is held constant while the economy is allowed whatever social goals are deemed appropriate." (D. Pearce, Economics, Equity and Sustainable Development, *Futures*, Special issue, 1988)
(*Editorial note:* The problem here is that the natural resource stock is not given in an operational sense. In fact, the natural capital stock cannot be held constant.)

No greater precision of definition than the above is required at the general level. At the operational level, of course, much greater precision is required. The difficulty arises less from defining the concept of sustainability, particularly in terms of natural resources, than in specifying the conditions in which sustainability breaks down.

it necessitates the reduction and reversal of these processes of environmental degradation.

Given an agreement on what needs to be done, what specific policies and programmes, at the international, regional, national and local levels, will promote sustainable development? What efforts are likely to be most effective, and where and on what population groups should they be concentrated? How do these efforts differ between developed and developing countries?

This section argues that all levels of organization and action must be joined in strategies to promote sustainable development. In particular, international, regional and national authorities should use the means at their disposal to change the incentives that shape behaviour at the local level in order to reduce or prevent damage to the environment. They should implement policies, programmes and projects that both encourage and help the rural poor to adopt agricultural and other practices that will prevent or at least minimize environmental damage.

Environmental problems are not restricted to a particular region or climatic zone. Droughts are a normal feature of agriculture in North America's Mid-West as well as in the Sahel. Longer-term climatic changes arising from the greenhouse effect are likely to affect food and agriculture in developed and developing countries alike. Even efforts to protect the environment in one country may affect others. For example, land "set-aside" programmes which conserve soil resources in the North have important implications—both positive and negative—for trade and food aid flows with the South. Furthermore, techniques and policies developed in the North to manage the environment may be inappropriate for the South.

In an interdependent world, the chain of sustainability can be only as strong as its weakest link. All nations must search for ways of attaining developmental goals without causing irrevocable environmental damage: international organizations must do their part, but so must governments and the people they represent. Governments must recognize that their use of territorial natural resources may have a regional or global environmental impact. While it is essential that FAO, other IGOs and NGOs work together to promote sustainable agriculture at the local level, this must take place in the right overall national and international context. FAO and others can help solve technical problems at the local level, but this cannot substitute for national commitment. In addition, through financial and technical assistance, rich countries can help the

Ozone depletion and the greenhouse effect

Industrialization and deforestation are altering the chemical composition of the Earth's atmosphere in ways that may already be producing climate changes that could threaten agriculture, the ecological balance and even human health.

The Earth's heat balance depends on a complicated and dynamic interchange of infrared radiation between the Earth's surface and the atmosphere. This balance is controlled by trace gases in the atmosphere that retain heat absorbed from the sun's radiation, just as glass does in a greenhouse. The best-known of these is carbon dioxide (CO_2) which occurs naturally in the atmosphere. Four other gases also absorb radiation: the chlorofluorocarbons (CFCs), methane, nitrous oxide and ozone. Methane and nitrous oxide are produced both naturally and artificially. CFCs, however, are man-made and are used mostly in refrigeration and as aerosols and solvents.

The atmospheric changes pose two major threats. The first arises because CFCs release free chlorine in the upper atmosphere which then catalyses the breakdown of ozone. This is a serious health threat because the ozone layer filters out solar ultraviolet radiation—a major cancer-causing agent. The first important international step toward protecting the ozone layer was made on 16 September 1987, when 30 countries and the EEC signed the Montreal Protocol to cut CFC consumption by half by the end of the century. The protocol came into force in 1989.

The second atmospheric threat is the greenhouse effect. Since the onset of industrialization, consumption of fossil fuels has increased dramatically, releasing massive quantities of CO_2. The concentration of CO_2 in the atmosphere has increased by nearly 25 percent since 1850. While industrialization and the associated consumption of fossil fuel are the main cause, forest fires, fuelwood consumption and deforestation also contribute to the problem.

Our ability to predict future atmospheric CO_2 concentration is limited because the carbon cycle is still not fully understood. One model, however, predicts that the CO_2 level will increase to between 1.4 and 2.0 times its pre-industrial level by the year 2050.

The exact consequences of this greater concentration of CO_2 and other trace gases remain uncertain. On the positive side is the potential boost to plant growth through the beneficial impact of higher CO_2 concentrations on photosynthesis. On the negative side is the possibility that it will limit heat loss through the "greenhouse effect". Apart from possible impacts on plant and animal life, global warming could raise sea levels as a result of the warming of the oceans, greater net precipitation and even melting of the polar ice caps. Alternatively, it could cause more water to evaporate from the Earth's surface, increasing the cloud cover which, in turn, would help block incoming radiation, perhaps mitigating the greenhouse effect.

Predicting the consequences of the greenhouse effect is difficult because models of the atmosphere must account for many interconnected and not always easily measurable factors. For example, the melting of ice and snow would feed back in ways that are difficult to predict: less solar radiation would be reflected back out into space, but increased cloud cover might block out solar radiation. Also the world's climate system may not respond in a uniform way to global warming; it might have critical thresholds at which small increases in temperature would lead to sudden major changes. We still have an imperfect idea of what such thresholds might be and what changes they might triggered off when they are reached.

Despite uncertainties, some recent studies suggest that warming has already begun and will accelerate in the years ahead. They predict that unless dramatic reductions are made in fossil fuel consumption and deforestation, the planet could warm by 1.5°C to 4.5°C over the next 50 years or so. While we cannot predict the effects of such changes on society, it is possible that drought, desertification and soil erosion will worsen. Ecological hazards such as floods, storms, forest fires and outbreaks of pests and diseases could also increase. A significant proportion of the world's most fertile and most populated areas could either be flooded or subject to drier conditions, whereas other areas could receive increased rainfall. In short, the environmental changes could pose a major, possibly calamitous, threat to the entire planet.

poorer countries find sustainable ways to develop. However, the transfer of financial resources subject to conditions perceived by the donors to promote sound natural resource management is becoming increasingly unacceptable to some recipient countries.

In recent years, environmental issues have become of increasing concern in most developed countries, partly as a result of rising awareness of the cumulative nature of certain problems, but particularly because voters have put pressure on governments to confront such problems as food contamination and water pollution resulting from unsafe and excessively intensive agricultural production methods. But this awareness has not yet assumed a global dimension. Can an international

effort to promote global sustainable agriculture succeed in the absence of such a dimension?

The developed countries cannot stand aside from the debate on sustainable development because they too need to reorient production and consumption patterns. The rich countries must find ways to pursue their economic goals without causing the present unacceptably high levels of environmental damage. Of course, environmental damage originating in the developed countries does not necessarily affect agriculture in the developing world. Neither the Cernobyl nuclear accident nor the Alaskan oil spill will have an immediate impact on Third World farmers. But other forms of environmental damage in the North will affect the South. Destruction of the ozone layer by chlorofluorocarbons, most of them produced and consumed in the North, will affect the entire world.

In the developing countries, an emphasis on the rural poor is necessary for four reasons. First, because they are the populations at greatest immediate risk from environmental degradation, whether or not they contribute to that degradation. Second, because much of the environmental damage that ultimately hurts them is brought on by destructive practices that immediate economic necessity and survival often force on them. Third, because multinational and bilateral development agencies can influence policies and programmes, affecting the rural poor directly through development projects and technical assistance. Fourth, some agencies—IMF and the World Bank in particular—as well as developed country governments, can also help to promote sustainable development by considering the environmental impact of their economic relations with the developing nations.

There are fears that environmental damage in the indebted nations may be accelerated by economic structural adjustment programmes. Natural resources may be overexploited to provide the foreign exchange needed to service debts. Structural adjustment programmes that reduce urban employment can increase population pressures in rural areas. The need to cope with immediate debt and balance-of-payments problems diverts attention from longer-term needs such as the sustainable management of natural resources. It may also destabilize the political environment, making more difficult the introduction of unpopular but necessary measures to improve natural resource management.

Governments must adopt economic, social and agricultural policies that encourage sustainable behaviour. They must adopt and put in place legislation, and implement policies, that enable people to attain higher living standards without irrevocably destroying forests and the soil. In many countries, effective family planning programmes are also needed to reduce population pressures on the environment. Only if governments promote sustainability seriously will efforts by international organizations have much impact. Reducing or reversing environmental damage and promoting sustainable agricultural practices will require, above all, changes in the way people live, farm and fish.

PART THREE of *The State of Food and Agriculture* draws on FAO's past and present activities[2] to propose approaches to and elements of strategies for speeding up and widening the adoption of such changes. Chapter 1 builds on the foregoing discussions of the problem of unsustainable resource development and indicates its magnitude. Chapter 2 considers certain issues which must be addressed if progress is to be made. Chapter 3 provides the key elements of FAO's proposed strategies which will, of course, have to be tailored to meet specific country requirements.

2. FAO has a long history of initiating or supporting actions to bring about such changes, and an account of these has been given in FAO, *Aspects of FAO's Policies, Programmes, Budget and Activities Aimed at Contributing to Sustainable Development*, CL 94/6, 1988. Also, FAO, *Review of the Regular Programme*, Chapter 12, "FAO support to member countries in conservation and amelioration of the natural environment and introduction of environmental considerations into FAO projects and programmes", C89/8, 1989.

SUSTAINABLE DEVELOPMENT AND NATURAL RESOURCE MANAGEMENT

Chapter 1

THE MAGNITUDE OF THE PROBLEM

Mankind has inherited a tremendous range of natural resources, notably some 3 billion years of species and ecosystem development, and soil and groundwater accumulations that have taken millenia to build up. Until about the beginning of the eighteenth century we had maintained much of this inheritance. A few species and ecosystems had been lost, and the soils in some areas damaged beyond repair, but these represented only a very small proportion of the total inheritance. During the past 200 years, however, and at an accelerating rate, we have been progressively destroying our inheritance and endangering the well-being of future generations. The destruction has global, regional, national and local dimensions which have recently been reviewed by FAO and are therefore treated here only selectively.[1]

The global dimension

Mankind is faced with a number of problems, which, though they relate generally to national actions, are really global in nature and need collective responses. Three are of particular concern, namely potential climate changes, loss of genetic resources, and the consequences of using inappropriate or damaging agricultural technologies.

Climate changes

There is a growing scientific consensus that man's activities are causing climatic change. The global warming that appears to be taking place through the greenhouse effect, and which is caused primarily by fossil fuel consumption primarily in the north, may, if not arrested, produce climate changes which could severely affect agriculture in many parts of the world.

Loss of genetic resources.

During the past 10 000 years or more, man is estimated to have used well over 100 000 edible plant species, as well as numerous animal species. Although productivity was generally low, this genetic diversity added greatly to the stability of production, and restricted man's vulnerability to plant disease epidemics, etc. Population growth and the rising demand for food, fuel and timber has now appreciably reduced this genetic diversity either directly through the destruction of ecosystems, species, and local varieties, or indirectly through changes in consumption patterns. Barely 150 plant species and 15 types of livestock are now in widespread use, and most of mankind is now dependent on only 12 plant species for the major part of its food energy intake.

Although the loss of a species or variety may occur at the local level, the problem is a global one given the interdependence of countries for germ-plasm. The dwarf wheat varieties, for example, that played such an important part in the 1960s' "Green Revolution" in Latin America and South Asia, were developed from Japanese germ-plasm introduced into the United States and which, after further improvement, was passed on to CIMMYT in Mexico, for the use of other developing countries.

Losses in genetic resources over the past 30 years are estimated to have been particularly serious in the tropical moist forests, which represent approximately one-third of the five million terrestrial species existing in the world.

Inappropriate agricultural technologies

Finally, and related to the problem of lost genetic resources, the question arises of the selection of agricultural systems and technologies that are not sustainable and which are global in nature because they reflect the collective decision of countries. As indicated below, this question concerns, in particular, choices regarding the use of mineral fertilizers, the intensification of livestock production and the use of pesticides. For example, when faced with rising pest problems as a consequence of crop intensification, the almost universal response has been to resort to the use of pesticides. The

1. FAO, *World Agriculture: Toward 2000 (AT 2000)*, Chapter 11, "Environmental aspects of agricultural development", 1988

environmental consequences have been disruption of ecosystems because of the death of non-target species, the accumulation of pesticide residues in the environment and in food, and the buildup of pesticide resistance in the target species.

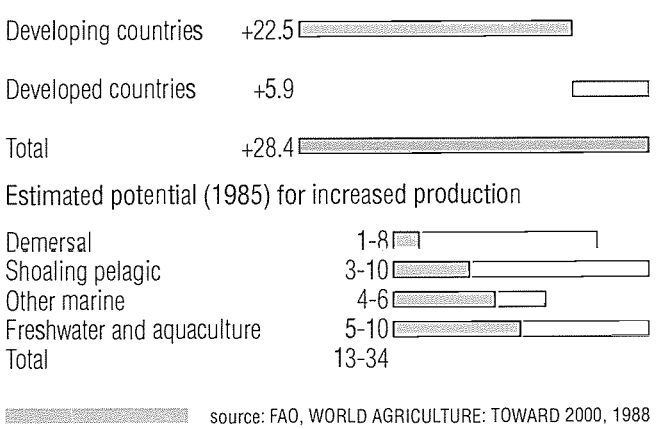
Since the 1940s, over 1 600 insect species have developed significant resistance to major pesticides because of their long-term and non-selective use. This resistance problem concerns both field and storage pests and, to a lesser degree, fungi and weeds. Consequently, the pesticide industry is continually trying to keep one step ahead of the pests by developing new pesticides, but with no guarantee of being able to do so. FAO and others, therefore, have been encouraging since the 1960s the development and promotion of integrated pest management (IPM) techniques which combine the use of resistant varieties, cultivation practices, and pesticide application at lower rates and frequencies so as to reduce adverse environmental effects and the risk of pesticide resistance.

The regional dimension

Many of these issues have regional implications. In the fisheries sector, for example, notwithstanding the extension of national jurisdiction over marine fisheries, the migratory nature of many species emphasizes the need to tackle the challenges of sustainable development and management through intercountry or regional efforts.

Most of the world's fish stocks now exploited within national fishing zones are under increasing pressure. Potential demand by the year 2000 is toward the upper limits of the potential for increased production, after allowing for continued growth in supplies from aquaculture.

Fish for food: projected demand and supply (million tons)



source: FAO, WORLD AGRICULTURE: TOWARD 2000, 1988

Acid precipitation, in contrast to the above, is affecting both managed and "natural" terrestrial and aquatic ecosystems, and is the indirect effect of energy policies outside agriculture, forestry and fisheries. The most extensive damage is in North America and Europe, but it is nonetheless apparent in some developing countries, particularly near large urban-industrial centres.

It is difficult to assess the magnitude of the acid precipitation problem because of the complexity of the chemical reactions between the most important gases involved (sulphur dioxide, oxides of nitrogen, and ozone) while they are still in the atmosphere, and those taking place on leaves, in the soil, and in surface waters following deposition. Nonetheless, millions of hectares are affected to some degree. There has been extensive damage to forests in both North America and Europe, and some crop losses, though these are difficult to quantify. Thousands of lakes have been acidified (particularly in Scandinavia) with serious reductions in fish populations. Some soils are being rapidly acidified to a depth of as much as one metre and, unless counteracted by liming, this will adversely affect future production. Finally, a number of natural ecosystems are threatened, especially certain wetlands.

National and local dimensions

Uncontrolled forest clearance, soil erosion and other forms of resource degradation, although they may have global or regional implications, are essentially the result of, or stem from, national and local decision-making. Economic growth and population pressures during the past two to three decades have increased such degradation to levels that threaten the long-term survival and sustainability of nations. Future population growth in the absence of appropriate corrective actions will make the problem worse.

The nature of the national dimension tends to differ between developed and developing countries. In developed countries the unsustainability of current practices generally relates to the secondary effects of inputs for intensive production systems, whereas in developing countries the unsustainability is largely the consequence of extensive production systems that result in overgrazing, overcropping and excessive fuelwood collection. But in developing countries it is not just an agricultural technology

Population pressure and resource degradation [1]

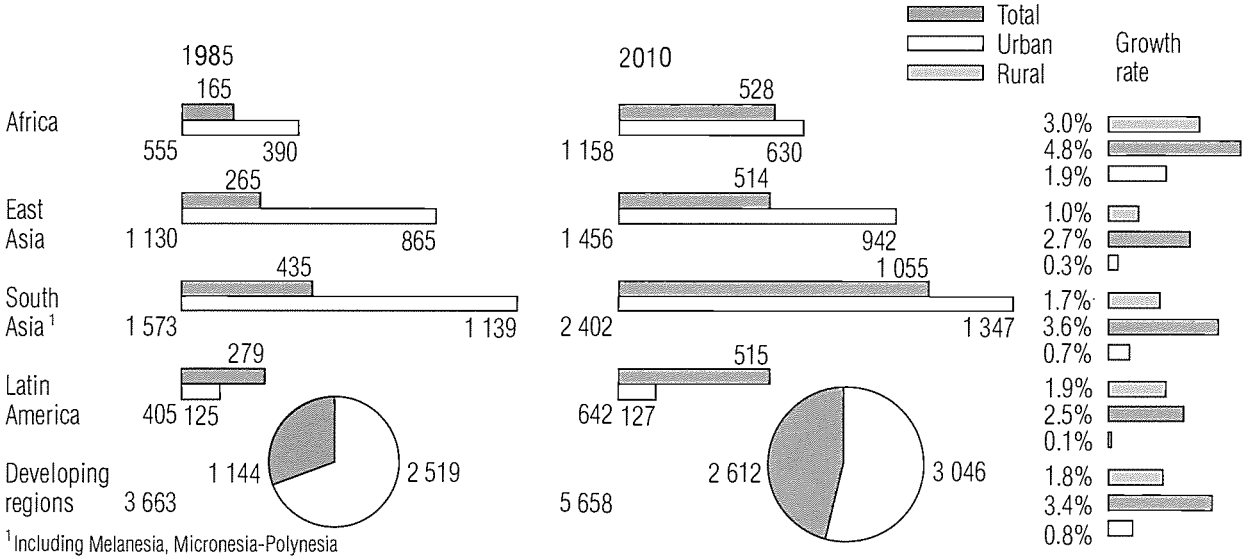
Population growth is a major threat to the environment—especially in countries where the population is doubling in less than 30 years and in some, in less than 20 years. In the future, the additional pressure on resources in most countries will come mainly from urban demand for food, fuel and other products. Of the additional 2 200 million people who will be born in the developing countries between 1985 and 2010, about 1 500 million will live in urban areas. The greatest population increase will be in South Asia (more than 800 million, three-quarters of whom will be urban-dwellers). The smallest increase in the Third World will be in Latin America (238 million, virtually all urban-dwellers). Nevertheless, even if rural-urban migration continues at a high rate, rural population will grow almost everywhere.

However, to see problems of environmental degradation as a consequence of increasing populations and their subsistence requirements alone is to over-simplify or to diagnose the situation incorrectly. In some cases, environmental problems are worse than would be expected from the increase in population alone: in others a growing population may be in balance with the environment. It is population growth working in conjunction with other factors that is bringing about widespread environmental deterioration. The most important of these factors are:

- The widespread breakdown of traditional systems of resource management under external commercial and population pressures. Traditional communal forms of resource management commonly achieved sustainable exploitation of the resource. Efficient and ecologically sound production systems with extensive tree or bush fallows evolved to manage a variety of fragile or difficult environments. Often such systems were kept in demographic balance by social regulation of fertility, mortality, migration and marriage. In most cases, such systems have been unbalanced or destroyed by human and cattle population pressures in the absence of appropriate technological responses, and to a lesser degree by commercial and political domination.
- Commercialization. The impact of commercial demands on the traditional cultural attitudes of indigenous populations—toward wildlife, for example, during the colonialization of America—has been well documented. Other examples of the commercial exploitation of resources often leading to their degradation, are the logging of tropical forests in Asia, the clearing of forests in Latin America, and the expansion of groundnut and tobacco cultivation in sub-Saharan Africa.
- Inequality in access to land and other natural resources, and fragmentation of holdings. Land distribution is worsening in many developing countries, and holding sizes are declining. Compared to smallholdings, land in larger farms tends to be used less intensively and to employ less labour per unit area.

1. R. Repetto and T. Holmes, "The role of population in resource depletion", *Population and Development Review*, Vol. 9, No. 4, December 1983

Urban and rural population projections by developing regions, 1985-2010



[1] Including Melanesia, Micronesia-Polynesia

source: UN, THE PROSPECTS OF WORLD URBANIZATION - REVISED AS OF 1984-85, NEW YORK, 1987

issue. It is a wider developmental issue. FAO's study *Land, Food and People* has shown that there are some developing countries whose projected year 2000 population exceeds their potential population-supporting capacity assuming the full use of their arable land and the maximum use of currently available technology. [2]

The most widespread agriculturally related environmental problems of the developed countries fall into three main categories: the pest resistance to biocides mentioned earlier; groundwater and surface-water contamination by mineral fertilizers, livestock wastes and pesticides; and erosion, compaction and other forms of soil degradation.

Although the extent and severity of ground- and surface-water contamination varies considerably, it is a problem in all developed countries. It is particularly serious in parts of the EEC, USA, and USSR, where intensive arable or livestock enterprises predominate. Though the exact contribution of mineral fertilizers is not precisely known, it is clearly an important factor underlying the widespread rise in groundwater nitrate concentrations, which in some areas have exceeded those considered safe for human consumption and has led to the closure of some wells or the installation of costly purifying equipment. Similar problems have arisen with pesticide residues in drinking-water sources.

Historically, soil degradation in developed countries has been as serious as that currently to be found in developing countries. It is now less serious, and geographically more restricted, but there are still significant areas where the rate of soil loss through wind and water erosion is much greater than the rate of natural soil formation. Moreover, such losses are compensated, in part, by the higher use of nitrogen and phosphate fertilizers, thereby potentially compounding the water contamination problem.

While developing countries face some of the same problems as the developed countries, the unsustainability of their current production is most apparent in the extent and variety of cropland and rangeland degradation, including nutrient mining, and in the rate of deforestation.

Three main degradation processes are involved:

- chemical degradation, including the accumulation of excess salts;
- physical degradation, notably wind and water erosion;
- biological degradation, including deforestation and rangeland destruction through overgrazing.

All attempts to provide a clear assessment of the condition of the world's natural resources soon run up against the sparseness, inaccuracy and non-comparability of available data, and the weakness in our understanding of some of the processes involved. This data constraint is particularly serious in developing countries and regions. Estimates of the scale of land degradation are difficult to make, and those that do exist tend to be qualitative or applicable only to the survey areas. Nonetheless, there is no doubt that land degradation pervades every region of the world, encompassing different cultures, climates and ecosystems. Similarly, there is no doubt that such damage must be overcome if agricultural production is to be increased and sustained.

Land degradation occurs widely in areas of natural rangeland, and where the soils have been cultivated for many years. In Africa north of the Equator, for example, some 11 percent of the land is affected by water erosion and 22 percent by wind erosion. The situation is even more serious in the Near East, with some 17 percent of the total area affected by water erosion and 35 percent by wind erosion.

The various impacts of land degradation are clearly reflected in crop yields and their decline. Two examples help to illustrate this link:

- *Cassava yields: the Mondomo area, Colombia.* Trials by CIAT have shown that whereas in the past the traditional 5-10 year fallow was sufficient to maintain soil fertility and therefore yields, this is no longer the case. Soils are now so degraded through erosion that the only way to maintain or raise yields is by the addition of mineral or organic fertilizers.
- *Maize yields : Malawi*
  Unfertilized maize yields have declined substantially over the past 25 years. During this period, land pressure has increased and, as a consequence, fallow periods are no longer possible in many areas and the land is cropped every year. Soil organic matter has declined and surface erosion is now widespread. Soil nutrients have been removed by crops faster than they can be replaced by natural mineralization or nitrogen fixing soil flora.

2. FAO, *Land, Food and People*, 1984 (based on FAO/UNFPA/IIASA) "Potential population supporting capacities of lands in the developing world".

Without remedial action, the farmers are caught in a downward spiral leading to poverty and deprivation.

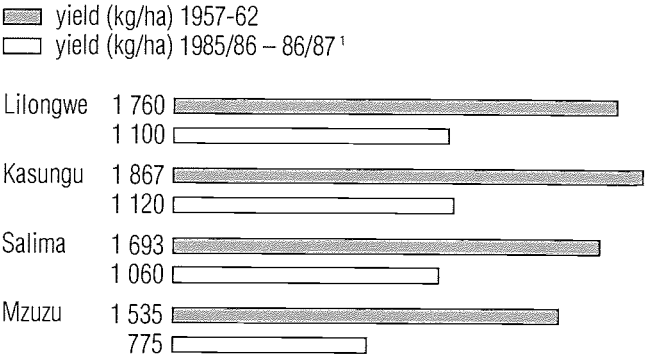
In the distant past, climatic fluctuations resulted in the expansion and contraction of deserts. Today, most desertification is caused by increasing human and livestock populations, overgrazing, bushfires, expansion of agricultural crops, and deforestation due to demand for fuelwood. Mismanagement of resources is considered to be responsible for over 80 percent of recent worldwide desertification.

Some 3 000 million hectares, or approximately one-quarter of the Earth's land surface, is desert or is damaged by factors that contribute to desertification. Of this area, 60 percent of the rangelands and rainfed croplands are moderately to severely damaged. Despite some restoration, there is overall a net loss.

Moreover, the rate of desertification appears to be accelerating in parts of Sahelo-Sudanian Africa, the Near East, and Iran, Pakistan and Northwest India. The semi-arid area of Northeast Brazil is subject to desertification, and similar conditions are being created in parts of Argentina. In North Africa, parts of Morocco, Tunisia and the Libyan Arab Jamahiriya are losing some 100 000 hectares of rangeland and cropland each year through desertification.

Another major problem is the one arising from too much water. Some 30-40 percent of the world's irrigated area is either waterlogged or suffers from excessive salinity, or both. Between 60 and 80 million hectares are affected to some extent, and a further 20-30 million hectares are severely affected. The problem is most commonly associated with

Average yields of unfertilized local maize in Malawi



[1] Mean of National Crop Estimates for 1985-86 and 1986-87. The means include small areas of fertilized local maize.

source: FAO

Estimated annual rate of deforestation in tropical developing countries during 1981-1985

		Annual loss as percentage	Annual loss in thousand hectares
Latin America and the Caribbean	Central America and Mexico	1.5	1 022
	Caribbean	0.1	25
	Tropical South America	0.6	4 606
Africa	West Sahelian	0.9	389
	East Sahelian	0.8	695
	West	2.2	1 199
	Central	0.2	575
	Tropical southern	0.3	700
	Insular	1.2	156
Asia	South	0.5	308
	Continental southeast	1.0	484
	Insular southeast	0.7	972
	Centrally planned tropical	0.6	225
Oceania	Pacific islands	0.1	32

source: FAO, AN INTERIM REPORT ON THE STATE OF FOREST RESOURCES IN THE DEVELOPING COUNTRIES, 1988

high and rising groundwater levels as result of poor water management and drainage, and the presence of salts in irrigation water.

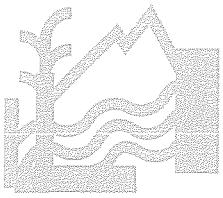
Current rates of deforestation are unsustainable. The situation is most serious for tropical forests which were estimated in 1980 to be declining by some 11.4 million hectares per year. Reafforestation and afforestation only offset about 10 percent of this loss. Much of the land cleared primarily for crop production or ranching has poor-quality soil which erodes easily once cleared of its protective cover.

The main causes of deforestation are the expansion of agriculture and the collection of fuelwood, though in some countries uncontrolled commercial logging is the primary agent. Population pressures and slow technological progress seem set to continue this deforestation. According to *AT 2000*, an additional 80 million hectares of land will be brought into cultivation in the developing countries (excluding China) by the end of this century. Some of this land will be obtained by clearing tropical forest, but many tropical forest soils are unsuitable for continuous cultivation or intensive grazing without the development of sustainable production systems.

Aside from agricultural production, deforestation is also of major concern because:

- forests have an important role in regulating hydrologic regimes within watersheds;
- erosion following deforestation can cause irreversible damage to soils;
- forests play an important role in the maintenance of biological diversity, as a source of medicinal plants, in the provision of indigenous foods and in support to indigenous cultures.

Deforestation can cause soil erosion rates 10 to 100 times greater than the "natural" levels, leading to the siltation of river channels, lakes and dam storage schemes, and to increased downstream flooding. In India, for example, more than 20 million hectares of land are flooded annually due in part to deforestation in neighbouring countries.



SUSTAINABLE DEVELOPMENT AND NATURAL RESOURCE MANAGEMENT

Chapter 2

ISSUES IN SUSTAINABLE DEVELOPMENT

This chapter focuses on developing countries because discussions are under way in the OECD and other fora on the environmental issues facing the developed countries and the policy options that they may consider.[1] This does not imply that the responsibility for reversing natural resource degradation rests only with developing countries. The entire globe is interdependent in this context.

There are three main reasons for unsustainable agricultural, forestry and fishery practices being used in developing countries: lack of access to land, inputs and other productive resources by rural households and communities; lack of awareness among policy-makers of the economic costs involved; and lack of environmentally sound alternative technologies acceptable to farmers, and to forest and fishing people.

These problems lead to a number of issues which can be addressed conveniently at three levels: household, community, and national. Of course, these three levels are interconnected. Decisions at the national level about crop prices, credit or release of new crop varieties will affect the decisions made by millions of farming families. Exchange rate adjustments may alter incentives for investment in soil conservation, animal husbandry or tree crops. Research priorities will affect the course of development of rural communities. Thus, the link between macro-economic policies and rural behaviour must be understood by policy-makers.

Household survival strategies

Environmental degradation is closely associated with rural poverty. At the root of the problem is the lack of access by poor households to productive resources sufficient to meet their basic needs. Identifying solutions requires a detailed understanding of the micro-economics of resource use and the perceptions of resource users.

Degradation of the environment often arises from overpopulation, which puts unprecedented strains on natural resource capacity in the absence of a compensatory increase in agricultural productivity or off-farm employment opportunities. Whereas several generations ago ample land, forest and water existed to meet the needs of most rural communities, population growth is now leading to diminishing farm sizes and increasing fragmentation of holdings. Moreover, much of the new cropland being brought into use—for example in the Amazon, Sumatra or the Himalayan hills—is of fairly low productivity unless expensive inputs are used. Looking into the future, natural resources are further threatened by the 20-40 percent growth in population that is expected during the next decade in many rural communities. If food production is to keep pace with population growth, most of the increased production will have to be derived from intensification. Degradation is also sometimes aggravated by inappropriate economic signals arising from government decisions and distant commercial forces.

Understanding what sustainability means to the rural poor in developing countries requires a close examination of the choices they face in their daily struggle to survive. An understanding of household decision-making is an essential pre-condition for strategy and policy formulation because in many instances it is the rural poor who determine the outcome of government actions to promote sustainable development through their decisions on resource allocation, production practices and consumption. The survival strategies they adopt involve many decisions about environmental goods: soil, woody biomass, pastureland and water. Some choices results in sustainable actions; others do not.

Frequently, poor people have no option but to overexploit natural resources in order to survive. Everyday security takes precedence over concern to any great extent with the future. Even meeting immediate food security needs is beyond the reach of many rural poor. Consequently, much natural

1. FAO, *Integration of environmental aspects in agricultural, forestry and fisheries policies in Europe*, ERC/88, 3 May 1988 and *Socio-economic aspects of environmental policies in European Agriculture*, ERC/90/3, (forthcoming).

resource degradation arises because the rural poor are forced to employ cultivation and pastoral practices that degrade the environment, thereby introducing the vicious circle that makes it more difficult to achieve long-term reduction of poverty and conservation of resources.

Sheer necessity forces them into mining soil nutrients, cultivating steep slopes or overgrazing rangeland in order to feed themselves. Significant degradation of these resources directly affects the welfare of populations, through their direct dependence on water for homes, animals and irrigated crops; through immediate needs for fuelwood; and through requirements for animal fodder. Such degradation threatens economic development at the household, community and national levels.

Not only do we need to understand better the factors that cause rural households to adopt practices that influence environmental degradation, but we also need to understand how these households respond to the natural resource scarcity that results from such degradation.

As farm size reduces or soil fertility decreases, households may be forced to change the type of crops they grow. In Ethiopia, for example, the larger farmers grow significant areas of the low-yielding but preferred grain crop teff. Small farmers, however, cannot afford to do so and plant sorghum or other less well-liked grains which produce more calories per hectare. Of greater significance is the switch from pulses to winter cereals through much of South Asia—induced not only by land pressure but by the Green Revolution technology and complementary policies which favoured the cultivation of modern cereal cultivars and neglected the development of high-yielding pulses: an example of the environmental costs of this technology.

Even in conditions of moderate poverty, many households invest off-farm. One common strategy is to arrange, by whatever means, an education for the children so that they may migrate away from the farm. This investment in human capital improves the prospects for future income to the household, and may relieve pressure on natural resources. Yet if educated children migrate, it represents a transfer of resources out of rural areas.

As household food security is threatened, and local solutions for increased production become fully exploited, family members move to other agricultural or urban areas in search of seasonal or permanent income. As one example, more than half the household income of Pakistani farmers scraping a living on the slopes of the Hindu Kush is derived from off-farm activities. Similarly, a major source of foreign earnings in Nepal consists of remittances from hill people working in India. Indeed, as will be discussed later, migration from overstressed, low-potential land has to be considered in any sustainable development strategy.

Resource degradation often leads to a series of decisions by household members with consequences for deforestation, soil erosion, and decline in water availability and quality. The figure, overpage illustrates a typical example of the degradation cycle:

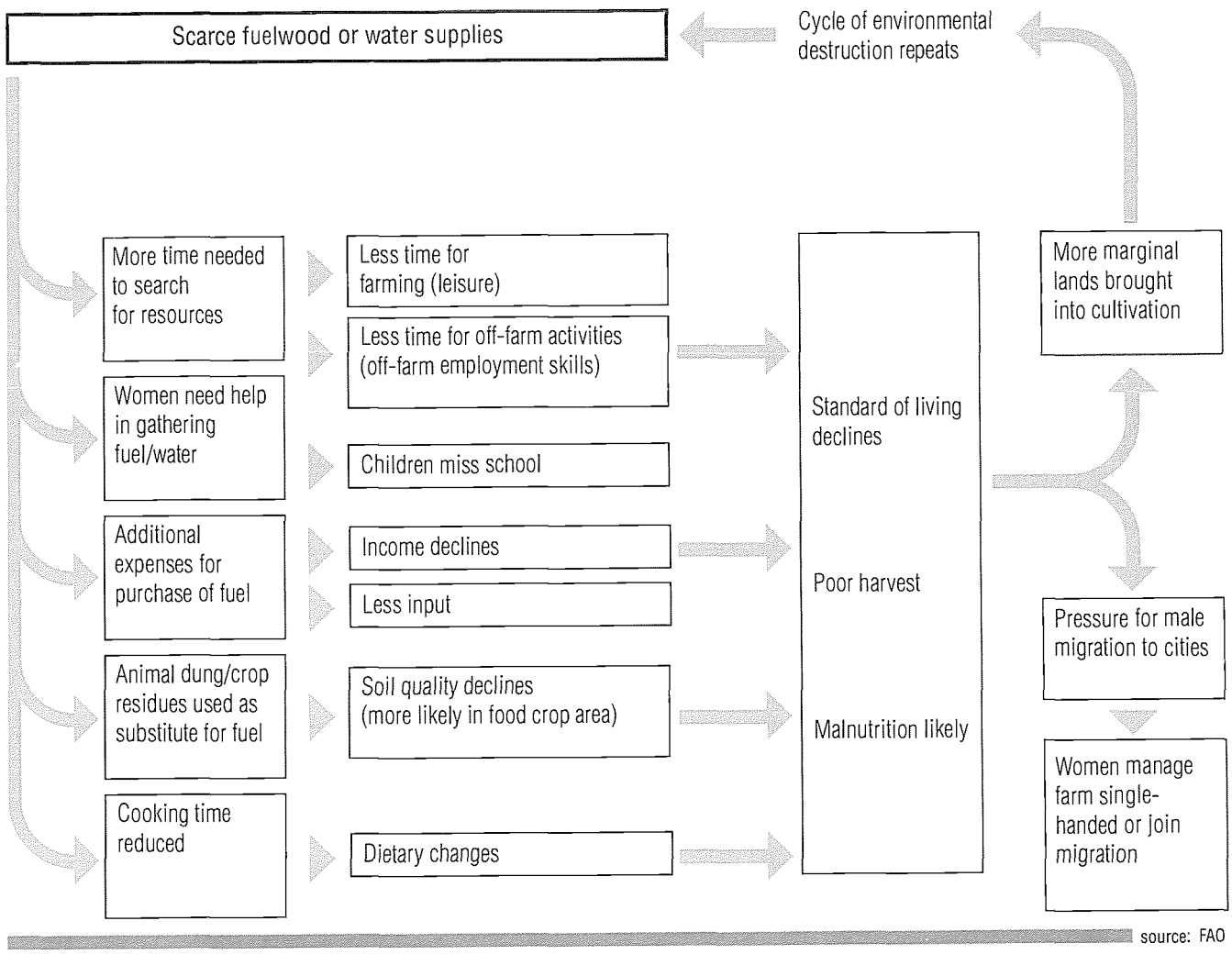
- As fuelwood and clean water supplies grow scarce, women have to walk farther to gather wood and water. This may reduce the time available for other productive activities, including food crop cultivation. They may be forced to use poor-quality water, with far-reaching implications for the health of the family.
- Children—and female children in particular—may have to help with fetching fuelwood and water. Consequently, school enrolments fall.
- When distances to forests become too great, families may be forced to purchase fuelwood supplies. Real income left over for other basic needs declines. Women seek to reduce cooking time by turning to foods that require less cooking. Diets change. Fewer meals per day may be prepared. Nutrition may suffer as a consequence and the risks of bacteriological infection increase.
- Animal dung and crop residues may be used as fuel instead of being returned to the land as fertilizer, leading to soil depletion and decreased food production. Such actions have been well documented in many poor countries, including Bangladesh, Ethiopia and Senegal. Increasingly low-potential lands are brought under cultivation, contributing to the cycle of soil erosion and deforestation.
- Resource scarcity encourages men to migrate to urban areas or to other countries in search of cash income, leaving the women to manage the farms. As many as one-third of rural households are headed, *de facto*, by women. In many cases, notably in Latin America, women may also be forced to abandon the land, often exchanging their meagre rural living for urban employment.
- As plant cover declines, traditional medicines

and bush foods are lost,while fuelwood scarcity inhibits many small industries, such as fish smoking, food processing for resale, and other traditionally female activities.

Clearly, strong interdependencies exist between crops, livestock, forestry and the household. The treadmill of diminishing natural resource productivity, falling returns despite greater labour input, greater "mining" of resources, and growing poverty, continues.

Development policies still tend to focus on the male as apparent head of the household. This tendency ignores the fact that women are major users of natural resources: they farm, provide fuelwood and water, cook food, and process and market produce. Their central role in managing natural resources must be recognized by policy-makers if policy is to accomplish its objective of sustainable development. The division of labour by gender within the rural household, the different roles that women and men play in the local economy, their differing perceptions of resource problems and the contrasting responses that male and female may have to resource scarcity, must be taken into account by policy-makers. In particular, we need to understand how different members of the household contribute to and are affected by these processes. The roles of men and women are almost always substantially different in rural areas. The behaviour of each must be understood if policies and strategies are to be developed to redirect their behaviour in environmentally sound ways. Otherwise, attempts to modify behaviour are almost sure to fail, or at least result in non-optimal decisions about resource use.

Resource scarcity and household strategies



source: FAO

Women frequently bear an unduly heavy work burden which, if more equitably distributed, would result in greater efficiency. Furthermore, they often lack equal access to credit, extension services and property rights. This situation often compromises productivity—and hence also the ability to provide for basic needs without overexploiting resources. Greater sexual equality, therefore, might simultaneously improve both equity and efficiency by improving the overall economic viability of the household.

Artificial scarcities imposed by sex inequalities also punish women. A Beijer Institute study in the Kakamega district of Kenya found critical fuelwood shortages among women in the midst of extensive woodlots on land controlled by men. Despite the presence of adequate fuelwood resources, many women were obliged to buy charcoal or to deplete their soils by burning sugar-cane stalks, maize cobs and other crop residues for fuel. The men, for whom the idea of growing the trees for fuelwood was new, were largely unaware of the fuelwood problem. Since women have no rights to plant and harvest trees in this society, they could obtain wood only from the bush, an open access resource.

Community decisions and common property resources

Common property resource management faces the difficulty of generating agreement on rights of use among users, yet there are many examples of sound and sustainable communal management of water and forest resources. Local-level management seems

The concept of common property—effects on sustainability [1]

The term "common property" is often misinterpreted, giving rise to confusion about how the concept affects the management of the natural resources concerned. Many have argued that common property regimes unavoidably lead to an abuse of resources, or to what has been termed the "tragedy of the commons".[2] The common property condition has been blamed for many social and economic problems, including resource depletion or degradation, pollution, misuse of labour and capital, poverty among users of the resource, and backwardness in technology use. Solutions to such problems have tended to fall in either of two camps. One is to privatize the common property: that is, to place it under the individual ownership of the former users, which involves the distribution of legal titles, etc. The other is for the government to intervene to bring private and social costs into line, either through taxes or subsidies, or by introducing direct state control—that is, by nationalizing the resource.

A closer look at the terminology is needed for a better understanding of the concept, however. The expression "common property" refers to the rights of common use as opposed to a specific use right held by individual owners. Common use means the distribution of resource property rights in which several owners are co-equal in their rights to use the property; that is, the resource is not everybody's property and users who are not members of the group are excluded. Many wrong conclusions result simply from confusing "common property" (*res communes*) with "unowned resource" or open access regimes (*res nullius*).

History shows that common property regimes may very well be compatible with sustained management of natural resources. Some grazing lands and forests in Europe have been managed for centuries as common property resources on a sustained-yield basis. Strict regulations concerning access and use have successfully prevented overgrazing or similar resource-degrading effects. Illustrations of commons that have remained intact include some forest areas in the Federal Republic of Germany and uplands in Switzerland which have become some of the best examples of progressive forest or pastoral management. Thus, common property, with the socially based institutional regulations it implies, is capable of managing natural resources on a sustainable basis.

It is the undermining or destroying of such local-level institutional arrangements that converts common property regimes to ones of open access, and this in turn leads to the degradation of the resource.

The common property concept can be employed to help solve important resource policy problems, such as those concerning grazing land and fisheries. For instance, common property institutions have introduced various types of fishery regulations, such as individual or national quotas, fishing seasons, exclusive national fishing zones and territorial waters, in attempts to respect the concept of maximum sustainable yield. Difficulties in managing the resource have arisen mainly from a lack of understanding of the socio-economic pressures acting on the fishing communities, and of the dynamics of the fish stocks, rather than from the nature of common property itself.

1. See S.V. Citiacy-Wantrup and R.C. Bishop, "Common property as a concept in natural resource policy" *Natural Resources Journal*, Vol. 15, No. 4, 1975.

2. G. Hardin, "The tragedy of the commons", *Science*, Vol. 162, 1968.

essential: when governments nationalize common property resources in the name of better management, overexploitation often results.

The dependence of the poor on forest and tree products is a frequently overlooked fact. Consequently, encroachment of cropland on forested areas is often to the detriment of those who rely upon such areas for food, fuel, shelter and income. Community forestry projects run the same risk, as improved forest productivity leads to higher returns from additional inputs of labour which attract the interest of richer groups in the community. Conflict in the community is also often overlooked. Measures to introduce, on a test basis, improved village pasture management in eastern Turkey ran into the difficulty that rich absentee village leaders invested in steer fattening enterprises requiring summer grazing on the best pastures, whereas poorer villagers also required pastures for hay for winter feeding of breeding stock. Ironically the practices of the absentee village elders may have been more "sustainable" because they more closely integrated the grass and livestock systems, involving nutrient recycling.

Resource conservation is essential in areas adjoining those used for agricultural production. For example, watershed forests need to be managed to ensure that river-basin agriculture is not adversely affected by siltation, flooding and similar problems. There is little point in designing environmentally sensitive agricultural systems if they are to be undermined by logging, ranching and other forms of ecological destruction in neighbouring areas.

National policy

The third main reason for unsustainable agricultural practices tends to arise because policy-makers, including Heads of State or Ministers of Finance or Planning, who generally decide how much money is allocated to which type of agricultural, forestry and fishery development and to environmental protection, are often not informed of the real costs of soil erosion, soil nutrient mining, forest destruction and marine pollution, or of the national income and foreign exchange savings that could be generated through the adoption of sustainable agricultural practices. The analytical tools used in advising policy-makers often ignore or at least undervalue environmental considerations. Consequently there tends to be inadequate integration of environmental matters into agricultural and economic policies.[2] There is also a lack of integration between agricultural, forestry and fishery policy-makers in arriving at sustainable solutions to environmental problems.

Often governments, responding to immediate political and economic needs, neglect the longer-term impact of policy choices on natural resources. Therefore, efforts must be made at the national and international levels to encourage governments to formulate their agricultural development programmes with a longer-term perspective.

Economic analysis can be made more sensitive to environmental problems at the macro-economic level, by at least partially incorporating the value of environmental resources into national accounts. Pricing policies might then be considered to encourage sustainable activities. Methods of project analysis can also be more environmentally sensitive.

Environmental accounting and national accounts

Until recently, natural resources such as water, land and forests were regarded as more or less freely available, and hence were not treated like other forms of capital whose economic value was reflected in price. As we become aware of the finite character of these once seemingly infinite resources, approaches to account for their depletion and destruction must be developed.

Monitoring "natural capital stocks" is a useful first step toward accounting for the overall environmental costs of economic activity. Inventories of natural capital stocks incorporate, for example, new discoveries or depletions of energy resources, or growth or degradation of plant and animal resources. The Norwegian Government keeps "balance sheets" of natural resources while sophisticated techniques are used in France to determine "patrimony accounts" which include the physical components of the environment.

Such environmental accounting, however, is not at present extended into economic accounting, since it is not represented in terms of prices and unit values. Quantifying the environmental value of a forest or river is difficult. Such difficulties are shared, of course, with other social dimensions of development. Social indicators have been incorporated into the System of National Accounts (SNA) only imperfectly and with great difficulty. For most practical purposes, social indicators are still treated separately. Most non-market production (e.g. women's work in the household) and much

2. FAO, 1988. *op.cit.*

investment in human capital (e.g. parenting) are still unaccounted for in SNA. Determining shadow prices, for example, to estimate the value of non-market household work (e.g. drawing water, transporting fuelwood and preparing food) can help bring national accounts closer to real economic values, and measure, albeit imperfectly, the real costs of environmental degradation.

The value of the environment is difficult to express within the SNA framework for several reasons. First, market values reflect individual preferences: it is difficult to predict how future generations will value environmental goods and services. Second, part of the price of economic activity is the "consumption of disamenities" such as pollution, urban congestion and physical insecurity. The often high environmental price, paid by everybody, cannot be precisely quantified. Despite these difficulties it is important to try to incorporate environmental considerations into national accounts as much as possible if we wish to know the real costs and benefits to society of various forms of economic activity.

The difficulties of measuring the costs of environmental damage are even greater with factors such as water quality. But since there clearly is an economic value to such functions as the waste-disposal service provided by waterways and, equally clearly, an economic cost in the resulting degradation of clean water resources, it is necessary to try to determine as accurately as possible what these values and costs are.

There are three types of qualitative costs of environmental degradation:

- Direct costs of environmental maintenance. These would include both preventative measures (e.g. cropland conservation measures or reforestation of areas to prevent soil erosion and declining yields) and reclamation (e.g. cleaning land of toxic wastes or the reclaiming of saline land).
- Regulatory measures to protect environmental quality. Such measures cost money, which is usually paid by consumers of private sector goods and services.
- The cost of environmental damage to economic activity (e.g. the impact of polluted water on fishing and tourism).

To determine the net costs to society of environmentally damaging activity, the economic benefits of such activities must also be calculated. Using the environment as a free disposal service is an economic value, however foolish. Clearly, calculating these costs precisely is impossible. Nevertheless, reasonable approximations can be reached by a combination of identifying and measuring those environmental values and costs that are measurable, either directly or through surrogates; identifying costs that have already been measured, such as clean-up expenditures, forest replanting and other efforts to remedy the negative spill-over costs of economic activity; and noting those areas that are currently unmeasurable, but important, and devising ways to estimate their economic value.

Pricing policies

Two main pricing mechanisms are used to take account of the social costs of private decisions affecting natural resource degradation:

- The "polluter pays principle" (PPP), widely employed in some OECD countries to discourage and compensate for pollution. PPP could also be applied to aquaculture and also internationally (e.g. when transboundary pollution occurs) and efforts should be made to set standards for quantifying such damage to resources.
- The concept of "marginal opportunity cost of resource depletion", developed by the World Bank to incorporate the direct and indirect costs of resource degradation, as well as the benefits foregone by those who otherwise would have been able to use the resource in the future.

Given the central role of prices, subsidies and taxes among the array of measures available for implementing policy, these mechanisms could be used more than they are at present to provide incentives for sustainable agricultural practices in situations where markets are failing to take account of environmental costs. Governments should take into account environmental impacts when establishing producer support prices for agricultural products. For example, governments could provide incentives for those crops whose production is least damaging to the environment. Tree crops tend to have more positive effects on the environment than do annual crops such as cotton. Fertilizer and pesticide abuse may also be discouraged by reducing subsidies. Overuse of water can be discouraged by raising its price—and also that of electricity (needed for pumping ground water). Higher taxes on timber extraction could encourage logging companies to replant and would also cause international prices to reflect better the environmental value of trees.

Project analysis

Cost-benefit analysis is widely used to assess projects and programmes. With some modification, environmental impacts can be incorporated into cost-benefit analysis. Three main adaptations can be used to accomplish this goal. First, socio-economic cost-benefit analysis often uses shadow prices to estimate the long-term effects and other externalities of projects and programmes, including effects on the environment. This should be done regularly, even when it is impossible to make accurate estimates of environmental costs and benefits. As a by-product of their main function, environmental impact assessments provide data useful for making such estimates. Second, cost-benefit analysis may include safe minimum standard criteria, such as those widely used in engineering designs. Safe minimum standards could specify the environmental criteria that development projects should meet, although natural resource systems are usually highly complex and appropriate criteria are difficult to specify. Any additional costs required to satisfy the standards could be added to other project costs in the analysis. Third, while it would be unrealistic to expect every development project to have a positive environmental impact, this could be insisted on at the programme level.

Another problem concerns the central role of the discount rate (r) in investment decisions. The use of any particular "socially optimum" discount rate in cost-benefit analysis gives a mathematical expression of the social rate of "time preference", or the relative importance of present and future consumption. That rate can never be precisely known because we cannot know the preferences of future generations. But we do know that sound management of natural resources often entails short-term costs necessary to provide benefits in the long term. The process of discounting future benefits and costs at some "r" to net present value can significantly reduce the calculated value of environmental direct benefits and services. The use of a higher "r" on the grounds that the opportunity cost of capital is high, a situation prevailing for many developing countries, places little value on costs and benefits arising even one generation hence, let alone farther in the future. Alternative ways of dealing with this issue include the setting of "r" equal to the long run trend rate of return to natural resources or the real growth of output, both significantly below the opportunity cost of capital. The adoption of such a rate implies giving significant weight to future generations.

Nevertheless, an exercise of judgement would still be essential, making greater use of indigenous technical knowledge whenever possible.

Technologies for sustainable agriculture

This issue has important institutional, economic and research components, particularly the latter, because resource users commonly have inadequate access to the technologies, or else they are uneconomic, or research systems have not taken sustainability as a major objective. Many farmers are aware of the benefits of improved seed and mineral fertilizers, and the key role they can play in sustainable systems, but generally lack access to credit for their purchase, or cannot obtain them because of weaknesses in infrastructure and marketing systems.

In Malawi, for example, fewer than 20 percent of the male farmers and 10 percent of the female farmers have access to credit. Yet, in the absence of sufficient land to permit adequate fallows or of sufficient organic residues, mineral fertilizers are the only way to raise or maintain soil fertility levels and sustain production, and credit for their purchase is commonly essential.

The economic component is not just about the financing of technology use. It is also about the risks of technology use and their perceived profitability. Poor people are inhibited from the use of technologies based on purchased inputs when there is short-term uncertainty about the returns from such inputs, even though in the long run they may be profitable and ecologically sound. This is particularly the case in drought-prone areas where the risk of crop failures may be as high as one year in five. They are also inhibited from the use of labour-intensive technologies which intensify seasonal labour shortages or compete with other non-agricultural tasks. Two responses are proposed increasingly to address this issue.

The first is that soil and water conservation and other measures to achieve sustainable development should, where possible, be designed to show benefits to the farmer in the year of application, because otherwise they are unlikely to be widely adopted. Simple water harvesting methods can match this requirement, as can certain forms of minimum tillage.

The second is that there should be greater stress on low external input farming systems, both to reduce undesirable fertilizer and pesticide residue problems in the environment, and to reduce the cost of external production inputs.

Most attempts over the past 30-40 years to raise crop and livestock productivity in developing countries have been centred on the substitution of mono-crop systems for traditional mixed cropping systems, and of mineral fertilizers and other off-farm inputs for fallow and the recycling of organic material. It is now commonly argued that mono-crop systems based on off-farm inputs cannot be sustained and that there should be a shift to low external input mixed farming systems which would be more appropriate for resource-poor farmers. While this is a laudable objective from both an ecological and an equity point of view, it is unrealistic for many situations at the present time from both economic and humanitarian standpoints, because food availability would decline and food prices would rise.

Many of the low external input systems currently available for the tropics and sub-tropics cannot produce the required output levels or match the net producer returns of the high input systems they would have to replace. Densely populated countries, or those with high populations relative to the available area of good arable land, have to achieve relatively high yields in order to satisfy growing consumption requirements. Even China, with its long history of biological waste utilization and of green manuring, has been unable to achieve high levels of food self-sufficiency on the basis of low external input systems alone. China produces substantial amounts of biological wastes and overall some 50-60 percent is collected and used as fertilizer (compared with less than 25 percent in Bangladesh and Pakistan). Nonetheless, since 1949 China has had to supplement organic manures with mineral fertilizers on an increasing scale so that the latter now accounts for over three-quarters of the nitrogen input and two-thirds of the phosphate input.

The adoption of low external input systems is commonly dependent on the integration of crop and livestock production systems to provide both manure and draught animal power. This integration has yet to take place in many areas, and ten or more years may be required to gain social acceptance for suitable agropastoral systems and for their implementation. And even where the integration has taken place, the high labour requirements for manure collection and spreading can be a serious constraint. Furthermore, population pressures in some areas have already resulted in farms that are too small to maintain sufficient livestock to provide enough manure to raise yields to subsistence levels, although there are widespread opportunities for the introduction of stall-feeding systems. Future population growth will inevitably exacerbate the problem, particularly in sub-Saharan Africa where growth rates are between 3 and 4 percent per year and in some countries are still rising.

Small farm size not only prevents or limits the adoption of low input systems based on crop and livestock integration, but also those systems based on more complex interplanting and relay-planting practices. These practices have been applied successfully for hundreds of years in high-rainfall or irrigated areas where double and triple cropping is possible, and appropriate modern versions have been developed. They are, however, generally not an option for areas with one relatively short growing season; that is, for some 30 percent of the arable land of the developing world, and over 40 percent of sub-Saharan Africa's arable land. It is currently impossible in such areas to produce the subsistence needs of an average family of 5 to 6 persons from low external input systems unless the farm is large enough to permit adequate fallows.

In Malawi, for example, maize is the basic staple. It provides 80 percent of total calorie intake. An average farmer needs to grow some 1 500 kg of maize per year for subsistence, seed, and sale or barter for other goods and services. Many farms are already less than 0.5 ha, and because of population growth, a high proportion will be less than 0.25 ha by the year 2010. It follows that such farms would have to achieve yields equivalent to 3 000 kg/ha now and 6 000 kg/ha by the year 2010. These yields are impossible with low input systems and barely achievable through high input systems under the most favourable soil and agroclimatic conditions. Natural biological nitrogen fixation and release under conditions of continuous monocropping will support a maize crop of 400 to 800 kg/ha depending on soil type and rainfall. These yields could possibly be doubled if sufficient manure was available, and tripled by intercropping or green manuring with leguminous plants under ideal conditions. Such yield increases, however, would still fall short of those required to compensate for the small family plot size, and the use of mineral fertilizers is therefore unavoidable.

Another important constraint on the adoption of low external input systems is their labour requirements, which are commonly very high and which exceed, on a seasonal or more prolonged basis, the household labour supply, or are unprofitable at prevailing hired labour and

commodity prices. Once again this constraint is of particular significance in sub-Saharan Africa where seasonal labour shortages are widespread and serious, particularly for female-headed households which in some countries represent 20-40 percent of the total. Although certain low input systems spread labour requirements more evenly over the growing season, and reduce the need for weeding by maintaining more complete ground cover, their total labour requirements may still exceed what is available. Moreover, these labour shortages can also constrain the adoption of certain soil and water conservation practices which tend to require large labour inputs, yet are essential for sustainable agriculture.

The foregoing limitations on low input systems underline the fact that there are no easy options regarding input use in developing or developed countries. Actions will have to be tailored to individual agro-ecological and socio-economic situations, and are likely to involve a blend of both low input and high input systems. Nonetheless, the minimizing of external inputs is likely to be a central objective for most countries. Low input systems will have to play a key role in the rainfed and semi-arid areas where the returns from using mineral fertilizer are too low and the risks of crop failure too high. They will also be important in more adequately rainfed areas—first, in those landlocked developing countries where high transport costs can raise mineral fertilizer prices to exceedingly high levels or where fertilizer imports are a significant burden on foreign exchange earnings; second, for almost all developed countries and some developing countries where nitrate contamination of ground- and surface-water is a problem.

Thus both international and national research systems are faced with two important challenges. The first is to develop environmentally sound and sustainable technologies with which to replace or improve those technologies currently in use that have adverse environmental consequences. The second is to develop sustainable technologies for the vast areas of marginal land which have been largely neglected by research.

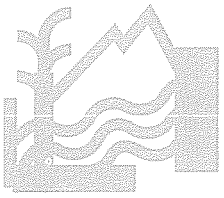
There are, for example, over 200 million hectares of vertisols in the developing world that are barely utilized at present, but could be moderately or highly productive. Similarly, there are vast areas with chemical soil constraints such as aluminium toxicity which could be used sustainably given the development of appropriate management systems and aluminium-tolerant cultivars.

These challenges are being taken up. The Consultative Group on International Agricultural Research, for example, has recommended a number of changes in the priorities and approaches of the International Agricultural Research Centres (IARCs).[3] Some of the Centres have, in fact, been active for a number of years in developing successfully sustainable technologies, notably those for vertisol management and for the utilization of toxic soils. But, if they and the national systems are to continue to be successful, their research must give greater attention to socio-cultural norms and to local farming systems that may have complex tree, crop and livestock mixtures. The poor adoption rates of their past technological products can, in part, be attributed to the neglect of such factors in research and technology development.[4]

In summary, efforts to promote sustainable agriculture must focus on the calculations of millions of mostly poor households regarding the use of natural resources. We must also consider, however, the overall resource context and therefore the management techniques required to conserve or raise yields and to provide employment opportunities in order to accommodate population increases; meet increased demands for food and fuelwood from urban areas; and provide for increases in per caput consumption. The distribution of wealth and land is extremely important in this regard. Landlessness and underemployment often encourage overexploitation of the resource base. Impoverished persons are unlikely to dedicate effort and resources to the replenishment and renewal of trees, plants and land they do not believe they will have a continued right to use.

3. CGIAR, *Sustainable agricultural production: implications for international agricultural research.* 1989.

4 FAO, The technology applications gap: overcoming constraints to small-farm development. *FAO Research and Technology Paper, No. 1,* 1986.



SUSTAINABLE DEVELOPMENT AND NATURAL RESOURCE MANAGEMENT

Chapter 3
TOWARD A STRATEGY FOR SUSTAINABLE AGRICULTURE, FORESTRY AND FISHERIES

The intention in this chapter is not to put forward fully articulated strategies for the ecologically sound and sustainable management of the major resource types. To do so is neither feasible in such a short document nor appropriate given that such strategies need to be tailored to specific country situations. Rather the intention is to present FAO's views on the general approach to be followed and to indicate what should be the major elements of the strategies, starting with a discussion of the conceptual basis of an overall strategy, and then considering strategies for each of the resource types.

An overall strategy

Two particular facts should be underlined. First, appropriate technologies do not exist to sustain the present and projected populations forecast for many resource-poor areas, and even some resource-rich areas are reaching their maximum output. It is therefore evident that in many instances strategies to achieve sustainable crop, livestock, forestry and fishery production systems, and combinations of them, will fail unless they are complemented by policies to slow down population growth and enhance alternative employment opportunities. Second, the systems used by many producers are unsustainable, due either to commercial overexploitation or the attempt to meet survival needs, and are induced either by inadequate or inappropriate public or private incentives. Public policies aimed at inducing producers to increase commercial production will simultaneously have to encourage those producers to use natural resources

High- and low-potential land: the intensive and extensive margins of production

For the many developing countries with limited land, the key to sustainable development will be their ability to develop and introduce ecologically sound technologies to raise the potential productivity of low-potential or marginal land and reverse its current widespread degradation, as well as to raise significantly the productivity of high-potential land in order to take the pressure off marginal land. High-potential land can be enhanced to generate greater yields without damaging its future yield capacity: this is the intensive margin of production. Low-potential land cannot in general be exploited intensively for staple food crops using techniques modelled on those developed in Europe or North America without provoking progressive environmental degradation. Even opening up new areas to low intensity cultivation—the extensive margin of production—entails some environmental risk.

The dilemma for many poor countries is that population pressure, coupled with inequitable access to high-potential land, is forcing more and more households on to low-potential land. Enabling these people to feed themselves today without destroying the land's ability to feed them tomorrow is the main challenge facing governments and development agencies.

Low potential is not necessarily synonymous with low productivity—for example, shifting cultivation and transhumance pastoralism exhibit high labour productivity and very efficient utilization of natural nutrient recycling and forage production. But the sustainable yields of low-potential areas are generally constrained by agroclimatic factors and by economics. If costs can be ignored, then the possibilities are almost limitless. For example, hydroponics and man-made environments can provide high food production potential anywhere. What is required, however, is food that the poor can afford to buy and farmers with limited resources can afford to grow. This is not to say that yields cannot be raised economically in low-potential areas—in many cases they could be doubled, for example, with appropriate moisture conservation techniques and improved cultivars—but their population supporting capacity will still be low compared with the high-potential areas.[1]

1. FAO, *Land, Food and People*, 1984

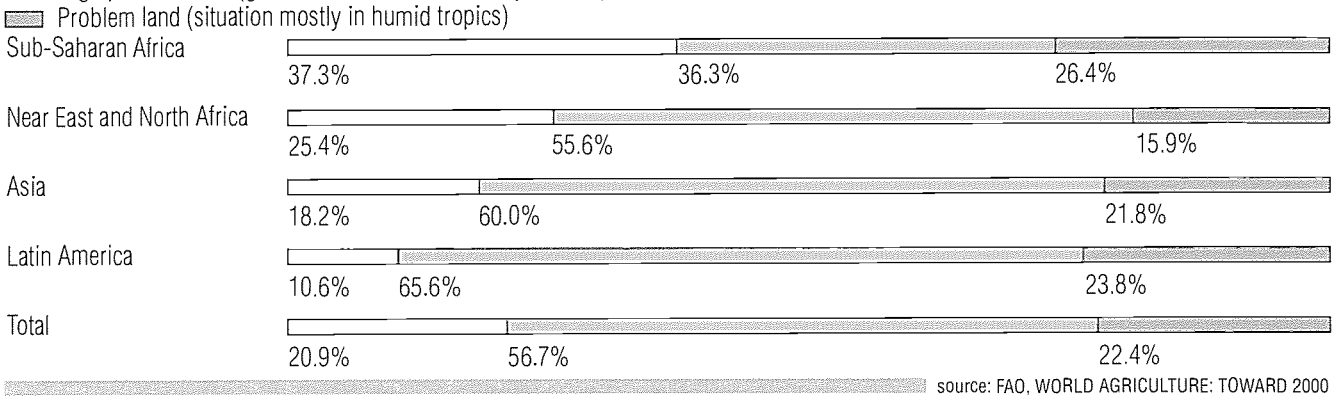
in a sustainable manner—the overall objective being to create an economic environment in which it is more profitable to conserve resources than to destroy them. In the absence of effective national and international support, and alternative employment opportunities, the rural poor are forced into the mining of soil nutrients, the cultivation of steep slopes, the overgrazing of rangeland, and the excessive collection of fuel materials in order to feed and warm themselves. It is they, therefore, who govern the success or failure of policies to induce them to achieve sustainable production systems, because unless they respond positively to them, degradation will continue. The micro-economics of sustainable production systems, household labour availability and the perceived needs of the rural poor at the local level must therefore be the starting point for national strategy and policy formulation and for guiding those components of the producer support systems that will have to be initiated largely at the central level.

FAO's proposals for an overall strategy are therefore built around considerations of human needs, poverty alleviation and production incentives. Soil and water conservation measures should, for example, where possible, be designed to show an economic return or some other benefit to the farmer in the year of application, because otherwise they are unlikely to be widely adopted. Similarly, habitat conservation and game cropping for tourism should be seen as a socially and economically profitable alternative to forest and savannah destruction. Much of the discussion of sustainable development has centred on marginal areas with low production potential, where environmental degradation and rural poverty tend to be most severe—rainfed semi-arid areas and areas of unreliable rainfall, steep slopes, and tropical uplands. This is understandable, since such areas tend to be the ones where the poorest of the poor eke out their meagre living. However, it is important to give equal or relatively greater attention to the high-potential areas so that they can take some of the pressure off the marginal areas, and reduce the losses of forest and rangeland to arable farming. These areas account for the bulk of food and agricultural production and support a far greater population; consequently, when they are environmentally degraded, the loss of output is substantially greater. In adopting this low- and high-potential typology, FAO is not suggesting that there is a rigid distinction between the two resource types: what may be regarded as of low potential from a crop production perspective may have a higher potential for the production of wood or fodder, or constitute a important water catchment, for example. It is proposing, however, that from both a strategic and an operational point of view there are important differences in their respective needs.

Most land that is currently harvested is of the high-potential type. According to FAO's *World Agriculture: Toward 2000* (*AT 2000*) in an analysis of 93 developing countries, excluding China, nearly 60 percent of harvested land in 1982-84 was high-potential land (good rainfall, naturally flooded and irrigated land) and only 21 percent was marginal (low- and uncertain-rainfall rainfed land). Another 22 percent was characterized as "problem land" with excessive rainfall, steep slopes or poor soils.

AT 2000 also showed that high-potential land is

Shares of total harvested land of different potentials: 1982-1984 (93 developing countries)



source: FAO, WORLD AGRICULTURE: TOWARD 2000

responsible for a relatively greater proportion of crop production because of higher yields and multiple-cropping. Non-irrigated arid and semi-arid areas of developing countries (excluding China) in 1983/84 accounted for only about 9 percent of total cereal production and 6 percent of root and tuber production. The bulk of cereal production (more than 80 percent) came from high-potential land, and nearly 90 percent of root and tuber production was from high-rainfall land. There are, of course, considerable regional differences, but even in sub-Saharan Africa where low-potential land accounts for nearly 40 percent of total harvested land, it produces only 30 percent of the cereals. Were China to be included, the share of high-potential land in total production would be even greater. The share of crop production coming from high-potential areas is expected to increase even further by the end of the century.

It is clear from the above that, for most developing countries, the alleviation of rural poverty and the attainment of food security will depend mainly on establishing sustainable production systems in the high-potential areas of forest, arable and range land. This does not mean, of course, that the low-resource areas should be neglected since to do so would condemn the poorest to becoming even poorer, and could force them to further overexploit natural resources just to survive.

There are lessons to be learned in this respect from the developed countries. The first agricultural revolution of the eighteenth century, based on improved crop rotations and the greater integration of crop and livestock production, allowed marginal land in these countries to be taken out of arable cultivation and used instead for livestock grazing or forestry. Similarly, the second, science-based agricultural revolution of the twentieth century allowed off-farm inputs, particularly mineral fertilizers, to substitute further for marginal land.

Four other factors need to be considered in formulating a balanced strategy between the low- and high-potential lands. The first is the promotion of rural infrastructure, industries and services. In the past, urbanization has helped to reduce pressures on the land, but urbanization creates other social problems, and in many developing countries it is now proceeding too rapidly. It does, however, provide an alternative to eking out a living on low-resource land, leading to its eventual degradation. Rural off-farm employment, focused on smaller towns or villages rather than big cities, can have similar benefits without putting such great strains on urban institutions and infrastructure. Broad-based rural development, therefore, should be an important component of the strategy.

The second is the expansion of the utilizable area of high-potential land by ecologically sound methods of controlling infectious diseases of humans and livestock (onchocerciasis and trypanosomiasis respectively).

The third is the improvement of both productivity and equity through land reform in economically viable units with adequate input supply and marketing services. Particularly in Latin America, and to a lesser degree in other developing regions, large areas of high-potential land could be allocated to the landless and near-landless through reform of property rights.

The final factor is appropriate technical knowledge. Our knowledge on improving production on marginal land is still inadequate, though promising research opportunities exist. Most so-called improved technologies tend to expose farmers to greater uncertainty regarding net returns on labour inputs and so have met with only limited success, especially with poor farmers. In high-potential areas, however, given improvements in price and non-price incentives for increased production for the market, there are a number of underutilized technologies which are discussed below. Research must be intensified, however, to ensure a continuous flow of additional technologies for the future.

In developing sustainable and operational production systems, the particular needs of five resource types must be given priority:

- marginal, "low-potential" areas, where inadequate or unreliable rainfall, adverse soil conditions or topography limit agricultural output and increase the risk of chronic land degradation;
- "high-potential" areas, which, given sound land management practices, can sustain intensive output of crops and livestock at high and rising levels of productivity;
- forests and other lands with trees as an important component;
- coastal and inland fisheries;
- biological diversity and genetic resources related to each of the above resources.

In addressing these five priority resource types, an approach fully integrating crop, livestock, forestry and, where appropriate, fishery activities is essential. In practice, three separate but complementary steps can be used to achieve such integration in a

scientific way. The first is land use planning which determines the capacity of a piece of land to support human populations, and identifies complementary land uses and development strategies by which to realize the full potential of the land. The second is environmental planning and management which addresses the factors necessary to ensure that policy, programme and project initiatives are compatible with the environmental conditions of the region and are sustainable. The third is environmental impact assessment (EIA) which analyses individual development projects to identify any potentially negative effects on the environment. These steps can address the full range of land uses from preservation of habitat through to cash cropping.

Sustainable agricultural development of low-potential areas

In the low-potential areas, conditions do not favour accelerated agricultural development. Even supporting existing populations will often require far greater efforts to conserve soil and water resources than are presently being made. Nevertheless, many environmentally "marginal" agricultural areas such as drylands and highlands are preferred living areas for people and livestock because they have healthier climates. In other cases, they support landless people and their livestock, migrating from overcrowded high-potential land.

Land degradation involves a continuous decline in productivity as a result of the impoverishment and depletion of vegetative cover, exposure of the soil to wind and water erosion, reduction of the soil's organic and nutrient content, and deterioration of the soil structure and its capacity to retain water.[1] In some areas, the battle to restore degraded land has already been lost. In other areas, reversing land degradation will prove slow, costly, and difficult to achieve. Especially in many semi-arid areas, sustainable development will require the creation of alternative employment opportunities or migration to reduce the population on the land, conserve resources and supplement incomes. It follows, therefore, that:

- agricultural development must seek to strike a balance between conservation and meeting the short-term needs of farming families;
- agricultural technology in such areas must be designed to accommodate precarious environmental conditions, not solely to maximize crop yields;
- economic policy changes will usually be needed to change the market signals that poor people receive.

In the past, land degradation, particularly soil erosion, was viewed almost exclusively as a physical problem requiring technical solutions. Soil science sought to understand the physical but not the socio-economic forces encouraging such degradation. The knowledge gained about soils permitted advances in technical prescriptions such as terrace construction and contour cultivation, but did not improve our understanding of why land degradation occurred.

Incorrect land use and poor land management are the principal causes of accelerated soil erosion. They result from a combination of economic, social and political pressures which constrain the farmer's behaviour. The first step toward developing soil conservation programmes for resource-poor areas is, therefore, an analysis of why undesirable land uses are practised. The analysis might determine that several factors are at work: the pressure of population on the land, the existing land tenure system, agricultural pricing policy, inappropriate technology, etc. Solutions that meet the needs of local people may not be economically feasible, or might incur political opposition. However, available options need to be made explicit so that the required institutional and legal changes can be considered.

An analysis of the structural impediments to a more sustainable agricultural system in low-resource areas is essential if governments are to avoid embarking on costly development programmes that do not work, perhaps because they address only the symptoms, rather than the causes, of land degradation. Many conservation projects have failed because they were imposed from the top, without sufficient cultural sensitivity or involvement of local people. Local communities not involved in the planning or maintenance of the projects saw no short-term advantages, and abandoned them. For example, FAO estimates that about US$1 000 million of donor funds were ineffectually spent

1. Erosion is a natural process which cannot be entirely stopped. A sustainable situation exists when soil losses to erosion are offset by the additions to soil arising from natural processes such as weathering of the underlying rock, humification and siltation. "Moderate" land degradation is usually defined as a loss of productivity of up to one-quarter, while "severe" degradation means a loss of up to one-half the land's previous potential productivity.

during the 1970s and 1980s on group ranches and grazing schemes in Africa because the schemes paid insufficient attention to local cultures and needs.[2]

Donor resistance to small-scale projects has led to their neglect over the same period, particularly because the cost of preparing them is thought to be excessive compared with larger-scale projects. This is unfortunate because the greatest low-cost opportunities for increased and sustainable food production in low-potential areas are through such activities as water harvesting, soil erosion control, alley cropping, use of crop residues as fertilizer, agroforestry, community afforestation and small-scale irrigation. To be effective, such projects need to be devised in consultation with the local communities, and as far as possible be managed by them.

The key to sustainable development in low-resource areas is better management of farm production systems to minimize risks and enable the farm household to withstand shocks and stress to the farm system. Sustainable natural resource management thus rests on four essential pillars:

- economic and social incentives;
- community management of local projects;
- sound land-use planning, including the integration of forests and wooded areas;
- the development of improved farming systems that reverse land degradation, recognizing that erosion and soil loss are symptoms and not causes of the problem.

In low-potential areas, single-component solutions such as planting improved varieties or applying mineral fertilizers will rarely solve the problem, but relatively simple innovations may be appropriate in some situations: stone and earth bunds were introduced successfully to improve water infiltration in Burkina Faso; water harvesting has been successful in Kenya; and contour ploughing proved beneficial in Ethiopia. In most cases, however, a broader, holistic approach is needed to increase simultaneously the production of food, livestock feed and household fuel, through the closer integration of agriculture, forestry and fisheries, including aquaculture.[3]

The following strategy elements are essential to promoting development and conservation at the farm and community level in low-potential areas:

- the perception of the environment as fundamental to present and future livelihoods (i.e. jobs, income and cost savings);
- the development of labour- and time-saving technologies for fuelwood and water collection, food preparation and post-harvest storage, to alleviate the pressure on women and enable them to implement environment-saving but more labour-consuming farm technologies;
- the substitution, wherever possible, of farm-grown inputs which make little demand on household finances: integrated pest management, biological nitrogen fixation, organic waste recycling and composting, and biogas production are examples of such inputs;
- the creation of non-farm income opportunities to promote, not undermine, sustainable farming systems. Poor households will adopt sustainable practices only if they are perceived as income-enhancers. Governments and donors must be careful that efforts at income supplementation do not discourage sustainable practices;
- the search for other means of supporting household livelihood when common access to resources such as grazing lands leads to increased degradation of the resource, usually because the local institutions controlling access are breaking down;
- the adoption of government policies that seek to fill those gaps in the food system that are of critical importance to poor people in low-resource areas: post-harvest technology to avoid food losses, agroforestry, decentralized marketing, better biomass utilization, alternative sources of income generation. This will require the development and dissemination of improved agricultural technology;
- an emphasis by policy-makers on the integration of tree-growing in farming systems as well as the integration of food, fodder and fuelwood systems. It is an error to see agricultural systems and forestry as isolated from each other: poor households must manage farm and forestry resources in an integrated way;
- better environmental monitoring (satellite predictions, remote sensing, etc.) to improve planning and assessment of the population-supporting capacities of land and water resources.

2. FAO, *African Agriculture: The Next 25 Years*, 1986.

3. See "Sustainable development in famine-prone areas: approaches and issues"; paper prepared by the FAO Investment Centre for IFAD, International Consultation on Environment, Sustainable Development and the Role of Small Farmers, 1988.

Sustainable agricultural development of high-potential areas

High-potential areas commonly require many of the foregoing measures, but they can generally sustain intensive crop production using existing technologies as long as care is taken not to exceed the soil's regenerative capacity. These areas are either irrigated or blessed with reliable and adequate rainfall. Soil fertility is generally high or has the potential to be so. Existing agricultural technology is capable of raising the "population carrying capacity" of such lands.[4]

Unfortunately, many of the development projects undertaken in these resource-rich areas have not been environmentally sound. For example, some intensive irrigation programmes have neglected drainage, leading to salinity, sodicity or both. Other projects waste scarce water. In yet others, the indiscriminate use of fertilizers and pesticides is a problem. Unwise agricultural development has devastated rain forests, silted up dams and reduced soil productivity. Often, scarce financial resources have been diverted from more sustainable development possibilities and non-renewable resources have been needlessly and irreversibly depleted.

Priority must be given to sustaining the land's productive capacity while reducing its vulnerability to environmental hazards, many of which result from technological "progress" in agricultural production. Sustainable development of high-potential areas must also be coordinated where necessary with the ecologically sound development of geographically contiguous zones, such as watershed forests.

As mentioned above, for most developing countries, food security and the alleviation of rural poverty will depend on establishing sustainable production in the high-potential areas. For example, in Asia, where more than three-quarters of the world's 750 million poorest people live, 82 percent of cereals are grown on high-potential, naturally flooded or irrigated land. Not only is it essential to maintain and increase staple food production on irrigated land to feed the rural and urban poor, but it is also essential that natural resource management be improved in areas contiguous to irrigated river basins and the highly populated intensive farming systems that they support.

The food production success story of the 1970s and early 1980s was the Green Revolution, which was developed for high-potential areas. The Green Revolution expanded irrigation and introduced high-yielding varieties of rice and wheat (HYVs) which, under controlled irrigated conditions, responded dramatically to mineral fertilizers. Pest control was improved with new pesticides, which had to be used more because of the intensive monocrop cultivation's greater vulnerability to attack. However, this success carried certain economic and environmental penalties.

Such high-input, high-productivity farming systems are dependent on a steady supply of relatively expensive inputs: mineral fertilizers, fuel and pesticides. They can carry unsustainable environmental costs, so some changes are required to ensure that the advances in production are maintainable in the foreseeable future. Particular attention must be paid to the structure of soils under heavy cropping regimes, and to soil nutrient balance. Sustainability and equity would both be served by a shift to lower external input, mixed farming systems, but such systems would have to be profitable to producers and at the same time meet growing consumption needs. Such a shift would therefore have to be made gradually and carefully.

Means of minimizing or preventing environmental damage arising from such intensive cultivation include: balanced fertilizer application to compensate for the increased yields and hence greater soil nutrient removals; the introduction of new disease- and drought-resistant varieties; integrated pest management—a combination of cultural practices and biological and chemical controls that keeps to a minimum the need for and use of pesticides; and the implementation of effective regulatory controls.[5] In fact there is ample evidence from both temperate and tropical countries that the judicious use of modern inputs can raise soil fertility through the return of more crop residues to the land, which increases microbiological activity. However, suitable technologies have not been developed for all problems and situations and therefore the strategy must emphasize both the strengthening of international and national research systems and the redirection of research programmes toward the requirements of sustainable agriculture.

The following environmental threats need to be

4. FAO, *Land, Food and People*, 1984

5. The International Code of Conduct on the Distribution and Use of Pesticides, 1985, is aimed at protecting users of pesticides from the most toxic materials and thereby maintaining confidence in scientifical pest control.

addressed with urgency in the irrigated zones:

- salinity, sodicity and waterlogging of irrigated land, as well as the widespread incidence of malaria, schistosomiasis and other waterborne diseases;
- the dangers deriving from monoculture agriculture, under large-scale irrigation, which increase susceptibility to plant diseases and pests. Environmental and health problems are likely to become more severe from a possible doubling of pesticide use by the end of the century;
- increasing overexploitation of groundwater resources in areas where alternative sources of irrigation are lacking.

Solutions exist to minimize these threats: mixed cropping and genetic diversification can reduce the risks that attend reliance on monocultures, while monitoring groundwater resources and regulating access to and use of water can prevent devastating shortages of water. Operational improvements will have to focus more on increased water-use efficiency and better on-farm water management, two vital sustainable components for irrigated areas. In general, better management of natural resources in irrigated regions, and improved irrigation performance, will require more integration between irrigation management and national resource planning, particularly regarding the links between lowland and upland water catchment areas. Integrated water management must be extended outward from areas with groundwater problems, while forest and soil conservation efforts in adjacent areas must ensure sufficient water supplies for the high-potential areas. The importance of these water considerations is emphasized by the fact that for many countries irrigation is the only way of attaining sustainable increases in production. Agricultural production in the high-potential areas will be dependent for the foreseeable future on the relatively intensive use of purchased inputs such as fertilizers and pesticides.

A strategy for these areas should therefore stress the following points:

- the development of environmentally safer, lower-input integrated farming systems;
- closer integration between the management of high-potential areas and that of the land, water and forestry resources of contiguous areas;
- reform of land tenure and property rights, to secure access to high-potential land by poor farmers, including households headed by women;
- improved water management to economize on water use, to reduce land loss caused by waterlogging, salinity and sodicity, and to facilitate the safe use of marginal and waste water for irrigation.

Forests and other wooded lands

Forest resources are of vital importance to sustainable development for three reasons. First, forests protect and maintain the soil and water base. Second, they are a major source of employment and income, through the harvesting, processing and sale of products not only from the forests themselves but also from trees grown as a component of farming systems. Finally, fuelwood remains the principal source of energy for most of the world's rural poor and, often in the form of charcoal, for many urban dwellers as well. Each of these essential functions, however, makes forest resources difficult to protect in the face of growing population pressures.

Tropical forest ecosystems are also the world's principal genetic reserve due to their unparalleled richness of species.[6] Developing forest resources sustainably means simultaneously preventing genetic erosion and maintaining a balanced resource base, essential to other ecological zones. In some cases, at least those where ecosystems are varied and threatened by imminent destruction, emphasis should be placed on slowing or even preventing development, rather than stimulating it. In other situations, however, economic development can be pursued safely.

The problems of the forests have global causes and effects. Deforestation contributes to the degradation of land and to the greenhouse effect by upsetting the global carbon dioxide balance.[7] Simultaneously, fuel emissions from the industrialized countries lead to "acid rain", which causes considerable damage to the forests of northern and eastern Europe and North America.

6. Just a handful of countries (Brazil, Colombia, Mexico, Zaire, Madagascar and Indonesia) hold the bulk of both global tropical forest reserves and the world's living terrestrial species.

7. Estimates vary widely regarding the relative contributions to the greenhouse effect of fossil fuel consumption and tropical deforestation. Current estimates assign about 5 100 million tons of CO_2 a year to the burning of fossil fuels, and about 1 500 million tons to tropical deforestation, forest fires and other natural sources.

Population experiencing a fuelwood deficit, 1980 and 2000 (millions)

		Latin America	Africa	Near East and North Africa	Asia and the Pacific	Total	
1980	Total population	26	55		31	112	
	Rural population	18	49		29	96	Acute scarcity
	Total population	201	146	104	832	1 283	
	Rural population	143	131	69	710	1 052	Deficit
2000	Total population	512	535	268	1 671	2 986	
	Rural population	342	464	158	1 434	2 398	Acute scarcity or deficit

source: FAO, FUELWOOD SUPPLIES IN DEVELOPING COUNTRIES, 1983

Forest resources for environmental protection, livelihood and fuel

Forests are essential to resource conservation in several critical ecological zones. Deforestation of mountainous and hilly land not only causes soil erosion on the land that is cleared, but also, because of the burden of material transported by the increased runoff, poses a threat to downstream areas. To prevent serious environmental degradation, which threatens agriculture in both areas, integrated watershed management is needed. This means not only forest conservation and reforestation, but also the maintenance and rehabilitation of watersheds through appropriate conservation methods including, where necessary, the construction of physical works to control erosion and flooding.

In arid and semi-arid lands, where wind rather than water is the main agent of erosion, forests can contain the effects of soil erosion and remain green when grasslands dry up. Forest areas are therefore important reserves for livestock feed.[8] Similarly, tree planting can rehabilitate salt-affected land and sand dunes by tapping moisture and nutrients in the deeper soil layers. Forests similarly represent an important barrier against encroaching deserts and the impact of drought.

Forest cover is also essential to soil protection in the humid tropics. Traditionally, shifting cultivation maintained an ecological balance in the tropical forests, preventing irreversible soil degradation. Increasing population pressures, however, have necessitated shorter fallow periods which do not allow fertility to be restored. One solution to this problem would be to encourage permanent systems of cultivation, but many poor farmers already experiencing declining yields cannot afford the improvements required to maintain fertility and prevent further degradation. They simply continue to deplete the soil until it is no longer viable, and then move on and clear more forest. In some cases, they receive financial incentives to do so.[9] A better option may be to develop agroforestry as an alternative to both shifting cultivation and intensive, permanent production systems.

Forests are a major source of food in many parts of the developing world. In some parts of Africa as much as 70 percent of animal protein comes from such forest game as birds and rodents. Forests are also important revenue sources for developing countries. Indonesia, for example, makes an estimated US$120 million a year from products harvested from the tropical forest—rattan, resin, sandalwood, honey, natural silk and pharmaceutical and cosmetic compounds—even though these activities do not qualify for the fiscal and other incentives enjoyed by the logging industry. Forestry and related activities provide rural employment and income. Exports of tropical woods and forest products are also an important source of foreign exchange for many countries. Developing countries earn roughly $7 000 million annually from exports

8. For example, at the peak of the Indian drought in 1987-88, protected forest lands were opened for livestock feeding.

9. See, for example, H. Binswanger, *Fiscal and legal incentives with environmental effects on the Brazilian Amazon*, Discussion Paper 69, World Bank, 1989

of forest products—about 9 percent of their total agricultural export earnings. Forest management is labour intensive. Most of the employment it provides is at the artisan and household level—in latex collection, carpentry, handicrafts and charcoal-making.

Fuelwood comprises about 85 percent of the wood consumed in the developing countries and accounts for more than three-quarters of total energy consumption in the poorest countries. In general, the poorer the country, the greater its dependence on fuelwood—and the more vital that forests be conserved as a resource. Fuelwood is essential for cooking, without which some staple foods such as cassava are unsafe for human consumption. Other foods require cooking to make them palatable and free from pathogens.

About 100 million rural people in the developing countries live in areas with an acute scarcity of fuelwood. Another 1 000 million or so live in areas where current levels of use cannot be sustained. The problem is already so serious that it is unlikely that we can do more than mitigate it. Severe shortages of fuel seem bound to continue in the rural areas and low income urban areas of many developing countries until and unless new alternative sources of cheap energy are developed and made available on a large scale.

A strategy for forested areas

Striking the right balance between development and environmental protection is necessary if forests in the developing world are to continue to play their essential economic role. The following techniques and approaches are essential if a balanced strategy is to be found:

- Watershed management is necessary to guarantee food production in high-potential areas. Links must be maintained between forestry and food production through an integrated approach to watershed management, and incentives must be provided to rehabilitate degraded watersheds.
- Agroforestry—which combines agriculture with forestry and pastoralism—is a most promising way to link food production with improved forest management, especially in low-potential areas.
- Multipurpose forest management systems must be devised, involving production of timber, non-wood forest products, fuelwood, fodder and fibre, wildlife management and provision of services: water quality, shelter, control of air pollution, protection of soil, recreation, and the protection of natural heritage and genetic resources.
- Monitoring and evaluation systems must be introduced, including adequate base line surveys, geographic information systems , environmental impact assessment and assessment of local communities' benefits and involvement.
- Protection of genetic resources is fundamental to any forest strategy (see below).

The Tropical Forestry Action Plan

Seeking the right balance between development and environmental protection, this plan, which dates from mid-1985, represents the first serious international effort to confront the problem of saving the tropical forests in an integrated way. The Plan, launched by FAO, the World Bank, UNDP and the World Resources Institute, and currently supported by 20 donors, has the following main objectives:

- to restore the productive capacity of forested land;
- to develop the sustainable use of forest resources;
- to improve food security through better land use;
- to increase the supply of fuelwood;
- to increase income from the sale of locally manufactured products in forested areas;
- to increase local participation in forestry and forest-based industries;
- to conserve natural ecosystems and the genetic resources of the forests.

Operationally, the Action Plan covers five closely interrelated priority areas:

- The Action Programme on Forestry and Land Use focuses on the links between forestry and agriculture and the direct contribution of forestry to food security through agrosilvipastoral development; integrated watershed management; arid zone forestry and desertification control; and land use planning.
- The Action Programme on Forest-Based Industrial Development aims at promoting appropriate forest industries to use fully yet sustainably the wide range of wood and non-wood products of tropical forests, based on intensification of resource management; efficient harvesting; development of appropriate forest industries; recuperation of waste; and

development of marketing capabilities. It aims to associate the forest with industry and local people for economic development.

- The Action Programme on Fuelwood and Energy aims at restoring fuelwood supplies in countries most affected by deficits—through increasing the supply of wood by improved management of existing resources and by massive increases of fast-growing multipurpose trees in land use systems outside the forest; through more efficient use of wood energy by improved conversion technologies; and through replacing domestic wood energy with other forms of energy where possible, while still using wood energy for rural industries where a surplus of wood exists.
- The Action Programme on Conservation of Tropical Forest Ecosystems addresses the need to prevent the degradation of tropical forest plant and animal species and to promote the integrated management of wildlife and other non-wood products. The goal is to protect ecosystems and genetic resources in such a way that suitable development opportunities are at the same time offered to local people.
- The Action Programme on Institutions focuses on strengthening the institutional framework within which sustainable tropical forest development can take place, by strengthening the financial and operational effectiveness of public forestry agencies; building education and training programmes to meet professional, technical and vocational manpower requirements; establishing strong research and extension capabilities; and strengthening the institutional capabilities of local people for self-sustained action.

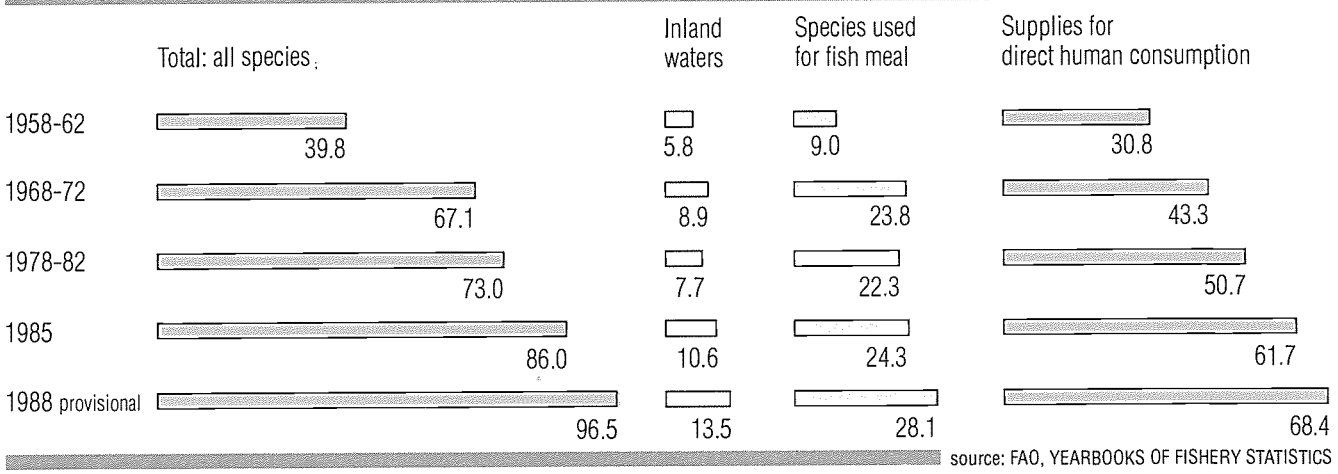
The interdisciplinary and interactive approach of the TFAP, and the way it helps, through a dialogue between technical experts, donors, policy-makers and the forest rural people themselves, to establish priorities and projects and the means to finance them, could provide a model for the sustainable development of natural resources in general. Since the inception of the TFAP in 1985, 61 countries have begun the process of formulating national forestry action plans: in 20 of those countries, plans have now been completed.

Marine and inland fisheries

For centuries, fishing communities have practised what is now called sustainability—intuitively aiming to achieve the maximum sustainable yield. In traditional societies, rights to fish certain areas were carefully controlled, and conserving fish stocks was a matter of common interest. Moreover, early in the twentieth century concerns over the rising levels of exploitation in the temperate fishery zones of the world led to growing attention to management practices and to problems arising from excessive fishing. After the Second World War, strong and sustained demand for fish for human consumption and livestock feed, in both the developed and developing countries, has put increasing pressure on fishery resources.

Improved fishing technology enabled these increased demands to be met. The two most important changes were the use of synthetic fibres in the manufacture of nets, and the freezing of catches

Annual landings of aquatic resources (excluding mammals and seaweeds) (million tons)



source: FAO, YEARBOOKS OF FISHERY STATISTICS

at sea. These innovations, together with electronic aids, mechanical net-hauling and improved vessel design, permitted widespread use of large nets and a dramatic increase in the size, versatility and operational range of fishing craft. Freezing at sea facilitated the spectacular expansion of distant-water fishing fleets in the 1960s and 1970s. Assisted by such rapid advancement in technologies, the world catch doubled from 20 million tons in 1950 to 40 million tons in 1960. The deployment of distant-water fishing vessels on a global basis by the 1960s resulted in production increasing again by another 25 million tons by 1970.

These pressures on world fish stocks, followed by only marginal increases in production between 1970 and 1975, provoked widespread action by coastal states to protect their fisheries from international fishing fleets: many unilaterally extended their fisheries jurisdiction to 200 miles. In effect, the rapid acceleration of fisheries production by a limited number of technologically advanced fishing nations caused the international open-access condition of fisheries, which had prevailed for centuries, to be closed. By 1980 almost all coastal states had taken legal steps to extend their jurisdictions to 200 miles, thereby asserting national ownership over 90 percent of the world's marine fisheries resources, and profoundly affecting the operations of vessels fishing at long range. This marked change in the legal regime of the oceans was ultimately recognized in the United Nations Convention on the Law of the Sea (UNCLOS), adopted in December 1982.

After a period of slow growth which marked the 1970s, fish production has risen significantly during the 1980s and now well exceeds 90 million tons annually. However, this renewed expansion is attributable mainly to increased catches of small shoaling pelagic species which are not only notoriously subject to fluctuations in abundance, but are also in great part reduced to fish meal for animal/fish feed rather than used for direct human consumption. The demersal stocks of fish have generally shown no real increases, thereby confirming that the yields of the stocks of most preferred food fish have reached levels of full if not overexploitation.

Meanwhile, the demand for fish, both for human consumption and for fish meal, continues to rise. Total requirements will almost certainly well exceed 100 million tons by the year 2000. In order to satisfy these growing demands, the sustained development of the fisheries sector must depend not so much on the exploitation of species hitherto neglected because of market preferences or extraction costs but rather on concerted efforts on a number of fronts.

First, further improvements in utilization practices could make a significant contribution to increasing the supply of fish. Three main areas merit priority attention: rescuing discards from trawling operations for preferred species, reduction of post-harvest losses through better landing, storage and marketing facilities, and the wider use of small pelagic species for human food products.

Second, there remains considerable potential for continued growth in the contribution of aquaculture to food supplies. Major gains may be obtained from the culture of fin-fish species through extensive aquaculture systems—including fishery enhancement in reservoirs and lakes, and even in the open seas. Greater support to artisanal aquaculturists could make a significant nutritional and social impact in rural areas of low-income countries.

Finally, high priority must be maintained on the better management of the world's fish resources. It is the key to the sound, sustained development of fisheries. Extension of national jurisdiction over fisheries, while a precondition for rational management, does not of itself ensure the more efficient conservation and use of the fish stocks. The enactment of national sovereignty must be reinforced with the legal and operational institutions necessary to design and implement conservation and management schemes.

Management must be concerned with the overall economic performance of the fisheries. To this end, intervention in fisheries must include measures not only to reduce fishing costs and improve revenues, but also to satisfy social objectives. These social considerations involve the need to protect and enhance small-scale or artisanal fishing communities which, while often among the very poorest sectors of society, produce well over 20 million tons of fish a year, almost all for direct human consumption.

One of the expectations resulting from the new regime of the seas was that distant-water fishing would be curtailed in favour of new opportunities for small-scale fisherfolk. This has occurred to some degree with the share of the world catch taken by long-range fleets declining from 12 percent in 1978 to less than 9 percent in 1986. Concerns are beginning to emerge, however, that so far governments have been unable to provide an

appropriate framework for the well-being of national fisherfolk. The open access characteristics formerly associated with fisheries worldwide continue to prevail within national jurisdictions, resulting in an excessive number of fishing units, declining yields and reduction in incomes. Small-scale fisherfolk are often unable to compete with the more technologically advanced mobile fishing gears, such as trawlers, which encroach into inshore fishing areas. Although some governments have legislated reserved zones for small-scale fishing, in many cases physical protection has not been provided to ensure that these zones are not exploited by other fishing vessels. The sustainable development of fisheries thus rests in large measure upon governments' abilities to establish the required institutions to impose common property regimes in the fisheries within their jurisdiction. This becomes crucial when the fishery resources reach their limits of exploitation and in order to avoid conflicts and social dislocation.

A strategy for fisheries

It was in response to the challenges posed by the pressures of increasing demand for fish on stocks already heavily or even overexploited, as well as the opportunities, responsibilities and problems created by the new regime of the seas arising from UNCLOS 1982, that the 1984 FAO World Conference on Fisheries Management and Development endorsed a Strategy for Fisheries Management and Development involving five Programmes of Action for implementation mainly, but not exclusively, by FAO. Five years later, the principles and guidelines of this Strategy remain valid.

The Strategy covers eight major elements. While these are interlinked, two are of particular relevance to the issue of sustainable development:

- principles and practices for the rational management and optimum use of fish resources;
- the special role and needs of small-scale fisheries and rural fishing and fish farming communities.

The first recognizes that although fishery resources are renewable, they are subject to overexploitation, depletion and the influence of environmental factors. Their management should be based on knowledge of the magnitude, distribution, annual recruitment levels and interaction between species. Obtaining such knowledge involves research. Furthermore, management should be focused on entire ecosystems.

Governments must play a major role in exercising such management through the acquisition and dissemination of information, the formulation of objectives, the adoption of fishery policies and their implementation, and the evaluation of the results. It is important to involve all groups concerned because the formulation of objectives for fisheries management involves political decisions on the allocation of access privileges and the distribution of benefits from the resource. To ensure that fish stocks are not depleted, and to avoid excessive fishing effort, fishermen must have clearly defined fishing rights and allowable catches that do not exceed the productivity of the resource.

Steps must be taken by governments and international organizations to prevent or reduce pollution and any other form of environmental degradation in order to maintain fish stocks in good condition, protect critical coastal ecosystems such as mangroves, and secure the quality of fish as food. Environmental and conservation considerations apply not only to fisheries in oceanic and coastal waters but also to inland fisheries and aquaculture where there is a particular need for protection against the effects of industrial and agricultural pollution.

Cooperation between states is required to ensure the rational and harmonized management and optimum utilization of stocks occurring within the EEZs of two or more coastal states or in the shared resources of inland waters. Cooperation should extend to foreign fishing states in their making available information on their fishing activities in coastal zones, in assisting surveillance of areas under national jurisdiction, and in adopting standard markings of their fishing vessels for easy identification.

The Programme of Action concerning the planning, management and development of fisheries recognizes that sound management and development of resources require a range of skills—in biology, economics, law and other subjects—which few developing countries possess to the extent required. There is also the continued need to search for improved techniques of management. The Programme therefore includes the provision of such skills through technical advisory services, training to develop national capacities, and measures to reinforce international collaboration to improve management of shared marine and freshwater stocks, as well as those of highly migratory fish species. Training activities are focused on the specific skills essential for management and

development, such as the collection and analysis of biological data, resource assessment, and socio-economic analysis. It also emphasizes the multi-disciplinary approaches essential for planning the optimum use of inland water or of coastal resources exploited by both small-scale and industrial fisheries. The Programme supports regional collaboration largely through the various FAO regional fishery bodies for which FAO provides the basic secretariat and administrative support. Collaboration with regional fishery bodies established outside the FAO framework is being strengthened.

The second-listed element of the fishery Strategy, the development of small-scale fisheries, while linked to the sustainable development of fishery resources also underlines the need to improve the welfare of marine and inland small-scale fisherfolk, including rural fish farmers. Since the problems of these people and their communities are not related solely to fish production, the development of this sector can often be best approached within the context of integrated rural development, based on the principles of WCARRD. The relevant Programme of Action is based on integrating into the development process technical aspects and the socio-economic needs of fishing communities; the active participation of the small-scale fishing community in both planning and implementation of development activities; the continued and assured share of fishery resources for small-scale producers, and their active involvement in the management of these resources. Explicit attention is given to enhancing the economic and social role of women in fish production and marketing; and to long-term technical support.

A strategy for conserving biological diversity and genetic resources

The maintenance of biological diversity is a precondition for sustainable development. Conversely, sustainable development is, in many respects, the key to the maintenance of biological diversity. Hungry people may have no alternative but to convert ecologically unique habitats into arable land. Thus, the effective implementation of conventions to conserve wetlands, for example, is dependent on the success of FAO and others in helping such people to raise the productivity of existing arable land, thereby taking the pressure off these unique habitats. As yet, there is no clear consensus as to what constitutes biological diversity, with some authorities using a wide definition that includes non-living components of ecosystems. FAO's proposed strategy does not explicitly consider the latter. Genetic diversity is taken to be a major element of biological diversity. Moreover, since genetic diversity also occurs in domesticated plants, animals, and fish, these are included by FAO in the concept of biological diversity.[10]

The starting point for FAO's proposed strategy for biological diversity and genetic resources is founded in Article 1 of its Constitution, which states that "The Organization shall promote and, where appropriate, shall recommend national and international action with respect to ... the conservation of natural resources". In the 1950s and 1960s the strategy focused on plant genetic resources, and on the strengthening of national capabilities for the collection, conservation, evaluation, exchange and use of plant germ-plasm. The focus was broadened in the late 1960s to include forest gene resources, so that substantial progress had been made before the Stockholm Conference in 1972 and the establishment of UNEP in 1973.

Since 1973, the activities have been widened further to include animal and fish genetic resources. FAO has developed, with UNEP, activities for the improved management and conservation of national and regional animal genetic resources. Regional gene banks in Africa, Asia and Latin America, and a

10. Biological diversity denotes the variety of life forms, the ecological roles they perform and the genetic diversity they contain, and includes all intraspecific, interspecific, and ecosystem diversity. Intraspecific diversity is a concept of the variability within a species, as measured by the variation in genes within a particular species, variety, subspecies, or breed. Interspecific diversity refers to the variety of living organisms on earth and has been variously estimated to be between 5 and 30 million or more, though only about 1.4 million have actually been described. Ecosystem diversity relates to the variety of habitats, biotic communities and ecological processes in the biosphere. Genetic diversity provides the biotic support for all biological diversities. It includes all intra- and interspecific diversity and accounts for most ecosystem diversity. From an operational perspective, genetic diversity is equivalent to the concept of genetic resources. The FAO Global System (International Undertaking, Intergovernmental Commission, and International Fund) on Plant Genetic Resources covers the conservation and use of *ex situ* and *in situ* biological diversity in plant genes, genotypes and genepools at molecular, population, species and ecosystem levels. Adapted from B.A. Wilcox, Concepts in conservation biology: applications to the management of biological diversity. In J.C. Cooley and J.H. Cooley , eds. *Natural diversity in forest ecosystems*: Proceedings of the Workshop, Athens, University of Georgia, 1984. Also see FAO/IUCN/UNESCO/UNEP, *Plant genetic resources: their conservation in situ for human use*, 1989.

global animal genetic data bank have been established. In 1983, FAO and UNEP set up a joint Expert Panel on the Conservation and Management of Animal Genetic Resources. FAO is active in the conservation and utilization of fish genetic resources, in particular by promoting the establishment of reserve areas to maintain genetic diversity at the stock level in lakes and rivers, by contributing to the reduction of the risks involved in species transfers and introductions, and by helping to preserve genetic diversity with regard to aquaculture.

The establishment in 1987 of the International Fund on Plant Genetic Resources was an important step toward ensuring that the genetic resources of the tropical forests are conserved and wisely utilized. Field projects are being designed to help countries establish and make use of gene bank facilities. *Ex situ* conservation in gene banks or live collections must be complemented by *in situ* conservation. Countries must be given help to establish pilot areas where genetic conservation can be combined with sustainable utilization. They must also be helped to conserve animal genetic resources. Finally, advances in biotechnology related to plant and animal genetics must be applied in breeding programmes in different ecological conditions.

FAO's proposed strategy is built around two primary objectives. First, the conservation of sufficient inter- and intraspecific diversity to ensure that mankind has the genetic resources with which to respond both to specific problems such as new pests and diseases, and to general and potential problems such as deterioration in growing conditions resulting from climatic and other environmental changes. Second, to promote the utilization of appropriate genetic resources and biodiversity, and to raise the economic and social importance of natural resources in specific ecosystems, for agroforestry, livestock or fisheries breeding, for example, and of biodiversity such as game cropping in natural savannah areas.

The primary mechanisms for implementing such a strategy could be the following:

- The International Undertaking on Plant Genetic Resources, which provides a basic legal document with the objective of ensuring that plant genetic resources will be explored, collected, preserved, evaluated and made available, without restriction, for plant breeding and other scientific purposes.
- The Commission on Plant Genetic Resources, an international forum where countries—donors or users of germ-plasm, or final technologies—can discuss matters relating to plant genetic resources, and monitor the implementation of the principles contained in the International Undertaking.
- The International Fund for Plant Genetic Resources, a channel for the various bodies concerned—governments, NGOs and private industries and individuals—to fulfill their common responsibility to maintain the world's plant genetic diversity. It is intended to help ensure conservation and to promote the sustainable utilization of plant genetic resources.
- The establishment of other financial mechanisms to permit some global sharing of the costs of local/national restraint in resource use.
- The TFAP's programme on conservation of tropical forest ecosystems, as outlined in the above discussion on forestry.
- The maintenance of panels of experts, for example, on forest gene resources and on the conservation and management of animal genetic resources (jointly with UNEP).
- The promotion of *in situ* conservation.
- The establishment of protected areas and *ex situ* gene banks.
- The promotion and training and other measures to strengthen national capabilities for the collection, conservation, evaluation, exchange and use of germ-plasm.
- The provision of assistance for the introduction and exchange of germ-plasm.

CONCLUSION

This discussion began by observing that "sustainable development" can be defined in different ways, but that however defined, in practice sustainable agriculture means halting natural resource depletion and destruction, and promoting the maintenance of ecologically sound increases in agricultural productivity. It observed that such processes are brought about by poverty, ignorance and perverse economic incentives that induce environmentally destructive behaviour. It emphasized that since unsustainable agricultural activity hits the poor in rural areas hardest, reform efforts must be focused at the household level. International, regional and national action should seek, above all, to change the incentives that at present encourage the misuse and overuse of natural resources. It noted further that women have an important economic role in the use of natural resources. Understanding that role and the incentives that shape women's behaviour is therefore an essential step toward better conservation and use of natural resources.

Possible ways of incorporating the costs of environmental damage more efficiently into both macro-economic and micro-economic analysis were next examined. Such techniques as environmental accounting and cost-benefit analysis can be useful in estimating the social costs of economic activity. Pricing mechanisms (including taxes and subsidies) can be used to discourage destructive behaviour, by apportioning to private decision-makers their contribution to the social costs of their actions.

The final section examined the issue of promoting sustainable development in different resource types, and the various strategies that are called for. In low-potential areas, development efforts should emphasize conservation and alternative employment opportunities, rather than putting additional strains on the environment by seeking major increases in production. In high-potential areas with better natural resource endowments, higher productivity can be achieved if sufficient attention is paid to reducing environmental costs. The depletion of the world's forestry and fishing resources were also looked at, noting that protecting these vital resources will require considerable efforts to change the incentives that at present encourage poor people to engage in unsustainable practices.

FAO can play a positive role in these efforts to achieve sustainable agriculture by providing technical assistance on all aspects of the agricultural and rural development processes, by promoting an integrated approach to natural resource management and by integrating environmental concerns into all of its activities. This will not always be easy. The natural resource endowment differs greatly from country to country, and so will the strategy for achieving sustainable agriculture. Specialists in different areas of development work tend to see problems from narrow perspectives, whether crop or livestock production, forestry or fisheries. The interrelationship of environmental issues, noted so many times in this discussion, requires a more holistic view—and this must be encouraged at all times.

FAO can help promote sustainability in several specific ways. In areas where serious and/or irreversible environmental degradation is an immediate threat, policies should be encouraged that give top priority to conservation. Special efforts must be made to discourage abuses of technology. FAO can also work with governments and other international organizations to set international standards of behaviour. Tropical forests, mangrove coasts and other genetic reserves should receive priority attention.

Interventions in less immediately threatened areas, be they low or high potential, must go beyond mere conservation and encourage new forms of sustainable production, especially in agriculture. This will involve not only the application of existing knowledge and technology, but also experimental interventions aimed at improving and expanding our understanding of how to increase agricultural output while respecting environmental limits.

Promoting small but meaningful changes in the ways the rural poor live, increasing their ability to enhance their income, and helping them to withstand shocks and stress in their life support

systems, are necessary components of any sustainable development strategy. However, such small changes will not by themselves be enough to ensure sustainable development. Neither will policy measures pitched at the national and international level be enough by themselves. The objective should be to link local changes with innovations on a wider scale and at higher levels. The challenge is to devise mutually supportive policies at the local, national and international levels that will encourage actions at the household level that will contribute to the attainment of sustainable development at all levels.

Creating a truly effective and integrated international effort to promote sustainable development is a great challenge both intellectually and politically. It will require the integration of a wide spectrum of research and policy activities among technical agencies of the UN system, donors and governments. It will also require the building of a substantial political consensus among the various participants. Above all, it implies a recognition that the environmental problems of the developing countries ultimately are woven into international markets, trade patterns and capital flows. As a consequence, reform of these structural relations is also needed: sustainable agriculture requires investment which developing nations, and especially their poor, cannot afford. This means more than just increased and improved foreign aid. It requires structural changes in the international economy to ease the debt burdens of developing countries and to improve their terms of trade in order to release resources needed to develop sustainable agricultural practices. Only in this way will developing countries be able to afford policies that cope not just with the emergencies of today, but also with the needs of tomorrow.

ANNEX TABLES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
WORLD												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	1602223	1553346	1566942	1650610	1709922	1642782	1805541	1843845	1864165	1801704	1741162	1.66
WHEAT	451172	428609	446479	455810	482650	494098	517331	505892	537643	515642	508082	1.99
RICE PADDY	388205	377041	399520	412359	423995	451241	470397	472729	472510	464804	484932	2.61
BARLEY	179919	158285	160154	151802	164244	161926	172541	176566	182391	180911	169521	.89
MAIZE	393510	418913	396026	450657	450469	347805	452800	487687	484763	459137	405139	1.17
MILLET AND SORGHUM	95386	91748	84230	101350	96191	94379	97317	105844	95649	90257	92397	.23
ROOT CROPS	598424	587631	536903	555944	558484	561895	593909	579405	582556	584073	562401	.05
POTATOES	292211	299040	241572	268589	266147	265367	292313	283339	290372	284087	265743	.07
CASSAVA	122114	117756	124091	128509	128753	125715	132243	136129	132720	134520	137123	1.33
TOTAL PULSES	44086	40825	40481	41120	45237	46986	49094	51410	53237	53856	54778	3.27
CITRUS FRUIT	51377	52963	58535	58905	57946	61867	57374	60607	62391	63225	66819	2.08
BANANAS	33595	33701	35512	36448	36570	35998	38113	38908	39784	40634	41033	2.08
APPLES	32454	36672	34154	32828	41581	39497	40052	38595	41764	38093	40901	2.02
VEGETABLE OILS,OIL EQUIV	47632	51312	49992	53680	57057	53247	59628	64613	64159	66829	66274	3.58
SOYBEANS	75381	88714	81078	88143	92103	79461	90663	101145	94355	99798	92061	2.01
GROUNDNUTS IN SHELL	18487	17980	17115	20546	18069	18695	20218	21294	21017	21405	22863	2.35
SUNFLOWER SEED	13338	15313	13617	14267	16358	15671	16541	18850	20928	20601	21106	4.97
RAPESEED	10570	10538	10609	12344	15086	13996	16531	19043	19563	22508	22102	9.04
COTTONSEED	24441	26411	26633	28716	27921	27471	34931	31721	27716	30997	32602	2.41
COPRA	4790	4234	4441	4636	4798	4686	3864	4447	5565	5120	4705	.96
PALM KERNELS	1356	1636	1776	1811	2147	1977	2336	2575	2771	2765	3065	7.84
SUGAR (CENTRIFUGAL,RAW)	90370	88363	84219	93297	102791	97443	99205	98716	101447	102058	102977	1.71
COFFEE GREEN	4722	4947	4826	6067	5089	5692	5062	5847	5173	6195	5568	1.70
COCOA BEANS	1487	1676	1666	1740	1617	1606	1767	2004	2037	2025	2222	3.46
TEA	1792	1818	1873	1875	1946	2044	2159	2313	2288	2492	2489	3.73
COTTON LINT	13251	13935	13867	15272	14853	14299	18227	17347	15120	16558	17834	2.67
JUTE AND SIMILAR FIBRES	3910	3702	3557	3605	3211	3439	3580	6333	4058	3073	3052	-.32
SISAL	503	501	528	491	492	402	425	470	439	373	374	-3.09
TOBACCO	5979	5416	5305	5965	6896	5942	6493	7009	6050	6203	6569	1.53
NATURAL RUBBER	3742	3838	3831	3785	3807	4111	4194	4358	4555	4685	4846	2.75
TOTAL MEAT	125401	130316	134386	136738	138046	142487	145874	151116	155595	160141	163227	2.61
TOTAL MILK	455500	461892	468488	470655	481716	501267	506142	513153	517703	522974	527339	1.60
TOTAL EGGS	25638	26458	27215	27880	28731	29284	30757	32641	33748	34575	35520	3.45
WOOL GREASY	2629	2688	2757	2820	2850	2882	2874	2941	2984	3047	3124	1.55
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	7476	7699	8073	8603	8904	9750	10301	11234	11846	12323	12910	6.03
MARINE FISH	54689	55056	55339	57221	58381	57979	63303	64256	69458	70764	72935	3.17
CRUST+ MOLLUS+ CEPHALOP	7842	8165	8666	8772	9264	9254	9697	9973	10461	10684	11012	3.36
AQUATIC MAMMALS	5	4	5	3	3	3	3	2	3	3	3	-5.26
AQUATIC ANIMALS	209	204	128	221	281	436	266	308	383	378	405	9.19
AQUATIC PLANTS	3240	3204	3363	3089	3132	3298	3616	3733	3484	3548	3627	1.47
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	637208	645127	614148	581084	561186	623575	646936	651617	692166	729587		
SAWLOGS NONCONIFEROUS	253032	255853	263156	254336	242533	251599	260465	256121	268447	273033		
PULPWOOD+PARTICLES	332312	357280	370756	372390	361986	369694	386425	385277	393518	405366		
FUELWOOD	1368615	1419284	1477097	1519156	1551591	1580452	1616218	1644479	1677783	1719357		
SAWNWOOD CONIFEROUS	348677	346879	333565	315548	311465	327270	343111	347182	361447	377272		
SAWNWOOD NONCONIFEROUS	108069	110244	113434	110839	107928	110928	113951	114803	117006	121754		
WOOD-BASED PANELS	104400	106477	101116	100375	96235	105454	108446	111805	118069	121995		
PULP FOR PAPER	120577	125859	128846	128786	123452	132364	140228	141283	146582	152187		
PAPER+PAPERBOARD	159633	169352	170234	170911	167252	177161	189926	192578	201897	212837		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
WESTERN EUROPE												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	168193	164352	177537	167232	181368	173604	211651	195692	191159	186364	195241	1.78
WHEAT	63933	60248	70024	66271	73690	73720	92695	80164	81149	80911	84856	3.37
RICE PADDY	1650	1831	1702	1597	1705	1519	1750	1934	2015	1895	2006	1.86
BARLEY	55362	52830	57235	50636	53714	49747	62890	58840	53698	52909	57558	.43
MAIZE	28202	32384	31280	32623	35556	34534	36439	37684	39952	36787	36873	2.67
MILLET AND SORGHUM	764	649	618	601	510	466	498	397	390	390	437	-6.21
ROOT CROPS	53084	52002	49256	48603	48371	42526	50519	51573	47988	47783	45661	-.91
POTATOES	52940	51857	49110	48465	48240	42403	50411	51458	47884	47674	45551	-.91
TOTAL PULSES	1774	1791	1873	1640	1922	2094	2686	3242	3877	4641	4776	12.18
CITRUS FRUIT	6310	6495	6629	6777	6740	8656	6420	8033	8803	7473	7933	2.62
BANANAS	431	436	511	522	492	500	489	454	531	470	499	.78
APPLES	10635	10720	10701	7646	12727	9152	10983	9206	10747	9087	10084	-.63
VEGETABLE OILS,OIL EQUIV	2737	2677	3309	2930	3762	3638	4243	4654	4716	6589	5676	8.88
SOYBEANS	85	102	66	118	233	300	389	523	1130	2040	1753	42.68
GROUNDNUTS IN SHELL	20	21	19	15	14	17	16	18	19	17	17	-1.24
SUNFLOWER SEED	1149	1276	1302	1219	1736	1891	2475	2949	3644	4615	4439	16.82
RAPESEED	1731	1696	2543	2522	3295	3141	4162	4392	4378	6558	5894	14.10
COTTONSEED	326	284	333	366	285	329	363	447	532	476	628	6.96
SUGAR (CENTRIFUGAL,RAW)	15601	15789	15732	19077	18002	14811	16569	16564	16844	15803	16439	.10
COTTON LINT	165	146	178	196	156	176	196	238	286	255	337	7.40
TOBACCO	409	439	401	435	462	436	481	497	494	467	467	1.69
TOTAL MEAT	27212	28502	29524	29687	29749	30306	31041	31212	31626	32255	32128	1.53
TOTAL MILK	136901	139554	141823	142416	146249	150639	149153	146810	142664	142465	138753	.23
TOTAL EGGS	5316	5395	5443	5536	5692	5562	5481	5566	5556	5490	5546	.29
WOOL GREASY	157	157	160	159	161	165	167	170	173	177	185	1.56
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	200	210	260	248	265	273	283	317	347	359	373	6.28
MARINE FISH	10292	10042	9956	10013	9542	9744	10192	9918	9644	9702	9843	-.37
CRUST+ MOLLUS+ CEPHALOP	1003	967	1086	1098	1159	1265	1167	1249	1294	1321	1353	3.27
AQUATIC ANIMALS	5	2	1	1	1	1	1					-21.88
AQUATIC PLANTS	295	290	258	217	233	231	253	262	281	289	299	.71
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	89561	96073	97381	90791	89591	94371	96517	94781	94233	95431		
SAWLOGS NONCONIFEROUS	24084	23882	24240	23838	22524	21723	22843	23400	24080	24121		
PULPWOOD+PARTICLES	75913	83932	83788	86401	84045	82462	87496	89252	93043	98474		
FUELWOOD	34084	35526	37305	38303	38905	39520	39921	39867	40878	40968		
SAWNWOOD CONIFEROUS	49031	53613	54877	50554	50134	52307	53470	51466	51214	51835		
SAWNWOOD NONCONIFEROUS	12538	12724	12437	11472	11210	10631	10773	10696	10757	10717		
WOOD-BASED PANELS	25535	26607	26602	24960	23577	23901	24135	24372	25165	26444		
PULP FOR PAPER	24948	26736	26647	26489	25045	26880	29171	29361	30044	31252		
PAPER+PAPERBOARD	41472	45174	44736	44707	43738	45571	49967	50075	51841	54653		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
USSR AND EASTERN EUROPE												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	312719	251009	264130	233882	269542	268617	260496	273623	303851	301618	287175	.92
WHEAT	151590	113566	127688	107425	113780	107436	105104	110359	127302	118789	123369	-.80
RICE PADDY	2269	2584	2934	2666	2651	2818	2932	2815	2921	2941	3173	2.20
BARLEY	78108	62927	59219	51413	59740	64483	58199	62261	70659	74913	62799	.45
MAIZE	29062	32920	30619	31776	40048	35967	37864	39325	44173	44464	45329	4.55
MILLET AND SORGHUM	2408	1744	2077	2035	2718	2709	2151	3155	2569	4257	2949	5.48
ROOT CROPS	154405	163116	111251	135403	129664	135629	147334	134596	150729	136824	121040	-.81
POTATOES	154403	163113	111249	135399	129661	135627	147332	134593	150725	136821	121037	-.81
TOTAL PULSES	8620	5052	7132	5290	7800	9866	10215	10883	9442	11438	10637	6.45
CITRUS FRUIT	204	340	161	313	286	415	369	156	336	199	216	-.73
APPLES	8967	11301	8567	10002	13278	13125	11935	11712	13825	9387	10647	1.61
VEGETABLE OILS,OIL EQUIV	4472	4435	4364	4364	4675	4555	4478	4673	5084	5382	5542	2.20
SOYBEANS	1012	1042	1118	907	1007	953	1001	864	1281	1246	1310	2.12
GROUNDNUTS IN SHELL	5	6	7	9	9	8	8	6	9	8	9	3.71
SUNFLOWER SEED	6794	7208	6328	6636	7350	6904	6528	7089	7717	8490	8607	2.25
RAPESEED	1306	574	1226	1097	1064	1312	1718	1932	2321	2331	2513	11.94
COTTONSEED	5210	5615	6100	5901	5690	5647	5278	4835	4550	4471	4672	-2.52
SUGAR (CENTRIFUGAL,RAW)	13621	12229	10842	10943	12450	13563	13434	12947	13424	14011	13176	1.31
TEA	111	118	130	137	140	146	151	152	146	140	160	2.92
COTTON LINT	2744	2514	2816	2905	2800	2598	2354	2791	2658	2471	2711	-.51
JUTE AND SIMILAR FIBRES	44	48	52	45	45	45	45	45	45	45	47	-.33
TOBACCO	567	627	545	574	637	670	704	698	718	635	669	2.02
TOTAL MEAT	25051	25245	25096	24844	24737	26051	26913	27298	28603	29301	29509	1.91
TOTAL MILK	135205	133850	131386	127755	129327	137329	140562	141582	144992	145795	148353	1.27
TOTAL EGGS	5397	5498	5630	5818	5853	6053	6172	6264	6464	6549	6666	2.18
WOOL GREASY	578	573	559	574	571	584	595	577	595	583	606	.50
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	1084	1141	1121	1146	1216	1277	1216	1325	1273	1304	1332	2.05
MARINE FISH	8825	8625	9067	9121	9310	9522	10369	10008	10662	10880	11155	2.65
CRUST+ MOLLUS+ CEPHALOP	210	439	567	542	734	430	370	482	625	623	633	5.89
AQUATIC ANIMALS						1		1	6			8.85
AQUATIC PLANTS	15	19	20	19	16	15	17	18	24	24	25	3.70
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	158643	154849	155724	155698	153520	156432	158709	157347	163635	164464		
SAWLOGS NONCONIFEROUS	34599	33545	33594	33619	33109	33368	34357	34125	35163	35498		
PULPWOOD+PARTICLES	55829	55277	55992	55666	56524	57323	59468	59310	61432	61124		
FUELWOOD	92055	91301	92415	96413	99038	95838	100756	103258	104462	103671		
SAWNWOOD CONIFEROUS	108612	102829	101494	100809	100153	100268	100630	101194	103617	104164		
SAWNWOOD NONCONIFEROUS	19365	18638	18260	18269	18060	18272	18430	18202	18564	18585		
WOOD-BASED PANELS	17095	17005	17464	17598	17988	18563	19480	19682	21127	21223		
PULP FOR PAPER	12161	11489	11607	11774	12052	12869	13261	13432	13342	13320		
PAPER+PAPERBOARD	14520	13989	14102	14264	14356	14993	15387	15636	15773	15931		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
NORTH AMERICA DEVELOPED												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	318607	338726	311336	381936	386618	255275	357705	395593	373112	331129	241833	-.85
WHEAT	69459	75277	84092	100608	101988	92323	91806	90251	88304	83307	64950	-.10
RICE PADDY	6040	5985	6629	8289	6969	4523	6296	6120	6049	5879	7237	-.14
BARLEY	20299	16821	19257	24033	25198	21289	23324	25263	27860	25486	16450	1.60
MAIZE	189092	206659	174400	212895	215693	111972	201705	232448	215466	186653	130372	-1.38
MILLET AND SORGHUM	18575	20509	14716	22247	21212	12384	22004	28456	23829	18778	14670	.40
ROOT CROPS	19727	18895	16715	18588	19565	18253	19833	22137	19737	21068	17854	.73
POTATOES	19129	18285	16215	18005	18889	17702	19241	21460	19159	20519	17305	.76
TOTAL PULSES	1304	1299	1676	1954	1717	1149	1361	1474	1752	2339	1624	2.57
CITRUS FRUIT	12932	12092	14954	13703	10938	12344	9790	9549	10026	10887	11325	-2.79
BANANAS	3	2	2	3	3	2	4	4	4	5	5	9.40
APPLES	3898	4121	4553	3933	4162	4283	4213	4073	3986	5262	4178	.92
VEGETABLE OILS,OIL EQUIV	12875	15756	11883	13251	14351	10900	13010	14170	13163	13306	11307	-.89
SOYBEANS	51376	62183	49612	54742	60459	45253	51565	58125	53762	53596	43029	-1.16
GROUNDNUTS IN SHELL	1793	1800	1045	1806	1560	1495	1998	1870	1679	1642	1819	1.32
SUNFLOWER SEED	1943	3528	1863	2201	2513	1502	1783	1492	1250	1235	796	-9.50
RAPESEED	3497	3411	2483	1849	2246	2609	3412	3498	3690	3847	4243	4.01
COTTONSEED	3873	5242	4056	5803	4304	2791	4671	4789	3448	5234	5492	.87
SUGAR (CENTRIFUGAL,RAW)	5482	5167	5438	5774	5384	5217	5476	5527	6197	6797	6227	1.89
COFFEE GREEN	1	1	1	1		1	1	1	1	1	1	3.58
COTTON LINT	2364	3185	2422	3406	2605	1692	2827	2924	2119	3214	3363	1.07
TOBACCO	1034	771	918	1048	975	760	873	782	595	601	680	-4.52
TOTAL MEAT	25869	26138	26978	27378	26803	27728	27999	28622	29010	29782	30612	1.57
TOTAL MILK	62716	63626	66099	68182	69691	71204	69535	72419	72568	72606	73337	1.57
TOTAL EGGS	4276	4417	4463	4477	4459	4380	4373	4520	4520	4590	4532	.44
WOOL GREASY	48	49	49	51	50	48	45	41	40	40	41	-2.42
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	396	433	476	502	485	499	491	568	527	543	557	2.92
MARINE FISH	3032	3107	3153	3122	3518	3774	3949	4162	4446	4654	4862	5.32
CRUST+ MOLLUS+ CEPHALOP	1347	1376	1350	1558	1378	1323	1647	1445	1372	1414	1445	.49
AQUATIC ANIMALS	20	10	2	2	10	10	9	11	17	17	18	10.08
AQUATIC PLANTS	196	195	191	78	103	29	63	105	82	82	82	-8.88
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	299879	298266	260961	238884	220996	276510	289792	294985	330620	365550		
SAWLOGS NONCONIFEROUS	40908	42727	43206	39834	29093	36240	38131	38294	42813	43603		
PULPWOOD+PARTICLES	146956	157282	163894	164429	156026	161024	168524	163988	166861	173411		
FUELWOOD	51645	71933	95976	107410	107595	108119	108556	108591	108522	120023		
SAWNWOOD CONIFEROUS	122491	122060	109483	98688	94908	109365	122090	125810	136114	149331		
SAWNWOOD NONCONIFEROUS	17282	18432	18650	17087	12357	14415	15944	15366	17308	18580		
WOOD-BASED PANELS	37288	36649	31026	32011	28338	34842	36378	38250	40834	40767		
PULP FOR PAPER	61368	63750	65241	65672	61122	65863	69877	68364	72386	75621		
PAPER+PAPERBOARD	68440	70896	70229	71502	67307	72157	76588	75407	79703	83589		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
OCEANIA DEVELOPED												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	26087	24143	17159	24472	15069	31940	29717	26363	25943	21182	22731	.78
WHEAT	18415	16483	11162	16686	9168	22317	18981	16477	17159	12779	14335	-.25
RICE PADDY	490	692	613	728	857	519	632	866	716	608	762	2.02
BARLEY	4265	3967	2910	3721	2295	5236	6125	5513	4167	3887	3675	1.85
MAIZE	305	348	307	325	382	282	392	466	465	382	372	3.11
MILLET AND SORGHUM	747	1162	936	1231	1355	987	1929	1395	1448	1458	1418	5.63
ROOT CROPS	1027	1012	1091	1089	1168	1127	1327	1277	1252	1310	1364	3.05
POTATOES	1010	1001	1071	1075	1157	1117	1314	1264	1239	1297	1350	3.12
TOTAL PULSES	120	175	209	225	315	321	550	862	920	1587	1585	30.65
CITRUS FRUIT	496	489	566	509	534	525	587	647	667	605	601	2.64
BANANAS	113	125	124	130	140	146	145	134	158	147	159	2.92
APPLES	444	525	510	549	520	534	513	629	632	678	676	3.73
VEGETABLE OILS,OIL EQUIV	140	159	120	126	118	105	157	266	221	186	210	5.87
SOYBEANS	77	99	82	73	77	53	89	110	105	90	65	.46
GROUNDNUTS IN SHELL	39	62	39	43	58	23	47	42	43	48	43	-.42
SUNFLOWER SEED	158	186	142	139	115	104	170	293	215	137	179	2.33
RAPESEED	24	41	18	15	7	18	33	88	84	89	82	18.86
COTTONSEED	72	79	136	161	191	164	190	410	366	330	428	19.38
SUGAR (CENTRIFUGAL,RAW)	2902	2963	3330	3435	3536	3170	3548	3379	3371	3440	3510	1.42
COTTON LINT	44	53	83	99	134	101	141	249	258	214	276	19.98
TOBACCO	19	19	18	17	15	15	16	14	12	13	14	-3.82
TOTAL MEAT	4307	4102	3799	3812	3855	3923	3583	3776	3815	4052	4134	-.30
TOTAL MILK	11724	12202	12248	12079	12203	12593	13711	14077	14447	13618	14148	2.11
TOTAL EGGS	274	268	265	278	274	275	264	250	249	252	254	-.97
WOOL GREASY	988	1025	1066	1082	1080	1073	1091	1188	1187	1236	1270	2.32
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	5	5	5	4	4	4	5	5	4	5	5	-.24
MARINE FISH	136	171	227	257	253	289	308	308	355	379	403	10.04
CRUST+ MOLLUS+ CEPHALOP	81	93	113	121	150	158	166	152	137	139	147	5.28
AQUATIC PLANTS	16	18	15	16	11	11	18	14	13	13	13	-2.56
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	6913	7021	8443	8607	8357	7703	7308	8267	8297	8305		
SAWLOGS NONCONIFEROUS	6336	5846	5881	6077	5725	4569	4556	4911	4784	4795		
PULPWOOD+PARTICLES	8335	8330	9890	10177	9513	9865	10455	11137	11577	11577		
FUELWOOD	1636	1447	1458	1818	2118	2524	2924	2924	2930	2930		
SAWNWOOD CONIFEROUS	2559	2743	3101	3370	3414	3141	3163	3496	3595	3283		
SAWNWOOD NONCONIFEROUS	2063	1986	2069	2145	2013	1790	1739	1830	1801	1801		
WOOD-BASED PANELS	1059	1073	1166	1215	1228	1053	1210	1292	1330	1439		
PULP FOR PAPER	1699	1699	1824	1913	1896	1794	1917	2065	2032	2056		
PAPER+PAPERBOARD	1867	1942	2104	2151	2188	2101	2214	2316	2267	2282		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
AFRICA DEVELOPING												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	46269	45833	48896	46948	50634	46876	45857	58827	62525	55405	62738	3.11
WHEAT	4786	4655	5419	4391	5613	4590	4701	6643	7036	6297	6718	4.02
RICE PADDY	5790	5906	6240	6289	6530	6563	6698	7086	7424	7736	7589	2.97
BARLEY	3894	3769	4464	2857	4435	2882	3113	5522	5873	4078	5528	3.57
MAIZE	14788	13588	13222	15118	15242	14176	14349	17938	19302	15907	19181	3.09
MILLET AND SORGHUM	15602	16245	17857	16821	17076	17240	15809	20268	21415	20121	22325	3.22
ROOT CROPS	80827	81555	83340	86650	90634	88336	93186	98420	99713	94255	95800	2.07
POTATOES	3044	3125	3264	3278	3543	3710	3553	4350	4121	4357	4418	4.14
CASSAVA	45678	46024	47261	49850	52431	51736	54503	57610	57496	56997	57462	2.69
TOTAL PULSES	4632	5091	4789	4709	5209	5197	4542	5555	6405	5678	5919	2.51
CITRUS FRUIT	2702	2504	2619	2559	2512	2386	2566	2439	2760	2588	2844	.43
BANANAS	3990	4164	4483	4602	4609	4587	4574	4812	5006	5150	5332	2.50
APPLES	61	64	73	81	82	83	103	118	125	131	133	8.84
VEGETABLE OILS,OIL EQUIV	3828	3646	3886	3766	3864	3771	3878	4045	4326	4377	4443	1.78
SOYBEANS	172	178	204	184	202	170	187	203	210	244	255	3.17
GROUNDNUTS IN SHELL	4000	3281	3412	3603	3659	3145	3405	3393	3899	4068	3986	.96
SUNFLOWER SEED	157	150	140	134	137	139	155	170	178	211	202	3.64
RAPESEED	22	21	22	16	16	24	16	23	25	24	25	2.10
COTTONSEED	957	894	896	850	857	941	1096	1182	1305	1317	1467	5.34
COPRA	172	182	181	176	190	197	198	201	206	211	220	2.29
PALM KERNELS	537	649	700	682	670	578	640	673	680	647	704	1.07
SUGAR (CENTRIFUGAL,RAW)	3375	3499	3534	3761	3901	3984	3966	4001	4207	4224	4226	2.34
COFFEE GREEN	1064	1088	1161	1271	1194	1179	988	1188	1246	1239	1291	1.26
COCOA BEANS	902	1030	1026	1072	881	889	1066	1088	1089	1173	1288	2.49
TEA	202	197	186	195	208	218	224	258	254	254	267	3.69
COTTON LINT	512	486	503	468	487	543	611	687	718	773	824	5.90
JUTE AND SIMILAR FIBRES	8	8	8	8	9	9	9	9	9	9	9	.78
SISAL	175	156	168	146	142	124	119	105	101	96	97	-6.38
TOBACCO	224	259	275	214	234	253	296	276	274	297	273	2.08
NATURAL RUBBER	202	198	201	206	202	207	228	239	256	275	265	3.53
TOTAL MEAT	4340	4460	4584	4691	4856	4876	4852	5044	5144	5278	5433	2.10
TOTAL MILK	8474	8690	8722	8909	9306	9326	9009	9377	10178	10196	10442	2.04
TOTAL EGGS	571	611	644	674	732	796	815	877	940	968	1007	6.03
WOOL GREASY	69	70	73	76	82	95	89	98	97	102	105	4.70
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	1345	1322	1287	1264	1327	1399	1440	1399	1508	1548	1599	2.07
MARINE FISH	1567	1539	1557	1728	1684	1782	1698	1743	1911	1949	2014	2.61
CRUST+ MOLLUS+ CEPHALOP	76	73	95	116	131	183	181	180	197	201	204	11.93
AQUATIC ANIMALS	1	1	1	1			1	1	1	1	1	-.23
AQUATIC PLANTS	5	5	5	5	5	5	5	5	5	5	5	-.49
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	1316	1032	1286	1241	1339	1177	1267	1269	1304	1415		
SAWLOGS NONCONIFEROUS	15889	16418	17496	17339	16374	16046	16644	16697	16409	16116		
PULPWOOD+PARTICLES	2610	2171	2002	2008	2037	2109	2297	2380	2171	2205		
FUELWOOD	289849	297957	307661	316770	326821	336485	347129	357336	368509	379396		
SAWNWOOD CONIFEROUS	461	494	508	570	584	531	549	528	530	588		
SAWNWOOD NONCONIFEROUS	4354	4432	5194	5310	5089	4818	5117	5503	5598	5810		
WOOD-BASED PANELS	892	938	1122	1152	1226	1256	1293	1384	1456	1463		
PULP FOR PAPER	343	409	435	471	359	381	376	417	437	428		
PAPER+PAPERBOARD	281	344	378	399	396	414	443	534	588	601		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
LATIN AMERICA												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	85470	84002	88481	104523	105221	99707	106934	110666	105368	111291	107795	2.71
WHEAT	14969	15103	14874	15202	22727	20110	21917	20208	21642	22336	19591	4.24
RICE PADDY	13588	14343	16427	15703	17545	14797	16998	17017	17588	18194	19244	2.79
BARLEY	1716	1330	1302	1262	1147	1161	1331	1260	1287	1440	1308	-.84
MAIZE	40151	39751	45242	55311	47806	47095	50925	55817	52115	56284	55216	3.22
MILLET AND SORGHUM	13727	12281	9572	16059	14785	15083	14235	15203	11607	11744	11286	-.66
ROOT CROPS	46453	45627	44032	46438	45747	41586	43785	44541	47276	46358	44881	-.02
POTATOES	10903	10988	10355	11846	11751	10086	12149	11152	11422	11887	12707	1.18
CASSAVA	31579	30941	30195	31236	30532	28075	27871	29621	32071	30590	28409	-.54
TOTAL PULSES	4725	4587	4318	5337	5482	4341	5165	5086	4924	4569	5715	1.07
CITRUS FRUIT	15492	16358	19220	20156	20740	20727	21622	23300	22390	22420	24318	3.99
BANANAS	16109	15764	16358	16506	16736	16138	17205	17210	17419	17593	17178	.97
APPLES	1475	1704	1702	1769	1816	1801	2177	2208	2060	2542	2720	5.47
VEGETABLE OILS,OIL EQUIV	5273	5865	6528	6363	6184	6632	7424	8655	8068	7946	9036	4.98
SOYBEANS	12927	15464	19814	20499	18655	20331	24445	27169	22252	26333	29936	7.07
GROUNDNUTS IN SHELL	1014	1389	1099	1012	867	799	890	993	850	958	875	-2.70
SUNFLOWER SEED	1722	1551	1757	1353	2068	2463	2268	3521	4484	2390	3015	8.87
RAPESEED	61	75	96	64	32	17	17	44	109	107	135	4.06
COTTONSEED	3218	3096	2956	2794	2447	2305	2968	3412	2737	2490	3345	-.29
COPRA	236	214	235	227	282	281	246	254	274	251	233	1.01
PALM KERNELS	298	327	328	314	308	289	295	312	332	339	347	.81
SUGAR (CENTRIFUGAL,RAW)	26909	26272	26394	27226	28896	28572	28799	28171	28439	27793	27935	.64
COFFEE GREEN	3096	3257	2981	4097	3175	3794	3403	3878	3165	4121	3423	1.45
COCOA BEANS	520	572	552	561	607	572	536	733	725	570	614	1.88
TEA	39	44	51	39	49	54	56	63	59	60	49	3.63
COTTON LINT	1808	1727	1651	1556	1354	1314	1686	1895	1476	1282	1778	-.91
JUTE AND SIMILAR FIBRES	100	108	107	129	89	95	106	95	94	92	96	-1.49
SISAL	316	333	346	335	341	270	298	357	329	267	269	-1.68
TOBACCO	768	797	732	690	758	708	721	704	693	708	743	-.74
NATURAL RUBBER	41	43	46	51	54	57	58	63	54	48	48	1.95
TOTAL MEAT	14485	14582	15081	15813	15820	15894	15447	15989	16203	16675	17096	1.45
TOTAL MILK	32777	33759	35455	35868	36610	36192	36692	37960	38421	40671	40795	2.02
TOTAL EGGS	2221	2429	2578	2620	2739	2712	2932	3135	3451	3493	3448	4.61
WOOL GREASY	298	301	306	314	317	324	320	295	313	314	315	.37
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	279	235	297	323	339	445	470	462	456	463	477	7.27
MARINE FISH	7994	9129	8605	9275	10339	8008	10757	12359	14697	15227	15852	7.24
CRUST+ MOLLUS+ CEPHALOP	576	630	539	532	570	602	656	667	670	703	725	2.60
AQUATIC ANIMALS	52	54	50	49	36	30	46	77	57	57	60	2.22
AQUATIC PLANTS	90	129	124	152	222	213	213	235	181	181	181	6.38
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	22958	26802	29294	28493	29037	30038	31452	32404	31784	31905		
SAWLOGS NONCONIFEROUS	23908	27100	30176	29789	29631	30049	30752	31084	32196	32427		
PULPWOOD+PARTICLES	19804	26641	29274	29135	29009	30748	31334	31609	31469	31650		
FUELWOOD	224078	230189	236483	240383	245294	251634	257782	263023	268538	273831		
SAWNWOOD CONIFEROUS	11289	12149	11551	11498	11174	12064	12575	13022	12980	13397		
SAWNWOOD NONCONIFEROUS	11531	12167	13717	14479	14006	14353	15073	14993	15470	15632		
WOOD-BASED PANELS	3514	3737	4283	4421	4341	4470	4610	4563	4802	4904		
PULP FOR PAPER	4134	4439	5408	5261	5566	6106	6192	6516	6805	6829		
PAPER+PAPERBOARD	6263	7026	7730	7451	7723	7962	8764	9093	9867	10418		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
NEAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	54562	53834	56010	59613	58520	55831	55778	63015	66931	65666	74665	2.73
WHEAT	30312	30726	30952	32205	32547	30993	31562	33943	37362	38208	41239	2.81
RICE PADDY	4807	4739	4705	4862	5036	4565	4597	4987	5171	5205	4889	.64
BARLEY	8177	8234	9573	10471	10587	10146	10283	11593	12445	11647	15132	5.06
MAIZE	5497	5309	5546	5536	5721	6004	6221	6662	6307	7108	6847	2.86
MILLET AND SORGHUM	4557	3625	4161	5503	3733	3296	2325	5048	4898	2722	5915	
ROOT CROPS	5880	6497	7217	7503	7773	7747	8158	9533	9604	10031	9798	5.29
POTATOES	5473	6008	6756	7039	7279	7282	7721	9079	9179	9581	9354	5.64
CASSAVA	103	127	122	125	125	125	100	90	80	80	65	-5.56
TOTAL PULSES	1732	1685	1856	1917	2282	2474	2338	2609	3095	3379	3551	8.08
CITRUS FRUIT	3306	3597	3454	3536	4119	4275	4171	3881	4492	4449	4355	2.97
BANANAS	270	260	291	312	353	358	389	424	442	453	460	6.42
APPLES	1850	2359	2539	2513	2966	3212	3539	3337	3237	3033	3331	5.05
VEGETABLE OILS,OIL EQUIV	1549	1396	1668	1339	1549	1320	1421	1342	1608	1582	1631	.52
SOYBEANS	197	195	145	209	319	340	301	357	425	476	505	12.04
GROUNDNUTS IN SHELL	923	977	814	840	610	524	495	397	490	577	586	-6.69
SUNFLOWER SEED	524	634	794	630	652	763	755	849	1004	1162	1027	6.80
RAPESEED	13	43	12	6	2							-41.99
COTTONSEED	2475	2332	2284	2222	2331	2467	2575	2512	2331	2280	2214	-.22
SUGAR (CENTRIFUGAL,RAW)	2512	2587	2492	3104	3748	3802	3702	3668	3753	4076	3754	5.01
COFFEE GREEN	5	5	5	5	4	4	5	5	5	5	6	1.78
TEA	113	133	128	76	103	137	154	177	184	272	193	8.26
COTTON LINT	1443	1372	1360	1328	1389	1442	1493	1473	1366	1336	1326	-.21
JUTE AND SIMILAR FIBRES	13	13	13	13	13	13	13	14	14	14	14	.95
TOBACCO	343	274	295	238	277	303	245	231	225	247	248	-2.73
TOTAL MEAT	3207	3310	3510	3739	3982	4093	4333	4522	4694	4729	4873	4.51
TOTAL MILK	14497	15169	15744	16454	16608	16826	16131	17247	17245	17243	17190	1.56
TOTAL EGGS	758	709	744	839	906	966	1031	1096	1171	1158	1187	5.83
WOOL GREASY	156	162	166	173	176	183	169	181	182	185	187	1.62
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	140	161	174	176	185	197	207	202	209	215	220	4.04
MARINE FISH	557	699	772	811	879	965	974	992	1024	981	1030	5.40
CRUST+ MOLLUS+ CEPHALOP	28	36	47	36	39	41	50	46	49	45	48	4.01
AQUATIC MAMMALS	2	2	3	1								
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	5216	4718	4964	5218	5214	4190	4150	4059	3833	3792		
SAWLOGS NONCONIFEROUS	1859	1523	1315	1366	1366	1371	1353	1340	1336	1317		
PULPWOOD+PARTICLES	1003	1043	672	714	712	765	513	380	382	379		
FUELWOOD	37827	40679	41839	41021	41561	42055	41254	38633	39631	40491		
SAWNWOOD CONIFEROUS	4104	4114	4127	4107	4101	3787	3794	3792	3791	3791		
SAWNWOOD NONCONIFEROUS	1146	1146	1139	1121	917	1142	1719	1725	1722	1722		
WOOD-BASED PANELS	797	797	652	629	623	654	888	978	979	980		
PULP FOR PAPER	273	463	494	487	487	517	588	588	588	588		
PAPER+PAPERBOARD	560	737	774	832	821	674	808	763	762	781		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
FAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	267447	250759	273696	290003	276050	316883	318759	323521	325294	310907	339312	2.70
WHEAT	41013	46459	44140	49540	50449	57213	58446	57939	62826	59599	59298	4.04
RICE PADDY	181435	162613	186944	193463	184162	209043	211373	222098	217244	208914	230384	2.82
BARLEY	3819	3819	2592	3366	2937	2901	2810	2292	2581	2412	2675	-3.96
MAIZE	17940	17060	19227	20325	18141	22257	23664	22251	24334	20466	26392	3.53
MILLET AND SORGHUM	23155	20725	20705	23226	20268	25390	22382	18857	18226	19420	20470	-1.42
ROOT CROPS	56888	54855	58099	60249	59060	59480	65564	65232	56998	63009	68133	1.52
POTATOES	10312	12459	10921	12424	12822	12994	15348	16046	13926	16053	16687	4.50
CASSAVA	38236	33911	39443	40179	39066	38945	42714	41856	36238	40263	44477	1.24
TOTAL PULSES	13987	13772	11241	12948	13478	14883	15140	15120	16614	14112	14496	1.72
CITRUS FRUIT	3074	3325	3717	4268	4317	4652	4718	4685	4677	4826	4914	4.46
BANANAS	10576	10705	11356	11930	11572	11532	12368	12427	12091	11779	11764	1.14
APPLES	1070	1208	1179	1462	1586	1684	1660	1692	1667	1583	1832	4.79
VEGETABLE OILS,OIL EQUIV	11357	11632	11807	13627	14173	13918	15504	16437	16967	16709	18358	5.03
SOYBEANS	1353	1387	1484	1423	1423	1602	2238	2502	2752	2715	3356	10.18
GROUNDNUTS IN SHELL	7712	7159	6440	8790	6976	8372	8135	7268	7577	7325	9081	1.07
SUNFLOWER SEED	154	114	41	91	236	349	513	504	616	709	905	29.57
RAPESEED	2042	2268	1820	2705	2764	2583	2965	3456	3072	2945	3708	5.76
COTTONSEED	3747	4229	4214	4423	4407	3345	5073	5590	5161	5291	5981	4.13
COPRA	4012	3433	3636	3833	3924	3807	2962	3518	4628	4238	3740	.70
PALM KERNELS	465	600	691	739	1087	1026	1302	1487	1652	1666	1900	14.93
SUGAR (CENTRIFUGAL,RAW)	13511	12840	9660	12013	17963	16859	13943	14169	14613	16484	17559	3.35
COFFEE GREEN	496	532	607	622	655	638	596	694	675	728	735	3.39
COCOA BEANS	33	44	54	71	97	111	132	146	186	243	280	23.30
TEA	897	890	911	923	887	919	999	1065	1018	1084	1114	2.40
COTTON LINT	1873	2114	2007	2195	2204	1673	2537	2795	2580	2643	2993	4.28
JUTE AND SIMILAR FIBRES	3165	2950	2792	2743	2484	2711	2605	4039	3137	2289	2241	-1.42
TOBACCO	1059	1002	950	990	1084	1135	1076	1097	1056	1024	869	-.35
NATURAL RUBBER	3331	3431	3415	3346	3342	3612	3656	3790	3952	4033	4201	2.38
TOTAL MEAT	5040	5483	5719	5902	6047	6453	6764	7016	7245	7515	7688	4.21
TOTAL MILK	40583	41878	43546	45235	47365	52178	55780	57435	60276	62985	66261	5.32
TOTAL EGGS	1757	1890	2038	2117	2264	2414	2486	2662	2837	2986	3125	5.85
WOOL GREASY	71	75	80	77	80	83	86	90	94	92	88	2.49
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	2364	2405	2536	2818	2777	3023	3123	3133	3338	3430	3556	4.28
MARINE FISH	7947	7859	7789	8232	8198	8762	9064	9195	9962	9839	10122	2.92
CRUST+ MOLLUS+ CEPHALOP	1801	1972	2087	2140	2204	2210	2299	2434	2544	2569	2651	3.59
AQUATIC ANIMALS	84	77	24	55	132	249	60	90	139	127	135	9.27
AQUATIC PLANTS	352	372	442	538	477	534	586	638	737	773	817	8.75
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	2920	3629	3380	3461	3523	3743	3751	3867	3866	3870		
SAWLOGS NONCONIFEROUS	80554	78791	81434	78401	79735	82966	83444	77696	82904	86200		
PULPWOOD+PARTICLES	3367	3388	3436	3168	3123	3430	3433	2789	2769	2765		
FUELWOOD	447785	457012	467007	476442	485919	496173	505949	514974	524364	533984		
SAWNWOOD CONIFEROUS	3006	3454	3148	3854	4012	4580	4220	4402	4999	5368		
SAWNWOOD NONCONIFEROUS	23533	23401	26184	25388	28810	30287	30472	31642	31912	34906		
WOOD-BASED PANELS	5859	6057	5654	6281	7174	8223	8425	9153	10095	11483		
PULP FOR PAPER	1647	1832	2055	2630	2768	3121	3305	3483	3549	3583		
PAPER+PAPERBOARD	3346	3764	3845	4211	4233	4704	5211	5351	6158	7028		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

1. VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	ANNUAL RATE OF CHANGE 1978-88
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
ASIAN CENT PLANNED ECON												
AGRICULTURAL PRODUCTS												
TOTAL CEREALS	293700	313601	303114	310120	341362	373213	394945	370257	382841	391955	384148	3.17
WHEAT	54471	63333	55823	60338	69362	82589	88918	87226	91497	89118	89020	5.88
RICE PADDY	156372	163368	161102	165905	185667	193908	204239	195191	198793	200116	197115	2.78
BARLEY	3809	4035	3125	3533	3678	3509	3887	3382	3266	3527	3770	-.44
MAIZE	58522	62634	65434	62070	63491	71401	76815	67411	74546	83683	77450	3.05
MILLET AND SORGHUM	15218	14412	12859	13055	14226	16587	15488	12439	10810	10883	12446	-2.39
ROOT CROPS	172452	156236	158121	143638	147960	159003	155674	143286	140139	154449	148826	-.99
POTATOES	30751	27906	28342	26875	27823	29821	30347	28946	27379	30642	32015	.64
CASSAVA	6378	6613	6925	6969	6444	6670	6863	6758	6650	6401	6520	-.13
TOTAL PULSES	6908	7131	7169	6879	6773	6492	6833	6319	5949	5868	6228	-1.82
CITRUS FRUIT	961	1163	1353	1470	1682	2069	2252	2654	3388	4204	5020	17.39
BANANAS	1015	1128	1235	1281	1479	1585	1787	2222	2902	3764	4360	15.62
APPLES	2723	3331	2843	3501	2941	4083	3515	4208	3953	4904	5641	6.30
VEGETABLE OILS,OIL EQUIV	4630	5066	5691	7065	7709	7779	8826	9588	9258	9932	9141	7.84
SOYBEANS	7957	7844	8339	9748	9480	10214	10173	11025	12157	12735	11468	4.85
GROUNDNUTS IN SHELL	2568	2994	3788	4021	4119	4146	5072	7033	6256	6571	6157	9.87
SUNFLOWER SEED	279	340	910	1332	1286	1341	1705	1733	1544	1241	1425	15.38
RAPESEED	1871	2404	2386	4067	5657	4288	4206	5607	5882	6605	5500	12.02
COTTONSEED	4347	4424	5422	5945	7207	9286	12529	8310	7099	8913	8156	7.52
COPRA	46	61	64	65	70	98	112	115	119	117	127	10.62
PALM KERNELS	42	43	40	41	45	47	46	48	49	50	52	2.39
SUGAR (CENTRIFUGAL,RAW)	3303	3690	3840	4486	5176	4841	5744	6726	6872	5789	6640	7.50
COFFEE GREEN	14	14	16	21	19	20	22	28	35	38	41	11.97
TEA	313	325	350	389	444	449	463	484	514	567	591	6.60
COTTON LINT	2173	2212	2711	2973	3603	4643	6265	4155	3550	4257	4078	7.35
JUTE AND SIMILAR FIBRES	578	574	584	665	570	564	800	2130	758	623	643	4.00
SISAL	9	8	8	3	3	3	3	2	3	3	3	-11.47
TOBACCO	1338	1026	994	1591	2279	1485	1909	2553	1832	2073	2466	8.01
NATURAL RUBBER	166	162	164	177	204	232	249	262	288	323	326	8.35
TOTAL MEAT	11874	14189	15717	16538	17680	18509	20160	22636	24253	25366	26483	7.93
TOTAL MILK	3232	3376	3579	3759	4168	4467	4930	5356	5884	6475	7060	8.41
TOTAL EGGS	2840	2988	3151	3258	3472	3756	4771	5815	6036	6418	7034	10.54
WOOL GREASY	157	174	196	210	223	214	202	197	204	227	234	2.72
FISHERY PRODUCTS 1/												
FRESHWATER + DIADROMOUS	1376	1468	1605	1785	1978	2289	2724	3430	3829	4093	4419	13.75
MARINE FISH	4532	4327	4466	4512	4752	4762	5046	5175	5712	5846	6021	3.42
CRUST+ MOLLUS+ CEPHALOP	1237	1122	1144	1152	1338	1435	1580	1727	2002	2079	2191	7.52
AQUATIC MAMMALS	1	1	1	1	1	1	1					-13.05
AQUATIC ANIMALS	4	14	10	19	19	20	20	22	28	29	31	16.09
AQUATIC PLANTS	1606	1519	1601	1399	1419	1535	1675	1726	1358	1364	1369	-1.03
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	29311	30973	30984	27923	28442	29419	33965	34591	35011	34977		
SAWLOGS NONCONIFEROUS	19005	20031	19665	18473	18779	19383	22283	22670	22957	22916		
PULPWOOD+PARTICLES	4647	4991	5172	4652	4786	4981	5690	6610	6921	6888		
FUELWOOD	176538	179956	183467	187081	190792	194587	198435	202366	206398	210513		
SAWNWOOD CONIFEROUS	12745	13318	13887	14511	15162	15695	17410	18270	17819	17788		
SAWNWOOD NONCONIFEROUS	7728	8025	8323	8652	9019	9291	9432	9898	9653	9637		
WOOD-BASED PANELS	2023	2328	2320	2475	2523	2709	2524	2599	2881	3251		
PULP FOR PAPER	4293	4697	4930	4967	4940	5412	5974	7229	7511	8149		
PAPER+PAPERBOARD	5249	6392	6942	7017	7581	8466	9629	11275	12024	13146		

1/ NOMINAL CATCH (LIVE WEIGHT) EXCLUDING WHALES
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

2. INDICES OF FOOD PRODUCTION

	TOTAL						PER CAPUT					
	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988
	1979-81=100					PERCENT	1979-81=100					PERCENT
WORLD	111	114	116	116	116	-.02	104	105	105	103	101	-1.63
DEVELOPED COUNTRIES	107	108	109	108	104	-3.51	104	105	105	103	99	-4.14
WESTERN EUROPE	109	107	107	109	107	-1.52	108	106	105	107	105	-1.72
EUROPEAN ECON COMMUNITY	109	108	107	110	108	-1.90	108	106	105	108	106	-2.07
BELGIUM-LUXEMBOURG	105	106	113	110	115	4.87	105	106	112	109	115	4.79
DENMARK	126	123	120	119	119	.60	126	123	120	119	119	.60
FRANCE	110	109	104	110	111	.28	107	106	101	107	107	-.03
GERMANY FED.REP. OF	112	108	115	109	113	3.38	113	109	116	110	114	3.56
GREECE	103	111	103	98	101	2.68	101	108	100	95	97	2.26
IRELAND	111	109	112	112	105	-6.15	106	103	104	103	96	-7.32
ITALY	100	102	101	105	100	-4.28	99	101	100	103	99	-4.36
NETHERLANDS	110	108	120	122	115	-5.82	108	105	117	118	111	-6.14
UNITED KINGDOM	115	112	110	109	105	-3.53	114	111	109	108	105	-3.55
OTHER WESTERN EUROPE	110	105	108	102	103	1.33	108	102	106	99	100	1.02
AUSTRIA	111	109	107	104	104	.18	111	109	107	104	104	.17
FINLAND	118	115	114	100	106	6.43	115	112	110	97	103	6.11
ICELAND	104	106	100	93	103	10.47	99	100	93	86	94	9.14
MALTA	106	113	107	102	111	8.55	103	109	102	97	105	7.72
NORWAY	111	107	102	110	111	.38	110	106	100	108	108	.21
PORTUGAL	102	107	105	113	112	-.32	99	103	101	108	107	-.95
SPAIN	114	110	109	120	111	-6.95	111	107	105	115	106	-7.53
SWEDEN	114	108	105	94	92	-2.05	114	107	104	94	92	-1.93
SWITZERLAND	108	108	110	109	112	2.25	106	106	108	107	109	2.20
YUGOSLAVIA	109	100	112	103	104	1.26	105	97	107	98	98	.63
USSR AND EASTERN EUROPE	110	110	119	117	116	-.76	107	106	113	110	109	-1.56
EASTERN EUROPE	111	109	117	113	111	-1.69	109	107	114	109	107	-2.19
ALBANIA	108	108	108	109	111	2.07	99	97	94	93	93	-.07
BULGARIA	109	96	108	103	106	2.53	107	95	106	102	104	2.13
CZECHOSLOVAKIA	120	120	125	120	121	.98	119	118	123	117	118	.65
GERMAN DEMOCRATIC REP.	105	113	115	116	117	1.05	106	114	116	116	117	.90
HUNGARY	113	107	108	108	105	-2.53	114	107	109	109	106	-2.47
POLAND	107	109	117	111	107	-3.63	103	105	111	105	100	-4.31
ROMANIA	116	109	124	120	115	-3.95	113	106	120	116	110	-4.60
USSR	110	110	118	118	118	.19	106	106	112	110	110	-.74
NORTH AMERICA DEVELOPED	103	109	104	101	91	-9.94	99	104	98	94	84	-10.72
CANADA	109	114	123	118	101	-14.07	104	108	116	110	93	-14.94
UNITED STATES	102	108	102	99	91	-8.41	98	103	97	93	85	-9.19
OCEANIA DEVELOPED	106	107	108	106	109	2.49	101	101	101	97	98	1.29
AUSTRALIA	110	107	108	103	107	3.86	104	100	100	94	97	2.57
NEW ZEALAND	106	116	112	114	115	1.07	102	111	107	107	108	.20
OTHER DEV.ED COUNTRIES	100	104	105	107	107	.49	96	98	98	99	99	-.48
ISRAEL	111	126	114	117	116	-1.04	103	115	103	104	101	-2.64
JAPAN	108	109	109	105	103	-1.88	105	105	105	100	98	-2.38
SOUTH AFRICA	88	94	97	102	106	3.23	80	83	84	86	87	.65

2. INDICES OF FOOD PRODUCTION

	TOTAL						PER CAPUT					
	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988
	1979-81=100					PERCENT	1979-81=100					PERCENT
DEVELOPING COUNTRIES	116	120	123	124	127	3.17	107	108	109	108	109	1.20
AFRICA DEVELOPING	104	113	118	115	119	4.01	92	97	98	93	93	.81
NORTH WESTERN AFRICA	104	123	128	122	127	4.13	93	107	109	101	102	1.38
ALGERIA	106	124	119	120	120	.71	94	107	99	96	94	-2.47
MOROCCO	106	119	145	118	147	24.56	96	105	125	100	121	21.73
TUNISIA	104	134	115	135	111	-18.04	96	121	102	117	94	-19.80
WESTERN AFRICA	110	117	124	120	125	4.25	97	100	103	96	97	.90
BENIN	126	132	139	127	144	13.25	112	114	117	103	113	9.76
BURKINA FASO	106	126	139	130	143	10.50	96	112	120	109	118	7.62
COTE D'IVOIRE	119	130	132	136	143	4.71	103	108	106	106	107	1.16
GAMBIA	115	117	119	118	133	12.54	107	106	106	103	113	10.24
GHANA	130	125	131	133	141	5.96	115	106	108	106	109	2.46
GUINEA	102	103	109	110	109	-.88	93	92	95	93	90	-3.30
LIBERIA	111	114	114	113	115	2.20	98	97	94	90	89	-1.06
MALI	106	114	121	115	134	16.14	95	99	102	94	107	12.79
MAURITANIA	95	99	109	108	113	4.50	84	85	91	88	89	1.32
NIGER	81	104	105	95	119	24.73	72	90	88	78	94	21.04
NIGERIA	113	121	131	123	126	2.09	99	103	107	97	96	-1.41
SENEGAL	105	126	131	144	130	-9.62	95	111	112	120	106	-12.04
SIERRA LEONE	104	102	112	110	108	-1.26	97	93	100	97	93	-3.14
TOGO	104	104	105	103	109	6.61	92	90	88	83	86	3.43
CENTRAL AFRICA	105	109	112	112	115	2.60	94	96	95	92	92	-.28
ANGOLA	102	102	103	104	104	.41	92	90	89	87	85	-2.23
CAMEROON	105	110	113	114	117	2.34	94	96	96	95	94	-.48
CENTRAL AFRICAN REP	98	102	106	97	99	2.18	90	91	92	83	83	-.26
CHAD	95	118	123	116	130	12.08	87	105	107	98	107	9.40
CONGO	102	104	107	109	111	1.59	92	91	91	91	90	-1.15
GABON	107	105	107	110	112	1.97	100	97	97	97	97	-.12
ZAIRE	113	116	117	118	120	2.22	100	100	98	96	95	-.84
EASTERN AFRICA	99	107	111	109	113	4.23	88	92	92	87	88	.91
BURUNDI	102	115	121	121	126	4.04	92	100	102	100	101	1.13
ETHIOPIA	91	99	108	104	107	2.92	83	87	92	87	87	.08
KENYA	85	110	126	117	124	5.50	72	90	98	88	89	1.16
MADAGASCAR	111	113	117	118	116	-1.34	100	98	99	97	93	-4.15
MALAWI	103	102	102	102	106	3.74	91	87	85	82	82	.36
MAURITIUS	101	111	119	121	113	-6.25	93	101	106	106	98	-7.78
MOZAMBIQUE	97	99	101	100	103	2.48	86	86	85	82	82	-.24
RWANDA	101	114	103	96	97	1.61	88	96	85	76	75	-1.75
SOMALIA	107	116	125	124	130	5.02	94	100	105	102	105	2.83
TANZANIA	109	114	115	118	116	-1.80	95	95	93	92	87	-5.31
UGANDA	100	97	98	108	117	8.63	88	83	80	85	89	4.91
ZAMBIA	104	112	116	118	126	6.93	91	95	95	93	96	3.33
ZIMBABWE	84	121	124	84	123	45.75	74	102	101	66	93	40.58
SOUTHERN AFRICA	99	99	102	114	118	3.40	88	86	85	93	93	.31
BOTSWANA	93	91	89	91	102	11.77	80	75	71	70	76	7.70
LESOTHO	89	99	91	94	108	14.81	80	87	78	79	88	11.88
SWAZILAND	113	110	128	126	125	-.62	101	95	107	102	98	-3.68
LATIN AMERICA	109	114	113	116	120	3.45	99	101	99	99	100	1.24
CENTRAL AMERICA	106	110	113	111	112	.85	95	97	96	92	91	-1.66
COSTA RICA	104	105	108	110	105	-4.23	94	92	92	92	86	-6.53
EL SALVADOR	100	98	103	100	99	-.85	89	85	86	81	78	-3.87
GUATEMALA	112	110	112	115	122	6.47	100	96	95	94	97	3.44
HONDURAS	102	102	101	105	114	8.70	89	86	83	83	88	5.40
MEXICO	107	113	112	111	111	.11	97	99	96	93	91	-2.26
NICARAGUA	89	90	90	84	89	5.63	77	76	73	66	68	2.16
PANAMA	107	111	116	119	110	-7.76	98	100	102	102	93	-9.67
CARIBBEAN	108	105	106	106	108	1.46	102	97	97	95	95	-.23
BARBADOS	81	79	88	78	75	-4.00	80	78	86	76	72	-4.75
CUBA	114	111	113	108	110	1.62	112	107	108	103	103	.64
DOMINICAN REPUBLIC	113	110	108	111	116	4.61	103	98	94	95	97	2.33
HAITI	107	110	111	110	106	-3.31	97	97	96	92	86	-5.82
JAMAICA	114	110	113	115	108	-5.96	107	103	104	104	96	-7.39

2. INDICES OF FOOD PRODUCTION

	TOTAL						PER CAPUT					
	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988
	1979-81=100					PERCENT	1979-81=100					PERCENT
SOUTH AMERICA	109	115	114	118	123	4.26	100	103	100	101	103	2.11
ARGENTINA	107	106	107	107	107	.08	101	98	97	96	95	-1.37
BOLIVIA	107	117	115	117	120	2.71	96	102	98	97	97	-.08
BRAZIL	113	124	118	128	137	7.52	104	111	103	110	115	5.32
CHILE	106	108	115	118	124	4.97	100	100	105	106	109	3.38
COLOMBIA	105	106	114	117	120	2.33	96	96	100	101	101	.25
ECUADOR	103	119	122	114	111	-2.12	92	103	102	93	89	-4.82
GUYANA	88	90	91	84	80	-4.46	81	81	81	73	69	-6.08
PARAGUAY	118	128	119	129	137	5.84	105	110	100	105	108	2.93
PERU	115	111	111	120	117	-2.99	103	98	95	100	95	-5.40
URUGUAY	104	107	104	109	109	.63	101	103	99	103	103	-.12
VENEZUELA	104	103	117	109	115	5.42	93	90	99	90	92	2.69
NEAR EAST DEVELOPING	106	113	118	117	122	3.98	96	99	101	97	98	1.06
NEAR EAST IN AFRICA	105	115	120	123	129	5.06	95	101	102	102	105	2.45
EGYPT	114	120	126	132	135	2.16	103	106	109	112	112	-.12
LIBYA	137	174	149	168	176	4.66	117	144	119	129	130	.89
SUDAN	94	116	117	104	126	21.30	84	101	99	85	100	17.85
NEAR EAST IN ASIA	107	112	117	115	120	3.60	96	99	100	96	96	.55
AFGHANISTAN	104	103	102	104	100	-3.42	102	100	95	91	84	-7.98
CYPRUS	99	97	89	94	103	9.01	95	91	83	87	94	7.90
IRAN	113	116	119	121	121	.21	101	100	100	99	96	-2.52
IRAQ	121	141	139	121	128	5.39	105	118	112	95	97	1.95
JORDAN	122	139	134	135	135	.71	106	116	107	104	101	-3.23
LEBANON	112	119	113	120	123	2.65	113	119	110	115	116	.48
SAUDI ARABIA	157	173	197	199	218	9.72	132	139	153	148	157	5.57
SYRIA	101	109	123	109	127	16.77	88	91	100	85	96	12.54
TURKEY	105	109	114	114	117	2.02	97	99	101	99	99	-.06
YEMEN ARAB REPUBLIC	91	104	116	115	132	15.15	81	91	99	95	106	11.84
YEMEN DEMOCRATIC	100	101	104	107	108	.38	89	88	88	88	86	-2.58
FAR EAST DEVELOPING	118	120	122	120	127	6.25	108	108	108	104	108	4.30
SOUTH ASIA	119	121	123	120	129	7.42	109	109	108	104	110	5.43
BANGLADESH	109	112	114	114	109	-3.76	98	98	97	94	88	-6.24
INDIA	122	124	124	121	132	9.31	113	112	111	106	114	7.45
NEPAL	116	117	112	123	125	1.65	106	105	97	104	104	-.65
PAKISTAN	115	119	130	131	138	5.15	102	102	109	108	111	2.83
SRI LANKA	101	111	110	98	102	3.45	94	101	99	87	89	1.93
EAST SOUTH-EAST ASIA	116	119	120	119	124	4.06	107	108	107	104	106	2.18
BURMA	130	139	140	141	145	3.52	120	126	124	123	125	1.58
INDONESIA	124	127	134	131	136	3.38	115	115	120	115	117	1.60
KOREA REP	109	112	111	105	114	8.00	102	103	101	94	100	6.22
LAO	129	138	145	136	132	-3.09	119	124	127	116	110	-5.41
MALAYSIA	130	148	152	156	166	6.06	118	131	132	133	138	3.83
PHILIPPINES	102	101	104	104	104	-.39	92	90	90	88	86	-2.60
THAILAND	116	120	115	114	121	6.35	107	109	103	100	105	4.65
ASIAN CENT PLANNED ECON	126	129	134	139	138	-.23	119	120	124	127	125	-1.47
CHINA	126	128	134	139	138	-.46	120	121	124	128	125	-1.62
KAMPUCHEA,DEMOCRATIC	154	167	168	165	173	5.19	141	148	146	139	143	2.61
KOREA DPR	116	121	125	129	132	2.50	105	107	108	109	109	.11
MONGOLIA	108	111	117	114	120	5.39	96	96	100	94	96	2.54
VIET NAM	122	124	133	135	136	1.26	113	113	118	117	116	-.80
OTHER DEV.ING COUNTRIES	109	111	113	111	114	2.01	99	98	97	94	94	-.33

3. INDICES OF AGRICULTURAL PRODUCTION

	TOTAL						PER CAPUT					
	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988
	1979-81=100					PERCENT	1979-81=100					PERCENT
WORLD	111	114	115	116	116	.12	104	105	104	103	101	-1.49
DEVELOPED COUNTRIES	106	108	109	108	104	-3.13	103	104	104	103	99	-3.77
WESTERN EUROPE	109	108	107	109	107	-1.39	108	106	106	107	105	-1.59
EUROPEAN ECON COMMUNITY	109	108	107	110	108	-1.76	108	107	106	108	106	-1.94
BELGIUM-LUXEMBOURG	106	107	113	110	115	4.87	106	107	112	109	115	4.78
DENMARK	126	123	120	119	119	.60	126	123	120	119	119	.60
FRANCE	109	109	104	110	110	.28	107	106	101	107	107	-.03
GERMANY FED.REP. OF	112	108	115	109	113	3.40	113	109	116	110	114	3.59
GREECE	105	113	107	101	105	3.65	102	110	104	97	101	3.23
IRELAND	111	109	112	112	105	-5.97	106	103	104	103	96	-7.15
ITALY	100	103	102	105	101	-4.29	99	101	100	103	99	-4.37
NETHERLANDS	110	108	120	122	115	-5.81	108	105	117	118	111	-6.13
UNITED KINGDOM	115	112	110	109	105	-3.44	114	111	109	109	105	-3.47
OTHER WESTERN EUROPE	110	105	109	102	103	1.40	108	102	106	99	100	1.09
AUSTRIA	111	109	107	104	104	.19	111	109	107	104	104	.17
FINLAND	118	115	114	100	107	6.43	115	112	110	97	103	6.11
ICELAND	104	106	100	93	102	10.16	99	100	93	86	94	8.84
MALTA	106	113	107	102	111	8.50	103	108	102	97	105	7.67
NORWAY	111	108	103	110	111	.40	110	106	101	108	108	.23
PORTUGAL	102	107	105	113	112	-.32	99	103	101	107	106	-.95
SPAIN	114	111	109	120	112	-6.31	111	107	105	115	107	-6.89
SWEDEN	114	108	105	94	92	-2.05	114	107	104	94	92	-1.93
SWITZERLAND	108	108	110	109	112	2.24	106	106	108	107	109	2.19
YUGOSLAVIA	109	101	113	103	104	1.44	106	97	108	98	99	.80
USSR AND EASTERN EUROPE	109	110	118	115	115	-.44	106	106	112	109	108	-1.24
EASTERN EUROPE	111	109	117	113	111	-1.65	109	107	113	109	107	-2.15
ALBANIA	107	108	107	108	113	4.52	98	96	94	93	95	2.33
BULGARIA	108	95	106	103	105	2.50	106	94	104	101	103	2.11
CZECHOSLOVAKIA	120	120	125	120	121	1.01	119	118	123	117	118	.69
GERMAN DEMOCRATIC REP.	106	114	115	116	118	1.17	106	114	115	117	118	1.02
HUNGARY	113	107	108	108	105	-2.44	114	107	109	109	106	-2.37
POLAND	107	110	117	111	107	-3.88	103	105	111	104	100	-4.56
ROMANIA	116	109	124	120	115	-3.79	113	106	120	115	110	-4.45
USSR	109	110	117	116	117	.60	105	105	111	109	108	-.32
NORTH AMERICA DEVELOPED	102	108	103	100	91	-9.32	98	103	97	94	84	-10.10
CANADA	108	115	123	117	101	-13.85	104	109	116	109	93	-14.72
UNITED STATES	102	107	100	99	91	-7.56	98	102	95	93	85	-8.35
OCEANIA DEVELOPED	106	109	110	109	112	2.92	101	103	102	100	101	1.72
AUSTRALIA	110	110	112	108	113	4.55	104	103	104	99	102	3.25
NEW ZEALAND	105	113	109	110	111	.96	102	109	104	104	104	.09
OTHER DEV.ED COUNTRIES	100	103	103	105	106	.75	96	98	97	98	97	-.23
ISRAEL	110	124	109	109	111	1.95	102	114	98	97	97	.30
JAPAN	107	107	107	103	101	-1.82	104	104	103	98	96	-2.31
SOUTH AFRICA	89	95	97	102	105	3.72	81	84	84	86	86	1.13

3. INDICES OF AGRICULTURAL PRODUCTION

	TOTAL						PER CAPUT					
	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988
	1979-81=100					PERCENT	1979-81=100					PERCENT
DEVELOPING COUNTRIES	116	120	122	123	127	2.96	107	109	108	108	109	.99
AFRICA DEVELOPING	104	113	118	115	120	3.92	92	97	98	93	94	.72
NORTH WESTERN AFRICA	105	124	129	123	128	4.10	94	108	110	102	103	1.35
ALGERIA	107	125	120	121	121	.78	95	107	100	97	95	-2.40
MOROCCO	106	120	144	118	147	24.25	96	106	124	100	121	21.42
TUNISIA	104	134	115	135	111	-17.74	96	120	102	116	94	-19.51
WESTERN AFRICA	107	117	124	120	124	3.71	95	100	103	96	97	.39
BENIN	130	136	146	132	150	13.90	115	117	122	107	118	10.39
BURKINA FASO	106	127	142	133	146	9.60	97	113	123	112	120	6.74
COTE D'IVOIRE	106	126	127	131	135	2.66	92	105	102	102	101	-.82
GAMBIA	114	117	118	116	132	13.59	106	106	105	101	113	11.27
GHANA	129	124	130	132	140	5.89	114	106	107	105	108	2.40
GUINEA	102	103	109	110	109	-.84	93	92	95	93	90	-3.27
LIBERIA	113	114	115	114	109	-3.87	99	97	95	91	85	-6.93
MALI	107	114	122	117	134	14.52	96	99	103	96	107	11.21
MAURITANIA	95	99	109	108	113	4.50	84	85	91	88	89	1.32
NIGER	81	104	105	95	119	24.68	73	90	88	78	94	20.99
NIGERIA	113	121	130	123	126	2.33	99	102	106	97	96	-1.18
SENEGAL	106	126	131	144	130	-9.70	96	110	112	120	105	-12.11
SIERRA LEONE	100	101	113	111	107	-3.76	93	92	101	98	92	-5.60
TOGO	103	106	108	107	114	6.32	92	92	90	87	90	3.14
CENTRAL AFRICA	106	109	113	112	116	3.41	95	95	96	93	93	.52
ANGOLA	100	100	101	102	102	.25	90	88	87	85	83	-2.39
CAMEROON	107	109	114	113	119	5.35	96	95	97	93	96	2.45
CENTRAL AFRICAN REP	99	103	107	98	100	2.12	91	92	93	83	83	-.31
CHAD	96	118	122	117	129	10.55	88	105	106	99	107	7.91
CONGO	102	104	107	109	110	1.71	92	91	91	90	89	-1.03
GABON	107	105	107	110	112	1.98	100	97	97	98	97	-.11
ZAIRE	113	116	117	118	121	2.27	101	100	98	96	95	-.79
EASTERN AFRICA	101	108	112	110	115	4.26	89	92	92	88	89	.94
BURUNDI	101	115	119	121	123	1.84	91	100	101	100	99	-1.01
ETHIOPIA	90	98	106	103	105	2.70	81	86	91	86	86	-.13
KENYA	102	115	128	122	130	6.61	86	94	100	91	93	2.22
MADAGASCAR	111	113	116	117	116	-1.07	99	98	98	96	92	-3.90
MALAWI	108	108	106	105	109	3.87	95	92	88	84	85	.49
MAURITIUS	103	112	119	121	114	-5.92	95	102	107	106	98	-7.46
MOZAMBIQUE	94	96	101	100	103	2.33	84	83	85	82	82	-.39
RWANDA	101	115	106	101	103	1.39	89	97	87	80	79	-1.96
SOMALIA	107	116	125	124	130	5.01	94	100	105	102	105	2.83
TANZANIA	107	111	114	118	116	-1.59	93	93	93	92	87	-5.11
UGANDA	101	99	99	108	118	9.06	89	84	81	86	90	5.32
ZAMBIA	106	113	117	117	126	7.86	93	96	96	93	97	4.23
ZIMBABWE	100	126	127	102	128	25.38	87	106	103	80	96	20.93
SOUTHERN AFRICA	98	99	101	113	117	3.26	87	85	85	92	92	.18
BOTSWANA	93	91	89	91	102	11.65	80	76	71	70	76	7.59
LESOTHO	92	101	94	97	110	13.37	83	89	80	81	89	10.47
SWAZILAND	113	110	126	124	124	-.55	100	95	105	101	97	-3.62
LATIN AMERICA	108	113	111	114	118	2.74	98	101	97	98	98	.54
CENTRAL AMERICA	104	107	109	107	108	.65	93	93	93	89	88	-1.85
COSTA RICA	110	107	110	114	113	-1.12	99	94	94	95	92	-3.48
EL SALVADOR	91	81	84	82	77	-5.60	81	70	70	66	61	-8.49
GUATEMALA	105	102	103	102	109	6.04	94	88	87	84	87	3.02
HONDURAS	101	102	101	109	113	4.45	88	86	83	86	87	1.27
MEXICO	106	111	112	110	110	-.02	96	98	96	92	90	-2.37
NICARAGUA	93	91	85	79	82	3.85	81	77	69	62	62	.43
PANAMA	108	112	117	122	111	-8.93	99	100	103	105	93	-10.81
CARIBBEAN	108	105	106	106	107	1.48	102	98	97	95	94	-.21
BARBADOS	81	79	88	78	75	-4.00	80	78	86	76	72	-4.75
CUBA	115	111	113	108	111	1.96	112	108	109	103	104	.98
DOMINICAN REPUBLIC	113	111	107	108	111	3.23	103	99	93	92	93	.99
HAITI	106	108	110	106	103	-2.97	96	95	94	89	84	-5.49
JAMAICA	114	110	114	115	109	-5.69	108	102	104	104	97	-7.12

3. INDICES OF AGRICULTURAL PRODUCTION

	TOTAL						PER CAPUT					
	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988	1984	1985	1986	1987	1988	CHANGE 1987 TO 1988
	1979-81=100					PERCENT	1979-81=100					PERCENT
SOUTH AMERICA	109	115	111	117	121	3.36	99	103	98	101	102	1.23
ARGENTINA	107	106	106	106	108	1.24	101	98	97	96	95	-.23
BOLIVIA	105	115	114	116	119	2.51	95	101	97	96	96	-.27
BRAZIL	112	125	114	127	132	3.81	103	112	100	109	111	1.68
CHILE	106	108	115	118	124	4.92	100	100	105	106	109	3.34
COLOMBIA	102	104	111	112	117	4.26	94	93	97	97	99	2.14
ECUADOR	104	120	122	115	112	-2.81	93	104	103	94	89	-5.49
GUYANA	88	89	90	84	80	-4.45	81	81	81	73	69	-6.07
PARAGUAY	120	135	121	127	141	11.24	106	116	101	103	112	8.18
PERU	112	109	109	117	115	-2.01	101	96	93	98	93	-4.45
URUGUAY	105	106	107	111	111	.11	102	103	102	106	105	-.64
VENEZUELA	104	104	117	110	117	5.71	93	90	99	91	93	2.97
NEAR EAST DEVELOPING	106	112	116	116	120	3.36	96	99	100	97	97	.46
NEAR EAST IN AFRICA	105	113	117	118	123	4.00	94	99	100	99	100	1.41
EGYPT	109	115	120	124	126	1.96	99	102	104	105	104	-.32
LIBYA	137	174	149	168	176	4.64	117	143	118	128	130	.87
SUDAN	99	119	118	106	125	17.56	88	103	99	87	99	14.21
NEAR EAST IN ASIA	107	112	116	115	119	3.13	97	98	100	96	96	.10
AFGHANISTAN	103	103	102	104	100	-4.49	101	100	94	92	84	-8.99
CYPRUS	99	97	90	95	103	8.93	95	91	83	87	94	7.83
IRAN	114	116	119	123	121	-1.44	101	100	100	101	96	-4.14
IRAQ	121	141	139	121	128	5.37	105	118	112	95	97	1.94
JORDAN	121	138	133	134	135	.80	105	116	107	104	100	-3.15
LEBANON	111	118	111	119	122	2.65	113	118	109	114	114	.48
SAUDI ARABIA	157	172	196	198	217	9.64	132	139	152	148	156	5.50
SYRIA	103	110	122	110	127	15.37	89	93	99	86	95	11.19
TURKEY	105	109	113	114	116	2.19	97	98	100	98	98	.10
YEMEN ARAB REPUBLIC	91	104	116	115	132	14.83	82	91	98	94	105	11.53
YEMEN DEMOCRATIC	101	103	105	108	109	.38	90	89	89	89	87	-2.58
FAR EAST DEVELOPING	117	120	121	119	126	5.98	107	108	107	103	108	4.03
SOUTH ASIA	118	122	122	120	128	7.11	108	109	108	104	109	5.13
BANGLADESH	109	114	114	112	108	-4.10	97	99	97	93	87	-6.57
INDIA	121	123	123	120	131	9.30	112	112	109	105	113	7.43
NEPAL	115	116	111	121	123	1.42	104	104	97	103	102	-.87
PAKISTAN	117	123	134	137	142	4.24	104	105	113	112	114	1.94
SRI LANKA	100	109	108	99	103	3.84	93	100	98	88	90	2.31
EAST SOUTH-EAST ASIA	115	118	119	118	123	3.88	106	107	106	103	105	2.01
BURMA	129	138	139	139	144	3.77	119	125	123	121	124	1.82
INDONESIA	123	126	133	131	135	3.13	114	115	119	114	116	1.36
KOREA REP	108	110	110	104	112	7.40	102	102	100	93	98	5.64
LAO	129	137	145	136	132	-2.77	118	123	127	117	111	-5.10
MALAYSIA	122	135	139	143	151	5.20	111	119	121	121	125	2.99
PHILIPPINES	102	101	104	104	103	-1.09	92	90	91	88	85	-3.28
THAILAND	115	120	116	114	122	7.03	106	109	103	100	105	5.33
ASIAN CENT PLANNED ECON	130	131	134	141	141	-.04	123	123	124	128	127	-1.29
CHINA	130	131	134	141	141	-.26	124	123	125	129	128	-1.43
KAMPUCHEA,DEMOCRATIC	155	170	172	169	177	5.09	141	151	149	143	146	2.52
KOREA DPR	116	121	125	129	132	2.54	105	107	108	109	109	.15
MONGOLIA	106	108	114	111	117	5.40	95	94	97	91	94	2.55
VIET NAM	122	125	133	135	137	1.41	113	113	118	117	117	-.64
OTHER DEV.ING COUNTRIES	108	109	110	112	115	2.92	97	97	95	95	95	.56

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... THOUSAND METRIC TONS											PERCENT
WORLD												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	74486	84921	81565	99524	105206	104979	111828	116418	105197	95892	109709	3.29
RICE MILLED	10853	9589	11644	12979	13093	12049	11504	12741	11186	12610	12540	1.40
BARLEY	13112	14585	14104	16226	20278	18346	17753	23004	21900	26060	22172	6.41
MAIZE	57763	68794	76097	80303	79442	70049	69103	68696	69767	57636	64289	-.80
MILLET	272	315	296	214	242	196	191	164	183	157	163	-6.65
SORGHUM	11937	10923	11365	11166	14466	13726	11732	12411	13334	8573	7960	-2.26
POTATOES	4696	4037	4630	4919	4948	5182	4783	4788	5048	5525	6338	2.70
SUGAR,TOTAL (RAW EQUIV.)	28985	26139	26686	27505	29347	30744	29447	28481	28339	27664	28482	.36
PULSES	1980	2116	2348	2814	3148	2962	3191	3347	3686	4773	5354	9.46
SOYBEANS	20025	24062	25489	26877	26219	28928	26592	25787	25500	27603	28830	2.12
SOYBEAN OIL	2105	2610	2953	3196	3489	3405	3652	4030	3500	2984	3994	4.42
GROUNDNUTS SHELLED BASIS	874	745	744	723	831	739	777	742	837	934	879	1.16
GROUNDNUT OIL	581	418	503	477	322	450	524	298	324	362	375	-4.03
COPRA	941	709	440	461	415	431	253	288	392	400	346	-7.93
COCONUT OIL	1110	1334	1142	1216	1358	1270	1325	991	1236	1650	1474	1.90
PALM NUTS KERNELS	279	181	160	201	138	136	120	132	99	111	115	-7.70
PALM OIL	2333	2404	2846	3617	3229	3776	4017	4315	5226	6245	5758	10.25
OILSEED CAKE AND MEAL	19110	21875	23221	25689	27792	27625	32103	28477	30816	33752	36020	5.71
BANANAS	6658	7044	6947	6956	6996	7210	6333	6948	6822	7315	7521	.55
ORANGES+TANGER+CLEMEN	5369	5182	4942	5104	4941	4955	4807	5269	4928	5940	5489	.62
LEMONS AND LIMES	887	967	915	986	923	1000	935	995	1040	1049	1043	1.42
COFFEE GREEN+ROASTED	2934	3440	3787	3738	3739	3961	4030	4208	4442	4034	4441	3.23
COCOA BEANS	972	1086	930	1064	1335	1252	1207	1354	1393	1502	1520	4.77
TEA	904	885	903	983	952	925	972	1077	1097	1098	1095	2.40
COTTON LINT	3929	4472	4366	4828	4264	4413	4297	4303	4264	4647	5468	1.38
JUTE AND SIMILAR FIBRES	567	496	559	519	573	512	508	495	386	533	502	-1.49
TOBACCO UNMANUFACTURED	1280	1439	1374	1353	1491	1430	1338	1389	1392	1323	1341	-.11
NATURAL RUBBER	3292	3317	3422	3329	3148	3115	3450	3647	3653	3708	4097	1.84
WOOL GREASY	1103	890	937	907	952	874	893	882	904	945	1018	-.35
BOVINE CATTLE 1/	6655	7580	7409	7042	7187	7687	7101	6810	6515	7148	7133	-.32
SHEEP AND GOATS 1/	12430	14776	15275	18647	17615	18444	20582	19635	18883	19001	21465	4.30
PIGS 1/	6942	7951	8421	10746	9846	9357	9583	10119	10227	11799	12298	4.53
TOTAL MEAT	6811	7099	7829	8086	8855	8578	8938	8796	8984	9825	10023	3.54
MILK DRY	586	602	661	871	868	817	743	823	839	872	1042	4.47
TOTAL EGGS IN SHELL	573	606	656	746	806	825	793	841	772	748	781	2.86
FISHERY PRODUCTS												
FISH FRESH FROZEN	3342	3857	4254	4436	4575	4639	5098	5295	6019	7009	6946	7.11
FISH CURED	395	392	428	441	464	431	408	404	421	438	450	.69
SHELLFISH	865	989	1151	1065	1139	1247	1436	1601	1654	1753	1796	7.62
FISH CANNED AND PREPARED	791	853	890	1027	1066	942	916	994	1034	1136	1153	3.01
SHELLFISH CANNED+PREPAR	109	112	115	138	150	162	184	196	205	228	237	8.89
FISH BODY AND LIVER OIL	577	693	725	741	727	686	730	949	994	792	763	3.12
FISH MEAL	2046	2078	2335	2358	2163	2662	2324	2658	3231	3255	3130	4.85
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	28593	29773	31753	27909	22485	26315	29386	30888	32609	32663	35712	1.87
SAWLOGS NONCONIFEROUS	47067	48311	45953	42001	32973	33260	32248	29593	29958	28903	32672	-5.21
PULPWOOD+PARTICLE	35121	32616	35824	39944	38596	33372	33538	37376	38684	40866	44446	1.87
FUELWOOD	2423	1894	2243	2780	2248	2392	2784	2653	2364	2107	2236	.27
SAWNWOOD CONIFEROUS	61710	65879	68743	65938	60646	61439	70576	72755	73473	73653	78782	2.03
SAWNWOOD NONCONIFEROUS	11168	11994	13380	12545	10950	10923	12507	12579	11887	12815	15491	1.54
WOOD-BASED PANELS	14971	16401	16680	16323	16759	15443	17389	18223	19101	20539	23025	3.44
PULP FOR PAPER	15594	17489	18709	19756	18755	17314	19810	20334	20596	22089	23296	3.08
PAPER AND PAPERBOARD	28292	30273	33285	35041	35364	33667	36812	39902	40906	43554	47027	4.57

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
WESTERN EUROPE												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	12860	13773	16091	19923	23693	22408	23811	27408	29646	27688	29590	8.96
RICE MILLED	738	839	874	943	999	933	941	984	1198	1193	1156	4.29
BARLEY	4408	8634	7197	8052	10796	7416	8390	11526	12791	13762	11050	8.18
MAIZE	4457	4869	5050	5474	4808	5743	7705	7809	7025	9310	9529	8.10
MILLET	12	12	13	15	20	20	26	20	24	17	15	5.07
SORGHUM	385	262	308	206	240	269	159	165	190	124	191	-7.71
POTATOES	2707	2798	3016	3455	3543	3666	3517	3526	3778	4174	4773	4.79
SUGAR,TOTAL (RAW EQUIV.)	3924	4448	4632	5628	6147	6466	6078	5631	5261	5561	6568	3.55
PULSES	302	353	450	458	448	419	606	814	1240	1205	1430	16.90
SOYBEANS	120	237	353	327	160	207	127	88	95	153	287	-3.76
SOYBEAN OIL	767	1099	1208	1204	1272	1380	1387	1427	1323	1271	1446	4.13
GROUNDNUTS SHELLED BASIS	21	28	14	18	24	25	17	24	24	33	41	5.24
GROUNDNUT OIL	44	45	64	79	68	74	99	62	61	56	51	1.23
COPRA	3	4	1	2		1						-45.19
COCONUT OIL	163	119	61	43	58	87	60	57	51	54	67	-6.61
PALM NUTS KERNELS	1	1	2	3	1	2					1	-21.69
PALM OIL	111	97	92	123	114	94	123	131	141	171	156	5.08
OILSEED CAKE AND MEAL	2518	3438	3957	4247	4921	5330	6420	6112	6364	5589	6819	8.87
BANANAS	31	41	43	43	48	46	35	47	35	81	113	7.85
ORANGES+TANGER+CLEMEN	2113	1921	1907	1799	1659	1880	1702	2439	1957	3024	2512	3.13
LEMONS AND LIMES	464	505	483	512	433	574	449	532	542	597	566	1.95
COFFEE GREEN+ROASTED	78	102	130	106	122	126	142	165	202	209	232	10.19
COCOA BEANS	30	34	31	44	48	52	52	66	76	78	74	10.84
TEA	60	50	46	43	44	43	51	56	56	52	55	1.01
COTTON LINT	70	71	60	57	55	75	69	69	98	78	156	6.07
JUTE AND SIMILAR FIBRES	17	19	16	17	17	15	16	14	14	13	11	-3.93
TOBACCO UNMANUFACTURED	153	223	234	197	210	247	249	265	243	254	309	4.55
NATURAL RUBBER	27	21	21	16	14	15	16	23	23	22	28	1.50
WOOL GREASY	57	60	65	69	61	57	69	65	62	63	79	1.52
BOVINE CATTLE 1/	2979	3322	3291	3412	3620	3546	3493	3537	3422	3739	3636	1.49
SHEEP AND GOATS 1/	1318	1732	1384	1418	927	784	1196	1142	1415	1553	1925	1.23
PIGS 1/	3106	3421	4004	4777	4747	4537	4737	4688	4751	6685	7109	6.85
TOTAL MEAT	2648	2822	3173	3673	3900	3788	4076	4303	4453	5027	4967	6.41
MILK DRY	433	450	515	660	673	599	531	641	624	616	773	4.11
TOTAL EGGS IN SHELL	349	382	444	506	538	601	596	586	541	548	557	4.43
FISHERY PRODUCTS												
FISH FRESH FROZEN	1136	1395	1691	1652	1796	1885	1993	1956	2124	2283	2254	6.11
FISH CURED	259	253	275	275	302	271	265	269	281	284	296	.94
SHELLFISH	230	263	277	277	325	312	346	406	408	378	377	5.52
FISH CANNED AND PREPARED	250	262	267	261	268	267	272	276	289	292	292	1.43
SHELLFISH CANNED+PREPAR	34	36	38	42	47	57	72	75	83	82	82	11.08
FISH BODY AND LIVER OIL	339	271	297	333	335	270	265	270	392	274	252	-1.14
FISH MEAL	1020	871	951	922	846	825	934	1007	929	855	816	-.90
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	2590	1899	2395	2937	2735	2429	2494	2786	3282	2906	3423	3.56
SAWLOGS NONCONIFEROUS	2077	2017	2055	2257	2128	1928	2011	2335	2458	2639	2873	2.99
PULPWOOD+PARTICLE	7575	6846	8321	10313	10737	9666	8771	10595	12051	13620	13669	6.25
FUELWOOD	1033	551	797	965	745	1010	1241	1172	940	911	1005	3.01
SAWNWOOD CONIFEROUS	16554	18051	20349	19783	17142	18334	20620	20377	19637	19183	19350	1.06
SAWNWOOD NONCONIFEROUS	2494	2756	2514	2395	2037	1896	2017	2428	2261	2240	2524	-.97
WOOD-BASED PANELS	6194	6737	7386	7047	6696	6312	6459	6899	7150	7424	7834	1.27
PULP FOR PAPER	5578	6705	6857	6661	6219	5616	6749	7086	7197	7297	7698	2.11
PAPER AND PAPERBOARD	13753	15659	17385	17423	18108	17770	19661	21939	22707	23404	26079	5.75

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
USSR AND EASTERN EUROPE												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	5443	3969	5002	4170	4380	5092	4042	3680	4758	3769	3536	-2.55
RICE MILLED	11	13	24	33	25	28	38	64	41	39	22	10.79
BARLEY	1725	222	232	336	247	276	276	277	276	226	227	-8.54
MAIZE	1318	1493	554	1325	1770	1326	860	694	977	961	748	-4.36
MILLET	3	3	5	6	3	5	4	3	2	4	5	.13
SORGHUM	5	7	7	5	9	6	4	4	6	9	23	6.20
POTATOES	682	371	655	322	323	299	185	141	268	302	497	-6.40
SUGAR,TOTAL (RAW EQUIV.)	808	953	717	738	631	807	762	871	1055	1235	1002	3.51
PULSES	117	135	145	122	122	112	118	179	212	249	336	9.10
SOYBEANS	32	6	30	5	4	5	5	11	6	5		
SOYBEAN OIL	13	7	10	17	14	20	15	35	25	10	9	3.94
GROUNDNUTS SHELLED BASIS			1	1				2				
COCONUT OIL			1	1								
OILSEED CAKE AND MEAL	61	53	20	27	91	115	107	63	205	163	53	12.23
ORANGES+TANGER+CLEMEN				1	2	2	1	1	2	2	2	
COCOA BEANS							5	12				
TEA	22	17	17	20	18	17	26	30	19	6	5	-8.51
COTTON LINT	976	865	807	863	928	970	826	663	698	731	813	-2.39
JUTE AND SIMILAR FIBRES											1	
TOBACCO UNMANUFACTURED	99	89	102	103	90	88	85	81	80	89	76	-2.32
WOOL GREASY	1	2	3	3	1		1	1	1	1	1	-7.49
BOVINE CATTLE 1/	540	544	676	577	460	607	705	707	673	659	778	3.15
SHEEP AND GOATS 1/	3504	3800	4719	4598	3720	3654	4179	4232	3166	3075	3924	-1.38
PIGS 1/	720	1158	1152	1144	1713	1091	973	857	1070	1096	1271	1.15
TOTAL MEAT	658	620	744	738	779	715	758	832	831	914	882	3.29
TOTAL EGGS IN SHELL	120	114	104	90	78	59	55	65	44	39	47	-10.80
FISHERY PRODUCTS												
FISH FRESH FROZEN	535	563	596	613	500	418	543	539	607	823	822	3.28
FISH CURED	11	15	21	17	11	6	18	6				-47.72
SHELLFISH	22	16	21	10	17	51	114	135	113	78	81	25.61
FISH CANNED AND PREPARED	46	37	33	37	36	30	38	39	66	67	67	6.00
SHELLFISH CANNED+PREPAR	1	1	1	2	1	2	2	1	1	2	2	1.77
FISH BODY AND LIVER OIL	1	1	1	1								
FISH MEAL	14	21	20	22	12	9	12	8	11	12	12	-6.08
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	9919	10281	8774	7430	6783	7025	7762	8085	8271	9791	9327	-.34
SAWLOGS NONCONIFEROUS	315	296	404	384	285	289	315	232	193	194	214	-5.96
PULPWOOD+PARTICLE	12155	11375	11667	11463	11529	9631	10909	12616	12617	12948	13949	1.44
FUELWOOD	115	141	143	183	94	70	92	121	132	149	171	1.04
SAWNWOOD CONIFEROUS	10592	10782	9956	9513	9363	9630	9697	9476	9701	10238	9978	-.50
SAWNWOOD NONCONIFEROUS	702	752	600	597	539	487	536	564	389	338	488	-5.69
WOOD-BASED PANELS	1791	1875	1842	1827	1683	1548	1598	1437	1488	1623	1916	-1.27
PULP FOR PAPER	856	926	827	895	896	982	1162	1217	1227	1366	1326	5.41
PAPER AND PAPERBOARD	1653	1779	1664	1732	1697	1745	1775	1806	1795	1927	1999	1.49

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
NORTH AMERICA DEVELOPED												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	40736	50841	47174	54495	61342	61264	63319	65263	43528	42863	55214	.90
RICE MILLED	2288	2279	2301	3054	3133	2540	2385	2141	1940	2392	2472	-.83
BARLEY	4343	4249	4654	4195	6853	7097	7258	5876	2938	7586	8468	4.66
MAIZE	40580	50550	59414	63923	56067	49658	48099	49602	44362	27486	41097	-3.49
MILLET		23	15	60	24	28	41	55	39	74	58	
SORGHUM	6139	5184	5950	8050	8032	6051	5325	6828	7239	4149	5009	-1.86
POTATOES	503	282	289	344	395	461	363	296	321	319	356	-1.18
SUGAR,TOTAL (RAW EQUIV.)	166	149	135	654	1187	154	323	399	436	545	673	12.98
PULSES	374	390	470	913	1141	854	679	635	646	841	930	6.89
SOYBEANS	16234	20794	20951	21882	21980	25652	22791	19641	17052	21576	21513	.69
SOYBEAN OIL	768	916	1110	1081	809	911	786	1043	588	540	624	-4.58
GROUNDNUTS SHELLED BASIS	302	381	356	285	146	201	224	266	311	276	221	-2.67
GROUNDNUT OIL	45	40	5	18	20	10	2	7	17	35	3	-12.52
COCONUT OIL	17	9	5	19	14	13	11	21	19	18	39	10.18
OILSEED CAKE AND MEAL	4740	6793	6845	8009	7471	6917	7517	5551	5599	7378	8258	1.63
BANANAS	199	201	197	205	217	210	188	202	197	163	188	-1.19
ORANGES+TANGER+CLEMEN	410	356	318	482	443	353	497	374	412	417	403	.85
LEMONS AND LIMES	236	237	173	171	176	135	163	148	144	148	152	-4.45
COFFEE GREEN+ROASTED	106	59	79	79	70	60	43	63	52	77	60	-3.54
COCOA BEANS	14	9	9	7	14	14	16	12	11	14	17	4.67
TEA	4	5	5	5	4	4	5	5	13	22	16	16.88
COTTON LINT	1017	1347	1527	1823	1269	1392	1201	1500	1095	657	1195	-3.14
JUTE AND SIMILAR FIBRES	2	1										-17.34
TOBACCO UNMANUFACTURED	314	364	299	293	300	290	264	275	277	247	226	-3.30
NATURAL RUBBER	25	20	21	28	18	16	20	35	41	37	37	6.54
WOOL GREASY					1	1	1	1	1	1	1	10.17
BOVINE CATTLE 1/	651	592	436	424	441	563	440	479	506	355	399	-3.40
SHEEP AND GOATS 1/	214	153	135	144	225	287	226	332	382	145	67	-1.14
PIGS 1/	54	201	145	254	171	342	483	1362	1171	515	435	25.42
TOTAL MEAT	700	721	777	973	1073	987	926	956	1013	1150	1285	5.14
MILK DRY	16	7	5	36	37	29	37	19	49	30	12	9.59
TOTAL EGGS IN SHELL	38	39	30	61	87	64	31	25	22	19	35	-6.15
FISHERY PRODUCTS												
FISH FRESH FROZEN	345	383	424	480	638	801	918	1167	1465	1908	1905	20.83
FISH CURED	65	63	64	76	87	89	70	65	70	79	79	1.49
SHELLFISH	71	93	133	115	88	80	80	71	83	97	96	-.71
FISH CANNED AND PREPARED	52	63	64	81	93	68	82	96	85	100	96	5.62
SHELLFISH CANNED+PREPAR	9	11	11	11	11	11	4	3	3	6	6	-10.35
FISH BODY AND LIVER OIL	60	110	101	137	117	98	191	188	133	92	92	3.15
FISH MEAL	61	82	40	108	75	42	95	41	58	55	55	-2.46
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	14362	15565	17865	15135	11676	15269	17395	18441	19320	18316	21212	3.35
SAWLOGS NONCONIFEROUS	481	522	630	784	751	506	755	761	602	779	879	4.10
PULPWOOD+PARTICLE	8710	8216	9463	9887	8382	6605	6422	5846	5613	5933	6249	-5.18
FUELWOOD	200	170	98	63	108	85	85	90	89	82	76	-6.70
SAWNWOOD CONIFEROUS	32305	34492	35407	33612	31770	31423	38296	40879	42219	42232	47162	3.52
SAWNWOOD NONCONIFEROUS	847	1341	1025	1190	1209	1083	1340	1373	1172	1513	2174	5.60
WOOD-BASED PANELS	1774	2061	2053	2312	2533	2088	2401	2668	2754	2948	3293	5.26
PULP FOR PAPER	7723	8132	8906	9838	9261	8531	9428	9611	9791	10917	11909	3.33
PAPER AND PAPERBOARD	11232	11124	12326	13675	13134	11931	12918	13390	13372	14676	15450	2.66

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	THOUSAND METRIC TONS											PERCENT
OCEANIA DEVELOPED												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	8196	11134	6933	14955	10677	10998	8312	10647	15782	16171	14898	5.62
RICE MILLED	255	277	241	457	281	596	405	246	341	178	186	-2.86
BARLEY	2157	1375	1757	3047	1650	1599	852	3231	5482	4399	2345	7.48
MAIZE	79	32	75	37	52	24	73	30	164	117	103	8.30
MILLET	23	15	18	14	11	25	19	18	16	16	24	.97
SORGHUM	829	385	516	580	463	1271	445	772	1594	1234	818	8.04
POTATOES	29	20	18	23	21	23	26	21	24	19	19	-1.15
SUGAR,TOTAL (RAW EQUIV.)	2558	2481	1842	2203	2563	2502	2551	2361	2529	2760	2481	1.24
PULSES	42	36	45	72	64	71	106	78	100	219	480	22.68
SOYBEAN OIL							1					
GROUNDNUTS SHELLED BASIS	4	2	2	12	4	4	8		5	3	3	-5.07
GROUNDNUT OIL						1				1		
PALM OIL										2		
OILSEED CAKE AND MEAL	2		1	1		1	1	2	1	13	16	44.70
ORANGES+TANGER+CLEMEN	11	22	25	38	32	28	32	25	30	36	48	8.70
LEMONS AND LIMES	1			4	1	2	1	1	1	5	4	18.20
COCOA BEANS							1	1	1			7.00
TEA		1										-7.26
COTTON LINT	6	10	24	49	59	79	129	81	140	241	251	42.66
TOBACCO UNMANUFACTURED		1		1	1		1					-18.41
NATURAL RUBBER				1					1	2	3	14.62
WOOL GREASY	826	630	705	650	680	642	660	659	709	733	799	.41
BOVINE CATTLE 1/	45	71	107	74	109	121	120	96	67	181	125	7.58
SHEEP AND GOATS 1/	3409	4143	3898	6172	5763	6097	7035	6350	6262	6554	8382	7.56
PIGS 1/		1	1	2	1		1	3				-2.62
TOTAL MEAT	1643	1664	1814	1494	1602	1493	1666	1351	1323	1361	1642	-1.73
MILK DRY	113	125	123	157	137	157	146	148	152	202	227	5.58
TOTAL EGGS IN SHELL	1	1	1	1	1	1	3	6	2	2	1	2.64
FISHERY PRODUCTS												
FISH FRESH FROZEN	28	32	54	81	95	88	98	94	97	118	118	14.07
FISH CURED				1	1	2	1		1	3	3	25.99
SHELLFISH	17	20	32	56	57	70	68	78	70	61	61	13.54
FISH CANNED AND PREPARED			1	3	2	4	5	4	4	4	4	27.13
SHELLFISH CANNED+PREPAR	2	2	2	2	2	2	3	3	3	3	3	4.72
FISH BODY AND LIVER OIL	6	5	4					2	2	1	1	-3.53
FISH MEAL					1			4	1	2	2	
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	1027	936	1236	971	529	479	508	452	361	389	429	-11.26
SAWLOGS NONCONIFEROUS	3	2	1	4	4				1	1	22	-4.08
PULPWOOD+PARTICLE	5326	5074	5357	7064	6647	6240	6105	7345	7376	7188	8069	4.10
SAWNWOOD CONIFEROUS	295	367	509	617	546	515	401	381	489	401	348	-.20
SAWNWOOD NONCONIFEROUS	31	30	41	54	35	34	35	41	36	34	16	-3.50
WOOD-BASED PANELS	32	52	104	142	138	99	113	93	79	98	167	8.44
PULP FOR PAPER	452	435	464	475	518	421	471	459	428	504	483	.47
PAPER AND PAPERBOARD	302	332	359	418	447	340	361	342	353	336	330	-.16

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
AFRICA DEVELOPING												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	20	46	31	17	19	23	9	8	3	3	3	-24.45
RICE MILLED	46	13	12	22	18	14	8	5	5	13	5	-15.04
BARLEY	1		2									
MAIZE	434	652	365	70	245	380	782	262	394	780	753	7.08
MILLET	13	31	78	46	41	6	1	2	2			
SORGHUM			53	12	3	15	25	30	13	2	14	26.20
POTATOES	82	58	50	55	36	30	49	63	60	83	69	1.57
SUGAR,TOTAL (RAW EQUIV.)	1468	1296	1658	1586	1490	1683	1683	1569	1618	1799	1789	2.14
PULSES	261	150	149	220	127	166	190	123	70	122	154	-5.73
SOYBEANS	13	36	1	1	1		1		3		1	-25.62
SOYBEAN OIL	1	2	1									
GROUNDNUTS SHELLED BASIS	192	64	82	86	36	56	91	57	45	55	63	-6.89
GROUNDNUT OIL	258	94	160	92	38	162	206	105	49	91	124	-4.79
COPRA	55	52	45	32	22	20	15	12	20	13	16	-14.03
COCONUT OIL	6	9	14	15	18	21	21	30	32	35	31	17.39
PALM NUTS KERNELS	239	152	123	140	107	97	87	99	51	87	99	-8.86
PALM OIL	118	96	64	140	85	84	70	75	92	138	160	2.43
OILSEED CAKE AND MEAL	712	457	667	480	362	493	480	333	396	451	466	-3.74
BANANAS	308	344	292	243	205	187	193	216	211	189	172	-5.82
ORANGES+TANGER+CLEMEN	743	878	679	855	715	662	594	582	640	657	589	-3.09
LEMONS AND LIMES	1	2	2	1	1	2	7	6	7	2	3	14.04
COFFEE GREEN+ROASTED	877	925	1006	895	972	1055	941	893	992	1012	865	.19
COCOA BEANS	691	778	601	757	976	827	783	894	832	964	885	2.93
TEA	165	182	197	180	169	190	200	194	228	228	236	3.15
COTTON LINT	300	312	332	336	342	296	321	340	401	491	445	4.00
JUTE AND SIMILAR FIBRES			1									
TOBACCO UNMANUFACTURED	129	139	132	172	189	148	144	172	173	175	179	2.85
NATURAL RUBBER	153	145	142	138	146	151	156	186	186	203	219	4.29
WOOL GREASY	4	4	3	4	4	4	4	5	3	2	1	-8.41
BOVINE CATTLE 1/	1105	1181	1271	1415	1461	1461	1196	1186	978	877	921	-3.08
SHEEP AND GOATS 1/	2461	3066	3055	3652	3419	3580	3007	2494	3550	2869	2676	-.26
PIGS 1/	2	1	1	1			1					
TOTAL MEAT	118	99	97	47	44	45	49	53	45	25	24	-13.16
MILK DRY		2	4									-18.23
TOTAL EGGS IN SHELL	1			1				2	1			-13.41
FISHERY PRODUCTS												
FISH FRESH FROZEN	83	128	117	113	144	154	146	164	187	171	171	6.51
FISH CURED	14	12	12	13	11	12	9	10	10	10	10	-2.99
SHELLFISH	43	48	34	34	74	76	130	135	140	152	152	18.34
FISH CANNED AND PREPARED	69	62	77	79	94	82	101	100	105	104	104	5.20
FISH BODY AND LIVER OIL	6	6	7	4	10	1	8	5		4	4	-14.44
FISH MEAL	13	31	24	20	22	6	15	9	7	3	3	-18.62
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	2	2	2									
SAWLOGS NONCONIFEROUS	6434	6211	6175	5971	4599	4723	4547	5076	4217	3680	3594	-5.73
PULPWOOD+PARTICLE	100	75	112	84	173	173	173	173	173	173	173	8.41
FUELWOOD	51	51	51	5				28				
SAWNWOOD CONIFEROUS	119	116	126	108	94	81	79	82	77	80	80	-5.03
SAWNWOOD NONCONIFEROUS	682	706	680	611	520	554	598	681	794	779	834	2.04
WOOD-BASED PANELS	241	261	236	272	283	264	287	299	306	285	276	1.85
PULP FOR PAPER	173	218	240	240	229	192	202	252	244	244	244	2.03
PAPER AND PAPERBOARD	19	16	24	21	20	9	8	12	11	5	5	-13.98

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
LATIN AMERICA												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	6095	1833	4427	4620	3963	4042	10410	7491	9762	4126	4301	5.42
RICE MILLED	999	732	573	548	638	512	514	530	559	543	424	-5.18
BARLEY	130	18	58	72	32	24	59	95	86	46	32	-.79
MAIZE	6864	5927	5990	3556	9198	5837	7321	5733	7129	7418	3969	-.54
MILLET	172	196	139	63	136	101	96	57	93	32	53	-12.62
SORGHUM	4295	4625	3899	1545	5075	5369	5332	4252	3332	1960	1030	-7.83
POTATOES	106	67	77	61	45	44	32	50	55	68	55	-4.39
SUGAR,TOTAL (RAW EQUIV.)	13050	12429	12726	12025	12702	13052	12942	12815	12307	11386	11251	-.95
PULSES	424	464	395	340	287	279	356	410	350	386	358	-1.23
SOYBEANS	3441	2845	3814	4493	3909	2877	3270	5170	7171	4463	5261	5.53
SOYBEAN OIL	544	570	609	840	1355	1024	1369	1413	1510	1101	1720	11.69
GROUNDNUTS SHELLED BASIS	53	52	97	98	86	61	101	104	138	138	121	8.93
GROUNDNUT OIL	181	155	209	207	80	113	104	57	109	50	101	-10.16
COPRA			2			5			1			-2.57
COCONUT OIL	5	9	8	4	5	6	6	17	4	5	5	-.96
PALM NUTS KERNELS	3	9	7	5	1	4	4	3	2			-42.75
PALM OIL	3	4	5	3	7	15	17	30	39	36	32	33.85
OILSEED CAKE AND MEAL	7354	7676	7497	8891	10912	10498	12344	12164	13503	12697	13528	7.13
BANANAS	5231	5520	5366	5358	5471	5652	5082	5480	5387	5862	6071	.88
ORANGES+TANGER+CLEMEN	224	269	312	306	316	383	419	409	479	502	503	8.21
LEMONS AND LIMES	29	47	74	53	51	34	56	64	154	101	113	11.96
COFFEE GREEN+ROASTED	1547	1960	2179	2232	2148	2258	2426	2532	2625	2112	2707	3.73
COCOA BEANS	187	211	226	183	201	241	229	211	296	231	255	2.89
TEA	34	41	39	44	35	43	54	54	53	49	39	2.98
COTTON LINT	689	903	733	636	600	599	510	481	637	373	449	-6.01
JUTE AND SIMILAR FIBRES		1	2	2		1		1	2			
TOBACCO UNMANUFACTURED	238	274	276	255	271	273	274	290	304	273	262	.92
NATURAL RUBBER	5	6	4	3	2	3	3	2	3	5	3	-4.47
WOOL GREASY	108	107	80	105	125	108	88	79	67	78	79	-3.80
BOVINE CATTLE 1/	983	1551	1277	754	716	962	722	442	562	1039	991	-4.52
SHEEP AND GOATS 1/	112	125	98	65	312	195	634	461	16	68	64	-5.50
PIGS 1/	31	24	16	1			10	4	6	50		-12.66
TOTAL MEAT	779	840	816	739	993	1028	988	796	826	789	614	-1.14
MILK DRY	18	10	4	4	11	19	17	2	1	2	1	-22.45
TOTAL EGGS IN SHELL	3	2	4	12	14	6	3	4	6	8	5	5.06
FISHERY PRODUCTS												
FISH FRESH FROZEN	303	346	362	418	374	410	384	369	485	414	396	2.49
FISH CURED	7	4	6	8	5	5	5	5	5	5	5	-.98
SHELLFISH	99	144	168	136	124	164	173	177	173	171	174	4.14
FISH CANNED AND PREPARED	48	79	81	143	170	95	55	65	49	72	77	-1.98
SHELLFISH CANNED+PREPAR	5	2	5	4	6	4	6	7	7	8	7	8.00
FISH BODY AND LIVER OIL	46	71	108	103	76	137	25	139	207	187	180	11.71
FISH MEAL	740	830	1020	1052	962	1495	1022	1292	1901	1962	1875	9.95
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	167	689	968	1029	377	906	1024	902	1271	1162	1271	13.36
SAWLOGS NONCONIFEROUS	49	60	86	114	65	54	55	68	47	32	34	-6.34
PULPWOOD+PARTICLE	53									323	1346	
FUELWOOD	106	152	214	167	71	23	57	10	7	6	6	-32.30
SAWNWOOD CONIFEROUS	1429	1477	1678	1718	1319	1102	1172	1217	1004	1153	1433	-2.98
SAWNWOOD NONCONIFEROUS	838	727	1121	1130	994	892	851	911	894	774	854	-.83
WOOD-BASED PANELS	374	487	488	625	606	608	584	650	651	647	713	4.90
PULP FOR PAPER	443	715	1024	1318	1374	1302	1566	1532	1515	1511	1408	9.90
PAPER AND PAPERBOARD	226	276	351	398	497	404	651	939	778	920	826	15.31

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... THOUSAND METRIC TONS											PERCENT
NEAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	640	2131	877	540	649	709	1143	1038	783	467	1199	-1.26
RICE MILLED	276	223	211	259	159	59	78	108	32	61	148	-13.86
BARLEY	302	50	88	229	424	1026	661	319	97	5	19	-18.02
MAIZE	8	43	111	155	40	53	10	6	12	7	13	-16.12
MILLET	3	4	2	2	3	8	2	4		2	2	-9.96
SORGHUM	137	66	196	286	256	423	186	25		30	543	
POTATOES	438	291	314	453	393	463	456	511	355	380	391	1.15
SUGAR,TOTAL (RAW EQUIV.)	64	55	37	45	71	224	318	592	330	15	84	8.85
PULSES	176	256	303	299	500	573	658	609	387	559	782	12.54
SOYBEAN OIL				3	5	16	11	11	5	1		42.61
GROUNDNUTS SHELLED BASIS	175	111	52	51	108	101	24	31	19	6	13	-24.03
GROUNDNUT OIL	26	35	16	33	16	18	2	12	3	2	7	-21.38
COCONUT OIL	1				1							-16.46
PALM OIL						1						
OILSEED CAKE AND MEAL	252	225	214	261	145	105	104	122	29	74	115	-13.70
BANANAS	5	4	7	19	20	11	9	12	13	12	12	8.45
ORANGES+TANGER+CLEMEN	721	609	589	591	698	637	617	611	558	464	489	-2.91
LEMONS AND LIMES	124	135	142	191	190	191	202	199	137	148	160	1.54
COFFEE GREEN+ROASTED	3	3	3	2	6	5	6	9	4	4	4	6.26
TEA	7	10	16	15	17	5	4	3	4	2	2	-19.27
COTTON LINT	710	768	669	608	532	584	623	648	488	611	405	-3.90
TOBACCO UNMANUFACTURED	71	84	77	94	138	110	75	72	105	85	109	1.86
NATURAL RUBBER										1		77.14
WOOL GREASY	12	9	8	7	3	6	6	5	5	9	10	-1.63
BOVINE CATTLE 1/	16	12	21	13	60	112	77	51	18	12	5	-2.42
SHEEP AND GOATS 1/	680	1209	1421	2026	2858	3505	3710	3866	3353	3919	3670	16.99
PIGS 1/	1	1	3									
TOTAL MEAT	11	15	15	22	74	96	81	97	70	67	55	21.74
MILK DRY						1	1	1	1	1	1	44.50
TOTAL EGGS IN SHELL	3	7	10	13	17	26	41	72	76	48	47	32.72
FISHERY PRODUCTS												
FISH FRESH FROZEN	3	6	17	15	28	27	28	31	29	30	30	21.15
FISH CURED	3	1	1	1	1	1	1	1	1	1	1	-3.27
SHELLFISH	13	8	9	10	5	7	7	8	9	9	9	-1.42
FISH CANNED AND PREPARED	2	4	5	8	3	2	1	1	1	1	1	-15.12
SHELLFISH CANNED+PREPAR	3	1	2	3	4	5	7	8	5	7	7	15.62
FISH BODY AND LIVER OIL	1				1	1	2	9	7	5	5	61.72
FISH MEAL				1				1				
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS		1	1	1	2	7	11	20	15	24	23	60.08
SAWLOGS NONCONIFEROUS	9	5	3	4	36	36	35	100	76	24	23	28.59
FUELWOOD	31	22	20	31	24	16	24	11	11	11	11	-9.98
SAWNWOOD CONIFEROUS	69	60	103	84	96	94	126	107	82	48	42	-2.95
SAWNWOOD NONCONIFEROUS	1		2	3	6	12	7	8	5	8	4	26.68
WOOD-BASED PANELS	26	26	24	19	19	24	27	19	19	19	18	-2.91
PAPER AND PAPERBOARD	11	10	16	21	35	35	41	71	56	65	65	23.12

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES.

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... THOUSAND METRIC TONS											PERCENT
FAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	264	967	801	510	295	157	250	359	534	181	419	-5.73
RICE MILLED	4732	3031	4965	5331	6033	6050	5525	7018	5823	6865	6687	5.55
BARLEY	39	13	73	259	275	907	250	1655	133	2	1	-18.18
MAIZE	1767	2198	2146	2342	2721	3030	2861	3474	2915	4101	1782	3.98
MILLET	8	1	6	2	2	1		2	1	2	1	-10.85
SORGHUM	138	166	170	208	288	317	248	327	334	268	147	4.65
POTATOES	73	55	99	106	72	69	61	60	94	99	96	2.08
SUGAR,TOTAL (RAW EQUIV.)	4511	2822	3269	2722	2930	4093	3580	2970	2958	2692	2790	-2.26
PULSES	181	245	291	312	338	379	345	337	490	570	432	8.99
SOYBEANS	47	30	27	27	27	27	33	34	29	38	38	.68
SOYBEAN OIL	4	7	6	27	32	49	78	89	45	57	189	39.84
GROUNDNUTS SHELLED BASIS	69	24	40	55	113	106	89	66	70	90	95	8.23
GROUNDNUT OIL	5	6	16	5	5	6	28	8	10	10	10	5.74
COPRA	683	445	193	234	172	232	75	72	156	194	157	-12.33
COCONUT OIL	845	1112	976	1061	1192	1064	1144	779	1045	1448	1255	2.37
PALM NUTS KERNELS	30	13	23	45	24	15	14	13	25	5	3	-15.68
PALM OIL	2067	2168	2638	3303	2963	3487	3709	3951	4811	5755	5275	10.49
OILSEED CAKE AND MEAL	2871	2582	3291	3054	3091	3220	3553	2876	3190	3912	3499	2.37
BANANAS	738	832	920	971	922	982	683	841	826	892	816	-.12
ORANGES+TANGER+CLEMEN	113	65	89	78	50	62	75	74	66	65	66	-2.92
LEMONS AND LIMES		1	2	1	7	2	2	2	3	2	3	17.53
COFFEE GREEN+ROASTED	267	339	335	370	371	403	405	482	512	552	491	6.46
COCOA BEANS	18	24	32	41	65	88	91	121	142	177	246	28.96
TEA	499	459	445	539	546	488	475	554	558	541	542	1.52
COTTON LINT	56	128	133	396	415	329	410	205	388	821	944	23.72
JUTE AND SIMILAR FIBRES	545	466	520	465	514	451	457	432	292	435	425	-3.16
TOBACCO UNMANUFACTURED	232	224	212	198	259	238	202	193	173	163	136	-4.32
NATURAL RUBBER	3027	3080	3179	3101	2924	2886	3205	3346	3344	3378	3735	1.66
WOOL GREASY		1			1	1			1	5	2	19.42
BOVINE CATTLE 1/	98	78	66	60	36	39	76	40	58	54	53	-4.38
SHEEP AND GOATS 1/	215	70	100	120	60	26	155	241	236	270	264	10.87
PIGS 1/	11	15	19	18	24	130	160	113	222	329	452	48.97
TOTAL MEAT	60	68	95	90	103	127	97	107	116	154	175	9.00
MILK DRY	5	7	10	13	10	10	10	10	13	19	26	11.74
TOTAL EGGS IN SHELL	10	6	5	5	11	8	6	16	18	18	25	14.13
FISHERY PRODUCTS												
FISH FRESH FROZEN	561	579	586	624	581	496	591	518	597	768	795	2.37
FISH CURED	26	30	27	28	27	29	28	36	38	39	42	4.62
SHELLFISH	293	317	362	314	329	379	385	448	474	548	589	6.91
FISH CANNED AND PREPARED	37	49	47	55	80	100	113	144	177	261	280	23.26
SHELLFISH CANNED+PREPAR	32	35	35	50	55	61	68	73	77	91	100	12.37
FISH BODY AND LIVER OIL	1	3	2	2	1	1	1	2	2	2	3	1.38
FISH MEAL	117	141	164	153	151	141	153	155	160	193	195	3.47
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	394	270	396	327	291	127	109	107	38	38	11	-27.92
SAWLOGS NONCONIFEROUS	37017	38457	35843	31534	24005	24286	23128	19372	20789	19848	23406	-6.66
PULPWOOD+PARTICLE	1033	860	736	1003	1033	909	1005	643	728	580	891	-2.92
FUELWOOD	841	731	799	1181	1164	1086	1229	1146	1108	871	890	1.80
SAWNWOOD CONIFEROUS	258	425	481	410	254	197	138	186	214	270	336	-4.55
SAWNWOOD NONCONIFEROUS	5374	5463	7236	6415	5511	5838	7003	6469	6239	7043	8521	2.89
WOOD-BASED PANELS	3198	3342	3159	2933	3590	3428	4772	5274	5847	6725	8040	10.23
PULP FOR PAPER	2	2	6	6	10	8	9	15	13	13	13	20.70
PAPER AND PAPERBOARD	139	154	153	298	309	228	223	249	326	538	763	14.72

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

4. VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... THOUSAND METRIC TONS											PERCENT
ASIAN CENT PLANNED ECON												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	6	8	9	4	9	6	67	75	19	124	39	31.79
RICE MILLED	1488	2096	1836	1637	948	994	1279	1536	1246	1326	1441	-2.68
BARLEY		1	2	1			7		58	34	30	
MAIZE	356	230	240	104	141	96	92	1043	6388	5656	3944	42.37
MILLET	37	30	20	5	1	2	2	2	5	9	5	-16.77
SORGHUM			10	1		3	4	4	564	752	186	
POTATOES	53	62	81	77	80	89	78	72	61	52	48	-1.91
SUGAR,TOTAL (RAW EQUIV.)	777	493	514	657	440	463	258	189	405	463	505	-5.43
PULSES	89	76	90	71	111	103	134	159	188	598	441	20.23
SOYBEANS	130	113	306	140	139	160	367	843	1144	1368	1730	33.10
SOYBEAN OIL	2	6	4	4		1	2	9	1	1	3	-.56
GROUNDNUTS SHELLED BASIS	25	30	49	84	250	136	201	180	201	305	307	28.11
GROUNDNUT OIL	5	13	18	21	57	55	72	39	57	108	70	27.22
COPRA						1	2	2	11	9	10	
COCONUT OIL							4	4	7	3	1	
PALM NUTS KERNELS						1			1	2		
OILSEED CAKE AND MEAL	30	31	49	87	208	339	1135	956	1310	3199	2939	69.07
BANANAS	140	101	117	109	103	112	134	135	143	107	140	1.38
ORANGES+TANGER+CLEMEN	74	81	73	70	54	57	62	52	67	79	91	.20
COFFEE GREEN+ROASTED	4	5	5	4	1	10	15	13	11	13	17	17.84
COCOA BEANS										3	3	
TEA	104	109	126	125	107	126	148	169	157	192	192	6.49
COTTON LINT	71	33	22	2	1	17	131	218	261	558	755	50.22
JUTE AND SIMILAR FIBRES	3	8	20	35	42	44	36	48	77	85	65	30.97
TOBACCO UNMANUFACTURED	37	35	35	32	28	30	35	32	27	24	23	-4.02
NATURAL RUBBER	50	41	50	39	38	41	47	50	50	55	68	3.25
WOOL GREASY	21	22	24	23	21	16	16	14	13	19	17	-4.11
BOVINE CATTLE 1/	195	181	224	272	263	257	252	257	220	225	225	1.25
SHEEP AND GOATS 1/	482	443	463	448	330	312	438	515	502	547	495	1.63
PIGS 1/	3016	3129	3079	4548	3189	3256	3217	3091	3007	3123	3030	-.74
TOTAL MEAT	155	210	246	251	250	274	271	284	295	327	368	6.55
MILK DRY										1	1	
TOTAL EGGS IN SHELL	35	42	51	54	56	57	57	60	56	64	60	4.50
FISHERY PRODUCTS												
FISH FRESH FROZEN	99	129	134	146	169	168	183	189	199	229	229	7.78
FISH CURED	4	5	9	8	6	7	6	8	7	7	7	2.24
SHELLFISH	52	57	72	70	76	75	90	102	137	205	205	14.43
FISH CANNED AND PREPARED	13	22	33	43	34	38	42	38	41	39	39	7.91
SHELLFISH CANNED+PREPAR	11	14	10	10	12	9	11	13	13	17	17	3.52
FISH BODY AND LIVER OIL								1				-5.57
FISH MEAL		1	1	1	1		1	2	1	2	2	14.02
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	63	32	27	21	33	29	38	35	5	5	1	-24.68
SAWLOGS NONCONIFEROUS	33	42	45	45	33	35	36	59	39	39	12	-4.39
SAWNWOOD CONIFEROUS	19	28	19	10	12	13	13	12	12	12	16	-4.49
SAWNWOOD NONCONIFEROUS	85	103	48	34	26	56	55	53	56	56	55	-2.20
WOOD-BASED PANELS	949	1244	1096	885	957	834	884	614	565	513	560	-7.84
PULP FOR PAPER	33	44	46	49	86	81	64	30	68	92	81	6.98
PAPER AND PAPERBOARD	119	116	89	149	174	165	139	217	304	386	440	15.17

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

5. WORLD AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... US $ PER METRIC TON											PERCENT
AGRICULTURAL PRODUCTS												
WHEAT	125	131	163	186	188	173	162	157	145	135	114	-1.10
WHEAT FLOUR	191	199	225	284	294	245	197	215	208	196	179	-1.43
RICE MILLED	263	346	324	383	444	344	309	296	278	245	238	-2.88
BARLEY	132	137	145	175	175	161	143	147	121	107	103	-2.96
MAIZE	111	117	128	150	154	128	142	149	126	117	104	-.40
POTATOES	197	157	188	185	178	186	168	209	124	151	172	-1.72
SUGAR CENTRIFUGAL RAW	295	341	355	538	505	403	421	415	387	416	452	2.28
SOYBEANS	272	250	271	264	282	243	256	278	217	200	199	-2.81
SOYBEAN OIL	586	617	675	625	542	483	498	715	644	411	344	-3.78
GROUNDNUTS SHELLED	596	661	679	698	964	668	624	733	601	596	628	-.78
GROUNDNUT OIL	814	946	965	781	998	652	568	986	910	641	528	-3.56
COPRA	316	374	587	400	312	262	354	583	333	140	231	-5.59
COCONUT OIL	552	627	937	651	536	461	556	1017	591	293	401	-4.53
PALM NUTS KERNELS	266	262	357	267	235	222	263	331	231	109	117	-7.33
PALM OIL	514	554	617	563	528	441	441	660	505	290	327	-4.72
PALM KERNEL OIL	554	617	896	653	540	450	574	906	535	263	380	-5.41
OLIVE OIL	1251	1364	1650	1958	1773	1753	1508	1332	1184	1621	1951	.90
CASTOR BEANS	334	319	341	318	325	284	291	376	278	191	205	-4.34
CASTOR BEAN OIL	883	801	803	970	856	825	908	1119	706	584	696	-2.24
COTTONSEED	168	177	183	179	205	139	142	180	146	111	127	-3.84
COTTONSEED OIL	599	607	682	628	627	529	525	747	639	445	421	-2.72
LINSEED	273	217	281	311	326	285	275	287	265	206	170	-2.76
LINSEED OIL	500	380	543	611	662	533	417	527	625	477	311	-1.61
BANANAS	144	156	168	186	199	204	214	212	220	242	260	5.46
ORANGES	220	266	346	358	347	330	326	299	334	344	396	3.18
APPLES	345	408	398	434	409	432	336	329	321	397	441	-.26
RAISINS	965	1080	1563	1677	1477	1212	1078	941	921	1085	1212	-1.71
DATES	320	387	414	418	607	654	713	881	809	797	771	10.48
COFFEE GREEN	4229	3169	3151	3290	2237	2305	2284	2562	2526	3697	2246	-3.30
COCOA BEANS	2800	3137	3283	2663	1768	1590	1629	2100	2072	2097	1966	-4.72
TEA	2207	2058	1942	2062	1907	1776	1991	2651	2176	1857	1968	-.09
COTTON LINT	1533	1357	1528	1623	1719	1446	1493	1638	1415	1130	1224	-1.99
JUTE	277	338	383	378	313	284	263	333	509	270	231	-1.23
JUTE-LIKE FIBRES	253	247	248	259	190	235	310	304	201	194	170	-2.48
SISAL	377	378	483	602	552	507	446	418	415	412	299	-1.99

5. WORLD AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... US $ PER METRIC TON											PERCENT
TOBACCO UNMANUFACTURED	2361	2628	2740	2822	2951	3239	3131	2971	2907	2944	2943	1.74
NATURAL RUBBER	806	919	1214	1303	1125	818	988	1017	834	857	960	-1.04
RUBBER NATURAL DRY	796	916	1180	1312	1066	799	963	964	751	786	923	-1.75
WOOL GREASY	2160	2221	2463	2825	2956	2919	2517	2627	2514	2444	2677	1.11
CATTLE 1/	310	355	418	439	423	400	380	365	375	432	470	1.88
BEEF AND VEAL	1861	2160	2390	2514	2377	2437	2213	1957	1867	2026	2685	.24
MUTTON AND LAMB	1143	1390	1592	1761	1863	1809	1597	1515	1421	1464	1572	.92
PIGS 1/	100	104	111	106	108	113	99	94	88	93	95	-1.53
BACON HAM OF SWINE	1865	2248	2630	2894	2744	2640	2345	2226	2236	2741	3055	1.92
MEAT CHIKENS	1224	1295	1361	1430	1338	1160	1029	1072	1032	1209	1280	-1.55
MEAT PREPARATIONS	1507	1598	2124	2578	2457	2146	2106	1967	1831	1992	2324	1.75
EVAP COND WHOLE COW MILK	647	746	846	922	915	930	887	770	760	947	1035	2.38
MILK OF COWS SKIMMED DRY	637	742	844	1047	1106	1056	864	787	784	1033	1181	3.11
BUTTER OF COWMILK	1733	2246	2281	2468	2631	2704	2405	2021	1696	1871	1770	-1.81
CHEESE OF WHOLE COWMILK	2141	2532	2769	2933	2663	2568	2429	2188	2238	2807	3262	1.10
FISHERY PRODUCTS												
FISH FRESH FROZEN	1031	1134	1241	1255	1287	1208	1090	1057	1046	1204	1231	.09
FISH CURED	1725	1868	2114	2450	2584	2249	2029	1824	1895	2562	2709	2.17
SHELLFISH	2827	3386	3696	3948	3823	3768	3564	3289	3367	4265	4241	2.05
FISH CANNED AND PREPARED	1730	2039	2301	2349	2409	2314	2400	2264	2323	2635	2641	2.85
SHELLFISH CANNED+PREPAR	3432	3797	4490	4694	4354	4191	4345	4061	3952	5103	5182	2.36
FISH BODY AND LIVER OIL	432	434	426	432	399	343	344	347	301	260	254	-5.60
FISH MEAL	428	427	401	468	473	370	428	390	293	347	355	-2.83
FOREST PRODUCTS												
SAWLOGS CONIFEROUS 2/	59	62	83	89	81	73	63	63	61	65	74	-.54
SAWLOGS NONCONIFEROUS 2/	54	57	93	105	88	87	85	72	70	76	87	1.74
PULPWOOD+PARTICLE 2/	24	25	27	36	40	35	30	30	29	32	36	2.58
FUELWOOD 2/	21	21	27	34	34	29	25	26	26	28	30	1.80
SAWNWOOD CONIFEROUS 2/	101	108	131	138	127	114	114	110	105	117	128	.28
SAWNWOOD NONCONIF. 2/	152	164	216	245	223	209	215	201	195	226	244	2.69
WOOD-BASED PANELS 2/	211	228	283	316	294	280	268	248	236	265	310	1.27
PULP FOR PAPER	313	282	361	444	451	411	356	416	353	386	493	2.85
PAPER AND PAPERBOARD	421	453	505	572	567	556	503	519	528	594	690	3.12

1/ U.S. DOLLARS PER HEAD
2/ U.S. DOLLARS PER CUBIC METRE

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... THOUSAND METRIC TONS											PERCENT
WORLD												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	70918	80112	85550	98002	103050	107888	105920	114884	103183	96529	107925	3.47
RICE MILLED	9953	10156	12149	13030	13835	11473	11894	11415	12351	12646	12101	1.36
BARLEY	12355	14749	14767	15083	18680	18655	17746	23035	21837	23508	21280	6.14
MAIZE	55191	68112	75185	79538	80415	69523	69468	67619	68541	58496	64782	-.50
MILLET	359	346	331	263	202	243	247	171	265	181	194	-6.16
SORGHUM	10928	10432	10183	11006	13691	13536	11004	13152	11760	8444	7652	-1.85
POTATOES	4724	3906	4569	4664	4697	5143	4833	4809	5284	5525	6268	3.07
SUGAR,TOTAL (RAW EQUIV.)	27511	24540	26657	27375	28331	29584	27907	28266	27405	26611	28071	.51
PULSES	2054	2066	2356	2924	3210	3167	3268	3533	3934	4598	5052	9.16
SOYBEANS	19623	23411	26125	27048	26294	28702	26871	25680	25855	27183	29476	2.32
SOYBEAN OIL	2078	2404	2873	3239	3256	3792	3677	4019	3406	3086	4016	4.99
GROUNDNUTS SHELLED BASIS	815	805	777	713	727	815	767	747	811	898	885	1.03
GROUNDNUT OIL	596	475	474	513	359	413	516	322	333	358	382	-4.42
COPRA	920	804	458	465	393	477	251	306	367	412	342	-8.33
COCONUT OIL	1096	1255	1198	1125	1400	1291	1294	1052	1125	1519	1447	1.61
PALM NUTS KERNELS	292	169	161	182	161	123	127	124	99	106	116	-7.80
PALM OIL	2470	2318	2701	3408	3220	3684	3916	3932	4861	6042	5839	9.90
OILSEED CAKE AND MEAL	19222	21972	23854	25376	27072	28470	33083	29299	31730	34086	37588	6.04
BANANAS	6581	6877	7039	6736	6780	6789	6098	6626	7132	7259	7508	.71
ORANGES+TANGER+CLEMEN	5288	4969	5071	5236	5016	5158	5096	5198	4881	5233	5368	.15
LEMONS AND LIMES	912	961	965	991	970	1049	1002	993	1002	1010	1001	.74
COFFEE GREEN+ROASTED	3126	3435	3913	3790	3807	3883	3987	4035	4194	4239	4537	2.84
COCOA BEANS	1006	1096	1026	1063	1242	1270	1259	1325	1464	1400	1462	4.05
TEA	901	832	891	908	883	888	913	1051	1012	1064	1072	2.36
COTTON LINT	4037	4503	4521	5069	4421	4500	4357	4496	4582	4781	5565	1.49
JUTE AND SIMILAR FIBRES	562	492	572	574	531	572	517	461	398	543	485	-1.70
TOBACCO UNMANUFACTURED	1258	1425	1394	1410	1443	1410	1380	1433	1414	1371	1396	.36
NATURAL RUBBER	3388	3351	3493	3393	3279	3132	3427	3704	3665	3727	4106	1.60
WOOL GREASY	870	883	919	852	857	818	823	814	904	911	987	.52
BOVINE CATTLE 1/	6660	7209	7208	6668	6913	7286	6753	6596	6517	7022	7039	-.16
PIGS 1/	6688	7749	8084	10498	9715	9020	9357	9987	10217	11820	12273	4.93
TOTAL MEAT	6615	6942	7571	7898	8398	8656	8663	8519	8993	9926	9976	3.88
MILK DRY	484	480	522	622	643	624	595	653	627	694	867	4.61
TOTAL EGGS IN SHELL	573	636	674	742	780	825	823	840	778	746	772	2.63
FISHERY PRODUCTS												
FISH FRESH FROZEN	3264	3698	4035	4119	4357	4423	4652	4813	5273	5963	5832	5.60
FISH CURED	315	331	370	401	424	364	434	424	462	435	433	3.21
SHELLFISH	884	1061	1224	1121	1143	1236	1347	1494	1602	1756	1770	6.60
FISH CANNED AND PREPARED	794	869	902	1020	1077	955	920	941	1008	1089	1077	2.25
SHELLFISH CANNED+PREPAR	156	162	163	174	184	201	223	238	257	275	275	6.70
FISH BODY AND LIVER OIL	569	653	762	752	732	796	730	947	1098	819	807	3.90
FISH MEAL	2207	2090	2475	2265	2054	2603	2325	2520	3101	3238	3196	4.29
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	29302	29858	31516	28054	23842	26400	30362	31089	33169	32831	34972	1.71
SAWLOGS NONCONIFEROUS	45972	47694	48277	42243	34891	32704	32986	30879	29888	31053	31688	-5.05
PULPWOOD+PARTICLE	36670	34187	39249	43086	41400	36495	37695	41411	42144	44713	48846	2.34
FUELWOOD	3082	2769	2908	3112	2533	3158	3545	3924	4096	3933	3937	4.13
SAWNWOOD CONIFEROUS	60767	65298	67388	63311	58325	59443	67704	70499	72550	73702	75880	2.00
SAWNWOOD NONCONIFEROUS	11240	11669	13257	12662	11264	10847	11941	12330	12316	12575	15464	1.54
WOOD-BASED PANELS	14548	15866	16789	15657	16637	15466	16851	17815	18783	20533	23993	3.84
PULP FOR PAPER	15533	17563	18800	19316	18517	17299	19597	20437	20739	22103	23865	3.26
PAPER AND PAPERBOARD	27816	30466	32283	33601	34024	33613	35528	39168	39909	42961	46250	4.56

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
WESTERN EUROPE												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	12598	13384	12981	14122	13336	13943	10586	12635	15531	16641	14965	1.67
RICE MILLED	1294	1460	1299	1290	1490	1687	1559	1702	1901	1796	1665	3.54
BARLEY	6136	6567	5105	5247	5966	6194	6665	5119	4562	5022	5076	-2.07
MAIZE	26728	24755	25117	23448	21740	21102	18873	15992	15035	10940	10468	-9.02
MILLET	182	195	150	98	109	122	110	99	126	106	105	-5.03
SORGHUM	2216	1453	1196	1273	1103	2149	685	1145	244	174	771	-16.04
POTATOES	2999	2565	2808	3051	3026	3228	3167	3235	3629	3936	4489	4.33
SUGAR,TOTAL (RAW EQUIV.)	4235	3521	3631	3139	3063	3195	3148	3789	3151	3112	3289	-1.60
PULSES	888	907	1055	1014	924	1067	1306	1429	1867	2094	2887	11.51
SOYBEANS	11612	14201	15311	16249	14414	16454	15009	13575	13843	13802	15420	.62
SOYBEAN OIL	502	559	580	675	643	681	743	702	682	604	634	2.01
GROUNDNUTS SHELLED BASIS	558	541	528	414	389	431	386	396	424	459	464	-2.09
GROUNDNUT OIL	355	325	407	446	297	349	396	255	274	273	299	-3.19
COPRA	670	515	294	253	184	280	113	132	133	148	123	-14.78
COCONUT OIL	331	395	390	414	561	537	512	372	419	591	573	3.95
PALM NUTS KERNELS	271	153	137	147	140	106	96	100	81	97	110	-7.87
PALM OIL	828	781	856	831	723	735	859	717	828	1156	1094	2.52
OILSEED CAKE AND MEAL	12864	15320	16704	17396	18205	19294	21471	19780	22424	23715	23749	5.72
BANANAS	2430	2526	2459	2221	2172	2178	2018	2183	2306	2458	2629	-.02
ORANGES+TANGER+CLEMEN	3322	3141	3228	3228	2969	3186	3117	3299	3010	3415	3618	.59
LEMONS AND LIMES	408	428	432	429	416	452	451	431	449	459	479	1.18
COFFEE GREEN+ROASTED	1543	1703	1955	1930	1999	1997	2062	1999	2098	2151	2319	3.03
COCOA BEANS	561	590	569	611	664	721	649	738	793	778	790	3.86
TEA	336	250	278	296	244	287	266	306	277	290	262	-.44
COTTON LINT	1154	1216	1150	1259	1017	1148	1246	1232	1343	1344	1518	2.20
JUTE AND SIMILAR FIBRES	208	157	182	132	120	97	85	88	54	74	54	-12.39
TOBACCO UNMANUFACTURED	677	785	743	701	679	670	683	670	678	636	672	-1.11
NATURAL RUBBER	950	861	925	892	838	844	830	865	929	923	958	.24
WOOL GREASY	418	437	444	399	394	353	316	395	422	409	431	-.45
BOVINE CATTLE 1/	3175	3473	3530	3405	3211	3478	3401	3335	3695	3840	3855	1.40
PIGS 1/	3284	3875	4382	5202	5496	4680	4889	4877	4973	7253	7219	6.16
TOTAL MEAT	3460	3776	3790	3761	3504	3778	3889	3835	4198	4388	4548	2.22
MILK DRY	108	115	137	156	132	145	147	145	135	131	196	3.14
TOTAL EGGS IN SHELL	327	366	399	431	431	444	441	467	466	482	526	3.82
FISHERY PRODUCTS												
FISH FRESH FROZEN	1233	1335	1474	1599	1604	1711	1564	1616	1803	1898	1886	3.83
FISH CURED	161	168	193	199	176	174	217	214	249	227	227	3.74
SHELLFISH	272	344	367	412	407	463	509	586	625	648	647	8.91
FISH CANNED AND PREPARED	293	283	309	333	335	315	347	359	380	425	409	3.79
SHELLFISH CANNED+PREPAR	68	73	80	87	86	90	97	97	107	120	119	5.60
FISH BODY AND LIVER OIL	511	584	666	666	637	706	607	813	957	702	689	3.40
FISH MEAL	1115	1104	1245	1183	1027	1288	1230	1163	1459	1519	1487	3.08
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	4890	4094	4547	5103	4507	4660	4456	4356	4756	4391	5062	.24
SAWLOGS NONCONIFEROUS	8793	7715	8044	8424	6889	6139	6174	6337	6032	6112	5986	-3.92
PULPWOOD+PARTICLE	16718	15037	17463	20877	22039	19447	19125	22488	23737	24503	27906	5.07
FUELWOOD	1940	1673	1784	2016	1539	1851	2238	2490	2631	2390	2276	3.88
SAWNWOOD CONIFEROUS	22096	23684	27274	25507	21507	22714	23839	22948	21753	24888	25958	.20
SAWNWOOD NONCONIFEROUS	5521	5620	6724	6088	4933	4891	5386	5322	5516	5643	6588	.11
WOOD-BASED PANELS	7524	8440	9652	8951	8956	8462	8980	9484	9981	11074	11722	3.25
PULP FOR PAPER	8270	9435	10034	10014	9531	8807	9611	10063	10301	11028	11769	2.28
PAPER AND PAPERBOARD	12631	13602	15046	15107	15728	15742	17301	18745	18578	20610	22729	5.38

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
USSR AND EASTERN EUROPE												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	11996	13101	16167	21293	24583	27316	26829	31394	24387	18252	21705	5.98
RICE MILLED	725	710	940	994	1599	1127	601	490	586	724	892	-2.42
BARLEY	2225	4137	4559	4311	6019	3258	3531	3326	5907	6573	4138	4.35
MAIZE	7493	17809	20175	18863	22097	14985	7861	13431	18014	9566	10906	-2.39
MILLET		1	1	1	1	1	1		1	7	3	21.31
SORGHUM	705	830	229	1567	3967	2709	2078	1990	1452	39	58	-16.09
POTATOES	664	301	512	297	330	481	158	131	245	265	483	-5.89
SUGAR,TOTAL (RAW EQUIV.)	5635	4668	4933	5825	6397	8146	7029	6939	5843	6356	6273	2.51
PULSES	33	39	41	62	85	60	35	77	39	80	41	3.07
SOYBEANS	1544	1409	2360	1707	1653	1906	1938	1205	1113	2541	2293	1.41
SOYBEAN OIL	94	103	126	154	198	313	255	197	382	133	311	10.57
GROUNDNUTS SHELLED BASIS	59	57	46	54	61	67	54	68	71	74	78	3.74
GROUNDNUT OIL	2		2	1		1	1		1		1	-5.73
COPRA	38	26	18	20	10	14	14	5	2	5	5	-20.91
COCONUT OIL	48	66	58	89	77	99	79	68	60	69	85	2.34
PALM NUTS KERNELS	4	4	3	4								
PALM OIL	67	58	113	112	184	384	329	292	250	249	274	17.53
OILSEED CAKE AND MEAL	3704	3699	4033	4599	5331	5069	6664	4054	4101	3862	6733	2.94
BANANAS	281	299	298	269	232	155	167	200	206	119	157	-7.55
ORANGES+TANGER+CLEMEN	727	719	690	748	688	645	599	616	697	690	618	-1.33
LEMONS AND LIMES	314	326	309	333	308	363	289	272	272	275	245	-2.49
COFFEE GREEN+ROASTED	201	178	201	228	203	207	214	236	248	229	239	2.43
COCOA BEANS	175	202	198	201	199	178	243	246	253	252	240	3.51
TEA	80	71	79	102	116	107	110	129	151	146	174	8.68
COTTON LINT	720	681	718	743	638	693	764	841	868	731	715	1.14
JUTE AND SIMILAR FIBRES	68	70	79	93	111	122	93	45	57	87	83	-.65
TOBACCO UNMANUFACTURED	133	135	133	178	196	201	189	202	185	167	138	2.04
NATURAL RUBBER	409	433	437	441	418	360	446	435	374	341	368	-1.72
WOOL GREASY	161	182	188	182	174	173	219	135	153	157	177	-1.01
BOVINE CATTLE 1/	224	77	169	173	162	160	183	209	167	166	138	1.02
PIGS 1/	291	507	442	479	844	565	637	519	732	536	1025	7.45
TOTAL MEAT	757	267	645	956	1226	1091	1132	923	854	900	762	5.22
MILK DRY	43	29	42	71	78	90	47	58	70	85	74	7.27
TOTAL EGGS IN SHELL	43	43	47	43	34	36	31	28	21	24	14	-9.93
FISHERY PRODUCTS												
FISH FRESH FROZEN	138	204	213	256	149	122	386	495	560	605	607	16.63
FISH CURED	18	17	15	20	26	21	40	30	36	33	34	9.35
SHELLFISH			2									
FISH CANNED AND PREPARED	40	39	34	38	39	37	34	33	48	56	60	3.67
FISH BODY AND LIVER OIL	7	6	5	23	13	26	24	27	46	37	38	24.06
FISH MEAL	407	384	476	310	233	291	218	283	341	336	337	-2.45
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	885	960	720	1050	960	498	655	629	598	711	622	-4.38
SAWLOGS NONCONIFEROUS	556	442	416	454	487	385	367	375	405	301	300	-4.78
PULPWOOD+PARTICLE	1440	1345	1446	1583	1390	1248	1286	1323	1248	1222	1205	-1.94
FUELWOOD	31	27	25	25	25	20	25	25	12			
SAWNWOOD CONIFEROUS	3157	3228	2644	2665	2884	2544	2685	2983	3671	3165	2856	.51
SAWNWOOD NONCONIFEROUS	363	326	268	274	331	213	226	222	214	187	152	-7.06
WOOD-BASED PANELS	1314	1132	1045	1137	1115	939	832	766	797	897	952	-3.96
PULP FOR PAPER	1027	1053	1021	1173	1093	1031	1101	1067	1063	1015	1124	.22
PAPER AND PAPERBOARD	1712	1709	1784	2044	1968	1965	1732	1689	1717	1566	1503	-1.47

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
NORTH AMERICA DEVELOPED												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	36	1	6	8	11	74	63	110	282	279	392	59.13
RICE MILLED	80	82	91	94	106	126	128	141	174	207	221	11.24
BARLEY	180	108	157	140	127	198	141	146	105	135	201	.42
MAIZE	623	476	849	1228	1276	807	352	541	567	937	348	-3.87
MILLET	1											-9.86
SORGHUM		1				2		7				-.89
POTATOES	301	235	242	212	340	344	278	303	330	305	388	3.48
SUGAR,TOTAL (RAW EQUIV.)	6383	4835	5406	4595	5459	3471	3665	4163	3672	3142	2284	-7.54
PULSES	53	43	39	43	61	47	48	55	51	56	64	2.78
SOYBEANS	318	325	351	483	382	468	315	285	247	166	247	-5.52
SOYBEAN OIL	28	35	22	12	9	4	35	17	42	15	26	.24
GROUNDNUTS SHELLED BASIS	55	66	63	55	72	61	67	70	69	79	73	2.59
GROUNDNUT OIL	7	6	5	5	4	4	6	5	4	6	9	.40
COPRA											1	
COCONUT OIL	495	503	527	422	476	427	475	400	474	558	534	.34
PALM OIL	282	173	163	137	138	132	168	161	251	289	201	2.01
OILSEED CAKE AND MEAL	374	426	491	431	443	457	525	690	750	791	883	8.68
BANANAS	2410	2543	2659	2669	2794	2935	2708	2942	3352	3350	3367	3.36
ORANGES+TANGER+CLEMEN	380	303	297	320	326	304	320	301	291	325	325	-.64
LEMONS AND LIMES	27	34	36	38	43	38	40	51	66	61	66	8.66
COFFEE GREEN+ROASTED	986	1195	1277	1190	1104	1150	1089	1178	1233	1282	1319	1.46
COCOA BEANS	186	226	179	162	264	213	233	218	292	224	283	3.71
TEA	117	91	101	107	107	103	97	109	97	110	94	-.45
COTTON LINT	53	59	61	65	63	52	61	59	57	54	42	-1.70
JUTE AND SIMILAR FIBRES	14	17	23	10	18	18	16	11	16	15	16	-1.33
TOBACCO UNMANUFACTURED	142	173	188	191	176	167	163	214	202	207	220	3.05
NATURAL RUBBER	903	846	862	695	759	713	772	906	923	872	934	.95
WOOL GREASY	12	15	11	14	20	16	20	22	17	24	32	8.28
BOVINE CATTLE 1/	1184	1337	758	731	816	1085	1004	801	894	1407	1295	1.40
PIGS 1/	44	204	137	248	147	295	448	1322	1227	502	447	26.98
TOTAL MEAT	755	875	912	854	766	866	808	866	1010	1064	1170	3.10
MILK DRY											5	
TOTAL EGGS IN SHELL	19	18	21	12	12	11	22	30	19	20	14	.86
FISHERY PRODUCTS												
FISH FRESH FROZEN	727	800	776	699	735	676	700	688	760	810	810	.40
FISH CURED	30	34	31	26	35	33	32	33	32	33	33	.79
SHELLFISH	158	146	155	146	156	175	213	222	235	261	261	6.80
FISH CANNED AND PREPARED	78	89	95	99	104	112	126	153	187	218	218	11.35
SHELLFISH CANNED+PREPAR	41	40	41	39	47	54	69	73	84	76	76	9.00
FISH BODY AND LIVER OIL	8	9	9	12	10	8	9	8	10	11	11	1.22
FISH MEAL	74	40	82	45	56	79	68	81	234	171	171	14.07
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	2174	2043	2458	2146	1674	1772	2683	2887	2837	2826	2710	3.61
SAWLOGS NONCONIFEROUS	294	409	502	471	415	335	424	585	576	645	737	6.85
PULPWOOD+PARTICLE	2273	2516	2504	2249	2348	2000	2409	2173	1976	2805	2142	-.56
FUELWOOD	303	352	377	268	137	113	113	161	160	154	160	-8.95
SAWNWOOD CONIFEROUS	25061	28675	26582	22839	22542	21694	28483	31316	34407	33653	34403	3.57
SAWNWOOD NONCONIFEROUS	1351	1431	1571	1422	1557	912	1246	1407	1432	1496	2072	1.64
WOOD-BASED PANELS	3546	3956	3336	2378	2851	2283	3366	3548	3956	4268	5034	3.27
PULP FOR PAPER.	3393	3522	3857	3528	3563	3245	3645	4085	4069	4150	4489	2.33
PAPER AND PAPERBOARD	7017	8387	8322	8118	7595	7303	8291	10235	10631	11183	12060	4.79

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
OCEANIA DEVELOPED												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.			32	54	53	51	71	126	67	73	45	75.95
RICE MILLED	9	8	8	8	9	10	12	15	19	21	29	13.39
MAIZE	2	3	3	4	5	11	14	9	11	9	9	18.40
MILLET			1	1	1	1	1	1	1	1	1	
SORGHUM						4						
POTATOES								1				
SUGAR,TOTAL (RAW EQUIV.)	185	166	172	151	120	147	157	169	172	149	182	-.01
PULSES	12	13	12	14	13	16	16	22	12	11	8	-1.58
SOYBEANS	21	15		13	41	10	23	36	38			-19.62
SOYBEAN OIL	33	29	26	32	29	45	53	48	31	21	36	.92
GROUNDNUTS SHELLED BASIS	5	12	4	5	9	12	6	13	8	9	9	5.32
GROUNDNUT OIL	4	2	3		1	1	1	1	1	1	1	-9.34
COPRA	11	5	7	4	6	6	4					
COCONUT OIL	20	18	19	17	16	20	20	22	20	19	19	.80
PALM OIL	23	23	28	26	24	20	4	7	9	15	48	-5.34
OILSEED CAKE AND MEAL	6	30	7	12	19	10	52	11	38	33	60	17.01
BANANAS	35	38	35	37	36	36	40	30	60	37	45	2.28
ORANGES+TANGER+CLEMEN	17	18	14	16	16	17	18	24	21	18	25	3.46
LEMONS AND LIMES			1	1	1	1	3	3	4	2	2	26.89
COFFEE GREEN+ROASTED	34	26	35	41	38	42	39	37	37	39	36	1.69
COCOA BEANS	20	17	15	14	15	13	13	10	7	6	2	-15.09
TEA	35	30	30	32	28	30	28	28	27	26	25	-2.66
COTTON LINT	5	4	2	2	2	1	1	1	3	1		-19.15
JUTE AND SIMILAR FIBRES	12	11	12	9	11	8	8	6	8	9	7	-5.15
TOBACCO UNMANUFACTURED	13	16	13	15	15	14	14	14	23	24	27	6.21
NATURAL RUBBER	55	52	53	54	50	47	40	40	44	43	45	-2.81
WOOL GREASY	1	1	1									-13.15
BOVINE CATTLE 1/	2	1	1	1				1	2			-9.23
TOTAL MEAT	2	1	2	4	4	4	5	8	7	5	6	15.76
MILK DRY	1	1			1		1		1	1		13.12
FISHERY PRODUCTS												
FISH FRESH FROZEN	20	21	22	29	33	33	29	35	41	38	38	7.15
FISH CURED	5	3	5	4	4	4	4	5	5	5	5	1.47
SHELLFISH	3	2	4	4	6	6	8	8	9	10	10	17.74
FISH CANNED AND PREPARED	25	26	22	27	27	28	25	31	30	31	31	2.56
SHELLFISH CANNED+PREPAR	7	7	6	5	7	8	8	8	9	8	8	3.50
FISH BODY AND LIVER OIL	1	1	1			1			1	1	1	-1.57
FISH MEAL	8	3	4	14	8	8	11	8	13	8	8	6.60
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	2	2					1					-12.49
SAWLOGS NONCONIFEROUS	26	17	11	2	1	7	1	1	1	2	4	-23.33
FUELWOOD	2	2	2	1	1	1	1					
SAWNWOOD CONIFEROUS	754	638	682	697	781	881	642	823	1113	1044	860	3.92
SAWNWOOD NONCONIFEROUS	445	311	304	317	306	290	210	282	317	265	257	-3.45
WOOD-BASED PANELS	121	89	99	88	104	111	79	102	112	121	106	.91
PULP FOR PAPER	277	239	280	281	286	262	220	243	208	239	280	-1.25
PAPER AND PAPERBOARD	652	584	671	739	736	794	558	670	899	813	817	2.63

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	THOUSAND METRIC TONS											PERCENT
AFRICA DEVELOPING												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	6362	7963	7752	9067	8979	9371	9424	10218	11117	10196	9461	4.03
RICE MILLED	1581	1878	2229	2300	2575	2828	2725	2507	2747	2924	2906	5.29
BARLEY	219	647	419	302	459	680	397	743	583	129	133	-5.56
MAIZE	880	1154	1288	2329	2358	2336	1724	2771	2503	2122	2055	8.24
MILLET	112	83	101	106	35	55	71	23	85	29	43	-10.21
SORGHUM	99	150	133	113	155	128	232	412	382	143	138	7.21
POTATOES	211	233	307	237	211	270	449	348	426	306	224	3.61
SUGAR,TOTAL (RAW EQUIV.)	1888	2043	2108	2257	2315	2101	2403	2183	2209	2663	2924	3.10
PULSES	91	118	210	219	160	153	220	227	218	245	176	6.31
SOYBEANS	50	22	31	25	11	35	16	20	22	18	26	-4.69
SOYBEAN OIL	256	312	357	329	339	448	403	366	297	251	289	-.40
GROUNDNUTS SHELLED BASIS	25	27	13	20	17	12	8	6	35	32	3	-8.35
GROUNDNUT OIL	22	10	10	16	16	18	28	11	4	27	17	-.29
COPRA	3	4	4	3	2	2	3	5	2	2	2	-5.94
COCONUT OIL	20	10	9	7	14	12	10	17	10	10	18	1.01
PALM OIL	81	106	99	166	241	289	260	229	210	361	342	14.72
OILSEED CAKE AND MEAL	102	122	157	188	241	259	230	298	296	487	504	15.98
BANANAS	47	31	17	18	26	57	26	29	10	13	10	-10.42
ORANGES+TANGER+CLEMEN	12	12	12	10	9	10	9	9	6	9	9	-3.68
LEMONS AND LIMES	1	1	1	1	1	1	1	1	1	1	1	1.95
COFFEE GREEN+ROASTED	59	83	76	80	103	67	115	97	103	58	134	3.82
COCOA BEANS	3	1	1	1	1	1	1	1	2	1	2	.82
TEA	46	56	70	57	68	52	58	61	71	78	72	3.32
COTTON LINT	51	42	48	44	64	83	91	98	98	79	104	9.69
JUTE AND SIMILAR FIBRES	73	58	58	64	50	49	59	40	52	48	44	-3.90
TOBACCO UNMANUFACTURED	49	64	63	58	50	49	52	46	54	74	59	.65
NATURAL RUBBER	22	21	20	21	26	23	23	24	24	25	25	1.92
WOOL GREASY	3	4	3	2	2	1	2	2	2	4	3	-2.05
BOVINE CATTLE 1/	690	776	835	824	894	839	920	1010	703	639	492	-2.28
PIGS 1/	1	1	1	1	2	2	3	4	1			-7.71
TOTAL MEAT	110	139	137	141	147	221	186	217	225	253	224	8.09
MILK DRY	34	35	32	50	73	53	69	87	102	111	150	16.22
TOTAL EGGS IN SHELL	21	44	35	50	52	71	78	49	47	20	12	-4.36
FISHERY PRODUCTS												
FISH FRESH FROZEN	441	589	695	764	894	792	832	685	680	758	674	2.55
FISH CURED	27	33	48	56	95	40	50	28	41	44	43	.94
SHELLFISH	3	4	3	3	3	3	1	4	3	2	2	-3.70
FISH CANNED AND PREPARED	119	147	127	136	155	114	102	54	57	61	59	-10.09
FISH BODY AND LIVER OIL	2	3	2		1	1						-29.76
FISH MEAL	17	27	24	24	25	32	37	51	28	38	38	7.19
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	31	32	73	94	84	110	169	171	171	171	171	19.58
SAWLOGS NONCONIFEROUS	286	197	204	326	225	241	321	318	325	272	232	1.79
FUELWOOD					1	41	43	33	33	33	33	
SAWNWOOD CONIFEROUS	1251	763	1019	905	1409	1541	1859	1817	1505	1243	1106	3.87
SAWNWOOD NONCONIFEROUS	155	202	203	194	232	193	183	187	209	221	210	1.52
WOOD-BASED PANELS	310	263	316	359	321	258	289	197	205	205	193	-5.29
PULP FOR PAPER	97	102	104	120	135	116	149	143	141	141	141	4.25
PAPER AND PAPERBOARD	496	519	529	537	671	579	563	538	580	593	598	1.44

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	..... THOUSAND METRIC TONS											PERCENT
LATIN AMERICA												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	8152	10787	10718	12099	12059	11126	11927	12276	11350	9233	9859	.47
RICE MILLED	428	432	1339	1064	794	612	908	662	1060	2109	852	7.81
BARLEY	203	358	323	551	448	339	531	537	457	401	467	5.40
MAIZE	3590	4714	3954	8988	7027	3417	8162	5499	4042	5665	6688	2.84
MILLET	2	4	6	3	2	3	4	1	1			-20.98
SORGHUM	1440	1442	1876	2927	3578	3226	3830	3167	3381	1545	1692	2.83
POTATOES	198	205	251	334	198	188	182	197	157	246	209	-1.41
SUGAR,TOTAL (RAW EQUIV.)	646	898	717	1912	1628	1409	1604	1193	395	425	701	-4.73
PULSES	400	291	284	816	878	739	527	526	606	558	366	2.80
SOYBEANS	628	971	952	1205	2235	2198	1385	2858	2104	1439	2081	10.71
SOYBEAN OIL	245	351	372	432	433	675	551	791	569	607	441	7.39
GROUNDNUTS SHELLED BASIS	8	14	11	13	13	19	10	19	24	11	11	3.43
GROUNDNUT OIL	136	85	9	2	4	1	2	2	1	1	1	-39.29
COCONUT OIL	26	39	15	25	19	21	16	15	10	36	43	-.03
PALM NUTS KERNELS	1		2	1	1	1	3	1				
PALM OIL	16	8	6	14	10	5	5	5	3	8	8	-7.40
OILSEED CAKE AND MEAL	593	647	710	968	961	1131	1142	1206	1229	1240	1478	8.95
BANANAS	228	287	391	435	446	325	231	227	218	257	244	-3.41
ORANGES+TANGER+CLEMEN	26	22	44	58	36	26	20	19	20	16	20	-6.70
LEMONS AND LIMES	4	6	4	3	5	2	3	5	5	2	2	-5.11
COFFEE GREEN+ROASTED	54	58	93	49	56	64	49	56	41	39	42	-4.60
COCOA BEANS	3	3	2	3	10	13	3	6	9	5	5	9.12
TEA	14	16	19	16	14	15	14	13	15	13	13	-1.78
COTTON LINT	85	71	91	79	94	79	80	122	117	183	185	8.67
JUTE AND SIMILAR FIBRES	15	12	18	36	34	14	14	14	4	40	34	1.77
TOBACCO UNMANUFACTURED	18	16	17	29	24	20	19	16	15	16	17	-1.69
NATURAL RUBBER	170	182	182	188	181	158	166	201	197	223	252	2.82
WOOL GREASY	6	7	9	13	12	13	8	9	12	8	8	1.26
BOVINE CATTLE 1/	490	583	926	417	463	427	158	224	192	122	116	-17.01
PIGS 1/	36	32	21	10	26	55	16	8	8	3	6	-17.80
TOTAL MEAT	197	373	365	342	413	337	263	296	365	882	565	7.51
MILK DRY	183	139	122	161	161	149	130	154	114	131	148	-1.63
TOTAL EGGS IN SHELL	14	11	17	19	17	26	12	10	9	11	12	-3.64
FISHERY PRODUCTS												
FISH FRESH FROZEN	90	109	134	111	97	107	88	65	83	134	133	.16
FISH CURED	48	46	46	56	53	53	51	48	46	48	48	-.22
SHELLFISH	9	9	12	11	14	13	10	11	11	12	12	1.70
FISH CANNED AND PREPARED	49	61	75	93	87	79	43	52	64	58	58	-1.55
SHELLFISH CANNED+PREPAR	1	1	2	2	2	1		1	1	1	1	-7.87
FISH BODY AND LIVER OIL	27	36	67	43	64	35	69	62	34	24	24	-3.24
FISH MEAL	63	107	138	163	126	108	61	86	47	58	58	-7.11
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	26	34	54	128	156	162	160	69	48	58	58	4.23
SAWLOGS NONCONIFEROUS	69	105	65	57	30	29	30	75	82	72	76	.25
PULPWOOD+PARTICLE			31	35	24	16	16	8	8	8	8	
FUELWOOD	12	4	4	5	7	5	3	4	6	6	6	-2.49
SAWNWOOD CONIFEROUS	1486	1715	1524	2184	1874	1477	1666	1944	1479	1577	1451	-.81
SAWNWOOD NONCONIFEROUS	520	679	692	917	642	652	597	734	596	711	607	
WOOD-BASED PANELS	234	304	401	493	499	482	479	399	347	340	357	1.52
PULP FOR PAPER	462	530	653	740	762	735	645	766	774	809	881	4.98
PAPER AND PAPERBOARD	2162	1869	1856	2395	2437	2278	1958	1798	1732	1862	1843	-1.63

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
NEAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	9207	10320	10703	12836	13999	14156	16500	19457	17530	16204	19524	7.58
RICE MILLED	1456	1548	1887	1790	2020	1991	2244	2391	2305	2278	2659	5.46
BARLEY	991	852	1493	2361	3290	4988	3871	9244	7818	9003	8956	29.34
MAIZE	1492	1850	2369	2685	3745	3705	4082	4177	4693	4824	5274	12.72
MILLET	6	4	4	2	2	3	4	4	5	3	3	-1.68
SORGHUM	189	254	109	101	132	340	58	317	34	42	15	-18.08
POTATOES	230	231	282	353	426	462	413	422	324	288	313	2.94
SUGAR,TOTAL (RAW EQUIV.)	2266	2400	3463	3263	3405	3947	3427	3918	3272	3209	3553	3.34
PULSES	202	213	258	257	359	339	302	332	295	316	337	4.56
SOYBEANS	63	138	180	99	116	108	94	79	226	185	100	3.21
SOYBEAN OIL	233	281	381	442	504	529	717	667	609	635	757	11.25
GROUNDNUTS SHELLED BASIS	15	6	8	16	9	7	7	7	7	6	5	-6.73
GROUNDNUT OIL	2	1	1	3	1	1	1					-21.65
COPRA		1										
COCONUT OIL	8	7	4	14	12	16	13	13	14	40	22	15.44
PALM NUTS KERNELS										1		
PALM OIL	148	164	187	148	291	376	418	456	504	670	625	18.24
OILSEED CAKE AND MEAL	379	459	442	406	543	674	860	1122	1258	1360	1442	16.35
BANANAS	277	289	319	300	316	285	260	240	191	151	165	-6.45
ORANGES+TANGER+CLEMEN	555	472	512	541	619	634	627	583	463	361	322	-3.52
LEMONS AND LIMES	52	45	77	79	77	80	87	98	78	70	62	2.98
COFFEE GREEN+ROASTED	53	42	40	46	56	74	75	62	61	49	57	2.90
COCOA BEANS	2	4	1	2	5	5	6	5	5	7	7	15.47
TEA	150	205	188	168	171	168	194	239	216	227	249	3.87
COTTON LINT	37	21	41	22	24	27	27	29	56	71	153	12.99
JUTE AND SIMILAR FIBRES	31	24	41	20	25	37	34	32	34	27	22	-.47
TOBACCO UNMANUFACTURED	45	52	60	47	61	75	79	83	70	69	65	4.50
NATURAL RUBBER	49	46	37	40	52	65	86	82	80	82	93	9.33
WOOL GREASY	32	17	18	18	19	13	18	18	21	20	25	-.03
BOVINE CATTLE 1/	389	390	386	503	736	730	598	584	409	373	465	.89
PIGS 1/	5											
TOTAL MEAT	482	582	676	980	1302	1281	1266	1239	1184	1152	1174	8.83
MILK DRY	10	11	20	14	24	27	22	27	22	26	28	10.00
TOTAL EGGS IN SHELL	83	84	75	109	153	153	156	165	125	92	86	2.69
FISHERY PRODUCTS												
FISH FRESH FROZEN	50	69	55	77	107	121	137	151	114	133	134	10.80
FISH CURED	2	3	3	3	6	5	9	5	8	6	6	13.65
SHELLFISH	2	1	2	2	2	2	2	2	4	1	2	4.26
FISH CANNED AND PREPARED	39	55	51	70	64	56	55	49	53	44	44	-1.03
SHELLFISH CANNED+PREPAR			1	1	2	3	2	2	1	1	1	12.66
FISH BODY AND LIVER OIL	2	1	1	1	1	1		2				-21.95
FISH MEAL	136	56	58	77	147	113	106	163	101	131	131	5.64
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	231	176	126	173	205	275	319	316	435	214	556	10.09
SAWLOGS NONCONIFEROUS	55	68	42	57	46	5	6	11	41	109	56	-3.07
PULPWOOD+PARTICLE	13	36	40	14	38	52	69	57	42	106	47	13.80
FUELWOOD	159	163	119	126	146	183	169	198	156	212	212	4.05
SAWNWOOD CONIFEROUS	3063	2441	2689	3242	3498	3938	4179	4563	4139	3144	2909	2.68
SAWNWOOD NONCONIFEROUS	659	620	469	630	550	630	758	811	838	610	587	1.76
WOOD-BASED PANELS	749	804	931	1072	1425	1588	1324	1450	1510	1260	1238	5.89
PULP FOR PAPER	135	127	113	121	111	110	178	171	196	169	170	4.79
PAPER AND PAPERBOARD	866	889	905	975	1042	1008	1006	1205	1119	984	1019	2.06

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	THOUSAND METRIC TONS	.....	.....	.....	.....	.....	.....	PERCENT
FAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	7213	8058	8808	8897	7811	9709	11447	10313	9841	11258	10278	3.81
RICE MILLED	3848	3465	3392	4497	4404	2083	3121	2426	2409	1223	1323	-10.43
BARLEY	327	107	106	206	270	916	451	1624	97	7	124	-9.91
MAIZE	2662	3360	4328	4120	4740	5051	6442	5071	5651	5562	6781	7.75
MILLET	10	1	2	3	3	6	4	5	4	5	5	6.83
SORGHUM	19	49	144	62	178	445	234	421	391	295	37	17.22
POTATOES	104	117	143	155	145	147	160	149	150	157	140	2.60
SUGAR,TOTAL (RAW EQUIV.)	1435	1866	1935	2607	2807	2310	2138	2273	4393	3955	4721	10.39
PULSES	91	167	207	207	377	380	438	535	562	903	872	23.35
SOYBEANS	370	489	728	874	1093	1219	1137	1354	1459	1678	1769	15.41
SOYBEAN OIL	529	583	841	1004	981	976	856	1155	721	607	1061	3.06
GROUNDNUTS SHELLED BASIS	23	28	39	67	93	152	144	82	110	165	180	21.32
GROUNDNUT OIL	64	42	36	38	34	36	55	38	43	43	45	-.58
COPRA	99	163	74	115	110	81	46	84	136	151	112	.56
COCONUT OIL	87	158	91	58	151	83	90	88	65	110	90	-1.80
PALM NUTS KERNELS	5	6	10	15	6	3	12	5	4	1		-20.72
PALM OIL	842	847	1058	1757	1436	1561	1679	1865	2556	2865	2720	13.22
OILSEED CAKE AND MEAL	717	804	965	1005	1026	1339	1550	1755	1224	1986	2124	10.81
BANANAS	48	57	69	59	49	59	51	71	69	74	80	3.69
ORANGES+TANGER+CLEMEN.	215	222	208	238	273	249	287	253	254	274	294	2.94
LEMONS AND LIMES		4	6	7	8	8	9	10	13	14	16	37.14
COFFEE GREEN+ROASTED	32	19	27	19	36	51	72	96	91	107	80	18.84
COCOA BEANS	8	12	17	27	45	60	61	50	57	58	78	22.52
TEA	81	77	84	86	97	94	110	127	114	113	125	5.09
COTTON LINT	843	860	827	888	775	788	864	992	962	1131	1384	4.04
JUTE AND SIMILAR FIBRES	55	64	80	119	109	165	151	180	161	189	189	13.29
TOBACCO UNMANUFACTURED	68	64	69	82	88	69	63	68	66	62	63	-1.25
NATURAL RUBBER	160	193	215	182	208	226	199	271	249	297	323	6.03
WOOL GREASY	32	29	30	33	39	34	38	40	46	54	58	6.71
BOVINE CATTLE 1/	293	324	356	356	363	362	354	303	294	289	308	-1.02
PIGS 1/	3023	3123	3095	4552	3194	3414	3357	3250	3268	3518	3569	.77
TOTAL MEAT	212	279	297	228	266	352	360	329	326	320	365	4.26
MILK DRY	99	143	159	161	163	151	171	173	174	192	257	6.01
TOTAL EGGS IN SHELL	64	68	75	76	75	80	79	89	88	94	104	4.22
FISHERY PRODUCTS												
FISH FRESH FROZEN	162	185	229	210	258	280	294	410	443	663	625	14.93
FISH CURED	18	21	21	28	22	26	24	53	40	32	33	7.41
SHELLFISH	95	119	180	123	116	132	140	143	164	191	206	5.60
FISH CANNED AND PREPARED	84	84	79	96	78	92	51	59	47	53	57	-5.86
SHELLFISH CANNED+PREPAR	15	16	14	18	16	21	22	23	18	20	21	3.73
FISH BODY AND LIVER OIL	4	4	5	2	2	3	3	5	22	19	20	21.09
FISH MEAL	93	131	164	148	158	251	171	183	191	211	200	6.25
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	1200	2426	2128	1536	1186	1548	2116	2073	2217	2432	2793	5.16
SAWLOGS NONCONIFEROUS	8558	9371	9355	6526	5985	5415	5789	4986	4337	6153	5537	-5.94
PULPWOOD+PARTICLE	1		2	2	1		3	117	118	83	28	
FUELWOOD	546	489	519	560	588	741	749	727	773	776	791	5.28
SAWNWOOD CONIFEROUS	228	235	80	87	72	45	46	49	37	37	32	-17.52
SAWNWOOD NONCONIFEROUS	1741	1829	2345	1850	1762	1910	1840	1778	1361	1545	2238	-.98
WOOD-BASED PANELS	495	575	610	724	821	680	794	652	583	713	1051	3.93
PULP FOR PAPER	555	696	735	728	815	791	1090	1055	1124	1294	1326	8.67
PAPER AND PAPERBOARD	1495	1830	1995	2072	2247	2349	2313	2537	2504	2584	2675	5.04

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

6. VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	THOUSAND METRIC TONS											PERCENT
ASIAN CENT PLANNED ECON												
AGRICULTURAL PRODUCTS												
WHEAT+FLOUR,WHEAT EQUIV.	9164	10271	11756	13243	15688	15565	12643	11234	6620	7623	15280	-.82
RICE MILLED	214	250	619	652	441	578	205	497	705	919	1103	12.01
BARLEY	265	336	704	402	354	509	481	430	369	477	536	3.17
MAIZE	2222	3064	5412	4438	3287	4117	5569	3015	3108	3659	5249	2.86
SORGHUM	394	473	517	417	840	767	534	597	564	810	660	4.91
SUGAR,TOTAL (RAW EQUIV.)	1895	1587	1368	1114	1294	2373	2130	1456	2088	1432	2066	2.13
PULSES	49	68	58	72	91	124	88	92	89	108	100	6.72
SOYBEANS	985	1172	1696	1529	1682	1516	1420	1345	1470	2098	2313	5.36
SOYBEAN OIL	149	137	143	136	56	63	36	25	43	192	434	-.62
GROUNDNUTS SHELLED BASIS		2	1			6				1	1	
GROUNDNUT OIL							20	1		3	4	
COPRA			1	3	3	7	1	3	7	17	15	41.51
COCONUT OIL	22	19	27	31	26	31	26	27	29	49	33	5.43
PALM NUTS KERNELS					2	1						
PALM OIL	30	14	48	63	26	24	24	23	70	216	289	21.58
OILSEED CAKE AND MEAL	41	55	1	9	14	15	33	50	48	41	64	15.79
BANANAS							20	20	40	36	33	
ORANGES+TANGER+CLEMEN		1		2	1	1	5	2	3	4	11	
LEMONS AND LIMES										1		
COFFEE GREEN+ROASTED	6	6	5	6	7	17	30	16	16	8	9	9.61
COCOA BEANS	12	15	17	17	4	23	10	12	6	27	14	.63
TEA	5	6	5	5	4	4	5	6	6	19	17	11.09
COTTON LINT	422	818	835	1235	1023	824	521	369	362	461	608	-5.36
JUTE AND SIMILAR FIBRES	34	39	36	47	24	43	36	24	3	41	22	-9.49
TOBACCO UNMANUFACTURED	15	19	22	32	54	46	21	28	45	29	21	3.79
NATURAL RUBBER	316	300	333	358	220	232	337	321	264	341	485	1.99
WOOL GREASY	22	28	51	58	78	95	94	74	115	121	124	17.47
BOVINE CATTLE 1/				2		1	1	4	10	7	7	
PIGS 1/	1	4	3	3	5	3	3	2	2	2	2	-1.84
TOTAL MEAT	4	11	18	16	23	27	28	32	38	49	63	24.30
MILK DRY										10		
FISHERY PRODUCTS												
FISH FRESH FROZEN	6	4	4	2	3	3	3	5	5	3	3	-1.43
FISH CURED	1	1	1	1	2	2	2	3				-4.49
SHELLFISH	4	9	14	20	2	5	5	4	8	9	9	-.97
FISH CANNED AND PREPARED	1	1	1	2	2	2	2	3	3	3	3	13.21
SHELLFISH CANNED+PREPAR			1	1	1	1	1	1	1	2	2	21.27
FISH BODY AND LIVER OIL	1	2	2	1	1	1	1	3	3	3	3	11.40
FISH MEAL	95	142	168	155	162	312	263	370	507	526	526	19.24
FOREST PRODUCTS 2/												
SAWLOGS CONIFEROUS	419	389	422	630	1181	3115	5391	6776	7576	5976	5574	42.30
SAWLOGS NONCONIFEROUS	5994	7170	6810	6509	5286	4762	5431	4634	4630	4310	4703	-4.49
PULPWOOD+PARTICLE	711	728	1069	843	1957	1192	2005	1563	1912	2752	2719	14.64
SAWNWOOD CONIFEROUS	29	29	29	31	10	6	11	15	9	8	22	-9.50
SAWNWOOD NONCONIFEROUS	38	56	96	139	197	293	423	519	529	800	1158	38.97
WOOD-BASED PANELS	13	24	36	51	260	287	314	710	551	592	824	53.37
PULP FOR PAPER	175	208	210	427	525	440	683	672	737	823	1056	19.31
PAPER AND PAPERBOARD	297	411	427	650	662	510	678	634	987	1401	1627	15.54

1/ THOUSAND HEAD
2/ EXCEPT FOR PULP FOR PAPER AND PAPER AND PAPERBOARD, ALL FOREST PRODUCTS ARE EXPRESSED IN THOUSAND CUBIC METRES

7. INDICES OF VALUE OF EXPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	1979-81=100											PERCENT
WORLD												
AGRICULTURAL PRODUCTS	69	77	91	105	104	95	93	98	92	99	107	2.73
FOOD	64	75	88	104	107	96	92	97	90	95	105	2.93
FEED	67	73	86	101	113	105	115	100	82	103	114	3.55
RAW MATERIALS	75	82	97	103	100	93	93	99	93	95	114	2.23
BEVERAGES	97	93	105	110	85	88	89	103	106	132	113	1.93
FOREST PRODUCTS	65	73	94	107	98	89	91	97	95	111	140	4.93
DEVELOPED COUNTRIES												
AGRICULTURAL PRODUCTS	64	75	89	105	106	96	92	95	88	96	110	3.10
FOOD	62	73	87	105	107	96	91	93	85	93	106	2.92
FEED	60	74	88	103	109	103	114	95	80	96	108	3.31
RAW MATERIALS	73	80	98	102	100	98	93	101	97	100	122	3.06
BEVERAGES	69	79	101	103	96	96	93	98	107	134	149	5.58
FOREST PRODUCTS	66	74	93	107	100	91	92	99	98	115	144	5.22
WESTERN EUROPE												
AGRICULTURAL PRODUCTS	62	76	92	105	103	97	94	96	97	118	140	5.38
FOOD	61	75	90	106	104	96	92	94	95	117	137	5.23
FEED	58	71	87	98	115	118	129	117	102	103	128	6.01
RAW MATERIALS	63	83	105	100	96	96	97	104	106	124	151	5.66
BEVERAGES	65	79	101	103	96	95	93	98	109	139	156	6.37
FOREST PRODUCTS	63	72	93	109	98	89	88	96	97	120	156	5.92
USSR AND EASTERN EUROPE												
AGRICULTURAL PRODUCTS	87	86	98	102	100	94	85	80	79	85	91	-.97
FOOD	87	85	99	102	99	90	80	78	76	80	83	-1.80
FEED	134	117	113	96	91	116	99	71	95	102	81	-3.65
RAW MATERIALS	89	87	93	103	104	104	95	81	84	95	109	.44
BEVERAGES	78	90	104	103	94	97	103	96	94	106	114	2.06
FOREST PRODUCTS	84	88	97	104	99	97	100	100	99	109	114	2.16
NORTH AMERICA DEVELOPED												
AGRICULTURAL PRODUCTS	60	73	86	104	110	95	94	99	76	69	76	.30
FOOD	58	71	84	103	112	96	94	98	73	63	69	-.33
FEED	58	75	88	107	105	93	107	83	68	94	97	2.07
RAW MATERIALS	69	80	95	104	101	96	92	109	96	83	107	2.20
BEVERAGES	111	75	94	110	95	91	79	91	88	123	107	.87
FOREST PRODUCTS	66	74	93	105	102	91	96	104	100	111	140	5.11
OCEANIA DEVELOPED												
AGRICULTURAL PRODUCTS	69	68	82	107	111	103	89	92	96	95	100	2.88
FOOD	62	65	77	109	114	104	88	91	94	91	89	2.87
FEED	125	119	127	74	100	103	95	73	60	74	103	-4.58
RAW MATERIALS	84	74	95	103	102	99	90	93	99	105	124	2.88
BEVERAGES	63	68	74	94	132	139	157	177	158	182	283	14.77
FOREST PRODUCTS	54	59	83	106	111	94	83	89	85	87	114	4.39

7. INDICES OF VALUE OF EXPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	.....	.....	.....	.....	1979-81=100	.....	.....	.....	.....	.....	.....	PERCENT
DEVELOPING COUNTRIES												
AGRICULTURAL PRODUCTS	80	83	94	104	101	92	94	105	99	104	102	2.03
FOOD	72	79	91	102	107	95	95	108	102	100	104	2.93
FEED	75	72	84	99	118	106	117	106	84	110	121	3.85
RAW MATERIALS	77	85	97	104	99	85	91	96	88	88	100	.84
BEVERAGES	112	100	107	113	80	85	87	106	106	130	94	.10
FOREST PRODUCTS	59	66	101	110	89	82	88	83	80	92	119	3.26
AFRICA DEVELOPING												
AGRICULTURAL PRODUCTS	101	98	105	105	90	84	78	90	88	102	89	-1.34
FOOD	90	102	102	106	91	81	73	85	82	94	93	-1.34
FEED	127	78	131	93	76	82	83	50	47	48	51	-9.34
RAW MATERIALS	76	77	93	99	108	91	90	100	92	96	105	2.09
BEVERAGES	129	102	114	106	81	84	81	94	98	120	75	-2.46
FOREST PRODUCTS	71	78	91	124	85	70	67	69	66	73	76	-2.09
LATIN AMERICA												
AGRICULTURAL PRODUCTS	81	84	94	104	102	91	97	104	101	101	94	1.51
FOOD	72	78	90	101	109	92	99	108	105	94	95	2.39
FEED	76	71	79	95	125	104	122	109	84	102	116	3.70
RAW MATERIALS	84	97	95	100	104	93	82	85	80	61	67	-3.61
BEVERAGES	105	102	107	116	77	86	87	102	104	133	96	.36
FOREST PRODUCTS	40	48	81	111	109	90	96	115	98	107	124	8.95
NEAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	78	85	89	98	112	110	105	109	93	99	106	2.17
FOOD	63	76	82	98	120	124	116	117	99	112	127	5.56
FEED	113	78	94	121	85	60	49	66	21	35	48	-11.73
RAW MATERIALS	103	100	100	100	100	91	90	100	86	80	74	-2.79
BEVERAGES	68	81	103	84	113	73	61	71	53	48	42	-6.59
FOREST PRODUCTS	56	46	78	86	136	152	164	205	156	134	126	11.92
FAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	72	74	91	105	104	91	93	111	96	97	104	2.86
FOOD	67	68	88	100	112	100	94	118	101	93	101	3.60
FEED	71	78	90	104	106	110	101	97	80	105	112	2.68
RAW MATERIALS	64	75	95	109	95	75	91	91	80	88	106	2.03
BEVERAGES	115	95	95	115	90	81	95	137	124	135	109	2.15
FOREST PRODUCTS	62	67	110	108	82	80	88	75	76	90	126	2.70
ASIAN CENT PLANNED ECON												
AGRICULTURAL PRODUCTS	66	80	93	105	102	100	107	124	138	174	184	9.31
FOOD	63	79	90	106	103	95	95	110	129	161	164	8.20
FEED	14	10	25	98	177	170	314	251	220	524	518	47.80
RAW MATERIALS	83	89	110	102	87	114	145	172	176	205	249	11.27
BEVERAGES	81	93	106	105	89	107	116	151	141	164	179	7.65
FOREST PRODUCTS	62	82	101	96	103	87	93	85	84	95	117	2.61

8. INDICES OF VOLUME OF EXPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
					1979-81=100							PERCENT
WORLD												
AGRICULTURAL PRODUCTS	81	89	93	101	106	105	105	108	107	106	113	2.65
FOOD	81	89	92	102	106	104	104	108	106	104	110	2.44
FEED	75	90	90	100	110	116	121	115	122	127	135	5.20
RAW MATERIALS	94	100	100	101	99	97	100	102	102	107	115	1.26
BEVERAGES	84	88	100	98	103	104	103	110	115	105	110	2.52
FOREST PRODUCTS	90	96	101	102	97	94	103	108	109	114	124	2.49
DEVELOPED COUNTRIES												
AGRICULTURAL PRODUCTS	**77**	**88**	**91**	**103**	**105**	**103**	**102**	**106**	**101**	**99**	**110**	**2.42**
FOOD	**77**	**88**	**91**	**104**	**106**	**102**	**101**	**106**	**100**	**98**	**109**	**2.30**
FEED	**67**	**87**	**92**	**101**	**107**	**112**	**121**	**107**	**110**	**116**	**132**	**4.96**
RAW MATERIALS	**92**	**95**	**100**	**102**	**99**	**99**	**99**	**102**	**101**	**101**	**110**	**1.12**
BEVERAGES	**83**	**82**	**100**	**96**	**104**	**105**	**103**	**111**	**115**	**105**	**106**	**2.66**
FOREST PRODUCTS	**88**	**94**	**100**	**102**	**98**	**95**	**105**	**110**	**112**	**117**	**127**	**3.00**
WESTERN EUROPE												
AGRICULTURAL PRODUCTS	75	85	91	99	109	108	115	124	131	136	143	6.31
FOOD	75	85	91	100	109	106	114	124	131	139	144	6.43
FEED	64	85	92	94	114	136	144	139	152	127	151	8.00
RAW MATERIALS	85	93	98	98	104	100	109	121	124	126	138	4.50
BEVERAGES	83	80	101	94	105	106	102	111	117	106	107	2.88
FOREST PRODUCTS	84	93	101	100	99	97	107	116	118	121	132	3.85
USSR AND EASTERN EUROPE												
AGRICULTURAL PRODUCTS	108	94	102	99	100	100	95	95	100	97	99	-.43
FOOD	108	94	102	98	100	100	94	95	100	98	100	-.40
FEED	126	118	109	96	95	111	93	74	117	108	76	-2.88
RAW MATERIALS	109	99	96	100	104	109	96	83	90	95	104	-.93
BEVERAGES	92	93	100	100	100	104	112	109	107	90	90	.22
FOREST PRODUCTS	109	112	103	100	97	98	102	104	104	112	114	.34
NORTH AMERICA DEVELOPED												
AGRICULTURAL PRODUCTS	73	88	92	103	104	100	99	99	80	75	91	-.09
FOOD	73	88	92	103	105	100	98	99	79	72	89	-.39
FEED	65	85	90	107	103	99	111	92	89	113	125	3.87
RAW MATERIALS	84	92	98	105	97	96	92	97	92	85	93	-.19
BEVERAGES	64	75	87	111	102	98	94	96	104	113	116	4.42
FOREST PRODUCTS	88	91	99	103	98	92	103	106	107	114	126	2.76
OCEANIA DEVELOPED												
AGRICULTURAL PRODUCTS	85	93	78	123	99	105	94	108	140	140	135	5.02
FOOD	83	92	75	125	100	106	93	108	143	141	135	5.30
FEED	141	134	150	67	83	102	98	67	74	96	124	-3.49
RAW MATERIALS	112	103	110	98	93	100	106	100	110	122	134	1.63
BEVERAGES	73	77	86	100	115	113	160	165	157	191	274	12.93
FOREST PRODUCTS	79	81	94	105	101	87	88	89	88	89	93	.47

8. INDICES OF VOLUME OF EXPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	1979-81=100											PERCENT
DEVELOPING COUNTRIES												
AGRICULTURAL PRODUCTS	94	93	96	97	107	109	115	116	125	123	118	3.21
FOOD	97	92	97	96	107	108	115	116	126	122	114	2.90
FEED	83	93	88	98	114	118	121	121	132	137	138	5.40
RAW MATERIALS	97	105	101	101	99	94	100	102	103	114	121	1.42
BEVERAGES	86	96	99	100	101	103	102	108	115	106	116	2.33
FOREST PRODUCTS	98	104	107	102	91	86	94	94	93	99	110	-.20
AFRICA DEVELOPING												
AGRICULTURAL PRODUCTS	99	100	100	101	99	101	96	86	95	96	93	-.88
FOOD	96	100	98	103	99	102	97	87	95	96	94	-.61
FEED	132	96	128	96	77	90	97	56	76	70	74	-5.79
RAW MATERIALS	93	96	100	98	102	92	93	100	105	117	116	1.82
BEVERAGES	105	106	103	94	103	104	88	87	101	94	83	-1.83
FOREST PRODUCTS	107	107	108	106	86	84	84	93	86	78	77	-3.46
LATIN AMERICA												
AGRICULTURAL PRODUCTS	100	95	98	92	111	104	121	116	128	109	104	1.95
FOOD	105	95	100	89	111	103	120	114	126	105	96	1.13
FEED	85	88	85	98	117	113	132	129	142	133	139	5.92
RAW MATERIALS	98	130	103	102	95	85	83	80	89	70	74	-4.36
BEVERAGES	73	92	100	102	98	103	110	116	123	104	135	4.24
FOREST PRODUCTS	59	71	92	105	103	94	113	127	117	124	121	6.61
NEAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	79	98	88	97	115	136	137	134	110	114	128	4.20
FOOD	74	95	85	96	119	143	143	140	115	118	136	5.35
FEED	116	102	101	122	77	53	54	62	20	41	54	-12.02
RAW MATERIALS	113	121	107	98	94	99	100	105	88	101	78	-2.66
BEVERAGES	88	83	102	85	112	91	85	98	80	64	46	-4.47
FOREST PRODUCTS	69	59	90	85	124	138	163	219	173	166	159	11.97
FAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	88	89	94	100	107	118	108	120	118	129	123	3.94
FOOD	91	80	94	100	106	120	110	127	120	137	124	4.62
FEED	80	103	91	98	111	124	104	111	120	118	119	3.28
RAW MATERIALS	94	95	99	101	100	96	105	104	104	117	128	2.39
BEVERAGES	87	91	90	104	106	101	100	118	122	124	119	3.56
FOREST PRODUCTS	108	111	112	102	86	83	90	83	87	95	114	-1.34
ASIAN CENT PLANNED ECON												
AGRICULTURAL PRODUCTS	87	91	96	111	93	97	111	127	188	236	211	10.21
FOOD	91	96	99	112	88	91	99	117	182	204	182	8.03
FEED	15	11	27	94	179	184	294	260	279	709	603	50.16
RAW MATERIALS	105	92	107	98	95	117	180	230	249	434	520	18.91
BEVERAGES	95	97	105	105	90	111	130	144	135	161	167	6.20
FOREST PRODUCTS	98	126	107	92	101	93	96	85	88	94	100	-1.70

9. INDICES OF VALUE OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	1979-81=100											PERCENT
WORLD												
AGRICULTURAL PRODUCTS	69	77	91	104	104	96	93	98	93	100	109	2.89
FOOD	64	74	89	104	107	97	93	97	92	96	106	3.15
FEED	68	72	88	100	112	106	114	101	85	100	117	3.73
RAW MATERIALS	75	83	98	104	98	91	92	101	97	96	116	2.44
BEVERAGES	97	93	104	109	87	88	89	99	101	129	111	1.60
FOREST PRODUCTS	67	74	95	108	97	94	91	96	95	111	138	4.61
DEVELOPED COUNTRIES												
AGRICULTURAL PRODUCTS	73	81	95	104	101	94	91	96	94	104	114	2.69
FOOD	68	79	93	104	103	95	90	95	93	102	116	3.11
FEED	68	72	88	100	111	103	112	93	81	95	112	2.91
RAW MATERIALS	78	85	102	103	96	90	92	100	96	94	111	1.78
BEVERAGES	98	93	104	110	86	87	88	98	100	130	110	1.50
FOREST PRODUCTS	68	76	98	108	94	91	88	94	94	111	141	4.39
WESTERN EUROPE												
AGRICULTURAL PRODUCTS	75	85	99	106	95	92	88	89	91	109	124	2.58
FOOD	73	84	98	106	96	93	87	87	89	107	128	2.75
FEED	66	72	89	101	109	106	107	95	83	99	109	3.15
RAW MATERIALS	77	87	104	104	91	89	88	99	102	101	117	2.25
BEVERAGES	96	91	104	110	86	86	86	92	95	130	117	1.65
FOREST PRODUCTS	67	72	94	110	96	89	84	88	87	112	145	4.51
USSR AND EASTERN EUROPE												
AGRICULTURAL PRODUCTS	62	68	84	102	114	99	94	97	90	82	84	2.01
FOOD	54	63	80	101	119	101	90	97	90	79	78	2.49
FEED	73	69	82	94	124	100	133	78	63	68	122	1.32
RAW MATERIALS	80	81	98	104	98	92	102	99	95	89	98	1.12
BEVERAGES	99	89	96	112	92	91	94	101	102	109	94	.50
FOREST PRODUCTS	83	84	86	106	107	99	91	91	95	89	92	.53
NORTH AMERICA DEVELOPED												
AGRICULTURAL PRODUCTS	79	87	98	102	100	92	95	112	111	119	117	3.48
FOOD	71	81	94	100	106	94	98	117	118	118	127	4.96
FEED	82	88	104	93	102	91	108	133	112	122	139	4.58
RAW MATERIALS	74	81	99	96	105	90	96	108	89	88	101	1.61
BEVERAGES	100	101	106	109	85	89	88	104	106	133	102	1.03
FOREST PRODUCTS	77	96	103	97	100	102	115	134	137	143	167	6.68
OCEANIA DEVELOPED												
AGRICULTURAL PRODUCTS	78	89	90	106	104	112	99	122	126	123	122	4.42
FOOD	74	86	91	103	106	128	111	136	134	129	128	5.71
FEED	43	185	48	87	165	75	338	107	192	171	309	14.49
RAW MATERIALS	75	85	88	107	105	90	78	100	110	105	116	2.97
BEVERAGES	94	100	90	114	96	92	87	111	120	128	112	2.38
FOREST PRODUCTS	73	70	85	104	110	122	83	103	117	115	130	5.12

9. INDICES OF VALUE OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	1979-81=100											PERCENT
DEVELOPING COUNTRIES												
AGRICULTURAL PRODUCTS	57	67	81	105	114	102	98	103	92	88	94	3.50
FOOD	54	64	79	105	116	104	99	101	90	83	86	3.23
FEED	65	68	80	102	118	125	138	159	123	147	161	9.47
RAW MATERIALS	66	76	89	106	105	93	92	102	98	102	131	4.29
BEVERAGES	88	96	104	99	97	89	95	111	108	116	122	2.50
FOREST PRODUCTS	62	68	84	104	112	108	105	106	103	111	126	5.66
AFRICA DEVELOPING												
AGRICULTURAL PRODUCTS	60	72	81	105	114	99	93	92	92	84	80	1.74
FOOD	56	69	79	106	115	101	93	92	90	81	73	1.68
FEED	46	60	79	98	123	116	93	124	114	149	182	11.34
RAW MATERIALS	75	86	95	100	105	105	102	107	115	107	114	3.38
BEVERAGES	101	99	93	105	102	72	85	77	82	86	120	-.79
FOREST PRODUCTS	73	71	82	94	124	108	110	97	96	98	94	2.74
LATIN AMERICA												
AGRICULTURAL PRODUCTS	52	63	79	110	112	87	84	86	77	76	72	1.39
FOOD	50	62	75	111	114	87	85	85	76	73	67	1.25
FEED	64	62	82	102	116	118	121	122	93	97	120	5.38
RAW MATERIALS	62	71	95	106	99	83	72	101	90	95	115	3.36
BEVERAGES	69	68	130	89	81	75	52	52	51	74	60	-4.12
FOREST PRODUCTS	63	63	74	111	115	114	89	84	79	85	87	2.04
NEAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	54	63	76	101	122	116	113	127	109	99	105	6.19
FOOD	50	59	74	102	124	117	111	124	106	94	98	6.17
FEED	73	83	83	87	130	136	199	240	246	246	256	16.02
RAW MATERIALS	76	81	91	96	113	106	127	134	125	123	150	6.40
BEVERAGES	89	120	99	102	99	105	115	151	132	125	138	3.86
FOREST PRODUCTS	78	75	78	103	119	116	107	110	107	103	104	3.38
FAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	65	73	85	103	112	101	104	112	103	98	111	4.26
FOOD	60	70	84	103	113	101	104	106	99	89	96	3.49
FEED	66	66	80	109	111	129	133	158	92	148	156	8.39
RAW MATERIALS	79	82	92	101	107	98	100	119	113	116	156	5.28
BEVERAGES	91	83	95	97	108	112	136	181	194	213	178	10.22
FOREST PRODUCTS	56	71	99	101	100	96	95	100	92	103	127	4.96
ASIAN CENT PLANNED ECO												
AGRICULTURAL PRODUCTS	54	64	86	106	108	102	83	73	61	68	89	.70
FOOD	56	62	88	101	110	110	89	75	58	64	82	-.08
FEED	73	100	50	94	156	99	121	174	158	97	88	4.91
RAW MATERIALS	47	67	81	117	102	83	70	67	66	77	102	2.15
BEVERAGES	113	76	94	94	112	67	117	86	100	144	156	3.92
FOREST PRODUCTS	45	57	77	109	115	111	147	160	168	204	254	16.83

10. INDICES OF VOLUME OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	1979-81=100											PERCENT
WORLD												
AGRICULTURAL PRODUCTS	80	88	94	101	105	105	105	108	108	106	113	2.84
FOOD	79	87	94	101	105	105	103	108	106	104	111	2.62
FEED	76	90	94	98	109	119	123	116	128	130	142	5.60
RAW MATERIALS	93	98	99	102	99	96	98	103	104	108	116	1.49
BEVERAGES	86	89	100	98	102	103	103	108	112	107	110	2.30
FOREST PRODUCTS	90	96	102	101	96	94	101	106	108	115	125	2.47
DEVELOPED COUNTRIES												
AGRICULTURAL PRODUCTS	85	92	97	99	104	104	100	104	107	103	108	1.84
FOOD	85	92	97	99	103	102	97	102	104	100	104	1.40
FEED	76	90	94	97	108	117	121	110	124	123	135	4.90
RAW MATERIALS	99	101	102	100	98	96	99	104	106	105	108	.72
BEVERAGES	84	89	100	98	102	103	102	107	113	107	110	2.38
FOREST PRODUCTS	91	97	104	101	94	92	99	105	107	115	125	2.26
WESTERN EUROPE												
AGRICULTURAL PRODUCTS	92	97	100	100	100	105	101	100	106	108	113	1.49
FOOD	96	98	100	101	98	102	97	96	101	103	108	.63
FEED	74	91	95	97	108	121	118	113	126	126	132	5.06
RAW MATERIALS	104	105	104	100	96	95	98	103	109	111	113	.77
BEVERAGES	85	88	102	97	102	103	101	102	109	106	111	2.14
FOREST PRODUCTS	87	92	103	101	96	94	102	106	106	117	126	2.84
USSR AND EASTERN EUROPE												
AGRICULTURAL PRODUCTS	61	78	89	97	114	104	93	101	101	81	88	2.12
FOOD	58	77	88	97	115	104	89	102	101	80	85	2.16
FEED	80	80	87	99	114	108	142	86	92	89	144	3.23
RAW MATERIALS	89	91	98	102	100	96	105	105	102	94	96	.70
BEVERAGES	95	88	94	103	103	99	96	102	103	81	74	-1.26
FOREST PRODUCTS	97	96	92	105	103	95	90	90	95	87	85	-1.24
NORTH AMERICA DEVELOPED												
AGRICULTURAL PRODUCTS	98	96	100	96	104	99	101	117	121	122	121	2.77
FOOD	101	95	99	96	105	98	100	116	120	122	120	2.52
FEED	90	105	106	94	100	100	111	145	157	151	168	6.28
RAW MATERIALS	103	101	105	90	106	93	101	111	115	106	112	1.13
BEVERAGES	74	93	99	100	101	106	108	120	126	125	127	4.68
FOREST PRODUCTS	96	109	107	97	96	87	107	123	129	134	146	3.73
OCEANIA DEVELOPED												
AGRICULTURAL PRODUCTS	97	93	94	107	99	114	120	129	132	120	134	3.90
FOOD	96	90	94	109	97	119	122	139	134	121	136	4.35
FEED	48	227	56	94	150	85	393	82	298	259	461	17.27
RAW MATERIALS	107	105	99	103	98	91	84	89	106	96	99	-.91
BEVERAGES	99	82	94	104	102	111	102	114	123	124	114	3.10
FOREST PRODUCTS	100	86	96	100	104	113	83	100	125	117	115	2.28

10. INDICES OF VOLUME OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	ANNUAL RATE OF CHANGE 1977-87
	1979-81=100											PERCENT
DEVELOPING COUNTRIES												
AGRICULTURAL PRODUCTS	70	80	89	103	108	109	114	117	110	112	124	4.81
FOOD	69	79	89	103	108	108	114	117	109	110	122	4.69
FEED	75	84	87	101	111	131	148	175	174	205	221	11.92
RAW MATERIALS	80	90	92	106	102	98	97	100	99	115	132	3.28
BEVERAGES	104	95	100	96	105	104	107	114	111	108	117	1.64
FOREST PRODUCTS	84	89	93	101	106	104	110	112	111	117	124	3.52
AFRICA DEVELOPING												
AGRICULTURAL PRODUCTS	76	88	90	102	108	110	109	117	121	114	110	3.78
FOOD	74	88	90	103	107	110	109	117	121	113	109	3.76
FEED	53	66	80	97	123	129	117	148	151	240	244	15.14
RAW MATERIALS	98	94	97	102	101	102	105	110	117	116	113	2.06
BEVERAGES	155	102	90	96	114	100	109	109	118	106	123	.02
FOREST PRODUCTS	91	83	90	93	117	105	115	106	104	100	96	1.54
LATIN AMERICA												
AGRICULTURAL PRODUCTS	62	78	82	111	108	92	106	102	93	90	92	2.51
FOOD	62	78	81	111	108	91	106	101	91	87	89	2.26
FEED	68	75	82	109	109	127	127	132	137	138	164	8.47
RAW MATERIALS	79	87	96	106	98	91	85	109	108	138	139	4.61
BEVERAGES	73	80	114	93	92	88	68	66	63	67	65	-3.66
FOREST PRODUCTS	86	81	84	110	106	99	88	83	78	84	85	-.77
NEAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	68	75	87	99	114	121	127	150	136	137	150	8.18
FOOD	67	74	87	99	114	121	127	149	134	135	148	8.10
FEED	81	92	93	90	117	148	186	261	265	283	303	16.55
RAW MATERIALS	88	81	87	96	117	114	131	130	125	119	149	5.56
BEVERAGES	84	112	100	95	104	117	119	137	119	114	126	3.20
FOREST PRODUCTS	88	83	86	101	113	121	122	134	128	107	106	3.50
FAR EAST DEVELOPING												
AGRICULTURAL PRODUCTS	78	85	92	105	103	106	118	117	118	124	132	4.86
FOOD	77	84	92	106	102	105	116	114	116	119	125	4.46
FEED	78	86	93	102	105	131	153	172	150	218	234	11.62
RAW MATERIALS	93	98	95	98	107	105	109	121	116	134	158	4.63
BEVERAGES	94	86	94	98	107	115	133	157	150	159	160	7.17
FOREST PRODUCTS	85	101	108	95	97	96	103	103	100	115	124	2.19
ASIAN CENT PLANNED ECON												
AGRICULTURAL PRODUCTS	67	77	97	99	104	112	101	82	69	80	124	1.65
FOOD	68	76	98	97	105	114	103	83	68	79	126	1.68
FEED	107	138	57	90	152	102	129	209	341	165	130	8.08
RAW MATERIALS	60	85	87	119	94	87	75	62	64	81	100	-.02
BEVERAGES	36	35	107	99	94	72	122	88	102	102	126	9.91
FOREST PRODUCTS	69	86	87	103	110	107	146	156	173	207	245	12.56

11. THE IMPORTANCE OF AGRICULTURE IN THE ECONOMY

COUNTRY	AGRIC.POPULATION AS % TOTAL POPULATION 1987	AGRIC.EXPORTS AS % TOTAL EXPORTS 1987	AGRIC.IMPORTS AS % TOTAL IMPORTS 1987	SHARE OF TOTAL IMPORTS FINANCED BY AGR.EXPORTS % 1987
ALGERIA	25		28	
ANGOLA	71	1	17	2
BENIN	64	79	22	29
BOTSWANA	65	3	12	6
BURKINA FASO	85	92	24	19
BURUNDI	92	85	10	34
CAMEROON	64	33	12	27
CAPE VERDE	46	20	43	1
CENTRAL AFRICAN REPUBLIC	66	27	8	15
CHAD	77	69	9	49
COMOROS	80	45	27	23
CONGO	60	1	11	2
COTE D'IVOIRE	59	59	21	94
DJIBOUTI	78	30	36	2
EGYPT	42	17	22	4
EQUATORIAL GUINEA	59	30	14	38
ETHIOPIA	76	65	18	27
GABON	70		12	1
GAMBIA	82	57	41	20
GHANA	52	62	14	59
GUINEA	76	6	17	6
GUINEA-BISSAU	80	47	28	16
KENYA	78	68	7	37
LESOTHO	82	37	27	3
LIBERIA	71	28	30	42
LIBYA	13		22	
MADAGASCAR	78	88	14	70
MALAWI	78	89	4	84
MALI	82	53	9	28
MAURITANIA	66	7	32	8
MAURITIUS	24	38	12	35
MOROCCO	39	16	17	10
MOZAMBIQUE	82	58	28	11
NAMIBIA	37			
NIGER	89	19	24	21
NIGERIA	66	3	14	4
REUNION	13	85	20	9
RWANDA	92	98	11	31
SAO TOME AND PRINCIPE	68	43	21	27
SENEGAL	79	12	22	9
SEYCHELLES	78	3	16	1
SIERRA LEONE	65	28	68	28
SOMALIA	72	82	74	43
SOUTH AFRICA	17	6	5	9
SUDAN	64	97	33	54
SWAZILAND	69	64	17	46
TANZANIA	81	74	9	30
TOGO	71	43	24	28
TUNISIA	27	9	13	6
UGANDA	82	62	10	89
ZAIRE	67	20	25	27
ZAMBIA	70	5	6	4
ZIMBABWE	70	58	4	58
BARBADOS	7	26	17	8
BELIZE	35	69	23	42
BERMUDA	3		19	
CANADA	4	8	6	8
COSTA RICA	26	65	7	54
CUBA	21	89	10	63
DOMINICA	29	90	28	80
DOMINICAN REPUBLIC	39	54	12	21
EL SALVADOR	40	67	13	40
GRENADA	30	48	21	19
GUADELOUPE	11	78	21	7
GUATEMALA	53	82	21	123
HAITI	62	25	33	12
HONDURAS	59	63	7	47
JAMAICA	31	28	16	15
MARTINIQUE	9	69	19	12
MEXICO	32	10	15	17
NICARAGUA	41	76	10	24
PANAMA	27	41	10	11
TRINIDAD AND TOBAGO	8	4	26	5
UNITED STATES	3	13	5	8

11. THE IMPORTANCE OF AGRICULTURE IN THE ECONOMY

COUNTRY	AGRIC.POPULATION AS % TOTAL POPULATION 1987	AGRIC.EXPORTS AS % TOTAL EXPORTS 1987	AGRIC.IMPORTS AS % TOTAL IMPORTS 1987	SHARE OF TOTAL IMPORTS FINANCED BY AGR.EXPORTS % 1987
ARGENTINA	11	52	7	80
BOLIVIA	43	6	9	5
BRAZIL	26	33	9	51
CHILE	14	16	6	21
COLOMBIA	29	45	9	54
ECUADOR	33	33	5	30
FRENCH GUIANA	28	8	20	1
GUYANA	24	48	10	43
PARAGUAY	48	56	8	31
PERU	38	9	20	7
SURINAME	17	14	11	14
URUGUAY	14	42	8	45
VENEZUELA	12	1	12	1
AFGHANISTAN	57	44	16	28
BANGLADESH	70	14	27	7
BHUTAN	91			
BRUNEI DARUSSALAM	54		20	1
BURMA	49	35	5	37
CHINA (EXC TAIWAN)	70	17	9	15
CYPRUS	22	33	13	14
HONG KONG	1	4	10	4
INDIA	64	21	9	14
INDONESIA	47	19	9	22
IRAN	29	2	22	3
IRAQ	23	1	43	1
ISRAEL	5	11	7	8
JAPAN	7		14	1
JORDAN	7	14	25	4
KAMPUCHEA,DEMOCRATIC	71	91	12	11
KOREA DPR	36	6	12	4
KOREA REP	25	2	10	2
KUWAIT	2	1	20	1
LAOS	73	6	15	3
LEBANON	11	34	26	7
MALAYSIA	33	22	11	31
MALDIVES	66		11	
MONGOLIA	33	20	5	13
NEPAL	92	37	15	10
OMAN	43	1	14	1
PAKISTAN	54	25	17	18
PHILIPPINES	48	20	9	16
QATAR	2		19	
SAUDI ARABIA KINGDOM OF	42	1	19	1
SINGAPORE	1	6	8	6
SRI LANKA	52	43	15	29
SYRIA	26	6	25	9
THAILAND	63	33	5	30
TURKEY	47	25	9	18
UNITED ARAB EMIRATES	3	1	15	2
VIET NAM	63	52	68	41
YEMEN ARAB REPUBLIC	65	59	31	2
YEMEN DEMOCRATIC	34	2	10	1

11. THE IMPORTANCE OF AGRICULTURE IN THE ECONOMY

COUNTRY	AGRIC.POPULATION AS % TOTAL POPULATION 1987	AGRIC.EXPORTS AS % TOTAL EXPORTS 1987	AGRIC.IMPORTS AS % TOTAL IMPORTS 1987	SHARE OF TOTAL IMPORTS FINANCED BY AGR.EXPORTS % 1987
AUSTRIA	6	4	7	3
BELGIUM-LUXEMBOURG	2	11	12	11
BULGARIA	13	11	6	10
CZECHOSLOVAKIA	10	3	8	3
DENMARK	5	25	10	26
FINLAND	9	4	6	4
FRANCE	6	17	11	15
GERMAN DEMOCRATIC REP.	9	2	5	2
GERMANY, FED. REP. OF	3	5	13	7
GREECE	23	31	19	15
HUNGARY	14	20	9	19
ICELAND	7	2	8	2
IRELAND	14	27	13	32
ITALY	7	7	16	6
MALTA	4	4	12	2
NETHERLANDS	4	24	15	24
NORWAY	6	2	6	2
POLAND	20	11	14	12
PORTUGAL	20	7	13	5
ROMANIA	20	7	5	8
SPAIN	12	17	11	12
SWEDEN	5	2	7	2
SWITZERLAND	4	3	8	3
UNITED KINGDOM	2	8	12	6
USSR	15	3	17	3
YUGOSLAVIA	23	9	9	8
AUSTRALIA	5	34	6	33
FIJI	41	55	18	46
FRENCH POLYNESIA	15	5	16	
KIRIBATI	15	43	38	9
NEW CALEDONIA	47		14	
NEW ZEALAND	10	54	7	59
PAPUA NEW GUINEA	70	24	14	27
SOLOMON ISLANDS	48	18	18	21
TOKELAU	16			
TONGA	15	81	34	9
VANUATU	48	54	17	16

12A. RESOURCES AND THEIR USE IN AGRICULTURE

COUNTRY	ARABLE LAND AS % OF TOTAL LAND 1986	IRRIGATED LAND AS % OF ARABLE LAND 1986	FOREST LAND AS % OF TOTAL LAND 1986	AGRIC.POPULATION PER HA OF ARABLE LAND 1986	AGRIC.LAB.FORCE AS % OF AGRIC.POPULATION 1986
ALGERIA	3	5	2	.8	23
ANGOLA	3		43	1.8	42
BENIN	17		33	1.5	48
BOTSWANA	2		2	.6	34
BURKINA FASO	10	1	25	2.3	54
BURUNDI	52	5	3	3.4	53
CAMEROON	15		54	.9	40
CAPE VERDE	10	5		3.9	37
CENTRAL AFRICAN REPUBLIC	3		58	.9	49
CHAD	3		10	1.3	35
COMOROS	45		16	3.8	46
CONGO	2	1	62	1.6	40
COTE D'IVOIRE	11	2	22	1.7	41
DJIBOUTI					45
EGYPT	3	100		8.1	27
EQUATORIAL GUINEA	8		46	1.0	43
ETHIOPIA	13	1	25	2.5	44
GABON	2		78	1.8	44
GAMBIA	17	7	18	3.2	47
GHANA	12		36	2.6	36
GUINEA	6	4	41	3.0	46
GUINEA-BISSAU	12		38	2.2	48
KENYA	4	2	6	7.1	40
LESOTHO	10			4.3	48
LIBERIA	4	1	22	4.4	37
LIBYA	1	11		.2	25
MADAGASCAR	5	28	26	2.6	45
MALAWI	25	1	47	2.4	44
MALI	2	9	7	3.3	32
MAURITANIA		6	15	6.5	31
MAURITIUS	58	16	31	2.5	37
MOROCCO	19	15	12	1.1	31
MOZAMBIQUE	4	3	19	3.8	55
NAMIBIA	1	1	22	.9	31
NIGER	3	1	2	1.5	52
NIGERIA	34	3	16	2.1	38
REUNION	22	9	35	1.3	40
RWANDA	45		20	5.2	50
SAO TOME AND PRINCIPE	39			1.9	40
SENEGAL	27	3	31	1.0	45
SEYCHELLES	22		19	10.3	44
SIERRA LEONE	25	2	29	1.3	37
SOMALIA	2	18	14	3.2	43
SOUTH AFRICA	11	9	4	.4	30
SUDAN	5	15	20	1.2	32
SWAZILAND	10	34	6	2.6	42
TANZANIA	6	2	48	3.6	49
TOGO	26		26	1.5	42
TUNISIA	30	6	4	.4	32
UGANDA	34		29	2.0	45
ZAIRE	3		77	3.2	39
ZAMBIA	7		40	.9	34
ZIMBABWE	7	7	52	2.3	39
BARBADOS	77			.6	51
BELIZE	2	4	44	1.1	33
BERMUDA			20		49
CANADA	5	2	38		50
COSTA RICA	10	21	32	1.4	34
CUBA	30	26	25	.6	40
DOMINICA	23		41	1.4	42
DOMINICAN REPUBLIC	30	14	13	1.7	30
EL SALVADOR	35	15	5	3.2	32
GRENADA	41		9	2.4	42
GUADELOUPE	23	7	40	.9	45
GUATEMALA	17	4	38	2.4	28
HAITI	33	8	2	4.7	45
HONDURAS	16	5	32	1.5	29
JAMAICA	25	13	17	2.8	43
MARTINIQUE	18	32	25	1.7	46
MEXICO	13	20	23	1.1	33
NICARAGUA	11	7	32	1.1	31
PANAMA	8	5	53	1.1	36
TRINIDAD AND TOBAGO	23	19	44	.9	38
UNITED STATES	21	10	29		44

12A. RESOURCES AND THEIR USE IN AGRICULTURE

COUNTRY	ARABLE LAND AS % OF TOTAL LAND 1986	IRRIGATED LAND AS % OF ARABLE LAND 1986	FOREST LAND AS % OF TOTAL LAND 1986	AGRIC.POPULATION PER HA OF ARABLE LAND 1986	AGRIC.LAB.FORCE AS % OF AGRIC.POPULATION 1986
ARGENTINA	13	5	22	.1	36
BOLIVIA	3	5	51	.8	31
BRAZIL	9	3	66	.5	37
CHILE	7	23	12	.3	35
COLOMBIA	5	9	50	1.7	32
ECUADOR	9	21	44	1.3	30
FRENCH GUIANA			83	4.7	35
GUYANA	3	26	83	.5	36
PARAGUAY	5	3	51	.8	32
PERU	3	33	54	2.1	30
SURINAME		98	97	1.1	32
URUGUAY	8	7	4	.3	39
VENEZUELA	4	9	36	.6	36
AFGHANISTAN	12	33	3	1.2	30
BANGLADESH	68	23	16	8.1	29
BHUTAN	2		70	13.0	45
BRUNEI DARUSSALAM	1	14	50	19.0	42
BURMA	15	11	49	1.9	45
CHINA (EXC TAIWAN)	10	46	12	7.6	59
CYPRUS	17	20	13	1.0	47
HONG KONG	8	38	12	10.6	52
INDIA	57	26	23	2.9	41
INDONESIA	12	34	67	3.8	42
IRAN	9	39	11	.9	30
IRAQ	13	32	4	.7	27
ISRAEL	21	66	5	.5	38
JAPAN	13	62	67	2.0	52
JORDAN	4	10	1	.6	23
KAMPUCHEA,DEMOCRATIC	17	3	76	1.8	49
KOREA DPR	20	48	74	3.2	45
KOREA REP	22	58	66	5.2	45
KUWAIT		25		7.5	37
LAOS	4	13	57	3.4	49
LEBANON	29	29	8	1.0	29
MALAYSIA	13	8	60	1.2	42
MALDIVES	10		3	41.6	36
MONGOLIA	1	3	10	.5	47
NEPAL	17	28	17	6.7	42
OMAN		87		12.0	29
PAKISTAN	27	77	4	2.7	28
PHILIPPINES	27	18	37	3.4	37
QATAR				1.8	46
SAUDI ARABIA KINGDOM OF	1	36	1	4.4	29
SINGAPORE	7		5	7.7	48
SRI LANKA	29	32	27	4.6	37
SYRIA	31	12	3	.5	25
THAILAND	39	20	29	1.7	55
TURKEY	36	8	26	.9	47
UNITED ARAB EMIRATES		26		2.4	51
VIET NAM	21	26	40	5.7	48
YEMEN ARAB REPUBLIC	7	18	8	3.4	25
YEMEN DEMOCRATIC	1	37	5	4.7	26

12A. RESOURCES AND THEIR USE IN AGRICULTURE

COUNTRY	ARABLE LAND AS % OF TOTAL LAND 1986	IRRIGATED LAND AS % OF ARABLE LAND 1986	FOREST LAND AS % OF TOTAL LAND 1986	AGRIC.POPULATION PER HA OF ARABLE LAND 1986	AGRIC.LAB.FORCE AS % OF AGRIC.POPULATION 1986
AUSTRIA	18		39	.3	55
BELGIUM-LUXEMBOURG	25		21	.3	40
BULGARIA	37	30	35	.3	51
CZECHOSLOVAKIA	41	5	37	.3	53
DENMARK	62	16	12	.1	55
FINLAND	8	3	76	.2	50
FRANCE	35	6	27	.2	48
GERMAN DEMOCRATIC REP.	47	3	28	.3	57
GERMANY, FED. REP. OF	31	4	30	.3	57
GREECE	30	28	20	.6	43
HUNGARY	57	3	18	.3	47
ICELAND			1	2.1	61
IRELAND	11		5	.7	39
ITALY	41	25	23	.4	46
MALTA	41	8		1.3	36
NETHERLANDS	27	59	9	.7	41
NORWAY	3	11	27	.3	47
POLAND	49	1	29	.5	59
PORTUGAL	30	23	40	.8	42
ROMANIA	46	28	28	.5	56
SPAIN	41	16	31	.2	37
SWEDEN	7	2	64	.1	45
SWITZERLAND	10	6	26	.7	58
UNITED KINGDOM	29	2	9	.2	49
USSR	10	9	42	.2	51
YUGOSLAVIA	30	2	37	.7	50
AUSTRALIA	6	3	14		47
FIJI	13		65	1.2	33
FRENCH POLYNESIA	20		31	.4	33
KIRIBATI	52		3	.3	36
NEW CALEDONIA	1		38	3.7	32
NEW ZEALAND	2	51	27	.6	44
PAPUA NEW GUINEA	1		85	6.6	48
SOLOMON ISLANDS	2		93	2.5	32
TOKELAU					36
TONGA	81		12	.3	32
VANUATU	10		1	.5	32

12B. RESOURCES AND THEIR USE IN AGRICULTURE

COUNTRY	AGRICULTURAL GFCF $ PER HA ARABLE LAND 1985	AGRICULTURAL GFCF $ PER CAPUT OF AGRIC.LAB.FORCE 1985	FERTILIZER USE PER HA ARAB.LAND KG/HA 1986	NOS. OF TRACTORS PER 000 HA ARABLE LAND 1986	OFFICIAL COMMITM. TO AGRICULTURE $ PER CAPUT 1987
ALGERIA			36	8	3.1
ANGOLA			3	3	1.6
BENIN			6		3.9
BOTSWANA	4.3	24.4		2	8.5
BURKINA FASO			6		6.0
BURUNOI			2		1.1
CAMEROON			7		6.3
CAPE VERDE			3		38.0
CENTRAL AFRICAN REPUBLIC					11.0
CHAD			1		8.2
COMOROS					1.6
CONGO			6	1	33.7
COTE D'IVOIRE			8	1	8.4
DJIBOUTI					3.1
EGYPT	260.7	123.0	319	17	8.1
EQUATORIAL GUINEA					2.5
ETHIOPIA			7		2.1
GABON	48.1	57.3	2	3	56.2
GAMBIA			23		11.4
GHANA			3	1	.9
GUINEA					10.9
GUINEA-BISSAU					10.9
KENYA	32.0	11.6	52	4	6.5
LESOTHO	48.7	24.5	13	6	5.5
LIBERIA			4	1	6.3
LIBYA	400.0	6197.8	18	14	
MADAGASCAR			2	1	7.9
MALAWI			13	1	10.2
MALI			17		11.2
MAURITANIA			5	2	26.3
MAURITIUS	85.0	92.9	237	3	38.8
MOROCCO			38	4	17.7
MOZAMBIQUE			2	2	2.8
NAMIBIA				4	
NIGER			1		10.7
NIGERIA			9		2.8
REUNION			244	31	
RWANDA			2		6.8
SAO TOME AND PRINCIPE				3	155.8
SENEGAL			4		10.7
SEYCHELLES				6	67.0
SIERRA LEONE			2		.4
SOMALIA			2	2	26.7
SOUTH AFRICA	28.0	217.1	62	14	
SUDAN			7	2	10.1
SWAZILAND	104.2	80.9	49	21	6.9
TANZANIA	8.3	4.8	8	4	6.5
TOGO			8		5.1
TUNISIA	67.5	485.0	23	6	64.8
UGANDA				1	.4
ZAIRE			1		1.4
ZAMBIA			15	1	10.6
ZIMBABWE	22.8	26.0	57	7	5.7
BARBADOS			115	18	7.8
BELIZE			75	18	12.9
CANADA	61.1	5352.1	47	16	
COSTA RICA	92.1	227.3	162	12	24.3
CUBA			200	21	
DOMINICA			171	5	47.3
DOMINICAN REPUBLIC			41	2	1.7
EL SALVADOR	12.7	13.2	91	5	3.3
GRENADA				2	
GUADELOUPE			232	35	
GUATEMALA	50.0	75.2	62	2	2.4
HAITI			2	1	3.1
HONDURAS			22	2	18.4
JAMAICA			51	11	7.4
MARTINIQUE			1000	41	
MEXICO			74	6	3.9
NICARAGUA			54	2	2.7
PANAMA			62	11	4.4
TRINIDAD AND TOBAGO			43	22	
UNITED STATES	77.2	4398.7	92	25	

12B. RESOURCES AND THEIR USE IN AGRICULTURE

COUNTRY	AGRICULTURAL GFCF $ PER HA ARABLE LAND 1985	AGRICULTURAL GFCF $ PER CAPUT OF AGRIC.LAB.FORCE 1985	FERTILIZER USE PER HA ARAB.LAND KG/HA 1986	NOS. OF TRACTORS PER 000 HA ARABLE LAND 1986	OFFICIAL COMMITM. TO AGRICULTURE $ PER CAPUT 1987
ARGENTINA			4	6	11.5
BOLIVIA			2		3.6
BRAZIL			51	10	7.0
CHILE			40	7	8.2
COLOMBIA			77	6	14.8
ECUADOR			41	3	27.3
FRENCH GUIANA			189	36	2.7
GUYANA			43	7	7.6
PARAGUAY			6	5	2.0
PERU			31	5	1.4
SURINAME			176	29	8.2
URUGUAY			47	23	3.6
VENEZUELA	118.7	573.1	140	12	3.6
AFGHANISTAN			11		
BANGLADESH			67	1	3.7
BHUTAN			1		8.2
BRUNEI DARUSSALAM			257	10	
BURMA			21	1	4.0
CHINA (EXC TAIWAN)	12.4	4.5	174	9	.2
CYPRUS	157.2	943.1	126	86	.1
HONG KONG				1	
INDIA	41.0	35.1	57	4	
INDONESIA			98	1	4.4
IRAN	120.3	438.3	61	8	
IRAQ	242.0	1264.5	35	8	2.5
ISRAEL	401.9	2000.0	224	61	
JAPAN	146.1	126.3	427	388	
JORDAN			30	12	9.2
KOREA DPR			331	31	
KOREA REP	899.9	380.8	385	8	
KUWAIT			100	26	
LAOS				1	2.3
LEBANON			58	10	
MALAYSIA	104.4	205.8	157	3	21.6
MALDIVES					.2
MONGOLIA			15	8	
NEPAL			20	1	10.6
OMAN			94	3	13.3
PAKISTAN	30.4	40.6	86	8	6.6
PHILIPPINES			43	2	4.2
QATAR			163	22	
SAUDI ARABIA KINGDOM OF			350	1	
SINGAPORE	-		1300	14	
SRI LANKA			102	15	13.3
SYRIA	118.1	931.1	43	8	1.5
THAILAND	30.0	36.4	24	7	4.7
TURKEY			60	22	5.2
UNITED ARAB EMIRATES	7120.0	4450.0	76		
VIET NAM			62	6	.6
YEMEN ARAB REPUBLIC	85.6	110.4	11	2	7.1
YEMEN DEMOCRATIC			6	7	

12B. RESOURCES AND THEIR USE IN AGRICULTURE

COUNTRY	AGRICULTURAL GFCF $ PER HA ARABLE LAND 1985	AGRICULTURAL GFCF $ PER CAPUT OF AGRIC.LAB.FORCE 1985	FERTILIZER USE PER HA ARAB.LAND KG/HA 1986	NOS. OF TRACTORS PER 000 HA ARABLE LAND 1986	OFFICIAL COMMITM. TO AGRICULTURE $ PER CAPUT 1987
AUSTRIA	492.5	2746.7	206	216	
BELGIUM-LUXEMBOURG	439.3	3745.4	528	153	
BULGARIA			195	13	
CZECHOSLOVAKIA			331	27	
DENMARK	197.7	3072.8	245	65	
FINLAND	480.0	4702.0	218	100	
FRANCE	177.1	1915.3	309	80	
GERMAN DEMOCRATIC REP.			331	33	
GERMANY, FED. REP. OF	537.0	3009.0	428	198	
GREECE	97.3	366.5	171	46	
HUNGARY			262	10	9.4
ICELAND	7312.5	5318.2	2984	1650	
IRELAND	309.1	1365.5	866	206	
ITALY	455.1	2646.5	169	104	
MALTA	246.2	533.3	46	34	
NETHERLANDS	1468.0	4960.2	770	194	
NORWAY	956.4	5977.2	272	180	
POLAND			234	67	
PORTUGAL	85.1	269.9	98	27	1.1
ROMANIA			130	18	
SPAIN			91	32	
SWEDEN	287.5	4333.3	137	62	
SWITZERLAND			420	257	
UNITED KINGDOM	190.0	2124.5	380	74	
USSR			114	12	
YUGOSLAVIA	108.2	238.3	132	123	
AUSTRALIA			26	7	
FIJI	36.6	100.0	67	20	32.8
FRENCH POLYNESIA			12	2	
KIRIBATI					17.3
NEW CALEDONIA			30	64	
NEW ZEALAND	937.9	3019.2	622	144	
PAPUA NEW GUINEA			31	3	9.7
SOLOMON ISLANDS					20.9
TONGA	77.4	683.3		1	29.0
VANUATU					33.5

13. MEASURES OF OUTPUT AND PRODUCTIVITY IN AGRICULTURE

COUNTRY	INDEX OF FOOD PRODUC.PER CAPUT 1979-81=100 1986-88	INDEX OF TOT.AGR. PRODUC.PER CAPUT 1979-81=100 1986-88	PER CAPUT DIETARY ENERGY SUPPLIES 1984-86	INDEX OF VALUE OF AGRIC.EXPORTS 1979-81=100 1985-87
ALGERIA	120	97	2687	100
ANGOLA	104	85	1934	62
BENIN	137	115	2189	110
BOTSWANA	94	72	2231	121
BURKINA FASO	137	118	2048	107
BURUNDI	123	100	2266	88
CAMEROON	115	95	2052	139
CAPE VERDE	134	116	2734	115
CENTRAL AFRICAN REPUBLIC	101	86	1941	99
CHAD	123	104	1652	251
COMOROS	122	98	2111	95
CONGO	109	90	2606	122
COTE D'IVOIRE	137	102	2557	86
DJIBOUTI				107
EGYPT	131	104	3313	138
EQUATORIAL GUINEA				67
ETHIOPIA	106	87	1661	313
GABON	109	97	2495	114
GAMBIA	123	106	2365	141
GHANA	135	106	1738	82
GUINEA	109	93	1783	113
GUINEA-BISSAU	157	136	2129	80
KENYA	123	95	2141	101
LESOTHO	98	83	2296	103
LIBERIA	114	90	2356	84
LIBYA	165	125	3617	86
MADAGASCAR	117	96	2414	55
MALAWI	104	86	2375	49
MALI	123	102	2020	121
MAURITANIA	110	89	2122	131
MAURITIUS	117	104	2738	76
MOROCCO	137	115	2863	77
MOZAMBIQUE	101	83	1606	129
NAMIBIA	117	94	1872	108
NIGER	106	87	2346	103
NIGERIA	126	100	2113	43
REUNION	83	76	3014	117
RWANDA	99	82	1881	150
SAO TOME AND PRINCIPE	79	66	2386	76
SENEGAL	135	112	2354	86
SEYCHELLES			2257	99
SIERRA LEONE	110	97	1867	92
SOMALIA	127	104	2087	93
SOUTH AFRICA	102	85	2941	112
SUDAN	116	95	2074	97
SWAZILAND	126	101	2550	117
TANZANIA	117	90	2218	80
TOGO	106	89	2225	102
TUNISIA	120	104	2942	81
UGANDA	108	86	2221	75
ZAIRE	118	97	2166	113
ZAMBIA	120	95	2126	42
ZIMBABWE	110	93	2119	105
BARBADOS	80	78	3182	94
BELIZE	109	93	2581	79
BERMUDA			2485	123
CANADA	114	106	3422	106
COSTA RICA	108	94	2787	69
CUBA	110	105	3107	94
DOMINICA	165	155	2655	114
DOMINICAN REPUBLIC	112	93	2468	104
EL SALVADOR	100	66	2152	72
GRENADA	91	84	2433	123
GUADELOUPE	129	126	2672	114
GUATEMALA	116	86	2296	84
HAITI	109	89	1903	105
HONDURAS	106	85	2079	56
JAMAICA	112	101	2604	86
MARTINIQUE	131	129	2784	113
MEXICO	112	93	3147	70
NICARAGUA	88	65	2472	78
PANAMA	115	100	2464	110
TRINIDAD AND TOBAGO	77	68	3056	93
UNITED STATES	97	91	3639	118

13. MEASURES OF OUTPUT AND PRODUCTIVITY IN AGRICULTURE

COUNTRY	INDEX OF FOOD PRODUC.PER CAPUT 1979-81=100 1986-88	INDEX OF TOT.AGR. PRODUC.PER CAPUT 1979-81=100 1986-88	PER CAPUT DIETARY ENERGY SUPPLIES 1984-86	INDEX OF VALUE OF AGRIC.EXPORTS 1979-81=100 1985-87
ARGENTINA	107	96	3190	54
BOLIVIA	118	96	2128	77
BRAZIL	128	107	2643	74
CHILE	119	107	2577	29
COLOMBIA	117	98	2552	80
ECUADOR	116	95	2048	83
FRENCH GUIANA			2736	130
GUYANA	85	74	2459	37
PARAGUAY	128	106	2844	66
PERU	116	95	2186	105
SURINAME	105	97	2678	101
URUGUAY	107	104	2676	50
VENEZUELA	114	94	2529	62
AFGHANISTAN	102	90	2290	95
BANGLADESH	112	92	1922	133
BHUTAN	134	116		165
BRUNEI DARUSSALAM	157	117	2866	155
BURMA	142	123	2580	57
CHINA (EXC TAIWAN)	138	128	2628	54
CYPRUS	96	88		107
HONG KONG	43	37	2763	120
INDIA	126	109	2204	108
INDONESIA	134	116	2513	64
IRAN	120	99	3317	83
IRAQ	129	101	2992	100
ISRAEL	116	97	3040	86
JAPAN	106	99	2858	102
JORDAN	135	104	2970	105
KAMPUCHEA,DEMOCRATIC	169	146	2174	24
KOREA DPR	129	109	3163	69
KOREA REP	110	97	2875	95
KUWAIT			3082	112
LAOS	138	118	2307	25
LEBANON	119	112	3094	83
MALAYSIA	158	122	2706	101
MALDIVES	126	100	2081	85
MONGOLIA	117	94	2829	91
NEPAL	120	101	2050	184
OMAN				153
PAKISTAN	133	113	2243	137
PHILIPPINES	104	88	2353	98
QATAR				104
SAUDI ARABIA KINGDOM OF	205	152	3035	91
SINGAPORE	93	85	2854	120
SRI LANKA	103	92	2433	82
SYRIA	120	93	3259	101
THAILAND	117	103	2335	104
TURKEY	115	99	3146	331
UNITED ARAB EMIRATES			3652	100
VIET NAM	134	117	2259	69
YEMEN ARAB REPUBLIC	121	99	2274	79
YEMEN DEMOCRATIC	106	88	2317	95

13. MEASURES OF OUTPUT AND PRODUCTIVITY IN AGRICULTURE

COUNTRY	INDEX OF FOOD PRODUC.PER CAPUT 1979-81=100 1986-88	INDEX OF TOT.AGR. PRODUC.PER CAPUT 1979-81=100 1986-88	PER CAPUT DIETARY ENERGY SUPPLIES 1984-86	INDEX OF VALUE OF AGRIC.EXPORTS 1979-81=100 1985-87
AUSTRIA	105	105	3416	113
BELGIUM-LUXEMBOURG	112	112	3857	107
BULGARIA	106	103	3633	151
CZECHOSLOVAKIA	122	119	3476	88
DENMARK	119	119	3532	107
FINLAND	107	103	3068	93
FRANCE	108	105	3272	106
GERMAN DEMOCRATIC REP.	116	117	3795	76
GERMANY, FED. REP. OF	112	113	3476	108
GREECE	101	101	3686	166
HUNGARY	107	108	3541	73
ICELAND	99	91	3130	110
IRELAND	110	101	3675	101
ITALY	102	101	3496	120
MALTA	107	101	2881	74
NETHERLANDS	119	115	3250	114
NORWAY	108	106	3219	92
POLAND	112	105	3298	46
PORTUGAL	110	105	3134	93
ROMANIA	120	115	3359	48
SPAIN	113	109	3368	104
SWEDEN	97	97	3047	102
SWITZERLAND	110	108	3434	107
UNITED KINGDOM	108	108	3219	98
USSR	118	109	3394	93
YUGOSLAVIA	106	102	3542	76
AUSTRALIA	106	102	3326	127
FIJI	98	87	2919	91
FRENCH POLYNESIA	104	89	2897	118
KIRIBATI			2936	71
NEW CALEDONIA	111	97	2970	97
NEW ZEALAND	114	104	3407	114
PAPUA NEW GUINEA	117	97	2182	80
SOLOMON ISLANDS	109	84	2163	122
TONGA	106	91	2940	127
VANUATU	106	82	2335	95

14. CARRYOVER STOCKS OF SELECTED AGRICULTURAL PRODUCTS

	CROP YEAR ENDING IN						
	1983	1984	1985	1986	1987	1988[A]	1989[B]
	MILLION TONS						
CEREALS							
DEVELOPED COUNTRIES	235.7	157.7	198.4	288.7	318.5	274.6	175.0
CANADA	18.5	13.3	12.1	14.4	18.5	13.3	10.6
UNITED STATES	152.2	79.4	98.8	181.2	203.8	169.4	79.1
AUSTRALIA	2.5	8.2	8.8	6.2	4.2	3.1	3.3
EEC	23.7	16.4	29.2	36.2	31.8	28.9	26.2
JAPAN	5.2	4.8	4.5	5.2	5.9	5.6	5.5
USSR	18.0	23.0	29.0	31.0	38.0	39.0	37.0
DEVELOPING COUNTRIES	106.3	124.2	138.1	134.8	133.9	122.3	120.2
FAR EAST[1]	77.6	96.6	107.4	97.7	90.6	81.1	78.6
BANGLADESH	0.6	0.8	1.0	0.9	0.7	1.5	1.3
CHINA	50.0	57.0	64.0	52.0	46.0	47.0	39.0
INDIA	7.6	12.8	18.1	17.0	15.0	5.4	8.9
PAKISTAN	2.2	2.1	1.7	2.0	3.1	1.6	2.3
NEAR EAST	12.4	14.1	16.0	16.8	19.9	16.3	16.0
TURKEY	1.0	0.3	0.7	0.5	0.9	0.8	0.8
AFRICA	4.9	4.1	4.6	8.5	11.3	9.0	11.5
LATIN AMERICA	11.4	9.4	10.0	11.4	12.0	15.8	14.0
ARGENTINA	1.8	1.7	1.0	0.7	0.7	1.4	1.2
BRAZIL	3.1	1.4	1.7	3.0	4.6	8.0	7.6
WORLD TOTAL	342.1	281.8	336.5	423.4	452.4	396.9	295.2
OF WHICH:							
WHEAT	122.0	134.1	153.7	162.1	170.4	144.2	120.0
RICE (MILLED BASIS)	43.0	48.0	54.1	55.6	51.1	42.3	41.7
COARSE GRAINS	177.1	99.8	128.6	205.7	230.8	210.3	133.6
SUGAR (RAW VALUE)							
WORLD TOTAL 1 SEPT.	39.0	39.7	40.2	37.8	35.5	32.6	30.6
COFFEE[C]	3.12	3.29	2.89	2.71	2.55	3.84	...
DRIED SKIM MILK	THOUSAND TONS						
UNITED STATES	628	566	459	312	80	80	...
EEC	996	664	520	772	473	...	...
TOTAL OF ABOVE	1 624	1 280	979	1 084	553	...	...

[1] INCLUDES ASIAN CPE
[A] ESTIMATE
[B] FORECAST AS OF JUNE 1989
[C] GROSS OPENING STOCKS AT THE COMMENCING OF THE COFFEE YEARS, 1 OCTOBER
SOURCE: FAO, COMMODITIES AND TRADE DIVISION

15. ANNUAL CHANGES IN CONSUMER PRICES: ALL ITEMS AND FOOD

REGION AND COUNTRY	ALL ITEMS				FOOD			
	1970 TO 1975	1975 TO 1980	1980 TO 1985	1986 TO 1987	1970 TO 1975	1975 TO 1980	1980 TO 1985	1986 TO 1987
	% YEAR							
DEVELOPED COUNTRIES								
WESTERN EUROPE								
AUSTRIA	7.4	3.8	4.8	1.6	6.7	4.4	4.1	2.4
BELGIUM	8.3	6.4	13.3	1.3	7.5	4.6	7.5	1.9
DENMARK	9.5	10.4	7.9	3.6	10.7	...	8.1	2.0
FINLAND	2.0	10.6	8.5	3.6	12.4	10.8	9.3	3.6
FRANCE	8.8	10.4	9.6	2.7	9.6	10.0	9.7	3.4
GERMANY, FED. REP.	6.2	4.0	3.8	-0.2	5.6	3.3	3.2	0.6
GREECE	13.1	16.3	20.5	23.0	14.7	17.6	20.6	20.3
ICELAND	24.8	42.0	50.5	21.3	28.3	41.0	53.1	22.9
IRELAND	13.0	12.9	12.1	3.9	14.3	13.7	10.0	4.4
ITALY	11.4	3.0	13.8	5.9	11.6	15.6	12.5	5.5
NETHERLANDS	8.6	6.1	4.0	0.2	6.9	...	3.3	-0.7
NORWAY	8.3	8.4	8.9	7.2	8.3	7.4	6.6	...
PORTUGAL	15.3	...	23.9	11.7	16.3	21.0	24.2	9.1
SPAIN	12.0	18.6	12.3	8.8	12.1	16.0	12.3	10.6
SWEDEN	7.8	10.5	8.9	4.2	7.9	10.7	11.7	7.2
SWITZERLAND	7.9	2.4	4.1	0.8	7.3	2.9	4.9	1.3
UNITED KINGDOM	12.3	14.4	6.8	3.4	15.1	13.9	5.5	3.3
YUGOSLAVIA	19.3	18.2	45.7	89.0	19.1	19.4	47.1	90.0
NORTH AMERICA								
CANADA	7.4	8.4	7.3	4.0	11.1	9.9	5.9	5.0
UNITED STATES	6.7	8.9	5.2	1.9	9.5	7.6	3.8	3.2
OCEANIA								
AUSTRALIA	10.2	10.6	8.4	9.1	9.8	12.0	7.8	9.0
NEW ZEALAND	9.8	14.8	11.3	13.3	9.4	16.8	9.6	11.4
OTHER DEVELOPED COUNTRIES								
ISRAEL	23.9	60.0	193.7	48.1	25.1	65.0	192.9	54.8
JAPAN	12.0	6.5	2.6	0.6	13.0	5.5	2.6	0.2
SOUTH AFRICA	9.3	12.0	13.7	18.6	11.7	13.0	12.9	20.3
DEVELOPING COUNTRIES								
LATIN AMERICA								
ARGENTINA	59.5	100.0	207.9	131.3	58.0	...	327.0	132.8
BAHAMAS	9.5	6.9	5.5	3.9	11.8	7.7	5.1	4.8
BARBADOS	18.6	10.0	6.1	3.3	21.0	9.1	6.1	4.5
BOLIVIA	23.7	17.0	51.6[A]	14.6	27.2	16.4	...	8.9
BRAZIL	23.5[B]	46.0	133.7	228.8	25.9[B]	49.0	142.8	197.7
CHILE	225.4	70.0	41.0	19.9	245.5	70.0	18.0	24.1
COLOMBIA	19.5	23.0	21.9	22.5	24.0	25.0	22.5	25.6
COSTA RICA	13.7	8.1	36.3	16.8	3.7	9.6	38.5	14.7
DOMINICAN REPUBLIC	11.1	8.3	10.6[A]	15.9	13.3	3.4	8.6[A]	20.6
ECUADOR	13.7	11.7	27.2	29.5	18.4	11.2	35.6	28.7
EL SALVADOR	8.4	...	14.0	24.8	8.8	...	14.3	25.4
GUATEMALA	2.9	10.7	...	12.3	3.3	9.4	...	15.4
GUYANA	8.2	12.8	19.6[A]	4.1	12.2	14.1	26.5[A]	4.2
HAITI	13.7	8.0	8.8	-11.5	15.5	9.3	6.6	-18.9
HONDURAS	6.5	9.2	7.1	2.9	8.0	9.6	4.2	0.5
JAMAICA	14.9	22.0	...	6.7	17.2	24.0	15.7	7.3
MEXICO	12.4	21.0	18.9	131.9	13.9	19.5	63.7	131.2
PANAMA	7.8	6.9	9.6	0.9	9.9	6.6	3.6	2.6
PARAGUAY	12.6	14.7	3.1	21.8	15.4	14.9	...	23.8
PERU	12.1	37.0	100.2	86.1	13.9	50.0	87.8	62.8
PUERTO RICO	8.8	5.6	2.9	2.7	12.6	5.5	2.8	2.2
SURINAME	8.2	11.5	6.4	53.3	9.5	12.2	4.8	79.4
TRINIDAD & TOBAGO	13.7	12.9	13.1	10.7	17.1	11.1	14.8	19.3
URUGUAY	73.4	55.0	43.7	63.5	76.0	55.0	43.1	59.6
VENEZUELA	5.5	11.4	10.5	28.1	8.5	15.7	13.6	41.6
FAR EAST								
BANGLADESH	39.0[C]	7.6	10.1	9.3	42.0[C]	5.0	10.9	9.5
BURMA	17.8	3.8	4.5	23.5	21.0	2.6	4.2	22.6
INDIA	13.2	1.3	6.9	7.2	14.2	0.8	6.7	7.2
INDONESIA	21.3	...	10.1	9.3	25.2	...	8.4	11.0
KOREA, REP. OF	14.3	17.2	6.3	7.5	16.8	17.2	5.4	12.2
MALAYSIA	6.7	4.6	4.5	0.8	10.4	3.7	2.5	-0.5
NEPAL	10.3	6.7	11.6	10.7	9.8	6.1	4.1	12.4
PAKISTAN	15.2	9.0	7.6	4.6	16.6	8.0	7.5	6.0
PHILIPPINES	18.7	12.0	20.6	3.7	20.1	11.0	20.2	4.2
SRI LANKA	8.0	9.9	12.6	7.7	9.1	10.7	12.6	8.7
THAILAND	9.8	10.4	4.6	2.6	11.9	10.6	3.0	2.1

15. (Cont.) - ANNUAL CHANGES IN CONSUMER PRICES: ALL ITEMS AND FOOD

REGION AND COUNTRY	ALL ITEMS				FOOD			
	1970 TO 1975	1975 TO 1980	1980 TO 1985	1986 TO 1987	1970 TO 1975	1975 TO 1980	1980 TO 1985	1986 TO 1987
	% YEAR							
AFRICA								
ALGERIA	5.1	12.4	7.1[A]	7.4	7.2	15.7	4.0[A]	7.6
BOTSWANA	...	12.4	8.5	9.8	...	13.8	...	10.2
BURUNDI	...	18.3	8.9	7.1	...	16.2	9.4	-0.7
CAMEROON	10.2	10.7	11.6	13.1	11.5	11.8	...	5.7
CENTRAL AFRICAN REPUBLIC	...	...	10.1[D]	- 7.0	...	...	10.1[D]	-9.9
ETHIOPIA	3.7	15.7	6.6	1.0	2.7	19.2	6.8	-6.1
GABON	11.4	12.9	10.1	- 0.9	2.7	...	...	...
GAMBIA	10.5	10.2	12.0	23.5	12.8	9.7	13.4	17.8
GHANA	17.4	70.0	118.5	39.8	20.3	45.0	51.3	38.5
COTE D'IVOIRE	8.2	16.7	11.7	6.9	9.3	19.3	4.2	10.5
KENYA	13.9[C]	9.8	15.3	8.3	14.7[C]	10.2	12.9	5.0
LESOTHO	14.7[C]	15.1	13.7	12.1	16.4[C]	18.6	13.1	16.5
LIBERIA	12.1	8.8	3.4	5.0	13.7	8.1	2.1	0.2
MADAGASCAR	9.7	9.2	20.0	15.4	12.0	9.0	19.8	8.1
MALAWI	8.9	9.2	...	25.3	10.7	9.5	...	26.8
MAURITIUS	13.1	16.9	...	1.8[E]	14.7	16.3	...	2.6[E]
MOROCCO	5.4	9.7	9.7	2.8	7.2	9.3	10.3	0.7
NIGER	7.9	14.6	6.8	...	10.6	14.8	8.4	...
NIGERIA	11.5	14.4	19.9	10.1	13.1	20.0	21.3	8.5
SENEGAL	13.0	6.8	12.3	-4.1	16.5	6.4	11.5	-7.7
SIERRA LEONE	8.4	13.8	45.0[A]	181.7	11.0	12.9	43.1[A]	177.3
SOMALIA	7.8	...	40.0	28.1	9.0	...	33.0	30.4
SWAZILAND	9.3	13.2	13.9	12.5	9.8	14.0	13.7	15.4
TANZANIA	13.1	14.5	30.2	29.9	17.7	13.4	30.5	30.6
TOGO	8.9	8.1	6.3	0.1	9.7	9.9	5.3	-0.9
TUNISIA	4.8	...	10.2[A]	7.2	5.2	....	10.8[A]	6.6
ZAIRE	18.6	...	...	...	21.2	...	...	...
ZAMBIA	7.1	15.2	19.4	43.0	7.4	13.7	19.9	44.9
ZIMBABWE	...	9.8	15.9	12.3	...	8.4	17.8	14.7
NEAR EAST								
CYPRUS	8.0	...	6.4	2.8	10.2	...	7.2	3.2
EGYPT	5.8	12.9	14.9	17.6	8.6	14.4	15.9	19.1
IRAN	9.6	16.1	16.1	...	10.0	18.9	15.4	5.2
IRAQ	11.3	...	14.5	14.0	18.1	...	...	23.1
JORDAN	6.0	11.6	...	-0.2	9.2	9.8	...	-2.8
KUWAIT	10.1	7.1	4.6	0.8	15.4	6.1	2.6	-2.0
SAUDI ARABIA	...	11.3	-0.1	-1.7	...	9.5	0.9	-1.5
SUDAN	11.6	16.8	27.2[A]	...	12.0	14.2	26.6[A]	...
SYRIA	16.7	10.9	12.0	59.5	18.2	...	11.2	63.8
TURKEY	6.2	50.0	30.0[D]	38.8	7.7	47.0	18.7[D]	39.8

[A] 1980-84
[B] 1972-75
[C] 1973-75
[D] 1981-85
[E] JANUARY-JUNE

SOURCE: ILO, *BULLETIN OF LABOUR STATISTICS*, 1989-1

16. PER CAPUT DIETARY ENERGY SUPPLIES IN SELECTED DEVELOPED AND DEVELOPING COUNTRIES

COUNTRY	1972-74	1975-77	1978-80	1981-83	1984-86
	CALORIES PER CAPUT PER DAY				
ALGERIA	2006	2244	2535	2648	2687
ANGOLA	1989	2004	2158	2033	1934
BENIN	2084	2050	2153	2082	2189
BOTSWANA	2119	2133	2128	2177	2231
BURKINA FASO	1847	1987	2014	2010	2048
BURUNDI	2203	2388	2346	2384	2266
CAMEROON	2239	2261	2179	2071	2052
CAPE VERDE	2053	2275	2533	2605	2734
CENTRAL AFRICAN REPUBLIC	2278	2210	2123	2036	1941
CHAD	1818	1806	1823	1612	1652
COMOROS	2192	2021	2060	2092	2111
CONGO	2254	2308	2414	2505	2606
EGYPT	2552	2721	2933	3201	3313
ETHIOPIA	1585	1565	1748	1737	1661
GABON	1889	2072	2219	2353	2495
GAMBIA	2151	2159	2169	2220	2365
GHANA	2195	2089	1863	1563	1738
GUINEA	1940	1946	1868	1861	1783
GUINEA-BISSAU	1888	1863	1880	2027	2129
COTE D'IVOIRE	2331	2320	2497	2539	2557
KENYA	2265	2253	2228	2179	2141
LESOTHO	1958	2171	2372	2333	2296
LIBERIA	2236	2321	2388	2364	2356
LIBYA	2996	3559	3682	3653	3617
MADAGASCAR	2454	2501	2475	2477	2414
MALAWI	2482	2467	2437	2409	2375
MALI	1720	1789	1704	1807	2020
MAURITANIA	1747	1842	1917	2073	2122
MAURITIUS	2427	2622	2716	2729	2738
MOROCCO	2576	2642	2760	2786	2863
MOZAMBIQUE	1962	1914	1819	1730	1606
NAMIBIA	1974	1925	1929	1926	1872
NIGER	1948	2039	2330	2380	2346
NIGERIA	2084	2121	2231	2188	2113
REUNION	2585	2730	2815	2893	3014
RWANDA	1829	2006	1999	2048	1881
SAO TOME AND PRINCIPE	2043	2041	2289	2266	2386
SENEGAL	2265	2290	2356	2354	2354
SEYCHELLES	2209	2167	2313	2303	2257
SIERRA LEONE	1931	1947	2043	2007	1867
SOMALIA	2019	2034	2056	2091	2087
SOUTH AFRICA	2841	2906	2905	2952	2941
SUDAN	2094	2222	2353	2293	2074
SWAZILAND	2348	2475	2491	2549	2550
TANZANIA	1849	2203	2263	2217	2218
TOGO	2103	1959	2124	2127	2225
TUNISIA	2551	2607	2712	2808	2942
UGANDA	2276	2226	2150	2221	2221
ZAIRE	2288	2272	2123	2154	2166
ZAMBIA	2252	2345	2227	2154	2126
ZIMBABWE	2185	2133	2154	2133	2119
ANTIGUA AND BARBUDA	2128	2015	2054	2126	2089
BAHAMAS	2454	2241	2367	2673	2699
BARBADOS	2945	2964	3086	3131	3182
BELIZE	2568	2606	2709	2612	2581
BERMUDA	2671	2460	2451	2465	2485
CANADA	3308	3295	3296	3329	3422
COSTA RICA	2496	2596	2609	2656	2787
CUBA	2664	2667	2799	2980	3107
DOMINICA	2132	2266	2358	2522	2655
DOMINICAN REPUBLIC	2197	2239	2302	2361	2468
EL SALVADOR	1902	2097	2155	2131	2152
GRENADA	2271	2138	2215	2363	2433
GUADELOUPE	2386	2414	2461	2581	2672
GUATEMALA	2121	2169	2176	2239	2296
HAITI	1926	1917	1890	1896	1903
HONDURAS	2096	2124	2180	2143	2079
JAMAICA	2619	2678	2610	2553	2604
MARTINIQUE	2428	2537	2627	2722	2784
MEXICO	2767	2854	2994	3131	3147
NETHERLANDS ANTILLES	2510	2636	2738	2861	2939
NICARAGUA	2373	2406	2338	2350	2472
PANAMA	2313	2335	2286	2432	2464
ST KITTS AND NEVIS	2252	2310	2295	2306	2349
SAINT LUCIA	2149	2143	2273	2371	2494

16. PER CAPUT DIETARY ENERGY SUPPLIES IN SELECTED DEVELOPED AND DEVELOPING COUNTRIES

COUNTRY	1972-74	1975-77	1978-80	1981-83	1984-86
	CALORIES PER CAPUT PER DAY				
ST VINCENT GRENADINES	2311	2282	2393	2648	2781
TRINIDAD AND TOBAGO	2616	2631	2838	2961	3056
UNITED STATES	3402	3435	3505	3527	3639
ARGENTINA	3173	3240	3257	3152	3190
BOLIVIA	1970	2041	2083	2086	2128
BRAZIL	2469	2504	2592	2620	2643
CHILE	2665	2537	2607	2622	2577
COLOMBIA	2259	2407	2468	2546	2552
ECUADOR	1971	2045	2055	2053	2048
FRENCH GUIANA	2467	2412	2514	2627	2736
GUYANA	2328	2334	2425	2460	2459
PARAGUAY	2706	2715	2770	2796	2844
PERU	2277	2239	2165	2172	2186
SURINAME	2344	2377	2547	2618	2678
URUGUAY	2912	2842	2756	2761	2676
VENEZUELA	2336	2532	2665	2611	2529
AFGHANISTAN	2273	2290	2297	2297	2290
BANGLADESH	1856	1846	1846	1892	1922
BRUNEI DARUSSALAM	2470	2642	2783	2869	2866
BURMA	2051	2117	2260	2489	2580
CHINA	2027	2082	2275	2478	2628
HONG KONG	2669	2658	2686	2737	2763
INDIA	2022	2010	2125	2135	2204
INDONESIA	2179	2204	2381	2498	2513
IRAN	2537	2938	2922	3115	3317
IRAQ	2261	2424	2662	2882	2992
ISRAEL	3056	3056	2981	3013	3040
JAPAN	2827	2801	2827	2845	2858
JORDAN	2434	2388	2654	2858	2970
KAMPUCHEA,DEMOCRATIC	2149	1816	1819	1986	2174
KOREA DPR	2635	2818	3023	3097	3163
KOREA REP	2685	2782	2837	2825	2875
KUWAIT	2717	2863	3092	3102	3082
LAOS	1935	1755	1999	2153	2307
LEBANON	2653	2633	2922	3051	3094
MACAU	2190	2185	2161	2236	2210
MALAYSIA	2471	2520	2612	2587	2706
MALDIVES	1675	1767	1910	1988	2081
MONGOLIA	2449	2526	2655	2780	2829
NEPAL	1966	1994	1991	2035	2050
PAKISTAN	2059	2155	2200	2277	2243
PHILIPPINES	2058	2153	2330	2312	2353
SAUDI ARABIA KINGDOM OF	1911	2045	2718	2963	3035
SINGAPORE	2745	2680	2668	2713	2854
SRI LANKA	2154	2215	2274	2226	2433
SYRIA	2518	2552	2834	3184	3259
THAILAND	2242	2325	2337	2282	2335
TURKEY	2914	3001	3091	3130	3146
UNITED ARAB EMIRATES	3363	3592	3585	3658	3652
VIET NAM	2107	1997	2019	2155	2259
YEMEN ARAB REPUBLIC	1987	2070	2182	2242	2274
YEMEN DEMOCRATIC	1971	1905	2124	2265	2317

16. PER CAPUT DIETARY ENERGY SUPPLIES IN SELECTED DEVELOPED AND DEVELOPING COUNTRIES

COUNTRY	1972-74	1975-77	1978-80	1981-83	1984-86
	CALORIES PER CAPUT PER DAY				
ALBANIA	2574	2579	2745	2763	2740
AUSTRIA	3266	3247	3328	3398	3416
BELGIUM-LUXEMBOURG	3506	3510	3575	3763	3857
BULGARIA	3500	3560	3609	3660	3633
CZECHOSLOVAKIA	3402	3391	3401	3486	3476
DENMARK	3374	3347	3495	3506	3532
FINLAND	3172	3113	3088	3068	3068
FRANCE	3119	3153	3238	3204	3272
GERMAN DEMOCRATIC REP.	3371	3480	3597	3691	3795
GERMANY, FED. REP. OF	3210	3207	3349	3352	3476
GREECE	3431	3473	3501	3639	3686
HUNGARY	3373	3440	3496	3529	3541
ICELAND	3041	2971	3065	3074	3130
IRELAND	3595	3540	3638	3768	3675
ITALY	3508	3399	3610	3483	3496
MALTA	2925	2971	2968	2931	2881
NETHERLANDS	3230	3210	3302	3260	3250
NORWAY	3115	3131	3310	3228	3219
POLAND	3414	3480	3495	3253	3298
PORTUGAL	2957	2966	2996	3105	3134
ROMANIA	3185	3367	3385	3280	3359
SPAIN	3110	3270	3336	3310	3368
SWEDEN	2886	2972	2986	3011	3047
SWITZERLAND	3460	3392	3495	3503	3434
UNITED KINGDOM	3298	3293	3269	3210	3219
USSR	3319	3369	3375	3377	3394
YUGOSLAVIA	3392	3533	3556	3613	3542
AUSTRALIA	3169	3337	3307	3271	3326
FIJI	2551	2511	2715	2864	2919
FRENCH POLYNESIA	2772	2769	2833	2855	2897
KIRIBATI	2612	2700	2890	2946	2936
NEW CALEDONIA	2863	2872	2924	2951	2970
NEW ZEALAND	3406	3349	3342	3366	3407
PAPUA NEW GUINEA	2091	2087	2146	2179	2182
SAMOA	2164	2324	2383	2407	2462
SOLOMON ISLANDS	2121	2118	2142	2152	2163
TONGA	2736	2835	2900	2936	2940
VANUATU	2564	2526	2430	2399	2335

17. ANNUAL AGRICULTURAL (BROAD DEFINITION) SHARES OF TOTAL OFFICIAL COMMITMENTS TO ALL SECTORS, BY MULTILATERAL AND BILATERAL SOURCES, 1979-87

	1979	1980	1981	1982	1983	1984	1985	1986	1987[A]
					%				
CONCESSIONAL AND NON-CONCESSIONAL COMMITMENTS									
MULTILATERAL AGENCIES[B]	36	38	34	35	35	29	31	33	28
WORLD BANK[C]	34	35	32	32	38	27	28	32	21
REGIONAL DEVELOPMENT BANKS[C]	34	44	38	36	25	26	32	34	40
OPEC MULTILATERAL[C]	15	15	11	17	21	25	28	35	23
BILATERAL									
DAC/EEC	12	10	10	10	11	11	12	(12)	...
OPEC BILATERAL	...	...	...	...	...	...	...	...	...
ALL SOURCES	...	...	...	...	...	...	...	...	...
CONCESSIONAL COMMITMENTS ONLY									
MULTILATERAL AGENCIES[B]	53	51	54	49	48	47	55	41	48
WORLD BANK[C]	53	46	56	45	52	49	54	29	30
REGIONAL DEVELOPMENT BANKS[C]	53	63	61	56	38	33	51	51	61
OPEC MULTILATERAL[C]	15	30	16	30	26	47	65	45	73
BILATERAL	16	13	14	16	14	15	15	15	17
DAC/EEC	18	16	18	17	17	17	16	(16)	(18)
OPEC BILATERAL	5	1	4	12	4	6	5	6	4
ALL SOURCES	22	19	21	22	20	21	22	(19)	(23)

[A] PRELIMINARY
[B] INCLUDING UNDP; CGIAR; FAO (TF/TCP), IFAD
[C] EXCLUDING COMMITMENTS TO CGIAR

18. PERCENTAGE DISTRIBUTION OF OFFICIAL COMMITMENTS TO AGRICULTURE (BROAD DEFINITION), BY MULTILATERAL AND BILATERAL SOURCES, 1979-87

	1979	1980	1981	1982	1983	1984	1985	1986	1987[A]
					%				
CONCESSIONAL AND NON-CONCESSIONAL COMMITMENTS									
MULTILATERAL AGENCIES	52	60	60	59	63	55	59	61	58
WORLD BANK[B]	32	35	35	35	44	29	36	38	30
REGIONAL DEVELOPMENT BANKS[B]	13	16	17	15	11	17	15	15	20
OPEC MULTILATERAL[B]	1	1	1	2	2	3	2	3	2
OTHER[C]	6	8	6	7	6	6	6	5	6
BILATERAL	48	40	40	41	37	45	41	39	42
DAC/EEC	45	39	37	35	35	43	39	37	41
OPEC BILATERAL	3	1	3	6	2	2	2	2	1
ALL SOURCES (MULTILATERAL + BILATERAL)	100	100	100	100	100	100	100	100	100
CONCESSIONAL COMMITMENTS ONLY (ODA)									
MULTILATERAL AGENCIES	38	45	42	40	41	37	42	31	41
WORLD BANK[B]	18	21	21	20	18	19	24	11	15
REGIONAL DEVELOPMENT BANKS[B]	11	12	12	7	11	7	8	9	15
OPEC MULTILATERAL[B]	1	1	1	2	2	2	2	3	3
OTHER[C]	8	11	9	11	10	8	8	8	8
BILATERAL	62	55	58	60	59	63	58	69	59
DAC/EEC	59	53	54	51	56	60	56	66	58
OPEC BILATERAL	3	2	4	9	3	3	2	3	1
ALL SOURCES (MULTILATERAL + BILATERAL)	100	100	100	100	100	100	100	100	100

[A] PRELIMINARY
[B] EXCLUDING COMMITMENTS TO CGIAR
[C] INCLUDING UNDP; CGIAR; FAO (TF/TCP), IFAD

SOURCE: FAO AND OECD

19. DAC COUNTRIES: BILATERAL ODA COMMITMENTS FROM INDIVIDUAL COUNTRIES AND PROPORTION TO AGRICULTURE (BROAD DEFINITION), 1982-87

COUNTRY	BILATERAL ODA TO ALL SECTORS						PROPORTION OF ODA TO AGRICULTURE					
	1982	1983	1984	1985	1986	1987[A]	1982	1983	1984	1985	1986	1987[A]
	$ MILLION						%					
AUSTRALIA	545	536	694	532	532	527	11	5	10	9	13	8
AUSTRIA	291	183	79	60	126	147	1	2	1	3	5	...
BELGIUM	320	187	180	132	318	432	3	5	1	23	14	17
CANADA	807	1 139	1 575	1 172	1 179	1 644	15	25	22	24	24	17
DENMARK	282	260	288	340	480	416	51	22	38	33	29	25
FINLAND	123	96	171	233	276	222	11	24	13	11	19	...
FRANCE	4 358	4 380	4 403	3 756	4 822	5 093	8	11	10	10	12	10
GERMANY, FED. REP.	2 713	2 271	2 800	2 427	3 337	4 303	18	15	14	15	18	13
IRELAND	12	14	13	17	25	27	—	—	—	18	16	19
ITALY	641	882	903	1 178	2 327	3 135	17	20	20	17	16	21
JAPAN	3 622	3 483	3 968	4 076	4 342	7 343	18	17	19	25	18	13
NETHERLANDS	934	901	902	731	1 299	1 709	22	23	27	18	29	34
NEW ZEALAND	47	40	41	47	34	51	30	15	15	26	15	8
NORWAY	309	288	350	346	548	514	25	17	35	23	20	20
SWEDEN	579	526	576	566	779	779	32	24	26	25	19	24
SWITZERLAND	207	239	218	307	329	462	31	55	22	32	27	26
UK	1 112	927	1 009	731	1 081	1 438	8	12	14	14	17	9
USA	6 112	6 989	8 144	9 157	8 746	7 412	14	14	14	11	11	13
TOTAL/DAC COUNTRIES	23 014	23 341	26 314	25 808	30 580	35 654	15	15	16	17	18	...

[A] PRELIMINARY

SOURCE: OECD

20. PERCENTAGE DISTRIBUTION OF OFFICIAL COMMITMENTS TO AGRICULTURE (EXCLUDING TECHNICAL ASSISTANCE GRANTS), BY PURPOSE 1980-87

	1980	1981	1982	1983	1984	1985	1986	1987[A]
				%				
LAND AND WATER DEVELOPMENT[B]	25	17	23	20	22	23	19	15
AGRICULTURAL SERVICES	12	7	12	15	16	11	19	16
SUPPLY OF INPUTS	6	5	6	6	7	6	4	7
CROP PRODUCTION	7	6	8	7	7	6	6	5
LIVESTOCK	2	2	1	2	2	3	1	1
FISHERY[C]	3	3	2	2	2	2	2	2
RESEARCH, EXTENSION, TRAINING[D]	5	5	5	6	9	7	7	7
FORESTRY	2	2	3	2	3	5	2	3
AGRICULTURE ADJUSTMENT AND UNALLOCATED	2	1	1	2	4	7	9	5
TOTAL NARROW DEFINITION	64	48	61	62	72	69	69	61
RURAL INFRASTRUCTURE	11	11	15	12	7	8	8	11
MANUFACTURE OF INPUTS[E]	1	9	4	1	5	2	5	2
AGRO-INDUSTRIES	8	5	3	6	3	4	3	3
INTEGRATED RURAL AND REGIONAL DEVELOPMENT	16	27	17	19	13	17	15	23
TOTAL BROAD DEFINITION	100	100	100	100	100	100	100	100

NOTE: THIS TABLE NOW INCLUDES FORESTRY IN THE NARROW DEFINITION

[A] PRELIMINARY
[B] INCLUDING RIVER DEVELOPMENT
[C] INCLUDING INPUTS SUCH AS FISHING TRAWLERS, FISHING GEAR
[D] INCLUDING COMMITMENTS TO CGIAR
[E] MOSTLY FERTILIZERS

SOURCE: FAO COMPUTERIZED DATA BANK ON EXTERNAL ASSISTANCE TO AGRICULTURE

21. DISTRIBUTION OF OFFICIAL COMMITMENTS (EXCLUDING TECHNICAL ASSISTANCE GRANTS) TO AGRICULTURE (BROAD DEFINITION) FROM ALL SOURCES, BY REGION AND ECONOMIC GROUPS, 1980-87

	1980	1981	1982	1983	1984	1985	1986	1987[A]
				%				
CONCESSIONAL AND NON-CONCESSIONAL COMMITMENTS								
FAR EAST AND PACIFIC	46	42	48	42	46	46	40	40
AFRICA	22	28	29	26	28	26	27	34
LATIN AMERICA	24	23	18	24	18	19	24	22
NEAR EAST	8	7	5	9	7	10	9	4
TOTAL 4 DEVELOPING REGIONS	100	100	100	100	100	100	100	100
OF WHICH: LOW-INCOME FOOD DEFICIT COUNTRIES[B]	65	61	64	58	65	61	53	64
CONCESSIONAL COMMITMENTS								
FAR EAST AND PACIFIC	50	49	46	48	51	49	48	46
AFRICA	26	32	40	31	34	30	37	40
LATIN AMERICA	13	12	9	12	8	12	7	8
NEAR EAST	10	8	6	9	8	8	8	7
TOTAL 4 DEVELOPING REGIONS	100	100	100	100	100	100	100	100
OF WHICH: LOW-INCOME FOOD DEFICIT COUNTRIES[B]	77	73	76	70	75	69	67	75
NON-CONCESSIONAL COMMITMENTS								
FAR EAST AND PACIFIC	37	29	52	33	39	40	32	29
AFRICA	12	21	11	19	18	18	18	22
LATIN AMERICA	47	46	34	40	36	30	40	49
NEAR EAST	4	5	3	8	7	12	9	—
TOTAL 4 DEVELOPING REGIONS	100	100	100	100	100	100	100	100
OF WHICH: LOW-INCOME FOOD DEFICIT COUNTRIES[B]	37	37	43	42	47	47	40	43

[A] PRELIMINARY
[B] 69 COUNTRIES REDEFINED BY THE WORLD BANK AT A LEVEL OF GNP PER HEAD OF $940 IN 1987
SOURCE: FAO COMPUTERIZED DATA BANK ON EXTERNAL ASSISTANCE TO AGRICULTURE

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