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REGIONAL STRATEGY ON ENVIRONMENTALLY SOUND
AND SUSTAINABLE DEVELOPMENT

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Note by the secretariat

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INTRODUCTION

A. Background and rationale

1. The United Nations Economic and Social Commission for Asia and the Pacific, adopted resolution 267 (XLIV) of 20 April 1988 on the adoption and implementation of the principle of environmentally sound and sustainable development in the Asian and Pacific region. In that resolution, the Commission requested the Executive Secretary to prepare a cross-sectoral, interdisciplinary study on the basis of the report of the World Commission on Environment and Development, Our Common Future and of the Environmental Perspective to the Year 2000 and Beyond (developed by UNEP), to identify issues of particular relevance to the Asian and Pacific region, and where appropriate, make proposals for action by the Commission and its subsidiary bodies for the promotion of environmentally sound and sustainable development, and to prepare a progress report on the contribution of ESCAP to the efforts being made towards sustainable development.

2. This regional strategy and the accompanying proposals for priority action have been developed in response to Commission resolution 267 (XLIV). The strategy will constitute a major input into the deliberations of the Ministerial-level Conference on Environment and Development in Asia and the Pacific. It will also be a useful regional document for the United Nations Conference on Environment and Development to be held in 1992.

3. All major global objectives, such as the Green Revolution, and the eradication of smallpox and other epidemics have been fulfilled through concerted efforts, including unparalleled technological breakthroughs. The use of a specific time-frame, has always provided a very important motivational tool for catalysing and energizing effective and co-operative action.

4. At the beginning of the 1990s, such efforts and time-frame are needed to save the whole earth from environmental catastrophe. It should be possible to realize an economically and ecologically sustainable and secure world within a generation, by approximately the year 2020. This strategy and framework advocates that such a target, though a challenging one, is reasonable and realizable.

5. The state of the environment report, 1990 details the major changes that have taken place in the environment and natural resources in the ESCAP region in recent years. The findings show that the region is proceeding on a downward path into environmental degradation at an alarming rate, which

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was predicted in the 1985 report. If the trends observed in that report are allowed to continue, economic development in both the developing and the developed countries of the region will slow drastically in the next few decades. Most of the available scarce resources would have to be directed to repairing past environmental damage such as pollution, land degradation, resource rehabilitation and dislocations such as rural-urban migration. Economic and social security will be possible in the long term only if there is ecological security. The challenge pointed out by the WCED and state of the environment reports is both a formidable and an urgent one. It is, therefore, important for all countries of the Asian and Pacific region to enlarge their narrow vision of economic progress to the holistic perspective of environmentally sound and sustainable development, and to establish a co-operative framework to realize this.

6. The challenge facing the region's resource managers is made greater by the continued dominance of poverty as a basic cause of environmental degradation over the past few decades. It is now apparent that economic growth and development in the region must accelerate to help alleviate the poverty, which has become both a cause and a consequence of environmental degradation.

7. For some people, the major cause of the environmental problems is the rapid economic growth. This is not true and retarding economic growth would not be a viable option for most countries of the region. However, changes must be made in the pattern of development, by discouraging growth which is environmentally destructive and encouraging that which is either environmentally beneficial or benign.

8. The state of the environment report shows that the biophysical conditions of the environment have in most cases deteriorated markedly over the last few years. Nevertheless, the socio-political setting has in most cases become more receptive to the fresh and bold initiatives required for achieving environmentally sound and sustainable development. This in itself provides a basis for optimism and needs to be capitalized upon.

9. Most environmental debates focus on the critical problems and finding ways to reduce or alleviate them. An alternative approach would be to define the environmental challenge in a positive rather than a negative way. A positive way to look at this challenge is to concentrate on the creation of an ecologically sustainable world, instead of concentrating only on the amelioration of a whole set of environmental negatives. This approach reminds us that considerable creativity, innovations and enterprise will be needed to realize an ecologically sustainable world.

10. Sustainable agriculture, sustainable fishing and forestry, sustainable use of energy, and even "sustainable packaging" must be created in the next 30 years. Those who are innovative in developing green products, services and technologies to help realize sustainability will find large and even global markets for them. The creation of ecological sustainability is a global challenge, and there will be a global market for those who can offer solutions. It will certainly be possible to do economically well by doing ecological good.

B. Goals and objectives

11. If economic growth and development in the region are to be sustained or to accelerate over the long term and a reasonable quality of life assured for succeeding generations, a fundamental shift in the way the environmental resources of the region are used will have to occur. This strategy recommends specific action that can be taken over the next 30 years at both national and regional levels to facilitate environmentally sound and sustainable development, and suggests frameworks to realize such action.

12. The goals of the strategy and framework are economic development of the region with equitable distribution of the benefits of development, more rational management of the region's natural resource base, preservation of the region's genetic resources and biodiversity, and protection of the environment. The strategy also emphasizes the importance of countries of the ESCAP region committing themselves to the concept of inter-generational equity. In adopting a strategy and framework, the Governments of the ESCAP region are seeking to:

(a) Respond to the recognition by ESCAP, UNDP, UNEP and ADB of the importance of and responsibility for environmental protection and sound natural resource management, both now and in the future. The strategy registers the commitment of these agencies to play major roles in helping to realize environmentally sound and sustainable development in the Asian and Pacific region.

(b) Heighten awareness of critical environmental problems and their possible solutions among decision makers, programme planners and resource managers, particularly in the field of economic development, at the national, regional and international levels. The specific brief of ESCAP is to promote a regional approach and response. As such, it will complement the work of UNDP and ADB, which will link individual countries into the regional and global programme funding. Similarly, at the regional level, ESCAP and UNEP will be working in a complementary and mutually supportive way.

(c) Promote wide dissemination of information in response to increasing public concern about environmental problems, and improve the knowledge and skill bases upon which solutions will be developed.

(d) Agree on a number of concrete actions and programmes to be implemented by countries in the region, particularly for the years 1990-1995.

(e) Commence the work of developing a co-operative regional approach to the preparations for the United Nations Conference on Environment and Development and for the realization of an ecologically sustainable Asian and the Pacific region in the early part of the twenty-first century.

C. Scope and approach

13. A fundamental assumption of the strategy is that achieving and maintaining an acceptable or desirable quality of life and level of economic performance in the region ultimately depend on prudent management of the environment and natural resource base. There is also an assumption that environmentally sound and sustainable development will only be realized by the development of new values and attitudes, new products, services and technologies, and by increased development of knowledge and skill in many areas. It further assumes that sustainable development is an appropriate goal for all countries of the ESCAP region, not simply those that have attained a certain threshold of income.

14. The strategy assumes that in addition to greater inter-generational equity, achieving environmentally sound and sustainable development will require more even distribution of the benefits of development among the countries of the region and among the inhabitants of each of its countries. For the developing countries of the ESCAP region in particular, meeting basic human needs is seen as the appropriate starting point. The strategy is basically a framework for facilitating preparation of regional, subregional and national programmes for the realization of environmentally sound and sustainable development, with an emphasis on tackling the causes rather than concentrating only on symptoms. Nevertheless, the need for taking concrete action to improve the environmental conditions of the region has been clearly recognized and suggestions to this effect are also included. The strategy will only be successful if member countries share a common vision and act in a coherent and co-operative manner to help solve environmental problems and build an ecologically sustainable region.

15. While the strategy emphasizes environmental problems which are common to or shared by the Governments of the region, it also addresses critical environmental problems of a global nature (for example, ozone layer depletion, climate change and biodiversity). The strategy explicitly recognizes the obligation of ESCAP member Governments, both individually and collectively, to collaborate with Governments and institutions in other regions, and those organizations with a global charter, including United Nations agencies such as UNEP and WMO, international funding institutions such as the World Bank and ADB, and non-governmental organizations such as IUCN.

16. The framework of the strategy will be maintained as a flexible and open instrument for policy and programme planning to accommodate global consensus which will emerge through the relevant events, such as the United Nations Conference on Environment and Development in 1992. Similarly, it will have in-built options for modification in accordance with evolving environmental and natural resource conditions, including possible new threats as well as opportunities, and the development of innovations which can help to achieve the desired solutions at both the regional and global levels.

D. Implementation

17. The strategy recognizes that many of the actions necessary for achieving environmentally sound and sustainable development will have to be taken by national Governments. However, it also sees concerted and co-operative action at the regional level as being no less important than national or global action.

18. Regional co-ordination and technical support of national efforts will be particularly essential to ensure that country-level action does not work at cross purposes. The action, or the absence of action, by one country can undermine the good work of another. The export of toxic waste or of a polluting industry is an example of the first, while transboundary pollution is an example of the second. The resolution of conflicts arising from differences in approaches taken in solving transboundary environmental problems should be undertaken at the regional level, as should the provision of technical assistance guidelines and funding for the development of national strategies for environmentally sound and sustainable development.

19. Global-level issues also need to be considered at the regional level. These issues include those relating to common resources such as the sea and the atmosphere, to the trade in endangered species of flora and fauna, and to threatened global ecosystems such as rainforests. Finally, despite the diversity of the region, some subsets of the region's countries are remarkably similar in terms of stage of development, orientation of political or economic policies, natural resource endowments, or types of environmental problems. These similarities offer scope for regional co-operation and co-ordination of initiatives. The strategy suggests that ESCAP needs to act as a focal point for co-ordination of environment and development initiatives at the regional level.

20. The strategy, with a 30-year time-frame, seeks to harmonize the short-, medium-, and long-term approaches. It advocates both short-term curative measures for tackling the most severe environmental problems of the region and medium-term measures oriented towards the eradication of root causes of environmental degradation in the region. Recommendations for the solution of long-term global problems which influence the structure and stability of the world environment have also been included for consideration.

I. REGIONAL TRENDS IN ENVIRONMENT AND DEVELOPMENT

21. The state of the environment report, 1990 identifies three types of critical environmental problems in the Asian and Pacific region:

(a) Land degradation and destruction of natural resources. These include deforestation, soil erosion, soil fertility loss, waterlogging, salinization and toxification of soils, loss of biological diversity, damage to and destruction of coral reefs, mangroves, fisheries and other coastal and marine resources, excessive extraction and associated problems relating to underground reservoirs of fresh water.

(b) Unsustainable environment in villages/human settlements. Unsustainable village environments caused by inadequate or inappropriate shelter, lack of water supplies, poor sanitation, shortage of cooking fuel, poor nutrition, excessive use of agro-chemicals, and habitation of environmentally fragile and hazard-prone areas.

(c) Pollution, including pollution of ambient air in cities, household air in villages; pollution of lakes, rivers, underground reservoirs and marine water, with detrimental effects on mangroves; coral reefs; toxic and nuclear waste dumping and environmental hazards emanating from energy-related activities.

22. Referring to environmental trends, the report states:

(a) In the 10 years from 1976 to 1986, 1.8 million hectares of the region's closed forest cover were lost annually. At that rate, about 18 million ha, or about 6 per cent of the region's total closed forest, will be lost by the year 2000.

(b) Over 15 billion tons of sediment from soil are being carried annually by Asian rivers, compared with less than 2 billion tons by North American rivers and 1 billion tons by South American rivers.

(c) Desertification affects more than 860 million ha of land. In the human dimension, it directly affected 150 million people in the region, that is, half of the world population affected by the problem.

(d) More than two thirds (68 per cent) of the original wildlife habitat of the region has been lost, causing 600 animal species and 5,000 plants to become rare or threatened. The denudation of the rainforests in particular poses a major threat to the region's biodiversity.

(e) Over-exploitation of ground water has already caused such problems as production losses, land subsidence, salt-water intrusion and ground-water pollution in over one third of the countries of the ESCAP region.

(f) Few countries of the ESCAP region can meet the WHO standard for safe drinking water, which calls for 95 per cent of the samples to be free from faecal coliform bacteria.

(g) Eighty per cent of diseases are directly traceable to unsafe water and poor sanitation. Diarrheal diseases kill over 1.5 million children every year, or three children every minute, in just seven countries of the region.

(h) Eighty per cent of the wetlands in most countries of the region are under moderate or severe environmental threat.

(i) 1.2 million hectares of mangroves in the region have already been lost to aquaculture ponds.

(j) High-value fisheries, such as shrimps and prawns, have declined owing to over-exploitation in recent years.

(k) The incidence of algal blooms, red tides and contamination of sea food has increased.

(l) The trend towards encroachment of prime agricultural land by human settlements has increased. The projected rates vary from 180 to 2,900 ha per year, depending on the nature of the city concerned.

(m) The number of megacities (over 4 million people) has increased four times between 1950 and 1990.

(n) The use of solid (dirty) fuel increased from 620 million tons in 1978 to 850 million tons in 1986 - an increase of about 37 per cent in eight years.

(o) Industrial emission of carbondioxide in the region increased from 94 million metric tons in 1950 to 363 million metric tons in 1965 and over 1 billion metric tons in 1985.

(p) Agricultural land per capita (agricultural population) has declined from 0.29 ha in 1977 to 0.27 ha in 1987.

(q) The use of agrochemicals has increased substantially. Fertilizer use increased in the region from 22 million tons in 1977 to 46 million tons in 1987. Pesticide consumption is growing at the rate of 5-7 per cent per annum.

(r) Where examined, pesticides and toxic chemicals concentrations in human bodies have been found to have increased.

(s) Four out of every 10 people in rural areas of developing countries of the ESCAP region (excluding China) are still without access to safe drinking water.

(t) Irrigation projects have enhanced the vulnerability to schistosomiasis. Over 25 million people in the region have been infected by the disease.

(u) Rural women in the household environment are exposed to almost 5,000 ppm of suspended particulate matter in some countries of the ESCAP region, whereas the maximum limit allowed for the occupational environment is only 290 ppm.

(v) Over 700 million people in rural areas of the ESCAP region could meet their energy needs only by depleting wood reserves in the early 1980s. By the year 2000, the number is likely to increase to 1.4 billion.

23. These statistics and facts represent a real loss of productive assets and deterioration of ecosystems, and the trends imply that in the absence of appropriate action the potential loss and damage will be enormous and unmanageable by 2000.

24. The trends cited above contrast sharply with those of economic growth. During the 1980s, the Asian and Pacific region recorded a growth rate much higher than those of other regions of the world. The average rates of economic growth for developing countries of the ESCAP region were even more dramatic. The picture that emerges from the two contrasting sets of parameters is that the rapid economic growth often took place at enormous cost to the environment. Adversely affected localities in the region's fastest growing economies provide glaring evidence of this fact. Pollution in these areas has become a major public health hazard. This has been caused largely by the abuse of pesticides and uncontrolled industrial pollution. The mistake of developed countries, which had to throw "good money after bad" in order to cure problems which could have been prevented for much less expense earlier on, is being repeated. The following extract from the WCED report sums up economic development during the past decade succinctly:

Much of the economic development of the region during the 1980s was underpinned by a transfer of natural capital to man-made capital, expansion of food production at the expense of land quality, improvement in industrial production and access to consumer products at the expense of environmental quality, and high national growth rates under conditions of high debt burdens which necessitated short-term return on investment to finance debt.

That this assessment holds true for the Asian and Pacific region is apparent from the fact that virtually all indicators of the state of the environment in the region had turned sharply downward by the end of the 1980s, while debt levels had risen drastically, and equity between rich and poor had failed to improve significantly.

II. CAUSES OF ENVIRONMENTAL DEGRADATION

A. Population growth and distribution

25. The current population of the Asian and Pacific region is 2.9 billion, which is more than 55 per cent of the world's total population. The population density is 93 persons per square kilometre compared with an average of 82 persons for the developing countries, and 24 persons per square kilometre for the world as a whole.

26. The total population in 1960 was only 1.49 billion. In a 30-year period, it doubled to about 3.0 billion by 1990. It is now growing at the rate of 1.8 per cent per year, which means that it will double again in the next 39 years. This phenomenal growth in population is greatly increasing

the demand on the region's diminishing resource base and, if not checked, could ultimately threaten the very ecosystems on which human survival and economic development depend.

27. The strategy on population must extend beyond controlling sheer numbers through birth control and consider issues of population welfare such as education and health and the formation of sound social values, with special emphasis on the role of women, which indirectly but effectively assists in reducing population growth.

28. Poverty, lack of employment opportunities and environmental degradation in rural areas combine to increase out-migration from rural areas. Until now, this out-migration has been mainly to urban areas in the same country. However, it is increasingly becoming regional in character. Migrants driven by lack of economic opportunity are now also being joined by increasing numbers of ecological migrants who are driven from rural areas by loss of ecological productivity. Migration is therefore a symptom of the inability of rural areas to support people, in both an economic and an ecological sense.

29. Rural-urban migration is fuelling the explosive growth of cities. Urban population in the ESCAP region increased from 360 million in 1960 to almost 860 million in 1990 and, if the present pattern continues, it is expected to soar to 1.2 billion by the year 2000. The problem arising with rapid urbanization is population growth outpacing infrastructural facilities and environmental amenities. This results in the growth of urban slums and squatter settlements, overburdening the water supply, sewerage and garbage disposal, resulting in loss of parks and green spaces and degradation of the air and water quality.

B. Poverty and underdevelopment

30. Eight hundred million people in the ESCAP region are living below poverty line. Environmental degradation due to pervasive poverty is a matter of great concern for both rural and urban areas in developing countries of the ESCAP region. In rural areas, poor men and women, driven by forces beyond their understanding or control, clear steeper and steeper hillsides for cultivation, overstock and overgraze, cut down the last few trees, shorten the fallow period and, when ecosystem productivity diminishes drastically, migrate in large numbers to cities, increasing the pressure on the urban environment.

31. The region's environmental degradation problems arising from poverty are compounded by the root causes of poverty itself. The most important of these are inadequate property rights, especially those relating to land tenure, and inadequate security of access to land, inadequate access to education and health facilities, and to credit, capital and technology for agricultural production, resource conservation and development of crafts.

C. Unsustainable development

32. Like underdevelopment, development which is unsustainable (inappropriate) is also causing deterioration of the environment in the ESCAP region. In their efforts to expand their economy to attain fast growth and to meet the increasing demand of rapidly growing population, most developing countries of the ESCAP region are ignoring the path of sustainability and venturing into an arena which is environmentally damaging. The problem is visible in almost every sector of the economy.

1. Agriculture

33. The requirement to expand both cash and food crop production in developing countries of the region is encouraging abandonment of the traditional cropping system in favour of energy-intensive monoculture, dependent on increased imports. Irrigation expansion translates into increased waterlogging and salinity. Agricultural chemical residues pollute ground and surface waters, while soil fertility and natural pest resistance decline. Soil erosion and the consequent nutrient losses further degrade the resource base. This process is aggravated by inequity in access to resources and technologies, such as the Green Revolution technologies suitable for richer farmers. As these farmers prosper, small farmers are pauperized and driven to landlessness and eventually to already overcrowded urban areas or marginal lands that should never be cultivated except possibly on long rotations.

34. This cycle of planting more cash crops, importing more technology and energy, and planting yet more cash crops by clearing more forests and displacing more farmers, as commodity prices fall and import prices rise, seems unending. The hope is to break out of the cycle by industrialization; but industrialization, where it has occurred in the developing ESCAP region, has followed a pattern of massive and perhaps irreversible damage to the natural resource base.

2. Industry

35. A significant part of the fast economic growth in the region was achieved through industrialization. Many of the industries contributing to this growth are resource-based, such as mining and agro-industries, although integrated metal processing, and chemical and petrochemical industries have also been established. A large number of small and medium-scale industries have proliferated, mostly in and near urban areas. While industrialization has brought some measure of economic prosperity to the region, it has also resulted in natural resource depletion, air, water and noise pollution and accumulation of toxic and hazardous wastes, and increased the incidence of disastrous accidents; in some cases it has been deleterious to human health. In most developing countries of the region, industrialization has ignored technology planning that would emphasize low or no waste, high efficiency of resource use, high labour-capital ratio, and the use of indigenous knowledge and skills.

36. New industries emerging in the developing countries of the ESCAP region are not uncommonly decades old in terms of technology. There is, moreover, little research being undertaken on low- or no-waste technology or on pollution control. There is little concept of the "polluter pays" principle as the social and environmental costs of pollution are passed on to others, often to future generations. Because there is a paucity of monitoring of air or water quality, food contamination, or toxic build-up in human bodies, and because there are very few epidemiological studies of pollution and human health in developing countries, quantifiable statements about the impact of uncontrolled pollution are impossible to make. What is known, however, is that where the matter has been examined, it has been found that food has been contaminated to dangerous levels, fish kills have occurred frequently, dissolved oxygen levels in rivers have fallen to zero or near zero, air pollution has exceeded WHO-recommended levels by startling amounts, and toxic contamination has reached drinking water aquifers, all of which have a tremendous impact on the health of the people of the region, already suffering from malnutrition and infectious diseases.

3. Natural resources and energy

37. Inefficient and reckless exploitation of natural resources is another basic cause of environmental degradation. It is apparent in the cases of both renewable natural resources, such as water and forests, and non-renewables like fossil fuels and minerals. It becomes particularly important in the latter case, as once they are exhausted they are irreplaceable.

38. Inefficiency is a fundamental issue when it comes to land degradation. Waterlogging and salinity are caused in the first instance by inefficiency in water use, leading to a rise in the water table. Pesticide applications are notoriously inefficient. Developing country energy use in the rural environment is high but so inefficient that poverty, not development, is the result. Fuel is burned with great waste, water for irrigation is used inefficiently, and soil nutrients, rather than being guarded carefully as the basis of wealth, are inefficiently wasted by soil erosion, non-optimal application of chemical fertilizer, and waste of manure and other soil-enrichment materials. The problem of inefficiency is deep-seated at all levels, although the poor have the greatest incentive to do something about it given access to resources and technology. Therefore greater stress should be laid upon equity in access to resources.

39. Inefficient use of energy, water and materials in industrial processes in developing countries is also common, and translates directly into increasing wastes and pollution. A serious dimension of the energy-environment issue is the increase in energy use coupled with a shift towards low quality and low-cost solid fuels. This is particularly worrying because it indicates a likely increase in greenhouse gases and a rise in the amount of atmospheric pollution generated per unit of energy consumed.

4. Trade, investment and tourism

40. The greatest environmental problem of developing countries of the Asian and Pacific region is primary-sector resource over-exploitation to supply the global demand for such resources. As the terms of trade shift further and further to the disadvantage of developing countries, and as the debt crisis forces less rational decisions from desperate Governments, the pressure increases to mine resources such as tropical forests with little or no thought to the future. Export crops are produced at the expense of forests, food crops or livestock. As subsistence farmers are displaced, they press upon marginal lands with their crops and livestock, thus causing even more deforestation and desertification. Within deforestation, the critical issue of the future of regional tropical forests has become a visible issue even at the global level.

41. A number of trade policies implemented by both the industrialized countries and the region's developing countries act to discourage local processing of the raw material. This forms a serious barrier to sustainable

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development because it makes the region's exports highly raw material oriented. In addition, the vertical integration of some industries often means that processing, manufacturing and marketing of the resources are concentrated in the hands of large firms. In the case of these firms being foreign owned, most of the value added may accrue to these firms and contribute very little to the national GDP.

42. Another environmentally destructive aspect of trade and investment is the phenomenon of "dumping". Dumping covers the ^{export}~~report~~ of "failures" of technologies, industries, chemicals and wastes that are unprofitable or environmentally unsound in the countries of origin and must therefore be thrown away or dumped wherever possible, meaning wherever the political climate is such that the polluter escapes having to pay. Chemicals, including many pesticides and pharmaceuticals, banned in their country of origin are exported to countries in Asia and the Pacific where regulation is weak. Toxic and nuclear wastes are sent to whatever destination has officials compliant enough, or unaware enough, to receive them. Ships routinely discharge bilge and ballast waters in and around ports where they can get away with it. Although there are no precise estimates of trade in wastes according to a recent study by Greenpeace some 3.2 million tons of wastes were exported to 15 developing countries in the past two years.

43. International tourism and investment have proved to be powerful tools for stimulating economic growth in the Asian and Pacific region, and their importance is likely to remain or even increase over the time horizon of the strategy. While international tourism has become an important foreign exchange earner for a number of the region's countries, it has also contributed to degradation of environmental resources. Without the development of ecologically sustainable tourism, tourism itself will destroy the very environments tourists seek. More so than almost any other industry, the ecological degradation caused by tourism would lead to economic degradation.

D. Institutional and social factors

44. Some of the basic causes of environmental degradation can also be traced back to institutional and social factors. The dichotomy between economic objectives and environmental policies maintained in the past, as well as the social attitude towards profligacy in the use of resources, are two examples.

1. Policies and institutions

45. A major cause of environmental degradation has been a lack of coherent sustainable development policies. The integrated nature of the environment and development challenge and issues contrasts sharply with the nature of institutions existing in the majority of the countries of the ESCAP region today. Most of these institutions, as stated by WCED, tend to be independent, fragmented and working to relatively narrow mandates with closed decision processes. Those responsible for managing natural resources and the environment are separated from those responsible for managing the economy. Central agencies and major sectoral ministries play a key role in national decision-making. Through their policies and budgets, these agencies have contributed a great deal to the enhancement or degradation of the resource base and its capability to support human and economic growth. The mandates of these agencies have been framing and implementation of investment, food, energy and other economic and social policies, and have not included any concern for sustaining the environmental resource capital on which these goals depend.

46. Those with such mandates were isolated in the form of environmental agencies or ministries which often had very little say in the new initiatives of economic trade, energy and agricultural policies or new tax measures, and came to know of their severe impact long after the effective decisions were taken. Furthermore, even if they were to learn earlier of these policies, most had no authority to secure any changes in the policy aspects that were detrimental to the environment.

47. A glaring example of that fact is the policy towards natural resources. In most countries of the ESCAP region, natural resources make as important a contribution to economic production as does man-made equipment. However, the national accounting systems in virtually all of the region's countries ignored the value of natural resources in economic production. Thus, these accounting systems did not consider natural resources as being productive assets. This resulted in GNP statistics that overstated national income because they did not take account of the natural resource depletion.

48. A further result of this inadequacy in present national accounting systems was seriously distorted natural resource prices that gave strong incentives for over-exploitation of resources rather than conservation. These price distortions biased economic planning and budgeting against environmental protection and rational use of resources. Policies towards trade and investment, fertilizer and pesticide subsidies, industry and technology have also ignored environmental trade-offs in the past.

49. Lack of interaction between government agencies and the independent sector on environmental matters has been another contributory factor to environmental degradation. Models of environmental control applied in most developing countries of the ESCAP region are based on the premise of "command and enforcement" which requires strong back-up by technical skill, manpower and finances. Shortage of these resources, coupled with standards having unrealistic phasing and time-frame, have led to widespread non-compliance. The situation could have been ameliorated by the promotion of understanding and co-operation between the independent sector, such as industry, and the government. However, the fact that this has not happened, is a contributing factor to the detriment of the environment.

50. In the developed world, non-governmental organizations act as watchdog agencies and as environmental communicators. They have also assisted Governments as initiators of innovative approaches. In the Asian and Pacific region, these organizations have failed to play these roles effectively, primarily owing to lack of resources and skill as well as support by the government agencies.

2. Lack of public awareness and participation

51. Capital resources in the Asian and Pacific region are scarce compared to the vast human resources. Human capital, if utilized properly, can perform unbelievable feats in environmental enhancement (desertification control and tree plantation in China are two examples). In contrast, through irresponsible behaviour, it can also cause irreparable damage to the environment.

52. The lack of utilization of human capital has often contributed to the failure of vitally important environmental schemes. For example, tree plantations are encouraged and sometimes promoted by Governments as environmental measures, yet they often fail because of popular opposition: the wrong land is used, the wrong species are chosen, the wrong people reap the benefits, and sometimes trees are simply not available for planting. The examples could be multiplied endlessly, but the point is that people's knowledge and participation are essential prerequisites for environmentally sound and sustainable development. Whether it be a question of water supply, sanitation, afforestation, organic farming or small-scale irrigation, sustainability means that people's priorities must come first, people's energies and knowledge must be mobilized, and the people affected must be the people benefited.

53. While "people" of course include women, women are systematically excluded from development planning, development projects and the major fruits of development. Yet it is women who raise the future generation, gather the fuel and water, maintain the household and its surroundings, arrange the gathering of fodder for livestock and, in a majority of cases, have responsibility for subsistence cropping (but rarely for cash cropping).

54. An important ingredient of the participatory process is to inspire and motivate people to act to improve the environment and desist from irresponsible behaviour. The role of the information media is crucial, but the "gloom and doom" offering by the media has probably done as much damage as good in recent years. Information has, by and large, been provided in ways which in most cases, instead of inspiring and motivating people to act to improve the environmental situation, have led to breeding a sense of futility and hopelessness.

III. DEVELOPING A FRAMEWORK FOR ACHIEVING ENVIRONMENTALLY SOUND AND SUSTAINABLE DEVELOPMENT

A. Visions of an ecologically sustainable region

55. This section examines the ways in which countries of the ESCAP region might collectively develop the most appropriate pathway to an ecologically sustainable and secure region by the year 2020. The year 2020 is chosen as the time horizon in order to provide short (up to 1995) and medium-term (2000) as well as inter-generational perspectives. It is worth considering carefully what kind of approaches are likely to remain relevant and successful over such a long period of time. Often approaches which are very effective in the short term may not be very relevant over a 30-year time-frame.

56. The problem centred approach currently in vogue is to describe the future in terms of present-day problems and issues and seek to establish processes leading to the future which remove or reduce the magnitude of these problems. This approach and framework involves both curative and preventive measures. The curative measures require identifying the symptoms and the nature of the problems, and seeking to remove the symptoms, while preventive measures seek not only to eliminate the symptoms but also the root causes. The response is thus primarily effect-oriented in the first case and source-oriented in the second.

57. Within the framework of preventive measures, however, there is merit in promoting other possible approaches, such as the mission-directed approach, for realizing environmentally sound and sustainable development. The mission-directed approach involves the creation of missions, prophecies or visions, and then seeks to achieve these through concerted action and technological innovation. The objective of landing a man on the moon, for example, was a mission that used this approach. The recently successful programme to abolish smallpox, on the other hand, was a combination of both the problem-centred and mission-directed approaches. While the lunar mission sought to build a "GOOD", the smallpox mission was to remove a "BAD" from the earth. Creating an ecologically sustainable world involves both eliminating "BADS" (unsustainable practices) and replacing them with "GOODS" (sustainable practices). In the environmental context, one mission could be the introduction of natural resource accounting in the national planning and accounting systems of all countries of the ESCAP region by the year 2010. A similar mission could be the planting of 10 billion trees in the region by the year 2000. Yet another could be the complete elimination of environmentally damaging energy use by the year 2020.

58. The strategy for environmentally sound and sustainable development proposed in this document for reversing the present trend of environmental degradation and setting a course for sustainable development in the region is the implementation of a number of policies and programmes by the Governments of this region, both individually and collectively. A strategy to alleviate the most severe environmental problems in the ESCAP region and, more importantly, to promote environmentally sound and sustainable development in the future, must work at four levels:

(a) At international and regional levels, through the development of legal instruments, technology transfer agreements, revised trade structures, and enhanced skill and ability of developing countries to take up action programmes;

(b) At the national level, through the integration of the consideration of environmental and social sustainability into development planning (establishment of country policies and strategies on environmentally sound and sustainable development), assessment of the environmental implications of all development schemes, new programmes that devolve more responsibility for land management on to communities and users, agrarian reform, and efficiency criteria applied to all industrial and energy schemes;

(c) At the community level, through the mobilization of community resources and initiatives, decentralized planning studies, and raising the awareness of all citizens, but especially the poor;

(d) At the household level, through focus on women as educators, nurturers and producers, and household and village environmental improvement schemes.

B. Recommendations for achieving environmentally sound and sustainable development

59. A review of the causes/factors that lead to environmental degradation (see section III above) revealed that environmental sustainability considerations arise in all sectors. The day has passed when "environment" meant pollution, or an unwanted dam, or when patching up messes was the environmental objective. With the WCED report and the UNEP Environmental Perspective to the Year 2000 and Beyond, the world and regional communities have come to recognize that environment is the very basis of development and that a degraded environment translates into stunted development. Short-term profits may be made by unsustainable resource exploitation, by generating wastes and by uncontrolled pollution of air, land and water, but these profits invariably accrue to only a few and are short-lived.

60. The key elements that emerge from discussions on the basic causes of environmental degradation in section III are efficiency, equity, resource husbandry, people's participation, self-reliance and technology. If it is accepted that inefficiency and inequity underlie much of the environmental crisis, then these become criteria against which to evaluate the development process and modify the priorities. If meeting the basic needs of all is the fundamental rationale behind development, then these basic needs define a second set of criteria. Similarly, if sustainability implies resource husbandry and care for the good things of this region, then we have another criterion. The criteria for environmentally sound and sustainable development provide basic ingredients for the formulation, implementation and evaluation of development programmes from the local to the regional level. A set of recommendations in this section on environmentally sound and sustainable development has been made taking into consideration the relevance of these key elements to the current environment and development situation in the ESCAP region.

61. The recommendations are made in the strategy with hope and optimism that resource degradation can be arrested and disappearing habitats and species can be saved, poverty alleviated and the human population in the region stabilized, soil conserved and more food provided, climate change contained and regional and global pollution reduced. All these things can be done with the measures within man's grasp. However, the degree of success will hinge upon a concerted effort made with some urgency to change many current policies, to strengthen and multiply successful programmes and to launch bold initiatives where these are needed.

62. The set of recommendations given below no doubt presents a formidable challenge to ESCAP and to member Governments. Yet they are perhaps the most fundamental and far-reaching. They are wide-ranging, covering institutional, administrative, fiscal and other measures. Some of them pertain to specific sectors, others are cross-sectoral and some address overall policy and planning issues. However, they are likely to be effective only if treated as part of a broader effort to institute a multisectoral participatory approach with a strong spirit of regional co-operation.

1. Institutional and administrative measures

63. Recommendations on institutional and administrative measures are covered not only under this head but also under other sections that follow, to highlight integration of environment and development as a major priority. In this section, recommendations range from the basic steps of the preparation of national state of the environment reports and for strategies environmentally sound and sustainable development to co-operation between national and regional institutions in achieving environmentally sound and sustainable development as well as in meeting financial needs for environmental restructuring.

(1) Countries in the ESCAP region should endeavour to produce national state of environment reports and environmentally sound and sustainable development strategies. International agencies and donor countries should co-operate to provide technical and financial assistance in the development of such reports and national strategies. The reports should:

(a) Identify environmental problems of major concern;

(b) Assess the present and future likely impact of "root causes", such as uncoordinated economic development, poverty, and population growth, on these problems;

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- (c) Assess the likely impact of global environmental problems on the country;
 - (d) Assess the environmental problems in terms of the issues;
 - (e) Outline alternative approaches and future options for the amelioration of these problems;
 - (f) Outline proposed responses and action.
- (2) Environmental parameters should be integrated into national economic planning budgetary and development processes through the creation of the proper institutional infrastructure and adoption of appropriate policy mechanisms. This should include enhancement of the role of environment agencies in the formulation of economic policies, establishment of appropriate environmental monitoring systems and use of instruments of environmental planning such as environmental impact assessment, risk management and natural resource accounting.
- (3) National and regional environmental agencies, and others promoting the adoption of environmentally sound and sustainable development, should:
- (a) Increase efforts to promote the concept of environmentally sound and sustainable development through the media and public information programmes;
 - (b) Develop stronger joint programmes with non-governmental organizations seeking similar ends;
 - (c) Encourage professional associations and organizations to become as important players in the promotion of environmentally sound and sustainable development.
- (4) As part of the environment review and overview process, countries of the ESCAP region might choose to implement a series of national programmes directed at key natural resource problem areas. These could include new programmes, or programmes already under way, such as:
- (a) National forestry and/or tropical forestry action programmes;
 - (b) National programmes to combat desertification and to promote land care;
 - (c) National soil conservation programmes.
- (5) In many cases environmental restructuring involves financial restructuring of economies. In order to do this appropriately, developing countries in the region would need to promote efficiency.

Assistance from regional and donor agencies would also be needed in the form of technical and financial assistance. In order to meet the need for the purpose, it is recommended that:

- (a) The allocations for environmentally related activities provided for in national budgets should be increased. This should include an increase in the budgetary share of the environment agencies in the total development budget;
 - (b) Developing countries should use their scarce resources more efficiently in financial as well as natural resource terms;
 - (c) Governments should intensify consultations with the donor community to seek assistance in programmes and projects for environmentally sound and sustainable development, such as financial assistance for bridging the cost of environmental restructuring;
 - (d) Regional agencies should assist countries through guidelines and case studies and disseminating information/data on ongoing and completed restructuring programmes and projects.
- (6) Countries of the ESCAP region should work with regional/international environment and development agencies to develop methodologies for environmentally sound and sustainable development, through research, investigations, consultations and workshops. They should also develop a strong network of information systems on environment and development, so that information on patterns of ecologically sustainable development can be exchanged and disseminated throughout the region.
 - (7) Regional Governments give full support to the Intergovernmental Panel on Climate Change (IPCC) as the principal forum for the scientific assessment of climate change.
 - (8) Countries in the region and international agencies should co-operate to develop a regional ecological and economic future studies programme. This would involve vision-making, scenario generation and evaluation, systems analysis, and model-building, using advanced information technology where appropriate. This would provide advice to countries of the region about the alternative and preferred options for, and paths to, achieving an economically and ecologically sustainable and secure future for the region.
 - (9) Countries of the ESCAP region should work to ensure the integration of their environment and public health policies. This integration should emphasize the creation of new public health concepts for the 1990s,

based on ecologically sustainable health, and selective emphasis on the promotion of health and well-being, rather than on the treatment of illness only.

- (10) Countries should evolve a regional approach and input to the United Nations Conference on Environment and Development and develop regional follow-up action programmes accordingly after the Conference. Furthermore, regional organizations should review recommendations of recent relevant meetings with the aim of developing and implementing effective follow-up mechanisms to encourage their more rapid adoption by countries of the region.
- (11) Regional organizations concerned with the environment and development should be strengthened, particularly with respect to their capability to implement projects and activities at the regional level for strengthening national capabilities aimed at environment-development integration and resource conservation. These institutions should also co-ordinate and oversee activities aimed at achieving sustainable development.
- (12) Performance criteria and indices for the achievement of environmentally sound and sustainable development should be developed through the co-operative efforts of relevant international and regional organizations, as well as countries in the region.

2. Legislation, conventions and treaties

64. The legislation on environmental protection needs to be improved through the incorporation of environmental principles in sectoral legislation, phasing the implementation of environmental standards and placing emphasis on public rights against pollution. In order to save regional and global commons further, countries in the region should not only sign and ratify the existing conventions and protocols on environmental protection but also promote new ones, particularly on the greenhouse effect and sea-level rise, that can have a severe impact in the region. The recommendations in this regard are as follows:

- (13) All countries of the region should review the environmental legislation and environmental standards and adjust them to ensure their greatest practical effectiveness. Appropriate action should be taken at the regional level: (a) to facilitate technical assistance to the developing countries of the region in formulating appropriate

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environmental quality standards, (b) towards harmonization of environmental standards on a regional basis, and (c) for setting region-wide minimum environmental standards. An institutional mechanism for bringing about these changes should be in place preferably by the year 1995.

- (14) The following principles should be adhered to in framing environmental standards:

(a) Appropriate environmental quality standards based on scientific findings should be established to protect the health and life of the people. Standards should not be lowered just because they are difficult to implement. However, a phasing of the implementation schedule may be adopted;

(b) Each developing country should evolve environmental standards over time to reflect increases in its technical, enforcement and budgetary capabilities;

(c) The appropriate standards and the implementation schedules should be made known to the public.

- (15) While legislation to promote the realization of environmentally sound and sustainable development will undoubtedly be necessary, it is more likely that the principles will be incorporated in the major work programmes of government organizations. It will therefore be advisable to amend natural resources and planning legislation rather than promulgate new umbrella legislation. For example, mining, forestry, transport, and water resource legislation may be amended to embrace environmentally sound and sustainable development principles, which should be written in terms of specific goals for each type of legislation.

- (16) Individuals, groups or organizations whose environment is affected or likely to be affected by any existing or future policy, project or programme should have a right to administrative and judicial procedures that prevent or abate such environmental degradation, or to adequate compensation for damage caused. To this end, all countries of the ESCAP region should review their existing legislation and, if necessary, develop and adopt new and adequate legislation for this purpose.

- (17) For the promotion of conventions and treaties, countries of the ESCAP region should:

- (a) Support and take an active part in work on a framework convention on climate change, and the development of protocols dealing with, among other things, greenhouse gas emissions and deforestation, with a view to signing such protocols preferably prior to the United Nations Conference on Environment and Development in 1992;
- (b) Actively promote and support the development of an international convention on protecting biodiversity;
- (c) Support the establishment of a global convention on information and mutual assistance in the case of oil pollution accidents at sea;
- (d) Sign and ratify existing relevant environmental conventions and protocols;
- (e) Expand subregional agreements like the protection of nature and natural resources in the ASEAN region and in the South Pacific, into regional conventions to promote the achievement of environmentally sound and sustainable development.

3. Environmental education, communication and public awareness

65. To promote public participation in environmental initiatives and education in environmental awareness, the regional strategy recommends the following:

- (18) Environmental education should be made part of standard school curricula, particularly at the primary and secondary levels. This should include the promotion of a caring attitude and commitment and loyalty to the planet (co-operative globalism), as well as directly increasing awareness and understanding of environmental issues. Education should also promote understanding of the concept of sustainable development, promote vision-making about the nature of a future ecologically sustainable world, and promote the concept of inter-generational equity.
- (19) To the extent consistent with prevailing social and cultural norms, religious organizations should be encouraged to promote environmentally responsible and wise behaviour.
- (20) The education systems in countries of the ESCAP region should develop programmes to assist in the "greening" of professional and technical people, particularly designers, engineers, architects and landscape architects, and urban economic and social planners. One means is to promote interdisciplinary studies, for example, students of economics taking courses on ecology.

- (21) The media should be encouraged to promote environmentally sound and sustainable development, and to disseminate information on practical way in which it can be incorporated in day-to-day activities. Governments, non-governmental organizations and regional agencies should promote the development of independent organizations which would develop and supply materials on environmental issues to the media.
- (22) The environmentally based activities of non-governmental organizations should be strengthened through appropriate measures, including special tax status or privileges, direct encouragement or partial funding by national or local governments, nationally or regionally sponsored non-governmental organization networks, and assurances of adequate access to the media.
- (23) Efforts should be made to promote co-operation between government agencies and the private sector, such as industries, to harmonize the implementation of environmental standards.
- (24) Procedures should be developed for prior assessment and reporting to the public of projected environmental impacts and risks resulting from any policy, project or programme.
- (25) Governments should ensure that information and data relating to environmental quality are publicly available, through accessible environmental monitoring and auditing. The public's right to know about levels of environmental contamination, in particular, should be guaranteed by law.

4. Population and human settlements

66. The strategy on population given here extends beyond controlling numbers and addresses issues of spatial distribution and human welfare. The recommendations on human settlements involve principles of equity, the integration of environmental considerations into human settlements management and the promotion of harmonious relationships between cities and villages. In order to implement these, countries of the region should:

- (26) Ensure that population policies give special emphasis to the economic and social advancement of women, and their health and education, with a view to enabling them to control their own fertility more effectively.
- (27) Take measures to ensure that population distribution and mobility receive priority consideration in national development planning to limit the growth of primate cities by means of effective decentralization and rural development policies.

- (28) Develop and implement a population policy which is, as far as possible, consistent with the social, cultural and religious values embraced by the society at large and pursued in conjunction with other development objectives. The experience of countries with more successful models, such as China, Indonesia, Sri Lanka and Thailand, should be used in developing these policies.
- (29) Place family planning into the larger context of economic development by seeking community participation in planning, developing and evaluating family planning programmes.
- (30) Promote the incorporation of environmental considerations in the local government planning, development and management process. Furthermore, the emphasis should be on the community-based environmental rehabilitation of slums in urban areas.
- (31) Integrate and harmonize urban development with rural development to ensure equitable distribution of the benefits of development. The highest priority should be given to investment in physical and social infrastructure, to the promotion of appropriate industries and other economic activities in rural areas, and to the ecological restoration of rural areas, particularly those prone to the risks of natural disasters.
- (32) Give priority to decentralizing urbanization by encouraging growth of medium-sized cities. To achieve this, emphasis should be placed on providing: incentives for entrepreneurial and industrial activity; sufficient employment prospects for labour to ensure migration to these new areas; amenities that make the quality of life for potential residents competitive with that in existing urban areas; and compensation for shortfalls in the above.
- (33) Increase investments on urban infrastructure, for example, water supply and sewerage facilities, and urban clean-up programmes such as cleaning of polluted rivers, consistent with appropriate comprehensive urban environmental management plans. The formulation and implementation of such investments and programmes should take place with a view to maximizing cost-effectiveness and efficiency, and towards maximizing employment generation and enterprise development to the extent consistent with the technical requirements of such investments and programmes.

5. Poverty alleviation, rural environment and agriculture

67. Poverty alleviation will depend on a carefully designed plan for promoting growth with equity by providing access to employment and enterprise development. However, the poverty-environmental degradation nexus will also need to be addressed by increasing the capacity of decision-making at village or community level to promote realization of resource conservation in terms of the self-interest principle in the rural environment. Furthermore, in order to feed the growing population, the region must continue to increase food production. However, increase in food production must be accompanied by prudent use of agro-chemicals, a shift towards low-input sustainable agriculture, and a move into more value-added agriculture. Recommendations are as follows.

- (34) All developing countries of the region should conduct a review of present and planned development programmes, with a view to instituting new ones or modifying present ones to allow greater focus on generation of income for the poor. These should include programmes for the rehabilitation and restoration of degraded lands, forests and coastal areas.
- (35) Policies and programmes should focus on employment generation and enterprise development in the informal sector. This should include: creating jobs and entrepreneurial opportunities for new small-scale establishments; providing vocational and technical training to facilitate eventual absorption into the formal labour sector; ensuring that the informal sector is not discriminated against in the overall policy context; and giving active encouragement to informal sector employment generation by media campaigns. However, adequate measures should be adopted to ensure proper monitoring of the environmental impact of these establishments.
- (36) The developing countries of the region should negotiate collectively for increased development assistance aimed specifically at attacking the long-term root causes of poverty in the region rather than the removal of short-term symptoms, in order to ensure the harmonization of medium- and short-term measures to alleviate poverty.
- (37) All countries in which land, wealth or access to natural resources are skewed towards the concentration of assets in the hands of a few people should conduct a review of agrarian reform possibilities.
- (38) Governments should encourage a gradual switch to higher value-added crops (taking into consideration their concern for food security) that

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raise income per hectare through various programmes and means, including facilitating access (through co-operative or rural credit schemes) to seeds, organic fertilizer and irrigation. Rural restructuring programmes should focus on the more marginal producers, who tend to be more environmentally destructive.

- (39) Subsidies on agro-chemicals should be gradually phased out by the year 2000 and efforts should be made to promote organic farming utilizing, where possible, manure rather than chemical fertilizers, and integrated pest management. Training in the safe use of pesticides should be strengthened where this is necessary. These changes should be consistent with, and occur in the context of, the country's overall economic development policies.
- (40) International agencies and other interested bodies should promote research in the region for more effective biological pest control, and biologically activated approaches to plant nutrition which result in decreased fertilizer inputs, with special emphasis on such nutrients as nitrogen and phosphorous.
- (41) The highest priority should be given to agro-industrial development linked with agricultural development, to encourage additional local value-added processing of domestic agricultural and horticultural products.
- (42) Countries of the ESCAP region should:
 - (a) Develop inventories of patterns of land use and sustainable agricultural practices for utilization and transfer throughout the region;
 - (b) Promote the development of products, services and technologies, particularly traditional practices which increase the ecological sustainability of agriculture, and promote their transfer and sale throughout the region;
 - (c) Work with industries in the advanced technology sector to ensure that they recognize the nature and importance of agriculture issues. Among the products which should be supported are computer software for agricultural management, remote sensing, environmentally sound biotechnology and corrosion-resistant agricultural machinery;
 - (d) Ensure that developing countries participate in the development and marketing of these products, services and technologies.
- (43) The developing countries of the region should give priority to investments in physical and social infrastructure and to technology

for promoting sustainable agriculture and horticulture. These investments should promote appropriate industries in areas where poor people cluster, including enterprises that protect, restore and manage the environment.

6. Natural resources and energy

68. The regional strategy recommends the following action to protect and conserve the natural resources in the region. In terms of energy use in the region, it covers both the macro and micro aspects in this section. Due consideration is given in the recommendations to the efficient use and management of energy resources to minimize adverse environmental impact at local, regional and global levels.

- (44) Countries should initiate the preparation of a separate set of resource accounts which show, in non-monetary (or even non-volumetric) terms, the linkage between changes in the economy and changes in the environment. Existing models may be used as starting points and modified as appropriate with a view to ultimately quantifying "sustainable GNP" by the year 2000.
- (45) Environmental parameters should be quantified where possible by the use of appropriate indices and accounting, and integrated into national economic planning and budgetary processes. Major proposals, whether projects or policy changes, should be subject to environmental assessment as part of this integration.
- (46) A regional programme should be commenced to review the implications for inter-generational equity of present value accounting methods which utilize discounting. This programme should seek to develop new processes for assessing both present and future valuations of environmental quality, and of natural resources, so that valuations are compatible with the concept of environmentally sound and sustainable development.
- (47) Studies on the correct pricing of natural resources should be undertaken with a view to reflecting not only extraction and harvesting costs but full environmental costs as well (for example, damage to the watersheds resulting from careless harvesting of timber) and user costs (the future benefit lost from unsustainable practices).
- (48) International agencies should co-operate with other interested parties to review ways of valuing natural resources in order to recognize the

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importance of inter-generational equity, and the right of future generations to inherit a similar natural environment.

- (49) Economic incentives should be used at the international, national and community levels to protect the region's storehouse of biodiversity, and to promote the conservation of biological resources. Ultimately, these resources must be properly valued as a component of national assets.

- (50) The region's tropical rainforests contain a high proportion of regional and global biodiversity. Therefore the tropical forest action programme is a critical programme for the region. It is recommended that:

(a) Countries of the ESCAP region should support the tropical forest action programme and participate in a major effort to improve its effectiveness;

(b) International agencies should increase the financial and human resources available to the programme;

(c) Regional private sector companies, non-governmental organizations and donor countries should work actively with concerned countries to develop tropical forest action programmes in order to ensure that they are compatible with the concept of environmentally sound and sustainable development;

(d) Countries importing rainforest products should give priority to products exported from countries with approved tropical forest action programmes, and negotiate transition arrangements while the programmes are being prepared;

(e) Countries of the region with appropriate expertise in the regeneration, rehabilitation and restoration of rainforests should participate with interested international agencies in developing a programme on rainforest regeneration, rehabilitation and restoration;

(f) International and regional agencies and non-governmental organizations should develop a regional working group on tropical forestry;

(g) Countries of the ESCAP region should work to develop an effective international forest convention, focusing on both temperate and tropical forests.

- (51) Countries of the ESCAP region should also pursue, through the development of international conventions and other means, the banning of the ecologically unsustainable harvesting of living marine resources.

- (52) An environmental protection instrument that has attracted much attention in the past few years is debt-for-nature swaps. Since only private sector debt can be swapped for nature, their effectiveness in the ESCAP region is limited. (Indonesia and the Philippines are the only two countries in the region with substantial amounts of private sector debt). Options for swapping public-sector debt for nature need to be reviewed with a view to the possibility of formulating public debt-for-nature swaps.
- (53) Special attention should be given to the energy needs of the rural poor through the implementation of integrated village energy systems (fuelwood plantations, biogas systems, etc.) and the use of more fuel-efficient stoves. Where possible, micro-hydro, micro-wind, or other micro-solar systems, such as solar/hydrogen or solar/electric systems, should be established. Energy self-reliance for rural villages should be a high priority up to the year 2000.
- (54) Owing to the extreme importance of the global implications of the energy issues facing the region, regional and international co-operation in this area should be strengthened. Special emphasis should be placed on creating alternative energy sources for countries which at present have limited alternatives to using fuelwood to meet a substantial part of energy demand.
- (55) Research and development programmes to increase the efficiency of thermal electricity generating plants and of the transmission of energy should be promoted in the region. All new products should be evaluated for their use of energy, and labelled accordingly, in order to permit consumer participation in the process of increasing energy efficiency and conservation.
- (56) Switching to cleaner fossil fuels should be encouraged and adequate control measures should be provided to minimize environmental pollution. In this regard, research and development, technology transfer and the feasibility of using large intercountry integrated fuel supply systems in areas where this is efficient should be given highest priority.
- (57) The development of clean and renewable energy sources should be vigorously promoted by increasing investment in research and development and reducing, to the extent possible, subsidies for non-renewable energy sources.

- (58) Energy conservation and the use of energy-efficient processes and equipment should be promoted by appropriate pricing mechanisms, setting efficiency standards, promoting technology transfer, providing information to consumers, and so on. A major part of new investment in the next 10 years should be in demand management, particularly in energy conservation and efficiency.

7. Trade, investment and tourism

69. There is a need to review trade, tourism and investment policies carefully with a view to ensuring their compatibility with sustainable development. It is important that the prices of the goods and services produced in these sectors reflect the full social and environmental costs of their production. The recommendations in the regional strategy address these issues from both the supply and demand side as indicated below:

- (59) Concerted action is needed on the part of both the exporting and importing countries, through multilateral trade negotiations, to change policies which lead to unsustainable depletion of the region's natural resource base and to unsustainable development.
- (60) Countries should review the environmental impact of tourism on their indigenous culture and related traditions. They should establish policies which promote compatibility between tourism, indigenous culture and conservation of the natural environment.
- (61) All developing country trade and investment policies should be reviewed to encourage diversification of exports away from dominance by raw material products and towards local processing of raw materials. The environmental impact of all existing trade and environment policies should be assessed.
- (62) Major investment projects, including foreign investments, should be assessed not only for their short- and medium-term environmental impact but also for their long-term impact on the sustainability of the natural resource base. The environmental management of the value-adding production processes resulting from such investments, and their contributions to equity both intra-generational and inter-generational, should also be considered in such assessment.

8. Industry and technology

70. Owing to the rapidly expanding population, limited land area and shrinking natural resource base, industrialization is the key to continued

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economic growth in the region. The regional strategy therefore views industrialization favourably, but with appropriate measures to ensure that it does not lead to unsustainability and that it promotes technology in harmony with the environment. The recommendations on industrialization include the following:

- (63) Governments should review industrial policies to promote a gradual shift from resource- to knowledge- and technology-based industries through the use of appropriate instruments, including financial incentives. Industrial development should be increasingly based on national intellectual resources as well as self-reliance. Active encouragement of increased local value-added processing of domestically produced raw materials is a component of this shift which should be actively encouraged over the time-horizon of the strategy.
- (64) Governments should develop programmes to promote all aspects of "green" industry so that all countries, and not just a few developed countries, can benefit from this significant economic opportunity of the 1990s and the early twenty-first century. This may require an increase in innovation levels.
- (65) Industry should be given incentives to use low- and non-waste technologies (clean technologies) including resource recovery, recycling and reuse (clean-up). It should also utilize appropriate pollution control facilities which meet set environmental standards. The "polluter pays" principle should be applied as widely as possible.
- (66) Special emphasis should be given to the pollution control problems associated with small and medium-scale industries. Integrated technological, financial and innovative approaches to solving the pollution problems of these industries should be explored, including the possibility of common treatment facilities or relocation into industrial estates.
- (67) Proper management and monitoring programmes should be established for the management of toxic and hazardous substances and wastes, particularly their movement across national boundaries.
- (68) Programmes for the prevention of industrial accidents which may have adverse environmental consequences should be developed and implemented through proper risk assessment, adequate material handling procedures, safety measures, emergency plans, the use of environmental restoration funds, and so on.

- (69) Countries in the region should promote not only the development of more efficient motor vehicles, in terms of less greenhouse gas emissions in the short term, but also the development of vehicles which emit zero carbon dioxide in the long term. The possibilities include solar/electric and solar/hydrogen systems, with solar energy being harvested at both the vehicle level and through regional solar/hydrogen, and solar/electric networks. However, short-term interim measures, such as super-efficient vehicles or the use of CNG, may be promoted extensively to check pollution.
- (70) Countries of the ESCAP region should work with appropriate international agencies to ensure that patent and trademark systems are used to protect the intellectual property of individuals who create "green" products, processes and technologies. Countries should encourage the development of special categories of patent literature for "green" products, processes and technologies, so these are readily accessible to others as "green" items.

C. Performance evaluation

71. If progress is to be made towards the achievement of environmentally sound and sustainable development by the year 2020, performance evaluation processes will need to be effectively introduced and used. The development of such a performance evaluation programme is an essential component of this strategy. Some of the possible criteria could be:

(a) Increase in budget allocations to projects which are related to an environmentally sound and sustainable development strategy,

(b) Spontaneous introduction of new projects by government agencies and non-governmental organizations patterned after the strategy,

(c) Increases in the number of government scholarships earmarked for environmental education and training,

(d) Increases in the number of environmentally related bills introduced and passed by the government,

(e) Increases in borrowings by the government for natural resource development and conservation-related projects.

72. These criteria relate mainly to policy inputs and may not necessarily relate to policy outputs. It is therefore imperative to incorporate output indicators in the performance evaluation. A few examples of these are successes in tree plantation efforts, progress towards the introduction of

the "polluter pays" principle, the introduction of "green" products, etc. A great deal of work will be needed to develop an appropriate performance evaluation system (including the needed institutional structure) that should not only be able to assess progress (both sectoral and cross-sectoral) but also identify the major constraints that are likely to prevent or retard the realization of environmentally sound and sustainable development at the national level.

IV. REGIONAL PRIORITY ACTION FOR ACHIEVING ENVIRONMENTALLY SOUND AND SUSTAINABLE DEVELOPMENT

73. The strategy recognizes that the primary responsibility for identification, formulation and implementation of the bulk of initiatives necessary for achieving environmentally sound and sustainable development should lie at the national level. However, a number of initiatives are needed at the regional level to support and facilitate national action plans. This part of the strategy discusses a series of such initiatives needed to meet the immediate and medium-term goals of the strategy. In the long term, up to the year 2020, major efforts would be concentrated on promoting environmentally friendly policies using a mission-directed approach so that sustainable cropping, "green" industry, environmentally sound transport, architecture and design can be diffused throughout the region.

A. Priority projects

74. Setting in motion projects/activities which can respond to strategy goals and the time-frame for these necessarily implies that a certain degree of flexibility is incorporated to meet changing conditions while retaining a continuing focus on the target. To this end, the strategy proposes, among other things, specific projects for the short and medium term in various sectors/areas at the regional level (see annex, "Matrix of regional projects, 1990-2000"). This list of projects/activities is neither exhaustive nor arranged to signify any particular priority. However, it is possible to group them into two broader categories.

75. The first group of initiatives/activities comprises preventive measures that would provide guidance/support in policy formulation and modifications, thus alleviating the root causes of environmental degradation. An example of this activity is a regional study that has been proposed on industrialization patterns and policies to search for ways and means to promote environmentally sound technology-based industrialization, promoting:

- (a) A shift from resource-based to technology-based industries;
- (b) Recycling and reuse of industrial wastes;
- (c) A shift from environmentally damaging to environmentally benign technologies.

Other activities have been proposed for input into environmentally sound agricultural, energy, tourism, trade and investment policies.

76. Projects in this area also include the establishment of two task forces at the regional level: a task force on green industry and a task force on tropical forestry. These task forces of high-level experts would assist the Governments in implementing the development programmes on industry and technology and management of tropical forests respectively.

77. Another important component of the preventive aspect of environmental problems is the building of a planning and management infrastructure, without which the achievement of sustainable development would remain only an elusive goal. A set of projects and activities given in the list therefore relates specifically to the strengthening of this infrastructure. These include:

- (a) A project on development of environmental planning and management capabilities;
- (b) A study on institutional, legislative and regulatory systems for environmental protection;
- (c) Programme support for regional environmental monitoring;
- (d) Human resources development;
- (e) A regional network of information collection and dissemination on environment and development;
- (f) A regional state of the environment report.

78. In view of the increased need to evaluate the effectiveness of various measures being undertaken for environmentally sound and sustainable development, and attune them appropriately at both regional and national levels, it would be necessary to produce state of the environment reports on a regular basis and also establish criteria for performance evaluation.

79. A group of initiatives have also been proposed that include short-term curative and interim measures to combat the most severe environmental problems, such as land degradation, environmental pollution and unsustainable rural environment.

80. Although initiatives in these areas primarily have the objective of dealing with immediate problems, they have in-built guidance on future sustainable development. An example of this is the regional technical support project to provide assistance in rural environmental conservation with such components as: (a) how soil erosion prevention reduces nutrient loss from cropland and saves spending foreign exchange on fertilizer imports; (b) the profitability of composting and green manuring for a capital-poor, labour-rich farm family; (c) the economic benefits of agro-forestry from the social and household perspectives; (d) the profitability of integrated pest management; (e) biogas economics from the household and social viewpoints, with a range of assumptions regarding shadow prices of labour and foreign exchange; and (f) the socio-economic benefits of a range of afforestation schemes.

B. Review and evaluation

81. Review and evaluation of the strategy implementation at the regional level should become an in-built mechanism of this strategy. At the highest level, the evaluation should be carried out at least every five years through a ministerial-level conference. However, a short-term evaluation should also be carried out by senior officials at least every two years. Recommendations on these institutional mechanisms have been made in another document, "Regional co-operation in the field of environment and development" (IHE/PMSO/4), for the consideration of the Conference.

C. Financing mechanisms

82. The recommendations contained in this strategy are far-reaching and in some cases imply restructuring of economies. A considerable part of the resources needed for this will have to be generated by countries themselves through efficient use of the limited resources, the withdrawal of undesirable subsidies and a shift in priorities. Developing countries of the region, however, would also depend considerably on technical and financial resources from bilateral and multilateral agencies to restructure their economies. Many environmental protection measures can be carried out through effective use of existing assistance mechanisms whereby donor countries are ready to assist in implementing environment-related projects at the national level.

83. Nevertheless, a regional mechanism for financing environmentally sound and sustainable development would also be needed for:

(a) Promoting regional co-operation and co-ordination on environment and development issues by convening inter-agency co-ordination meetings, and intergovernmental and ministerial-level conferences, as and when necessary and appropriate; operating a regional network of research and training centres on environment and development within the Asian and Pacific region;

(b) Implementing the set of proposals for action at the regional level (as outlined in section IV, A above) with a view to assisting the Governments in dealing with the most severe environmental problems faced by them and in promoting environmentally sound and sustainable development following a long-term, mission-directed approach;

(c) Formulating additional regional/subregional projects for funding by other potential donor agencies and Governments.

84. Such a mechanism could be termed the "Fund for regional environmental enhancement", and be established within ESCAP for the purpose. Contributions to this fund will have to be on a voluntary basis by various donor agencies and Governments for the purposes referred to above, including studies, technical assistance and training as well as implementation of intercountry projects, as opposed to investment projects. The target amount of the fund is envisaged at \$US 50 million for the period 1990-2000, which is approximately \$US 5 million per year.

V. ISSUES FOR CONSIDERATION

85. The Conference may wish to consider and endorse the general set of recommendations for achieving environmentally sound and sustainable development given in Section III, B above for implementation by national Governments in co-operation with international regional agencies.

86. In section IV above, a set of proposals has been made for action projects at the regional level, and a funding mechanism has been put forward primarily to assist countries of the ESCAP region in formulating and implementing the recommendations of this strategy and meeting the goals and objectives of environmentally sound and sustainable development. The Ministers may wish to review these and endorse them for implementation by regional agencies in co-operation with member Governments, with the assistance of the ESCAP secretariat.

Annex

MATRIX OF REGIONAL ACTION PROJECTS TO PROMOTE ENVIRONMENTALLY SOUND
AND SUSTAINABLE DEVELOPMENT (1990-2000)

Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
A. <u>Institutional, administrative and legislative</u>			
State of the environment	Monitoring of environmental trends to combat the deterioration of the environment by proper policy orientation and action	Development of national task forces and technical assistance to regional countries of standardization of national inputs into the regional state of the environment report Constitution of a regional expert group and preparation of the state of the environment report in Asia and the Pacific, 1995	Regular updating, which complete revision after every five year
National strategies for environmentally sound and sustainable development	Strengthening of national capabilities for preparing environmentally sound and sustainable development strategies and evaluating performance of implementation	Development of guidelines for the preparation of national environmentally sound and sustainable development strategies and their dissemination Development of performance evaluation mechanisms for implementation of environmentally sound and sustainable development	Continuation of technical assistance

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
National strategies for environmentally sound and sustainable development (continued)	Strengthening of national capabilities for preparing environmentally sound and sustainable development strategies and evaluating performance of implementation	<p>Regional ecological future studies that would involve vision-making, scenario generation and evaluation, systems analysis, and model-building, using advanced information technology</p> <p>Advice to countries of the region about alternative and preferred options for the achievement of environmentally sound and sustainable development</p>	Continuation of technical assistance
United Nations Conference on Environment and Development (1992 Conference)	Regional input into 1992 Conference and follow-up activities	<p>Preparation of a document covering regional views on environment and development reflecting country inputs and recommendations of the Ministerial-level Conference on Environment and Development in Asia and the Pacific, 1990</p> <p>Review of the above document by an intergovernmental expert group meeting in February 1991 and appropriate revision</p> <p>Development of 1992 Conference follow-up action programmes</p>	Implementation of action programmes
Legislative capability enhancement	Improvement of existing legislative and regulatory systems on environmental protection	Study on legislative and regulatory systems of countries of the region to reduce dependence on command and enforcement model. Development of methodologies for implementation of regulations and laws through public participation and utilization of traditional institutions. Exploration of avenues for regional co-operation in legislative matters for the protection of the environment	<p>Technical assistance to countries</p> <p>Promotion of regional treaties and conventions</p>

Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Environmental planning	Promotion of analytical tools for carrying out planning for environmentally sound and sustainable development	Technical assistance, a regional workshop and a series of training programmes to promote the analytical tools, such as environmental risk management, environmental impact assessment and environmental data management	Evaluation of status of implementation, particularly with respect to inter-sectoral co-ordination
	Promotion of fiscal tools for carrying out environmental planning and management	Technical assistance and regional workshops for input into fiscal policies for promotion of environmentally sound and sustainable development such as "polluter pays" principles, recycling incentives, trade incentives, etc.	Evaluation of status of implementation in countries of the region and enhancement of efforts for further expansion of the use of the tools in those countries
		Preparation of guidelines and manuals for use both in training programmes and by planners	
Information collection and dissemination on environment and development issues	Development and management of a model regional information network on environment and development to support programmes in countries of the ESCAP region	Establishment of an acquisition mechanism for the creation of a central regional data bank on environment and development in a regional organization concerned with environment and development	Assistance to countries of the region for modernization of national capabilities in terms of manpower, technology and management

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Information collection and dissemination on environment and development issues (continued)		Standardization of data collection methodology on environment and development and creation of an integrated data management system through the strengthening of national focal points in the network	
Regional environmental monitoring	Programme support for regional environmental monitoring	Technical assistance to member countries in the establishment of monitoring capabilities for assessing habitat change and species loss, water quality, air quality and development and expansion of bilateral or subregional programmes which would facilitate co-operation among ESCAP members and associate members	Continuation of the programme
B. <u>Human resources development</u>			
Education/training	Development of manpower to implement action plans on environmental protection in member countries	<p>A regional project for promotion of in-service expertise through institutional networking</p> <p>Promotion of expert exchange programmes, joint training courses and initiation of joint research projects</p>	Further strengthening of technical capabilities of an institutional network for training, research and implementation

Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
People's participation	Promotion of people's participation in environmental management	Development of a register of: (a) successful efforts made towards environmentally sound and sustainable development in the ESCAP region, (b) traditional practices on resource management in harmony with nature	Wide dissemination of collected material to various target groups, including intergovernmental, governmental and non-governmental organizations and the media
NGO/independent sector	Seeking NGO/institutional support in environmental enhancement	A mechanism to be worked out for the greening of NGOs and trade and business associations such as chambers of commerce and industry, transporter unions, chambers of agriculture, etc. through appropriate institutional strengthening, networking, workshops and information dissemination	Establishment of mechanisms to muster the support of these associations/NGOs in implementing environmental standards in countries of the region
Women and the environment	Effective integration of women's participation in environmental safeguards	Formulation/promotion of women's action forums in selected countries of the ESCAP region for safeguarding the environment Formulation and promotion of a network of women's forums at the regional level Establishment of grass-roots contact and literacy drive	Evaluation of activities of the forums and vigorous follow-up
Environmental awareness	Promotion of awareness for environmental safeguards	Strengthening of institutions through technical assistance and training of environmental communicators Environmental campaigns through trained environmental communicators	Sustained efforts to raise the quality of environmental journalism

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
C. <u>Population and human settlements</u>			
Population and the environment	Gainful employment of women through environmental enhancement efforts that has a direct bearing on the reduction of fertility rates	Case studies in pilot projects to identify opportunities for women's employment in environment-related activities, such as tree plantation, horticulture and agro-forestry Organization of workshops, production of appropriate literature and TCDC advisory service	Expansion and implementation of programmes in selected countries with high fertility rates and programme evaluation
Human settlements	Environmental rehabilitation of low-income settlements	Pilot projects in selected countries for community-based settlement improvement and development Preparation of guidelines based on the studies and exchange of experience through TCDC advisory services	Initiation of major programmes for community self-improvement

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Human settlements (continued)	Incorporation of environmental considerations in local government planning, development and the urban management process	<p>Pilot projects in cities seeking to incorporate environmental consideration based on guidelines prepared through the ongoing ESCAP/UNDP project on environmentally sound and sustainable development in urban areas. As these guidelines focus on the involvement of the informal sector and community initiatives in urban environmental management, they will be further expanded to form comprehensive guidelines on urban environmental management</p> <p>Dissemination of guidelines and exchange of experience through TCDC advisory services</p> <p>Regional conference on urbanization strategies for environmentally sound and sustainable development, in 1992, and follow-up</p>	<p>Introduction into work programmes of city authorities (selected) in the region and their evaluation for replication elsewhere in the region</p> <p>Follow-up of action suggested by the regional conference</p>

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
land-use management	Monitoring of land-use changes for appropriate planning, including mitigation of disasters	<p>Pilot projects using GIS methodology in selected countries, with special emphasis on mapping of ecologically fragile and sensitive areas</p> <p>Compilation and dissemination of information for use by countries of the region</p> <p>Regional and national training programmes</p>	Strengthening of national capabilities through TCDC advisory services, technical assistance, etc.
<u>D. Poverty, rural environment and agriculture</u>			
Poverty and environment	Poverty alleviation to promote sustainable development	<p>Case studies in selected countries, especially least developed countries, to systematically study the interrelationship between poverty and environmental degradation for input into a regional conference on poverty and environment</p> <p>Preparation of a draft regional action plan for presentation to a high-level conference on poverty and the environment</p>	<p>Implementation/follow-up of action recommended by the high-level conference</p> <p>/...</p>

Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Rural environment	Conservation and integrated management of rural resources and environment	<p>Pilot case studies in the region to promote in an integrated manner soil conservation, composting, agro-forestry, bio-gas economics and conservation of other rural resources</p> <p>Organization of regional workshops</p> <p>Training programmes</p> <p>TCDC advisory services</p>	Expansion and integration of conservation mechanisms into rural development programmes and policies of countries
Agricultural policies	Formulation and implementation of sustainable agricultural policies	<p>Regional case studies on agricultural policies to seek ways and means to promote sustainability</p> <p>Preparation of guidebooks and manuals for formulating, amending and implementing agricultural policies for sustainable development</p>	Assistance in actually integrating principles of sustainable development into agricultural policies of selected countries and their evaluation for further application
Integrated pest management	Sustainable use of agricultural inputs, particularly pesticides	<p>Integrated pest management projects in selected countries</p> <p>Dissemination of information and <u>in situ</u> training</p>	Integration of integrated pest management in country programmes and promotion of mechanisms for extension purposes

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
E. <u>Natural resources and energy</u>			
Natural resources accounting	Introduction of natural resources accounting into national planning and accounting systems	Pilot studies Preparation of guidelines, manuals and other relevant publications Organization of a series of training courses on natural resources accounting in the region	Integration of natural resource accounting into national planning and accounting system of selected countries and their evaluation for further regional application
Biodiversity	Conservation of biodiversity: identification and delineation of protected areas	Pilot studies in countries rich in biodiversity for delineation of protected areas Preparation of manuals and guidelines Organization of training courses Circulation of appropriate literature	Expansion and strengthening of the network of protected areas in the region
Tropical forests	Tropical forestry management	Establishment of a tropical forestry task force to assist in the management of tropical forests in the region	Continuation of the activity
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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Land degradation	Combating land degradation and desertification	Continuation of institutional-strengthening programmes of desertification control intercountry projects (DESCONAP) Promotion of land reclamation from desertified areas through selected case studies <u>In situ</u> training programmes	Development of an action-oriented region-wide programme of prevention measures to arrest desertification
Resource conservation	Resource pricing and environmental degradation	Regional study on the role of pricing mechanisms in natural resource degradation and to search ways and means for ameliorating the situation Presentation of findings to an expert group meeting for making appropriate recommendations TCDC advisory service	Promotion of mechanisms related to natural resource safeguards through regional co-operation
Energy	Environmentally sound energy development and management	Selected case studies to seek ways and means to promote energy efficiency options, the implications of fuel switch and the feasibility of large intercountry fuel supply systems, etc. Preparation of guidelines on energy conservation, energy demand management and mitigation of environmental impacts of energy use	Enhancement of national capabilities for implementing the action plans on sustainable development and use of energy

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Energy (<u>continued</u>)		Intergovernmental meeting for the preparation of a regional energy action plan	
Coastal environmental management	Strengthening of the existing ESCAP project on coastal environmental management	<p>Further coastal environmental management initiatives in countries of the region</p> <p>Preparation of guidelines, manuals, etc.: promotion of regional co-operation on coastal environmental management</p>	Evaluation of the status of implementation and follow-up action
F. <u>Trade, investment and tourism</u>			
Trade	Adapting trade to sustainable development	<p>Case studies in natural resource exporting (forest, plantation and mineral products) countries to find the relationship between export trade and sustainability of development</p> <p>On the basis of case studies the organization of workshops involving both the public and the private sector</p> <p>Development of TCDC advisory services</p>	Conference on trade investment and sustainable development for working out regional action, and follow-up activities

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Investments	Making direct investment sustainable	<p>Studies of investment involving successful and unsuccessful technology transfer to promote the case of investment with clean technology</p> <p>Preparation of sustainable investment guidelines for developing countries hosting investment</p> <p>Organization of workshops involving both investors and host country representatives</p>	Technical assistance for the development of legal and fiscal instruments for promoting sustainable investment
Tourism	Promotion of an environmentally sound tourism industry	<p>Selected case studies to search for ways and means to maximize real income from tourism and at the same time enhance country capabilities to anticipate the environmental effects of tourism and cope with them</p> <p>Preparation of guidelines</p> <p>Workshops and training</p> <p>TCDC advisory services</p>	Regional conference on environmentally sound tourism and follow-up action, particularly with respect to promotion of nature-based tourism

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
G. <u>Industry and technology</u>			
Industrial policies	Formulation and implementation of sustainable industrial policies	Regional study on industrial growth patterns and policies to seek ways and means to to promote sustainable industrial development Preparation of guidelines on the promotion of sustainable industrial policies	Assistance to countries in integrating the principles of sustainability in industrial development
Hazardous wastes	Inventory of hazardous waste production in the region and status of adoption of safety measures	Pilot studies for the assessment of the hazardous waste quantities and types in industrialized, newly industrializing and developing countries Development of technical manuals and guidelines on hazardous waste assessment and adoption of safety measures Monitoring and assessment TCDC advisory services	Strengthening of the monitoring network on the movement of hazardous wastes in the region
Industrial recycling	Recycling of industrial wastes	Pilot studies for the assessment of the status of recycling and reuse of industrial wastes in selected countries	Further application of methodology in industrial sectors within ESCAP members and associate members

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Sector/area	Programme	Projects	
		Phase I (1990-1995)	Phase II (1995-2000)
Industrial recycling (continued)		Dissemination of technology, information exchange Training TCDC advisory services	
Industrial planning	Planning for the establishment of "green" industries	Development of a "Task force on green industry" to assist and advise Governments in: (a) the establishment and development of green industries, (b) the identification of products, services, and technologies, which assist in the solution of environmental problems, or which promote environmentally sound and sustainable development, and (c) the education and training programmes needed to "green" professional and technical sectors of the work-force	Continuation of the activities
Pollution control	Pollution control of inland waters	Regional project on pollution control in selected heavily polluted rivers/lakes in the region	Wide dissemination of the mechanisms used for the success TCDC achieved, through workshops, advisory services and information exchange
Climate change	Minimization of the regional implications of climate change	Research and investigation into sea-level rise and climate change for the most likely impact Preparation of a regional action plan for the mitigation of possible effects	Implementation and evaluation of the plan

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