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CHAPTER 1

Preambular paragraphs for Agenda 21

1. Humanity stands at a defining moment in its history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. However, integration of environment and development concerns, and greater attention to them will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on its own; but together we can - in a global partnership for sustainable development.

2. This global partnership must build on the premises of General Assembly resolution 44/228 of 22 December 1989, which was adopted when the nations of the world called for the United Nations Conference on Environment and Development, and on the acceptance of the need to take a balanced and integrated approach to environment and development questions.

3. Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century. It reflects a global consensus and [political commitment at the highest level] on development and environment cooperation. Its successful implementation is

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first and foremost the responsibility of Governments. ^{1/} National strategies, plans, policies and processes are crucial in achieving this. International cooperation should support and supplement such national efforts. In this context, the United Nations system has a key role to play. Other international, regional and sub-regional organizations are also called upon to contribute to this effort. The broadest public participation and the active involvement of the non-governmental organizations and other groups should also be encouraged.

4. [The developmental and environmental objectives of Agenda 21 will require a substantial flow of new and additional financial resources to countries in need, particularly to developing countries in order to cover the incremental costs for the actions they have to undertake to deal with global environmental problems and to accelerate sustainable development. Financial resources are also required for strengthening the capacity of international institutions for the implementation of Agenda 21. An indicative order-of-magnitude assessment of costs is included in each of the programme areas. This assessment will need to be examined and refined by the relevant implementing agencies and organizations.]

5. The programme areas that constitute Agenda 21 are described in terms of the Basis for action, Objectives, Activities and Means of implementation. Agenda 21 is a dynamic programme. It will be carried out by the various actors according to the different situations, capacities and priorities of countries and regions. It could evolve over time in the light of changing needs and circumstances. This process marks the beginning of a new global partnership for sustainable development.

^{1/} When the term Governments is used, it will be deemed to include the European Economic Community within the areas of its competence.

Chapter 2

International cooperation to accelerate sustainable development in developing countries, and related domestic policies

INTRODUCTION

2.1 [In order to confront the challenge of environment and development, States decided to establish a new partnership. This partnership commits all States to engage in a continuous and constructive dialogue inspired by the need to achieve a more efficient and equitable world economy. It is recognized that, for the success of this new partnership, it is important to overcome confrontation and to foster a climate of genuine cooperation and solidarity. It is equally important to strengthen national and international policies and multilateral cooperation to adapt to the new realities.]

2.2 Economic policies of individual countries and international economic relations both have great relevance to sustainable development. The reactivation and acceleration of development requires both a dynamic and a supportive international economic environment and determined policies at the national level. It will be frustrated in the absence of either of these requirements. A supportive external economic environment is crucial. The development process will not gather momentum if the global economy lacks dynamics and stability and is beset with uncertainties. Neither will it gather momentum if the developing countries are weighted down by external indebtedness, if development finance is inadequate, if barriers restrict access to markets and if commodity prices and the terms of trade of developing countries remain depressed. The record of the 1980s was essentially negative on each of these counts and needs to be reversed. The policies and measures needed to create an international environment that is strongly supportive of national development efforts are thus vital. International cooperation in this area should be designed to complement and support - not to diminish or subsume - sound domestic economic policies, in both developed and developing countries, if global progress towards sustainable development is to be achieved.

2.3 The international economy should provide a supportive international climate for achieving environment and development goals in the following ways:

- (a) Promoting sustainable development through trade liberalization;
- (b) Making trade and environment mutually supportive;
- (c) Providing adequate financial resources to developing countries and dealing

with international debt;

(d) Encouraging macroeconomic policies conducive to environment and development.

2.4 Governments recognize that there is a new global effort to relate the elements of the international economic system and mankind's needs for a safe and stable natural environment. Therefore, it is the intent of governments that consensus building at the intersection of the environmental and trade and development areas will be ongoing in existing international fora as well as in the domestic policy of each country.

PROGRAMME AREAS

A. Promoting sustainable development through trade

Basis for action

2.5 An open, equitable, secure, non-discriminatory and predictable multilateral trading system, consistent with the goals of sustainable development, and which leads to the optimal distribution of global production in accordance with comparative advantage, is of benefit to all trading partners. Moreover, improved market access for developing countries' exports in conjunction with sound macroeconomic and environmental policies would have a positive environmental impact and make therefore an important contribution towards sustainable development.

2.6 Experience has shown that sustainable development requires a commitment to sound economic policies and management, an effective and predictable public administration, the integration of environmental concern into decision-making and progress towards democratic governments, in the light of country-specific conditions, which allows for full participation of all parties concerned. These attributes are essential for the fulfilment of policy directions and objectives listed below.

2.7 The commodity sector dominates the economies of many developing countries in terms of production, employment and export earnings. An important feature of the world commodity economy in the 1980s was the prevalence of very low and declining real prices for most commodities in international markets and a resulting substantial contraction in commodity export earnings for many producing countries. The ability of those countries to mobilize, through international trade, the resources needed to finance investments required for sustainable development may be impaired by this development and by tariff and non-tariff impediments, including tariff escalation, limiting their access to export markets. The removal of existing distortions in international trade is essential. In particular, the achievement of this objective requires that there be substantial and progressive reduction in

support and protection of agriculture - covering internal regimes, market access and export subsidies - as well as in industry and other sectors, in order to avoid inflicting large losses on the more efficient producers, especially in developing countries. Thus in the agriculture field, in industry and other sectors, there is scope for initiatives aimed at trade liberalisation and at policies to make production more responsive to environment and development needs. Trade liberalisation should therefore be pursued on a global basis across economic sectors so as to contribute to sustainable development.

2.8 The international trading environment has been affected by a number of developments which have created new challenges and opportunities and which have made multilateral economic cooperation of even greater importance. World trade has continued to grow faster than world output in recent years. However, the expansion of world trade has been unevenly spread, and only a limited number of developing countries have been capable of achieving appreciable growth in their exports. Protectionist pressures and unilateral policy actions continue to endanger the functioning of an open multilateral trading system, affecting particularly the export interests of developing countries. Economic integration processes have intensified in recent years and should impart dynamism to global trade and enhance the trade and development possibilities for developing countries. In recent years, a growing number of these countries have adopted courageous policy reforms involving ambitious autonomous trade liberalization, while far-reaching reforms and profound restructuring processes are taking place in Central and Eastern European countries, paving the way for their integration into the world economy and the international trading system. Increased attention is being devoted to enhancing the role of enterprises and promoting competitive markets through adoption of competitive policies. The GSP has proved to be a useful trade policy instrument, although its objectives will have to be fulfilled, and trade facilitation strategies relating to electronic data interchange (EDI) have been effective in improving the trading efficiency of the public and private sectors. The interactions between environment policies and trade issues are manifold and have not yet been fully assessed. An early, balanced, comprehensive and successful outcome of the Uruguay Round of multilateral trade negotiations would bring about further liberalization and expansion of world trade, enhance the trade and development possibilities of developing countries and provide greater security and predictability to the international trading system.

Objectives

2.9 In the years ahead, and taking into account the results of the Uruguay Round of multilateral trade negotiations, Governments should continue to strive to meet the following objectives:

(a) Promote an open non-discriminatory and equitable multilateral trading system that will enable all countries - in particular, the developing countries - to improve their economic structures and improve the standard of living of their populations through sustained economic development;

- (b) Improve access to markets for exports of developing countries;
- (c) Improve the functioning of commodity markets and achieve sound, compatible and consistent commodity policies at national and international levels with a view to optimizing the contribution of the commodity sector to sustainable development taking into account environmental considerations;
- (d) Promote and support policies, domestic and international, which make economic growth and environmental protection mutually supportive.

Activities

- (a) International and regional cooperation and coordination
Promote an international trading system that takes account of the needs of developing countries

2.10 Accordingly the activities of the international community should be:

- (a) To halt and reverse protectionism in order to bring about further liberalization and expansion of world trade, to the benefit of all countries, in particular the developing countries;
- (b) To provide for an equitable, secure, non-discriminatory and predictable international trading system;
- (c) To facilitate, in a timely way, the integration of all countries into the world economy and the international trading system;
- (d) To ensure that environment and trade policies are mutually supportive, with a view to achieving sustainable development;
- (e) To strengthen the international trade policies system through an early, balanced, comprehensive and successful outcome of the Uruguay Round of multilateral trade negotiations.

2.11 The international community should aim at finding ways and means for achieving a better functioning and enhanced transparency of commodity markets, greater diversification of the commodity sector in developing economies within a macroeconomic framework that takes into consideration a country's economic structure, resource endowments, and market opportunities, and better management of natural resources that takes into account the necessities of sustainable development.

2.12 Therefore, all countries should implement previous commitments to halt and reverse protectionism and further expand market access, particularly in areas of interest to

developing countries. This improvement of market access will be facilitated by appropriate structural adjustment in developed countries. Developing countries should continue the trade-policy reforms and structural adjustment they have undertaken. It is thus urgent to achieve an improvement in market access conditions for commodities, notably the progressive removal of barriers which restrict imports, particularly from developing countries, of commodity products in primary and processed forms as well as the substantial and progressive reduction of types of support that induce uncompetitive production, such as production and export subsidies.

(b) Management related

Develop domestic policies which maximize the benefits of trade liberalization for sustainable development

2.13 For developing countries to benefit from the liberalization of trading systems, they should implement the following policies, as appropriate:

(a) Create a domestic environment supportive of an optimal balance between production for the domestic and export markets and remove biases against exports and discourage inefficient import-substitution;

(b) Promote the policy framework and the infrastructure required to improve the efficiency of export and import trade as well as the functioning of domestic markets.

2.14 The following policies should be adopted by developing countries with respect to commodities consistent with market efficiency:

(a) Expand processing, distribution and improve marketing practices and the competitiveness of the commodity sector;

(b) Diversify in order to reduce dependence on commodity exports;

(c) Reflect efficient and sustainable use of factors of production in the formation of commodity prices including the reflection of environmental, social and resources costs.

(c) Data and information

(i) Encourage data collection and research

2.15 GATT, UNCTAD and other relevant institutions should continue to collect appropriate trade data and information. The Secretary-General of the United Nations is requested to strengthen the Trade Control Measures Information System managed by UNCTAD.

(ii) Improve international cooperation in commodity trade and the diversification of the sector

2.16 With regard to commodity trade, Governments should, directly or through appropriate international organizations, where appropriate:

(a) Seek optimal functioning of commodity markets, inter alia, through improved market transparency involving exchanges of views and information on investment plans, prospects and markets for individual commodities. Substantive negotiations between producers and consumers should be pursued with a view to achieving viable and more efficient international agreements, that take into account market trends, or arrangements, as well as study groups. In this regard, particular attention should be paid to the agreements on cocoa, coffee, sugar and tropical timber. The importance of international commodity agreements and arrangements is underlined. Occupational health and safety matters, technology transfer and services associated with the production, marketing and promotion of commodities, as well as environmental considerations, should be taken into account;

(b) Continue to apply compensation mechanisms for short-falls in commodity export earnings of developing countries in order to encourage diversification efforts;

(c) Provide assistance to developing countries upon request in the design and implementation of commodity policies and the gathering and utilization of information on commodity markets;

(d) Support efforts of developing countries to promote the policy framework and infrastructure required to improve the efficiency of export and import trade;

(e) Support the diversification initiatives of the developing countries at the national, regional and international levels.

Means of implementation

(a) Financing and cost-evaluation

[Costs of international cooperation activities presented above would be as follows:

- a. Commodity agreements. The annual administrative expenditures of 10 existing agreements and arrangements amount to approximately US\$ 22.5 million. Additional needs for cooperation on other commodities could bring this figure up to about US\$ 30 million a year, an increase of about US\$ 7.5 million a year.

- b. Compensation of export earnings shortfalls. Annual average commodity sector shortfalls for developing countries, which could be compensated, amounted to US\$ 8.7 billion between 1985 and 1989.
- c. Technical cooperation requirements would be in the order of US\$ 5 million per year.
- d. Support for infrastructure development is estimated to amount to US\$ 100 million annually.
- e. Strengthening the Trade Control Measures Information System within UNCTAD would cost US\$ 0.5 million annually.]**

(b) Capacity-building

2.17 The above-mentioned technical cooperation activities aim at strengthening national capabilities for design and implementation of commodity policy, use and management of national resources and the gathering and utilization of information on commodity markets.

B. Making trade and environment mutually supportive

Basis of action

2.18 Environment and trade policies should be mutually supportive. An open, multilateral trading system makes possible a more efficient allocation and use of resources and thereby contributes to an increase in production and incomes and to lessening demands on the environment. It thus provides additional resources needed for economic growth and development and improved environmental protection. A sound environment, on the other hand, provides the ecological and other resources needed to sustain growth and underpin a continuing expansion of trade. An open, multilateral trading system, supported by the adoption of sound environmental policies, would have a positive impact on the environment and contribute to sustainable development.

2.19 International cooperation in the environmental field is growing, and in a number of cases trade provisions in multilateral environment agreements have played a role in tackling global environmental challenges. Trade measures have thus been used in certain specific instances, where considered necessary, to enhance the effectiveness of environmental regulations for the protection of the environment. Such regulations should address the root causes of environmental degradation so as not to result in unjustified restrictions on trade. The challenge is to ensure that trade and environment policies are consistent and reinforce the process of sustainable development. However, account should be taken of the fact that environmental standards valid for developed countries may have unwarranted social and economic costs in developing countries.

Objectives

2.20 Governments should strive to meet the following objectives, through relevant multilateral forums including GATT, UNCTAD and other international organizations:

- (a) Make international trade and environment policies mutually supportive in favour of sustainable development;
- (b) Clarify the role of GATT, UNCTAD and other international organizations in dealing with trade and environment-related issues including, where relevant, conciliation procedure and dispute settlement;
- (c) Encourage international productivity and competitiveness and encourage a constructive role on the part of industry in dealing with environment and development issues.

Activities

Developing an environment/trade and development agenda

2.21 Governments should encourage GATT, UNCTAD and other relevant international and regional economic institutions to examine, in accordance with their respective mandates and competences, the following propositions and principles:

- (a) Elaborate adequate studies for the better understanding of the relationship between trade and environment for the promotion of sustainable development;
- (b) Promote a dialogue between trade, development and environment communities;
- (c) In those cases when trade measures related to environment are used, ensure transparency and compatibility with international obligations;
- (d) Deal with the root causes of environment and development problems in a manner which avoids the adoption of environmental measures resulting in unjustified restrictions on trade;
- (e) Seek to avoid the use of trade restrictions or distortions as a means to offset differences in cost arising from differences in environmental standards and regulations since their application could lead to trade distortions and increase protectionist tendencies.
- (f) Ensure that environment-related regulations or standards, including those related to health and safety standards, do not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on trade;
- (g) Ensure that special factors affecting environment and trade policies in the developing countries are borne in mind in the application of environmental standards as well as in the use of any trade measures. It is worth noting that standards that are valid in the most advanced countries may be inappropriate and of unwarranted social cost for the developing countries;
- (h) Encourage participation of developing countries in multilateral agreements through mechanisms such as special transitional rules;
- (i) Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transborder or global environmental problems should, as far as possible, be based on an international consensus. Domestic measures targeted to achieve certain environmental objectives may need trade measures to render them effective. Should trade policy measures be found necessary for the enforcement of environmental policies, certain principles and rules should apply. These could include, *inter alia*, the principle of non-discrimination; the principle that the trade measure chosen should be the least trade-restrictive necessary to achieve the objectives; an obligation to ensure transparency in the use of trade measures related to the environment and to provide adequate notification of national regulations; and

the need to give consideration to the special conditions and developmental requirements of developing countries as they move towards internationally agreed environmental objectives;

(j) Develop more precision, where necessary, and clarify the relationship between GATT provisions and some of the multilateral measures adopted in the environment area;

(k) Ensure public input in the formation, negotiation and implementation of trade policies as a means of fostering increased transparency in the light of country-specific conditions;

(l) Ensure that environmental policies provide the appropriate legal and institutional framework to respond to new needs for the protection of the environment that may result from changes in production and trade specialization.

C. Providing adequate financial resources to developing countries

Basis for action

2.22 Investment is critical to the ability of developing countries to achieve needed economic growth to improve the welfare of their populations and to meet their basic needs in a sustainable manner, all without deteriorating or depleting the resource base that underpins development. Sustainable development requires increased investment, for which domestic and external financial resources are needed. Foreign private investment and the return of flight capital which depend on a healthy investment climate are an important source of financial resources. Many developing countries have experienced a decade-long situation of negative net transfer of financial resources, during which their financial receipts were exceeded by payments they had to make, in particular for debt-servicing. As a result, domestically mobilized resources had to be transferred abroad instead of being invested locally in order to promote sustainable economic development.

2.23 For many developing countries, the reactivation of development will not take place without an early and durable solution to the problems of external indebtedness, taking into account the fact that, for many developing countries, external debt burdens are a significant problem. The burden of debt-service payments on those countries has imposed severe constraints on their ability to accelerate growth and eradicate poverty and has led to a contraction in imports, investment and consumption. External indebtedness has emerged as a main factor in the economic stalemate in the developing countries. Continued vigorous implementation of the evolving international debt strategy is aimed at restoring debtor countries' external financial viability and the resumption of their growth and development would assist in achieving sustainable growth and development. [In this context, additional financial resources in favour of developing countries are essential.]

Objectives

2.24 [The specific requirements for the implementation of the sectoral and cross-sectoral programmes included in Agenda 21 are dealt with in the relevant programme area and in the related discussion of financial resources and mechanisms. However, in order to provide an efficient macroeconomic framework that would restore the ability of developing countries to invest for sustainable development, it is necessary to ensure substantial financial resources to developing countries. To this end, developed country donors should implement the undertakings they have made to attain the agreed international target of devoting 0.7 per cent of GNP to ODA. There should also be continued improvements in the quality of aid as well as its utilization. Furthermore, the continuation of the process of debt and debt-service reduction is required.]

Activities

(a) Meet international targets of official development assistance funding

2.25 [Developed countries should implement the undertakings they have made to attain the agreed international target of devoting 0.7 per cent of gross national product to official development assistance and 0.15 per cent to the least developed countries. Developed countries should enhance the quality and the quantity of their aid (para. 27 of General Assembly S-18/3).]

(b) Address the debt issue

2.26 In regard to the external debt incurred with commercial banks, the progress being made under the strengthened debt strategy is recognized and a more rapid implementation of this strategy is encouraged. Some countries have already benefited from the combination of sound adjustment policies and commercial bank debt reduction or equivalent measures. The international community encourages:

(a) Other countries with heavy debts to banks to negotiate similar commercial bank debt reduction with their creditors;

(b) The parties to such a negotiation to take due account of both the medium-term debt reduction and new money requirements of the debtor country;

(c) Multilateral institutions actively engaged in the strengthened international debt strategy to continue to support debt-reduction packages related to commercial bank debt with a view to ensuring that the magnitude of such financing is consonant with the evolving debt strategy;

(d) Creditor banks to participate in debt and debt-service reduction;

(e) Strengthened policies to attract direct investment, avoid unsustainable levels of debt and foster the return of flight capital.

2.27 With regard to debt owed to official bilateral creditors, the recent measures taken by the Paris Club with regard to more generous terms of relief to the poorest most indebted countries are welcomed. Ongoing efforts to implement these "Trinidad terms" measures in a manner commensurate with the payments capacity of those countries and in a way that gives additional support to their economic reform efforts are welcomed. The substantial bilateral debt reduction undertaken by some creditor countries is also welcomed, and others which are in a position to do so are encouraged to take similar action.

2.28 The actions of low-income countries with substantial debt burdens which continue, at great cost, to service their debt and safeguard their credit-worthiness are commended. Particular attention should be paid to their resource needs. Other debt-distressed developing countries which are making great efforts to continue to service their debt and meet their

external financial obligations also deserve due attention.

2.29 In connection with multilateral debt, it is urged that serious attention should be given to continuing to work towards growth-oriented solutions to the problem of developing countries with serious debt-servicing problems, including those whose debt is mainly to official creditors or to multilateral financial institutions. Particularly in the case of low-income countries in the process of economic reform, the support of the multilateral financial institutions in the form of new disbursements and the use of their concessional funds is welcomed. The use of support groups should be continued in providing resources to clear arrears of countries embarking upon vigorous economic reform programmes supported by IMF and the World Bank. Measures by the multilateral financial institutions such as the refinancing of interest on non-concessional loans with IDA reflows - "fifth dimension" - are noted with appreciation.

Means of implementation

Financing and cost-evaluation

[ODA: An increase in official development assistance to 0.7 per cent of GDP funding would amount to approximately a doubling of current levels, which are in the order of US\$ 55 billion per year, to US\$ 110 billion per year.

Debt relief: On the basis of a study by the World Bank, it should be possible to reduce debt owed to private banks by developing countries by about US\$ 200 billion for a cost of about US\$ 25 billion, through coordinated action. Debt owed to bilateral official creditors by severely indebted low-income countries amounts to some US\$ 40 billion. It has been suggested that most or all of this debt should be written off. Debt owed to bilateral creditors by severely indebted middle-income countries is in the order of US\$ 80 billion. A reduction of some US\$ 40 billion should be given consideration in order to make a substantial positive impact on the economies of debtor countries. Arrears owed to multilateral creditors suggested for clearing amount to some US\$ 3.5 billion. An annual subsidy of some US\$ 2 billion could be given consideration in order to substantially reduce debt service to be paid by severely indebted low and middle-income countries to multilateral creditors. In total, a one-time payment of US\$ 28.5 billion, a recurrent interest rate subsidy of US\$ 2 billion a year and a write-off of US\$ 80 billion are suggested. The budgetary cost associated with the suggested write-off would be significantly lower than the amount of the write-off when account is taken of the actual amounts due for repayment in the medium-term, the likelihood of default and other such factors.]**

D. Encourage economic policies conducive to sustainable development

Basis for action

2.30 The unfavourable external environment facing developing countries makes domestic resource mobilization, and efficient allocation and utilization of domestically mobilized resources all the more important for the promotion of sustainable development. In a number of countries, policies are necessary to correct misdirected public spending, large budget deficits and other macroeconomic imbalances, restrictive policies and distortions in the areas of exchange rates, investment and finance, and obstacles to entrepreneurship. [In developed countries such policy reforms would help to release resources for supporting the transition to sustainable development domestically and for supporting such a transition in developing countries. An increase in domestic savings in developed countries would be a complement to policies to restrain consumption on environmental grounds.]

2.31 Good management that fosters the association of effective, efficient, honest, equitable and accountable public administration with individual rights and opportunities, is an essential element for sustainable, broadly based development and sound economic performance at all development levels. All countries should increase their efforts to eradicate mismanagement of public and private affairs, including corruption, taking into account the factors responsible for, and agents involved in, this phenomenon.

2.32 Many indebted developing countries are undergoing structural adjustment programmes relating to debt rescheduling or new loans. While such programmes are necessary for improving the balance in fiscal budgets and balance-of-payments accounts, in some cases they have resulted in adverse social and environmental effects, such as cuts in allocations for health care, education and environmental protection. It should seek to ensure that structural adjustment programmes do not have negative impacts on environment and social development so that such programmes can be more in line with the objectives of sustainable development.

Objectives

2.33 It is necessary to establish, in the light of the country-specific conditions, economic policy reforms that promote the efficient planning and utilization of resources for sustainable development through sound economic and social policies, fostering entrepreneurship and the incorporation of social and environmental costs in resource pricing, and removing sources of distortion in the area of trade and investment.

Activities

(a) **Management related**

Promote sound economic policies

2.34 The industrialized countries and other countries in a position to do so should strengthen their efforts:

(a) To encourage a stable and predictable international economic environment, particularly with regard to monetary stability, real rates of interest and fluctuations in key exchange rates;

(b) To stimulate savings and reduce fiscal deficits;

(c) To ensure that the processes of policy coordination take into account the interests and concerns of the developing countries, including the need to promote positive action to support the efforts of the least developed countries to halt their marginalization from the world economy;

(d) To undertake appropriate national macroeconomic and structural policies aimed at promoting non-inflationary growth, narrowing their major external imbalances and increasing the adjustment capacity of their economies.

2.35 Developing countries should consider strengthening their efforts to implement sound economic policies:

(a) That maintain monetary and fiscal discipline required to promote price stability and external balance;

(b) That result in realistic exchange rates;

(c) That raise domestic savings and investment as well as improve returns to investment.

2.36 More specifically, all countries should develop policies that improve efficiency in the allocation of resources and take full advantage of the opportunities offered by the changing global economic environment. In particular, wherever appropriate, and taking into account national strategies and objectives, countries should:

(a) Remove the barriers to progress caused by bureaucratic inefficiencies, administrative strains, unnecessary controls and the neglect of market conditions;

(b) Promote transparency in administration and decision-making;

(c) Encourage the private sector and foster entrepreneurship by improving institutional facilities to enterprise creation and market entry. The essential objective would be to simplify or remove the restrictions, regulations, and formalities that make it more

complicated, costly and time-consuming to set up and operate enterprises in many developing countries;

(d) Promote and support the investment and infrastructure required for sustainable economic growth and diversification on an environmentally sound and sustainable basis;

(e) Provide scope for appropriate economic instruments, including market mechanisms, in harmony with the objectives of sustainable development and fulfilment of basic needs;

(f) Promote the operation of effective tax systems and financial sectors;

(g) Provide opportunities for small-scale enterprises, both farm and non-farm, and for the indigenous population and local communities to contribute fully to attain the objective of sustainable development;

(h) Remove biases against exports and in favour of inefficient import substitution and establish policies that allow them to benefit fully from the flows of foreign investment, within the framework of national, social, economic and developmental goals;

(i) Promote the creation of a domestic economic environment supportive of an optimal balance between production for the domestic and export markets.

(b) International and regional cooperation and coordination

2.37 Governments of developed countries and those of other countries in a position to do so should, directly or through appropriate international and regional organizations and international lending institutions, enhance their efforts to provide developing countries with the following:

(a) Increased technical assistance for capacity-building in the nation's design and implementation of economic policies, upon request;

(b) Design and operation of efficient tax systems, accounting systems and financial sectors;

(c) Promotion of entrepreneurship.

2.38 International financial and development institutions should further review their policies and programmes in the light of the objective of sustainable development.

2.39 Stronger economic cooperation among developing countries has long been accepted as an important component of efforts to promote economic growth, technological capabilities

and accelerate development in the developing world. Therefore, the efforts of the developing countries to promote economic cooperation among themselves should be enhanced and continue to be supported by the international community.

Means of implementation

(a) Financing and cost-evaluation

[The cost of the above mentioned technical cooperation activities would be in the order of US\$ 50 million annually.]**

(b) Capacity-building

2.40 The above-mentioned policy changes in developing countries involve substantial national efforts for capacity-building in the areas of public administration, central banking, tax administration, savings institutions and financial markets.

2.41 In the implementation of the four programme areas identified in this chapter, special attention should be given to the special circumstances facing the economies in transition. It is also to be recognized that these countries are facing unprecedented challenges in transforming their economies, in some cases in the midst of considerable social and political tensions.

2.42 Particular efforts in the implementation of the four programme areas identified in this chapter are warranted in view of the specially acute environmental and developmental problems of the least developed countries.

Chapter 2

International cooperation to accelerate sustainable development in developing countries, and related domestic policies

INTRODUCTION

2.1 [In order to confront the challenge of environment and development, States decided to establish a new partnership. This partnership commits all States to engage in a continuous and constructive dialogue inspired by the need to achieve a more efficient and equitable world economy. It is recognized that, for the success of this new partnership, it is important to overcome confrontation and to foster a climate of genuine cooperation and solidarity. It is equally important to strengthen national and international policies and multilateral cooperation to adapt to the new realities.]

2.2 Economic policies of individual countries and international economic relations both have great relevance to sustainable development. The reactivation and acceleration of development requires both a dynamic and a supportive international economic environment and determined policies at the national level. It will be frustrated in the absence of either of these requirements. A supportive external economic environment is crucial. The development process will not gather momentum if the global economy lacks dynamics and stability and is beset with uncertainties. Neither will it gather momentum if the developing countries are weighted down by external indebtedness, if development finance is inadequate, if barriers restrict access to markets and if commodity prices and the terms of trade of developing countries remain depressed. The record of the 1980s was essentially negative on each of these counts and needs to be reversed. The policies and measures needed to create an international environment that is strongly supportive of national development efforts are thus vital. International cooperation in this area should be designed to complement and support - not to diminish or subsume - sound domestic economic policies, in both developed and developing countries, if global progress towards sustainable development is to be achieved.

2.3 The international economy should provide a supportive international climate for achieving environment and development goals in the following ways:

- (a) Promoting sustainable development through trade liberalization;
- (b) Making trade and environment mutually supportive;
- (c) Providing adequate financial resources to developing countries and dealing

with international debt;

(d) Encouraging macroeconomic policies conducive to environment and development.

2.4 Governments recognize that there is a new global effort to relate the elements of the international economic system and mankind's needs for a safe and stable natural environment. Therefore, it is the intent of governments that consensus building at the intersection of the environmental and trade and development areas will be ongoing in existing international fora as well as in the domestic policy of each country.

PROGRAMME AREAS

A. Promoting sustainable development through trade

Basis for action

2.5 An open, equitable, secure, non-discriminatory and predictable multilateral trading system, consistent with the goals of sustainable development, and which leads to the optimal distribution of global production in accordance with comparative advantage, is of benefit to all trading partners. Moreover, improved market access for developing countries' exports in conjunction with sound macroeconomic and environmental policies would have a positive environmental impact and make therefore an important contribution towards sustainable development.

2.6 Experience has shown that sustainable development requires a commitment to sound economic policies and management, an effective and predictable public administration, the integration of environmental concern into decision-making and progress towards democratic governments, in the light of country-specific conditions, which allows for full participation of all parties concerned. These attributes are essential for the fulfilment of policy directions and objectives listed below.

2.7 The commodity sector dominates the economies of many developing countries in terms of production, employment and export earnings. An important feature of the world commodity economy in the 1980s was the prevalence of very low and declining real prices for most commodities in international markets and a resulting substantial contraction in commodity export earnings for many producing countries. The ability of those countries to mobilize, through international trade, the resources needed to finance investments required for sustainable development may be impaired by this development and by tariff and non-tariff impediments, including tariff escalation, limiting their access to export markets. The removal of existing distortions in international trade is essential. In particular, the achievement of this objective requires that there be substantial and progressive reduction in

support and protection of agriculture - covering internal regimes, market access and export subsidies - as well as in industry and other sectors, in order to avoid inflicting large losses on the more efficient producers, especially in developing countries. Thus in the agriculture field, in industry and other sectors, there is scope for initiatives aimed at trade liberalisation and at policies to make production more responsive to environment and development needs. Trade liberalisation should therefore be pursued on a global basis across economic sectors so as to contribute to sustainable development.

2.8 The international trading environment has been affected by a number of developments which have created new challenges and opportunities and which have made multilateral economic cooperation of even greater importance. World trade has continued to grow faster than world output in recent years. However, the expansion of world trade has been unevenly spread, and only a limited number of developing countries have been capable of achieving appreciable growth in their exports. Protectionist pressures and unilateral policy actions continue to endanger the functioning of an open multilateral trading system, affecting particularly the export interests of developing countries. Economic integration processes have intensified in recent years and should impart dynamism to global trade and enhance the trade and development possibilities for developing countries. In recent years, a growing number of these countries have adopted courageous policy reforms involving ambitious autonomous trade liberalization, while far-reaching reforms and profound restructuring processes are taking place in Central and Eastern European countries, paving the way for their integration into the world economy and the international trading system. Increased attention is being devoted to enhancing the role of enterprises and promoting competitive markets through adoption of competitive policies. The GSP has proved to be a useful trade policy instrument, although its objectives will have to be fulfilled, and trade facilitation strategies relating to electronic data interchange (EDI) have been effective in improving the trading efficiency of the public and private sectors. The interactions between environment policies and trade issues are manifold and have not yet been fully assessed. An early, balanced, comprehensive and successful outcome of the Uruguay Round of multilateral trade negotiations would bring about further liberalization and expansion of world trade, enhance the trade and development possibilities of developing countries and provide greater security and predictability to the international trading system.

Objectives

2.9 In the years ahead, and taking into account the results of the Uruguay Round of multilateral trade negotiations, Governments should continue to strive to meet the following objectives:

(a) Promote an open non-discriminatory and equitable multilateral trading system that will enable all countries - in particular, the developing countries - to improve their economic structures and improve the standard of living of their populations through sustained economic development;

- (b) Improve access to markets for exports of developing countries;
- (c) Improve the functioning of commodity markets and achieve sound, compatible and consistent commodity policies at national and international levels with a view to optimizing the contribution of the commodity sector to sustainable development taking into account environmental considerations;
- (d) Promote and support policies, domestic and international, which make economic growth and environmental protection mutually supportive.

Activities

- (a) International and regional cooperation and coordination
Promote an international trading system that takes account of the needs of developing countries

2.10 Accordingly the activities of the international community should be:

- (a) To halt and reverse protectionism in order to bring about further liberalization and expansion of world trade, to the benefit of all countries, in particular the developing countries;
- (b) To provide for an equitable, secure, non-discriminatory and predictable international trading system;
- (c) To facilitate, in a timely way, the integration of all countries into the world economy and the international trading system;
- (d) To ensure that environment and trade policies are mutually supportive, with a view to achieving sustainable development;
- (e) To strengthen the international trade policies system through an early, balanced, comprehensive and successful outcome of the Uruguay Round of multilateral trade negotiations.

2.11 The international community should aim at finding ways and means for achieving a better functioning and enhanced transparency of commodity markets, greater diversification of the commodity sector in developing economies within a macroeconomic framework that takes into consideration a country's economic structure, resource endowments, and market opportunities, and better management of natural resources that takes into account the necessities of sustainable development.

2.12 Therefore, all countries should implement previous commitments to halt and reverse protectionism and further expand market access, particularly in areas of interest to

developing countries. This improvement of market access will be facilitated by appropriate structural adjustment in developed countries. Developing countries should continue the trade-policy reforms and structural adjustment they have undertaken. It is thus urgent to achieve an improvement in market access conditions for commodities, notably the progressive removal of barriers which restrict imports, particularly from developing countries, of commodity products in primary and processed forms as well as the substantial and progressive reduction of types of support that induce uncompetitive production, such as production and export subsidies.

(b) Management related

Develop domestic policies which maximize the benefits of trade liberalization for sustainable development

2.13 For developing countries to benefit from the liberalization of trading systems, they should implement the following policies, as appropriate:

(a) Create a domestic environment supportive of an optimal balance between production for the domestic and export markets and remove biases against exports and discourage inefficient import-substitution;

(b) Promote the policy framework and the infrastructure required to improve the efficiency of export and import trade as well as the functioning of domestic markets.

2.14 The following policies should be adopted by developing countries with respect to commodities consistent with market efficiency:

(a) Expand processing, distribution and improve marketing practices and the competitiveness of the commodity sector;

(b) Diversify in order to reduce dependence on commodity exports;

(c) Reflect efficient and sustainable use of factors of production in the formation of commodity prices including the reflection of environmental, social and resources costs.

(c) Data and information

(i) Encourage data collection and research

2.15 GATT, UNCTAD and other relevant institutions should continue to collect appropriate trade data and information. The Secretary-General of the United Nations is requested to strengthen the Trade Control Measures Information System managed by UNCTAD.

(ii) Improve international cooperation in commodity trade and the diversification of the sector

2.16 With regard to commodity trade, Governments should, directly or through appropriate international organizations, where appropriate:

(a) Seek optimal functioning of commodity markets, inter alia, through improved market transparency involving exchanges of views and information on investment plans, prospects and markets for individual commodities. Substantive negotiations between producers and consumers should be pursued with a view to achieving viable and more efficient international agreements, that take into account market trends, or arrangements, as well as study groups. In this regard, particular attention should be paid to the agreements on cocoa, coffee, sugar and tropical timber. The importance of international commodity agreements and arrangements is underlined. Occupational health and safety matters, technology transfer and services associated with the production, marketing and promotion of commodities, as well as environmental considerations, should be taken into account;

(b) Continue to apply compensation mechanisms for short-falls in commodity export earnings of developing countries in order to encourage diversification efforts;

(c) Provide assistance to developing countries upon request in the design and implementation of commodity policies and the gathering and utilization of information on commodity markets;

(d) Support efforts of developing countries to promote the policy framework and infrastructure required to improve the efficiency of export and import trade;

(e) Support the diversification initiatives of the developing countries at the national, regional and international levels.

Means of implementation

(a) Financing and cost-evaluation

[Costs of international cooperation activities presented above would be as follows:

- a. Commodity agreements. The annual administrative expenditures of 10 existing agreements and arrangements amount to approximately US\$ 22.5 million. Additional needs for cooperation on other commodities could bring this figure up to about US\$ 30 million a year, an increase of about US\$ 7.5 million a year.

- b. Compensation of export earnings shortfalls. Annual average commodity sector shortfalls for developing countries, which could be compensated, amounted to US\$ 8.7 billion between 1985 and 1989.
- c. Technical cooperation requirements would be in the order of US\$ 5 million per year.
- d. Support for infrastructure development is estimated to amount to US\$ 100 million annually.
- e. Strengthening the Trade Control Measures Information System within UNCTAD would cost US\$ 0.5 million annually.]**

(b) Capacity-building

2.17 The above-mentioned technical cooperation activities aim at strengthening national capabilities for design and implementation of commodity policy, use and management of national resources and the gathering and utilization of information on commodity markets.

B. Making trade and environment mutually supportive

Basis of action

2.18 Environment and trade policies should be mutually supportive. An open, multilateral trading system makes possible a more efficient allocation and use of resources and thereby contributes to an increase in production and incomes and to lessening demands on the environment. It thus provides additional resources needed for economic growth and development and improved environmental protection. A sound environment, on the other hand, provides the ecological and other resources needed to sustain growth and underpin a continuing expansion of trade. An open, multilateral trading system, supported by the adoption of sound environmental policies, would have a positive impact on the environment and contribute to sustainable development.

2.19 International cooperation in the environmental field is growing, and in a number of cases trade provisions in multilateral environment agreements have played a role in tackling global environmental challenges. Trade measures have thus been used in certain specific instances, where considered necessary, to enhance the effectiveness of environmental regulations for the protection of the environment. Such regulations should address the root causes of environmental degradation so as not to result in unjustified restrictions on trade. The challenge is to ensure that trade and environment policies are consistent and reinforce the process of sustainable development. However, account should be taken of the fact that environmental standards valid for developed countries may have unwarranted social and economic costs in developing countries.

Objectives

2.20 Governments should strive to meet the following objectives, through relevant multilateral forums including GATT, UNCTAD and other international organizations:

- (a) Make international trade and environment policies mutually supportive in favour of sustainable development;
- (b) Clarify the role of GATT, UNCTAD and other international organizations in dealing with trade and environment-related issues including, where relevant, conciliation procedure and dispute settlement;
- (c) Encourage international productivity and competitiveness and encourage a constructive role on the part of industry in dealing with environment and development issues.

Activities

Developing an environment/trade and development agenda

2.21 Governments should encourage GATT, UNCTAD and other relevant international and regional economic institutions to examine, in accordance with their respective mandates and competences, the following propositions and principles:

(a) Elaborate adequate studies for the better understanding of the relationship between trade and environment for the promotion of sustainable development;

(b) Promote a dialogue between trade, development and environment communities;

(c) In those cases when trade measures related to environment are used, ensure transparency and compatibility with international obligations;

(d) Deal with the root causes of environment and development problems in a manner which avoids the adoption of environmental measures resulting in unjustified restrictions on trade;

(e) Seek to avoid the use of trade restrictions or distortions as a means to offset differences in cost arising from differences in environmental standards and regulations since their application could lead to trade distortions and increase protectionist tendencies.

(f) Ensure that environment-related regulations or standards, including those related to health and safety standards, do not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on trade;

(g) Ensure that special factors affecting environment and trade policies in the developing countries are borne in mind in the application of environmental standards as well as in the use of any trade measures. It is worth noting that standards that are valid in the most advanced countries may be inappropriate and of unwarranted social cost for the developing countries;

(h) Encourage participation of developing countries in multilateral agreements through mechanisms such as special transitional rules;

(i) Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transborder or global environmental problems should, as far as possible, be based on an international consensus. Domestic measures targeted to achieve certain environmental objectives may need trade measures to render them effective. Should trade policy measures be found necessary for the enforcement of environmental policies, certain principles and rules should apply. These could include, *inter alia*, the principle of non-discrimination; the principle that the trade measure chosen should be the least trade-restrictive necessary to achieve the objectives; an obligation to ensure transparency in the use of trade measures related to the environment and to provide adequate notification of national regulations; and

the need to give consideration to the special conditions and developmental requirements of developing countries as they move towards internationally agreed environmental objectives;

(j) Develop more precision, where necessary, and clarify the relationship between GATT provisions and some of the multilateral measures adopted in the environment area;

(k) Ensure public input in the formation, negotiation and implementation of trade policies as a means of fostering increased transparency in the light of country-specific conditions;

(l) Ensure that environmental policies provide the appropriate legal and institutional framework to respond to new needs for the protection of the environment that may result from changes in production and trade specialization.

C. Providing adequate financial resources to developing countries

Basis for action

2.22 Investment is critical to the ability of developing countries to achieve needed economic growth to improve the welfare of their populations and to meet their basic needs in a sustainable manner, all without deteriorating or depleting the resource base that underpins development. Sustainable development requires increased investment, for which domestic and external financial resources are needed. Foreign private investment and the return of flight capital which depend on a healthy investment climate are an important source of financial resources. Many developing countries have experienced a decade-long situation of negative net transfer of financial resources, during which their financial receipts were exceeded by payments they had to make, in particular for debt-servicing. As a result, domestically mobilized resources had to be transferred abroad instead of being invested locally in order to promote sustainable economic development.

2.23 For many developing countries, the reactivation of development will not take place without an early and durable solution to the problems of external indebtedness, taking into account the fact that, for many developing countries, external debt burdens are a significant problem. The burden of debt-service payments on those countries has imposed severe constraints on their ability to accelerate growth and eradicate poverty and has led to a contraction in imports, investment and consumption. External indebtedness has emerged as a main factor in the economic stalemate in the developing countries. Continued vigorous implementation of the evolving international debt strategy is aimed at restoring debtor countries' external financial viability and the resumption of their growth and development would assist in achieving sustainable growth and development. [In this context, additional financial resources in favour of developing countries are essential.]

Objectives

2.24 [The specific requirements for the implementation of the sectoral and cross-sectoral programmes included in Agenda 21 are dealt with in the relevant programme area and in the related discussion of financial resources and mechanisms. However, in order to provide an efficient macroeconomic framework that would restore the ability of developing countries to invest for sustainable development, it is necessary to ensure substantial financial resources to developing countries. To this end, developed country donors should implement the undertakings they have made to attain the agreed international target of devoting 0.7 per cent of GNP to ODA. There should also be continued improvements in the quality of aid as well as its utilization. Furthermore, the continuation of the process of debt and debt-service reduction is required.]

Activities

(a) Meet international targets of official development assistance funding

2.25 [Developed countries should implement the undertakings they have made to attain the agreed international target of devoting 0.7 per cent of gross national product to official development assistance and 0.15 per cent to the least developed countries. Developed countries should enhance the quality and the quantity of their aid (para. 27 of General Assembly S-18/3).]

(b) Address the debt issue

2.26 In regard to the external debt incurred with commercial banks, the progress being made under the strengthened debt strategy is recognized and a more rapid implementation of this strategy is encouraged. Some countries have already benefited from the combination of sound adjustment policies and commercial bank debt reduction or equivalent measures. The international community encourages:

(a) Other countries with heavy debts to banks to negotiate similar commercial bank debt reduction with their creditors;

(b) The parties to such a negotiation to take due account of both the medium-term debt reduction and new money requirements of the debtor country;

(c) Multilateral institutions actively engaged in the strengthened international debt strategy to continue to support debt-reduction packages related to commercial bank debt with a view to ensuring that the magnitude of such financing is consonant with the evolving debt strategy;

(d) Creditor banks to participate in debt and debt-service reduction;

(e) Strengthened policies to attract direct investment, avoid unsustainable levels of debt and foster the return of flight capital.

2.27 With regard to debt owed to official bilateral creditors, the recent measures taken by the Paris Club with regard to more generous terms of relief to the poorest most indebted countries are welcomed. Ongoing efforts to implement these "Trinidad terms" measures in a manner commensurate with the payments capacity of those countries and in a way that gives additional support to their economic reform efforts are welcomed. The substantial bilateral debt reduction undertaken by some creditor countries is also welcomed, and others which are in a position to do so are encouraged to take similar action.

2.28 The actions of low-income countries with substantial debt burdens which continue, at great cost, to service their debt and safeguard their credit-worthiness are commended. Particular attention should be paid to their resource needs. Other debt-distressed developing countries which are making great efforts to continue to service their debt and meet their

external financial obligations also deserve due attention.

2.29 In connection with multilateral debt, it is urged that serious attention should be given to continuing to work towards growth-oriented solutions to the problem of developing countries with serious debt-servicing problems, including those whose debt is mainly to official creditors or to multilateral financial institutions. Particularly in the case of low-income countries in the process of economic reform, the support of the multilateral financial institutions in the form of new disbursements and the use of their concessional funds is welcomed. The use of support groups should be continued in providing resources to clear arrears of countries embarking upon vigorous economic reform programmes supported by IMF and the World Bank. Measures by the multilateral financial institutions such as the refinancing of interest on non-concessional loans with IDA reflows - "fifth dimension" - are noted with appreciation.

Means of implementation

Financing and cost-evaluation

[ODA: An increase in official development assistance to 0.7 per cent of GDP funding would amount to approximately a doubling of current levels, which are in the order of US\$ 55 billion per year, to US\$ 110 billion per year.

Debt relief: On the basis of a study by the World Bank, it should be possible to reduce debt owed to private banks by developing countries by about US\$ 200 billion for a cost of about US\$ 25 billion, through coordinated action. Debt owed to bilateral official creditors by severely indebted low-income countries amounts to some US\$ 40 billion. It has been suggested that most or all of this debt should be written off. Debt owed to bilateral creditors by severely indebted middle-income countries is in the order of US\$ 80 billion. A reduction of some US\$ 40 billion should be given consideration in order to make a substantial positive impact on the economies of debtor countries. Arrears owed to multilateral creditors suggested for clearing amount to some US\$ 3.5 billion. An annual subsidy of some US\$ 2 billion could be given consideration in order to substantially reduce debt service to be paid by severely indebted low and middle-income countries to multilateral creditors. In total, a one-time payment of US\$ 28.5 billion, a recurrent interest rate subsidy of US\$ 2 billion a year and a write-off of US\$ 80 billion are suggested. The budgetary cost associated with the suggested write-off would be significantly lower than the amount of the write-off when account is taken of the actual amounts due for repayment in the medium-term, the likelihood of default and other such factors.]**

D. Encourage economic policies conducive to sustainable development

Basis for action

2.30 The unfavourable external environment facing developing countries makes domestic resource mobilization, and efficient allocation and utilization of domestically mobilized resources all the more important for the promotion of sustainable development. In a number of countries, policies are necessary to correct misdirected public spending, large budget deficits and other macroeconomic imbalances, restrictive policies and distortions in the areas of exchange rates, investment and finance, and obstacles to entrepreneurship. [In developed countries such policy reforms would help to release resources for supporting the transition to sustainable development domestically and for supporting such a transition in developing countries. An increase in domestic savings in developed countries would be a complement to policies to restrain consumption on environmental grounds.]

2.31 Good management that fosters the association of effective, efficient, honest, equitable and accountable public administration with individual rights and opportunities, is an essential element for sustainable, broadly based development and sound economic performance at all development levels. All countries should increase their efforts to eradicate mismanagement of public and private affairs, including corruption, taking into account the factors responsible for, and agents involved in, this phenomenon.

2.32 Many indebted developing countries are undergoing structural adjustment programmes relating to debt rescheduling or new loans. While such programmes are necessary for improving the balance in fiscal budgets and balance-of-payments accounts, in some cases they have resulted in adverse social and environmental effects, such as cuts in allocations for health care, education and environmental protection. It should seek to ensure that structural adjustment programmes do not have negative impacts on environment and social development so that such programmes can be more in line with the objectives of sustainable development.

Objectives

2.33 It is necessary to establish, in the light of the country-specific conditions, economic policy reforms that promote the efficient planning and utilization of resources for sustainable development through sound economic and social policies, fostering entrepreneurship and the incorporation of social and environmental costs in resource pricing, and removing sources of distortion in the area of trade and investment.

Activities

(a) **Management related**

Promote sound economic policies

2.34 The industrialized countries and other countries in a position to do so should strengthen their efforts:

- (a) To encourage a stable and predictable international economic environment, particularly with regard to monetary stability, real rates of interest and fluctuations in key exchange rates;**
- (b) To stimulate savings and reduce fiscal deficits;**
- (c) To ensure that the processes of policy coordination take into account the interests and concerns of the developing countries, including the need to promote positive action to support the efforts of the least developed countries to halt their marginalization from the world economy;**
- (d) To undertake appropriate national macroeconomic and structural policies aimed at promoting non-inflationary growth, narrowing their major external imbalances and increasing the adjustment capacity of their economies.**

2.35 Developing countries should consider strengthening their efforts to implement sound economic policies:

- (a) That maintain monetary and fiscal discipline required to promote price stability and external balance;**
- (b) That result in realistic exchange rates;**
- (c) That raise domestic savings and investment as well as improve returns to investment.**

2.36 More specifically, all countries should develop policies that improve efficiency in the allocation of resources and take full advantage of the opportunities offered by the changing global economic environment. In particular, wherever appropriate, and taking into account national strategies and objectives, countries should:

- (a) Remove the barriers to progress caused by bureaucratic inefficiencies, administrative strains, unnecessary controls and the neglect of market conditions;**
- (b) Promote transparency in administration and decision-making;**
- (c) Encourage the private sector and foster entrepreneurship by improving institutional facilities to enterprise creation and market entry. The essential objective would be to simplify or remove the restrictions, regulations, and formalities that make it more**

complicated, costly and time-consuming to set up and operate enterprises in many developing countries;

(d) Promote and support the investment and infrastructure required for sustainable economic growth and diversification on an environmentally sound and sustainable basis;

(e) Provide scope for appropriate economic instruments, including market mechanisms, in harmony with the objectives of sustainable development and fulfilment of basic needs;

(f) Promote the operation of effective tax systems and financial sectors;

(g) Provide opportunities for small-scale enterprises, both farm and non-farm, and for the indigenous population and local communities to contribute fully to attain the objective of sustainable development;

(h) Remove biases against exports and in favour of inefficient import substitution and establish policies that allow them to benefit fully from the flows of foreign investment, within the framework of national, social, economic and developmental goals;

(i) Promote the creation of a domestic economic environment supportive of an optimal balance between production for the domestic and export markets.

(b) International and regional cooperation and coordination

2.37 Governments of developed countries and those of other countries in a position to do so should, directly or through appropriate international and regional organizations and international lending institutions, enhance their efforts to provide developing countries with the following:

(a) Increased technical assistance for capacity-building in the nation's design and implementation of economic policies, upon request;

(b) Design and operation of efficient tax systems, accounting systems and financial sectors;

(c) Promotion of entrepreneurship.

2.38 International financial and development institutions should further review their policies and programmes in the light of the objective of sustainable development.

2.39 Stronger economic cooperation among developing countries has long been accepted as an important component of efforts to promote economic growth, technological capabilities

and accelerate development in the developing world. Therefore, the efforts of the developing countries to promote economic cooperation among themselves should be enhanced and continue to be supported by the international community.

Means of implementation

(a) Financing and cost-evaluation

[The cost of the above mentioned technical cooperation activities would be in the order of US\$ 50 million annually.]**

(b) Capacity-building

2.40 The above-mentioned policy changes in developing countries involve substantial national efforts for capacity-building in the areas of public administration, central banking, tax administration, savings institutions and financial markets.

2.41 In the implementation of the four programme areas identified in this chapter, special attention should be given to the special circumstances facing the economies in transition. It is also to be recognized that these countries are facing unprecedented challenges in transforming their economies, in some cases in the midst of considerable social and political tensions.

2.42 Particular efforts in the implementation of the four programme areas identified in this chapter are warranted in view of the specially acute environmental and developmental problems of the least developed countries.

Chapter 4

CHANGING CONSUMPTION PATTERNS

4.1 This chapter proposes two programmes:

- (a) Focusing on unsustainable patterns of production and consumption;
- (b) Developing national policies and strategies to encourage changes in unsustainable consumption patterns.

4.2 Since the issue is very broad, it is addressed in several parts of Agenda 21, notably those dealing with energy, transportation and wastes and in the chapters on economic instruments and transfer of technology. The present chapter should also be read in conjunction with the one below on demographic dynamics and sustainability.

PROGRAMME AREAS

A. Focusing on unsustainable patterns of production and consumption

Basis for action

[4.3 While poverty largely results in certain kinds of environmental stress, one of the most serious problems now facing the planet is that associated with historical patterns of unsustainable consumption and production, leading to environmental degradation, aggravation of poverty and imbalances in the development of countries.]

4.4 Measures to be undertaken at the international level for the protection and enhancement of the environment must take fully into account the current imbalances in the global patterns of consumption and production.

[4.5 Special attention should be paid to the demand for natural resources generated by unsustainable consumption and to efficient use of those resources consistent with the goal of minimizing depletion and reducing pollution. Although consumption patterns are very high in certain parts of the world, the basic consumer needs of a large section of humanity are not being met. This inequitable distribution of income and wealth results in excessive demands and unsustainable lifestyles among the richer segments, which place immense stress on the environment. The poorer, meanwhile, are unable to meet food, health care, shelter and educational needs. Changing consumption patterns will require a multipronged strategy focusing on demand, meeting the basic needs of the poor, and reducing wastage and the use of finite resources in the production process.]

4.6 Growing recognition of the importance of addressing consumption has also not yet been matched by understanding of its implications. Some economists are questioning traditional concepts of economic growth and underlining the importance of pursuing economic objectives which take account of the full value of natural resource capital. More needs to be known about the role of consumption in relation to economic growth and population dynamics in order to formulate coherent international and national policies.

Objectives

4.7 Action is needed to meet the following broad objectives:

- (a) Promotion of patterns of consumption and production that reduce environmental stress and will meet the basic needs of humanity;
- (b) Development of better understanding of the role of consumption and how to bring about more sustainable consumption patterns.

Activities

- (a) Management-related activities:

Adopt an international approach to achieving sustainable consumption patterns

4.8 In principle, countries should be guided by the following basic objectives in their efforts to address consumption and lifestyles in the context of environment and development:

- (a) All countries should strive to promote sustainable consumption patterns;
- (b) Developed countries should take the lead in achieving sustainable consumption patterns;
- (c) Developing countries should seek to achieve sustainable consumption patterns in their development process, guaranteeing the provision of basic needs of the poor, while avoiding those unsustainable patterns, particularly in industrialized countries, generally recognized as unduly hazardous to the environment, inefficient and wasteful, in their development processes. This requires enhanced technological and other assistance from industrialized countries.

4.9 In the follow-up of the implementation of Agenda 21 the review of progress made in achieving sustainable consumption patterns should be given high priority.

- (b) Data and information:

- (i) Undertake research on consumption

4.10 In order to support this broad strategy, Governments, and/or private research and policy institutes, with the assistance of regional and international economic and environmental organizations, should make a concerted effort to:

(a) Expand or promote databases on production and consumption and develop methodologies for analyzing them;

(b) Assess the relationship between production and consumption, environment, technological adaptation and innovation, economic growth and development; and demographic factors;

(c) Examine the impact of ongoing changes in the structure of modern industrial economies away from materials intensive economic growth;

(d) Consider how economies can grow and prosper while reducing energy, material use and production of harmful materials;

(e) Identify balanced patterns of consumption world wide which the earth can support in the long term.

(ii) Develop new concepts of sustainable economic growth and prosperity

4.11 Consideration should also be given to the present concepts of economic growth, and the need for new concepts of wealth and prosperity, which allow higher standards of living through changed lifestyles and are less dependent on the Earth's finite resources and more in harmony with the Earth's carrying capacity. This should be reflected in the evolution of new systems of national accounts and other indicators of sustainable development.

(c) International cooperation and coordination:

4.12 While international review processes exist for examining economic, development and demographic factors, more attention needs to be paid to issues related to consumption and production patterns and sustainable lifestyles and environment.

4.13 In the follow-up of the implementation of Agenda 21, reviewing the role and impact of unsustainable production and consumption patterns and lifestyles and their relation to sustainable development should be given high priority.

Financing and cost evaluation

4.14 [Implementation of this programme is unlikely to require significant new financial resources. A research programme and an international process, once established, would require support (probably in the range of about \$1 million.)]**

B. Developing national policies and strategies to encourage sustainable production and consumption patterns

Basis for action

4.15 Achieving the goals of environmental quality and sustainable development will require efficiency in production and changes in consumption patterns in order to emphasize optimization of resource use and minimization of waste. In many instances, this will require reorientation of existing production and consumption patterns which have developed in industrial societies, and which are in turn emulated in much of the world.

4.16 Progress can be made by strengthening positive trends and directions which are emerging, as part of a process aimed at achieving significant changes in consumption patterns of industries, Governments, households and individuals.

Objectives

4.17 In the years ahead Governments, working with appropriate organizations, should strive to meet the following broad objectives:

(a) Promote efficiency in production processes and reduce wasteful consumption in the process of economic growth, taking into account the development needs of developing countries;

(b) Develop a domestic policy framework which will encourage a shift to more sustainable patterns of production and consumption;

(c) Reinforce both values which encourage sustainable production and consumption patterns, and policies which encourage the transfer of environmentally sound technologies to developing countries.

Activities

(a) **Encourage greater efficiency in the use of energy and resources**

4.18 Reducing the amount of energy and materials used per unit in the production of goods and services can contribute both to the alleviation of environmental stress, and to greater economic and industrial productivity and competitiveness. Governments, in cooperation with industry, should therefore intensify efforts to use energy and resources in an economically efficient and environmentally sound manner, in the following ways:

(a) Encourage the dissemination of existing environmentally sound technologies;

(b) Promote research and development in environmentally sound technologies;

(c) Assist developing countries to use these technologies efficiently, and to develop

technologies suited to their particular circumstances;

(d) Encourage the environmentally sound use of new and renewable sources of energy;

(e) Encourage the environmentally sound and sustainable use of renewable natural resources.

(b) Minimize the generation of wastes

4.19 At the same time, society needs to develop effective ways of dealing with the problem of disposing of mounting levels of waste products and materials. Governments, together with industry, households and the public, should make a concerted effort to reduce the generation of wastes and waste products in the following ways:

(a) Encourage recycling in industrial processes and at the consumed level;

(b) Reduce wasteful packaging of products;

(c) Encourage the introduction of more environmentally sound products.

(c) Assist individuals and households to make environmentally sound purchasing decisions

4.20 The recent emergence in many countries of a more environmentally conscious consumer public, combined with increased interest on the part of some industries in providing environmentally sound consumer products, is a significant development which should be encouraged. Governments and international organizations, together with the private sector, should develop criteria and methodologies for the assessment of environmental impacts and resource requirements throughout the full life cycle of products and processes. Results of those assessments should be transformed into clear indicators in order to inform consumers and decision makers.

4.21 Governments, in cooperation with industry and other relevant groups, should encourage expansion of environmental labelling and other environmentally related product information programmes designed to assist consumers to make informed choices.

4.22 They should also encourage the emergence of an informed consumer public and other ways of assisting individuals and households to make environmentally informed choices, in the following ways:

(a) Provide information on the consequences of consumption choices and behaviour, so as to encourage demand for environmentally sound products and use of products;

(b) Make consumers aware of the health and environmental impact of products, through means such as consumer legislation and environmental labelling;

(c) Encourage specific consumer-oriented programmes such as recycling and deposit/refund systems.

(d) Exercise leadership through government purchasing

4.23 Governments themselves also play a role in consumption, particularly in countries where the public sector plays a large role in the economy and can have a considerable influence on both corporate decisions and public perceptions. They should therefore review the purchasing policies of their agencies and departments so that they may improve, where possible, the environmental content of government procurement policies, without prejudice to international trade principles.

(e) Move towards environmentally sound pricing

4.24 Without the stimulus of prices and market signals which make clear to producers and consumers the environmental costs of the consumption of energy, materials, and natural resources and the generation of wastes, significant changes in consumption and production patterns seem unlikely to occur in the near future.

4.25 Some progress has begun in the use of appropriate economic instruments to influence consumer behaviour. These instruments include environmental charges and taxes, deposit/refund systems, etc. This process should be encouraged in the light of country-specific conditions.

(f) Reinforcing values which support sustainable consumption

4.26 Governments and private-sector organizations should promote more positive attitudes towards sustainable consumption through education, public awareness programmes and other means such as positive advertising of products and services that utilize environmentally sound technologies or encourage sustainable production and consumption patterns. In the review of the implementation of Agenda 21, an assessment of the progress achieved in developing these national policies and strategies should be given due consideration.

Means of implementation

4.27 This programme is concerned primarily with changes in unsustainable patterns of consumption and production and values that encourage sustainable consumption patterns and lifestyles. It requires the combined efforts of Governments, consumers and producers. Particular attention should be paid to the significant role which women and households play as consumers and the potential impacts of their combined purchasing power on the economy.

Chapter 5

DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

5.1 This chapter presents three programme areas:

(a) Developing and disseminating knowledge concerning the links between demographic trends and factors and sustainable development;

(b) Formulating integrated national policies for environment and development, taking into account demographic trends and factors;

(c) Implementing integrated environment and development programmes at the local level, taking into account demographic trends and factors.

PROGRAMME AREAS

A. Developing and disseminating knowledge concerning the links between demographic trends and factors and sustainable development

Basis for action

5.2 Demographic trends and factors and sustainable development have a synergistic relationship.

5.3 The growth of world population and production combined with unsustainable consumption patterns places increasingly severe stress on the life-supporting capacities of our planet. These interactive processes affect the use of land, water, air, energy and other resources. Unless well-managed, rapidly growing cities face major environmental problems. The increase in both the number and size of cities calls for greater attention to issues of local government and municipal management. Human dimensions are key elements to consider in this intricate set of relationships and they should be adequately taken into consideration in comprehensive policies for sustainable development. Such policies should address the linkages of demographic trends and factors, resource use, [appropriate technology dissemination,] and development. Population policy should also recognize the role played by human beings in environmental and development concerns. There is need to increase awareness of this issue among decision makers at all levels and to provide better information on which to base national and international policies and framework against which to interpret this information.

5.4 There is a need to develop strategies to mitigate both the

adverse impact on the environment of human activities as well as the adverse impact of environmental change on human populations. The world's population is expected to reach over 8 billion by the year 2020. Sixty percent of the world's population already live in coastal areas, while 65 per cent of cities with populations above 2.5 million are located along the world coasts and several of them are already at or below the present sea level.

Objectives

5.5 The following objectives should be achieved as soon as practicable:

(a) Incorporate demographic trends and factors in the global analysis of environment and development issues;

(b) Develop a better understanding of the relationships among demographic dynamics, technology, cultural behaviour, natural resources, and life support systems;

(c) Assess human vulnerability in ecologically sensitive areas and centres of population to determine the priorities for action at all levels, taking full account of community defined needs.

Activities

Research on interaction between demographic trends and factors, and sustainable development

5.6 Relevant international, regional and national institutions should consider undertaking the following activities:

(a) Identify the interactions between demographic processes, natural resources and life support systems, bearing in mind regional and subregional variations deriving from, inter alia, different levels of development;

(b) Integrate demographic trends and factors into the ongoing study of environmental change, using the expertise of international, regional and national research networks, and of local communities to first study the human dimensions of environmental change and, second, to identify vulnerable areas;

(c) Identify priority areas for action and develop strategies and programmes to mitigate the adverse impact of environmental change on human populations, and vice versa.

Means of implementation

(a) Financing and cost evaluation

5.7 [Research and dissemination of results will require US\$ 10 million annually from international sources. It should be

adequately financed taking into account the role of existing agencies in this field.] **

(b) Strengthen research programmes that integrate population, environment and development

5.8 In order to integrate demographic analysis as part of a broader social sciences perspective of environment and development, interdisciplinary research should be increased. International institutions and networks of experts should enhance their scientific capacity taking full account of community experience and knowledge, and disseminate the experience gained in multidisciplinary approaches and in linking theory to action.

5.9 Better modelling capabilities should be developed, identifying the range of possible outcomes of current human activities, especially the interrelated impact of demographic trends and factors, per capita resource use and wealth distribution, as well as major migration flows which may be expected with increasing climatic events and cumulative environmental change that may destroy people's local livelihoods.

(c) Develop information and public awareness

5.10 Socio-demographic information should be developed in a suitable format for interfacing with physical, biological and socio-economic data. Compatible spatial and temporal scales, cross-country and time-series information, as well as global behavioral indicators should be developed, learning from local communities' perceptions and attitudes.

5.11 Awareness should be increased at all levels about the need to optimize the sustainable use of resources through efficient resource management taking into account the development needs of the populations of developing countries.

5.12 Awareness should be increased of the fundamental linkages between improving the status of women and demographic dynamics, particularly through women's access to education, primary and reproductive health care programmes, economic independence and the access to effective, equitable participation in all levels of decision-making.

5.13 Results of research should be disseminated through technical reports, scientific journals, the media, workshops, forums or other means concerned with sustainable development issues so that it can be used by decision makers at all levels and increase public awareness.

(d) Develop and/or enhance institutional capacity and collaboration

5.14 Collaboration and exchange of information should be increased between research institutions and international, regional and

national agencies and all other sectors (including the private sector, local communities, non-governmental organizations and scientific institutions) from both the industrialized and developing countries, as appropriate.

5.15 Efforts should be intensified to enhance the capacities of national and local governments, private sector and non-governmental organizations in developing countries to meet the growing needs for improved management of rapidly growing urban areas.

B. Formulating integrated national policies for environment and development, taking into account demographic trends and factors

Basis for action

5.16 Existing plans for sustainable development have generally recognized demographic trends and factors as critical elements which influence consumption patterns, production, lifestyles and long-term sustainability. But in future, more attention will have to be given to these issues in general policy formulation and the design of development plans. To do this, all countries will have to improve their own capacities to assess the environment and development implications of their demographic trends and factors. As well, they will need to formulate and implement policies and action programmes where appropriate. Policies should be designed to address the consequences of population growth built into population momentum, while, at the same time, incorporating measures to bring about demographic transition. They should combine environmental concerns and population issues within a holistic view of development where the primary goals include: alleviation of poverty; secure livelihoods; good health; quality of life; improvement of the status and income of women and their access to schooling and professional training, fulfillment of their personal aspirations; and empowerment of individuals and communities. Recognizing that large increases in the size and number of cities will occur in developing countries under any likely population scenario, greater attention should be given to preparing for the needs, in particular of women and children, for improved municipal management and local government.

Objective

5.17 Full integration of population concerns into national planning, policy and decision-making process should continue. Population policies and programmes should be considered, with full recognition of women's rights.

Activities

5.18 Governments and other relevant actors could, inter alia, undertake the following activities, with appropriate assistance of aid agencies, and report on their status of implementation to the 1994 United Nations Conference on Population and Development, especially to its Committee on Population and Environment.

- (a) Assess the implications of national demographic trends and factors

5.19 The relationships between demographic trends and factors, and environmental change, and between environmental degradation and the components of demographic change should be analyzed.

5.20 Research should be conducted on how environmental factors interact with socio-economic ones as a cause of migration.

5.21 Vulnerable population groups should be identified (such as rural landless workers, ethnic minorities, refugees, migrants, displaced people, women heads of household) whose changes in demographic structure may have specific impacts on sustainable development.

5.22 An assessment should be made of the implications of the age structure of the population on resource demand and dependency burdens, ranging from educational expenses for the young, to health care and support for the elderly, and household income generation.

5.23 An assessment should also be made of national population carrying capacity in the context of satisfaction of human needs and sustainable development, and give special attention to critical resources, such as water and land, and environmental factors, such as ecosystem health and biodiversity.

5.24 The impact of national demographic trends and factors on the traditional livelihoods of indigenous groups and local communities, including changes in traditional land use because of internal population pressures, should be studied.

(b) Build and strengthen a national information base

5.25 National databases on demographic trends and factors and environment should be built and/or strengthened, disaggregating data by ecological region (ecosystem approach) and population/environment profiles established by region.

5.26 Methodologies and instruments should be developed to identify areas where sustainability is, or may be, threatened by the environmental effects of demographic trends and factors, incorporating both current and projected demographic data linked to natural environmental processes.

5.27 Case studies should be developed of local level responses by different groups to demographic dynamics particularly in areas subject to environmental stress and deteriorating urban centres.

5.28 Population data should be disaggregated by, inter alia, sex and age in order to take into account the implications of the gender division of labour for the use and management of natural resources.

(c) Incorporate demographic features into policy and plans

5.29 In formulating human settlements policies, account should be taken of the resource needs, waste production and ecosystem health.

5.30 The direct and induced effects of demographic changes in environment and development programmes should, where appropriate,

be integrated, and the impact on demographic features assessed.

5.31 National population policy goals and programmes consistent with national environment and development plans for sustainability, and in keeping with individuals' freedom, dignity and personally held values, should be set and implemented.

5.32 Appropriate socio-economic policies for the young and the elderly, both in terms of family and state support systems, should be developed.

5.33 Policies and programmes should be developed for handling the various types of migrations that result from, or induce environmental disruptions, with special attention to women and vulnerable groups.

5.34 Demographic concerns, including concerns for environmental migrants and displaced people, should be incorporated in the programmes for sustainable development of relevant international and regional institutions.

5.35 National reviews should be conducted and the integration of population policies in national development and environment strategies should be monitored nationally.

Means of implementation

(a) Financing and cost evaluation

5.36 [The implementation of these activities by Governments will require at least \$90 million annually from international sources.]**

(b) Raise awareness of demographic and sustainable development interactions

5.37 Understanding should be increased in all sections of society of the interactions between demographic trends and factors, and sustainable development. Stress should be put on local and national action. Demographic and sustainable development education should be coordinated and integrated both in the formal and non-formal education sectors. Particular attention should be given to population literacy programmes, notably for women. Special emphasis should be placed on the linkage between these programmes, primary environmental care and the provision of primary health care and services.

(c) Strengthen institutions

5.38 The capacity of national, regional and local structures to deal with issues relating to demographic trends and factors, and sustainable development should be enhanced. This would involve strengthening the relevant bodies responsible for population issues to enable them to elaborate policies consistent with the national

prospects for sustainable development. Cooperation among government, national research institutions, non-governmental organizations and local communities in assessing problems and evaluating policies should also be enhanced.

5.39 The capacity of the relevant United Nations organs, organizations and bodies, international and regional intergovernmental bodies, non-governmental organizations and local communities should, as appropriate, be enhanced to help countries develop sustainable development policies on request and, as appropriate, provide assistance to environmental migrants and displaced people.

5.40 Inter-agency support for national sustainable development policies and programmes should be improved through better coordination of population and environment activities.

(d) Promote human resources development

5.41 The international and regional scientific institutions should assist Governments upon request to include concerns for the population/environment interactions at the global, ecosystem and micro-levels in the training of demographers, population and environment specialists. Training should include research on linkages and ways to design integrated strategies.

C. Implementing integrated environment and development programmes at the local level, taking into account demographic trends and factors

Basis for action

5.42 Population programmes are more effective when implemented together with appropriate cross-sectoral policies. In order to attain sustainability at the local level, a new framework is needed that integrates demographic trends and factors with other factors such as ecosystem health, technology, human settlements, and with socio-economic structures and access to resources. Population programmes should be consistent with socio-economic and environmental planning. Integrated sustainable development programmes should closely correlate action on demographic trends and factors with resources management activities and development goals meeting the needs of the people concerned.

Objective

5.43 Population programmes along with natural resources management and development programmes at the local level, that will ensure sustainable use of natural resources, improve the quality of life of the people and enhance environmental quality should be implemented.

Activities

5.44 Governments, local communities including community-based women's organizations and national non-governmental organizations, consistent with national plans, objectives, strategies and priorities, could, inter alia, undertake the activities set out below with the assistance and cooperation of international organizations, as appropriate. Governments could share their experience in their implementation of Agenda 21 with the 1994 United Nations Conference on Population and Development, especially to its Committee on Population and Environment.

(a) Develop a framework for action

5.45 An effective consultative process should be established and implemented with concerned groups of society where the formulation and decision-making of all components of the programmes are based on a nationwide consultative process drawing on community meetings, regional workshops and national seminars, as appropriate. This process should ensure that views of women and men on needs, perspective and constraints are equally well reflected in the design of programmes, and that solutions are rooted in specific experience. The poor and underprivileged should be priority groups in this process.

5.46 Nationally determined policies for integrated and multifaceted programmes, with special attention to women, to the poorest people living in critical areas and to other vulnerable groups should be

implemented, ensuring the involvement of groups with a special potential to act as agents for change and sustainable development. Special emphasis should be placed on those programmes that achieve multiple objectives, encouraging sustainable economic development, and mitigating adverse impacts of demographic trends and factors, and avoiding long-term environmental damage. Food security, access to secure tenure, basic shelter, and essential infrastructure, education, family welfare, women's reproductive health, family credit schemes, reforestation programmes, primary environmental care, women's employment should, as appropriate, be included among other factors.

5.47 An analytical framework should be developed to identify complementary elements of sustainable development policies as well as the national mechanisms to monitor and evaluate their effects on population dynamics.

5.48 Special attention should be given to the critical role of women in population/environment programmes and in achieving sustainable development. Projects should take advantage of opportunities to link social, economic and environmental gains for women and their families. Empowerment of women is essential and should be assured through education, training and policies to accord and improve women's right and access to assets, human and civil rights, labour-saving measures, job opportunities and participation in decision-making. Population/environment programmes must enable women to mobilize themselves to alleviate their burden and improve their capacity to participate in and benefit from socio-economic development. Specific measures should be undertaken to close the gap between female and male illiteracy rates.

(b) Support programmes which promote changes in demographic trends and factors towards sustainability

5.49 Reproductive health programmes and services, should, as appropriate, be developed and enhanced to reduce maternal and infant mortality from all causes and enable women and men to fulfil their personal aspirations in terms of family size, in a way in keeping with their freedom and dignity and personally held values.

5.50 Governments should take active steps to implement, as a matter of urgency, in accordance with country-specific conditions and legal systems, measures to ensure that women and men have the same right to decide freely and responsibly on the number and spacing of their children, to have access to the information, education and means, as appropriate, to enable them to exercise this right in keeping with their freedom, dignity and personally held values taking into account ethical and cultural considerations.

5.51 Governments should take active steps to implement programmes to establish and strengthen preventive and curative health facilities which include women-centred, women-managed, safe and effective reproductive health care and affordable, accessible

services as appropriate for the responsible planning of family size, in keeping with freedom, dignity and personally held values, taking into account ethical and cultural considerations. Programmes should focus on providing comprehensive health care, including pre-natal care, education and information on health and responsible parenthood and should provide the opportunity for all women to fully breast feed at least during the first four months post-partum. Programmes should fully support women's productive and reproductive roles and well being, with special attention to the need for providing equal and improved health care for all children and the need to reduce the risk of maternal and child mortality and sickness.

5.52 Consistent with national priorities, culturally based information and education programmes that transmit reproductive health messages to men and women that are easily understood should be developed.

(c) Create appropriate institutional conditions

5.53 Constituencies and institutional conditions to facilitate the implementation of demographic activities should, as appropriate, be fostered. This requires support and commitment from political, indigenous, religious and traditional authorities, the private sector and the national scientific community. In developing these appropriate institutional conditions, countries should closely involve established national machinery for women.

5.54 Population assistance should be coordinated with bilateral and multilateral donors to ensure that population needs and requirements of all developing countries are addressed, fully respecting the overall coordinating responsibility, and the choice and strategies of the recipient countries.

5.55 Coordination should be improved at local and international level. Working practices should be enhanced in order to make optimum use of resources, draw on collective experience and improve the implementation of programmes. UNFPA and other relevant agencies should strengthen the coordination of international cooperation activities with recipient and donor countries in order to assure that adequate funding is available to respond to growing needs.

5.56 Proposals should be developed for local, national and international population/environment programmes in line with specific needs for achieving sustainability. Where appropriate, institutional changes must be implemented so that old-age security does not entirely depend on input from family members.

Means of implementation

(a) Financing and cost evaluation

5.57 [The total resources, national as well as external, currently

devoted to population activities in developing countries is estimated to be \$4.5 billion a year. Of that amount, nearly 80 per cent is provided by developing countries themselves. To carry out intensified programmes, and implement integrated population/environment actions in line with the above activities, an average of \$7 billion is needed annually in the 1993-2000 period, of which about half is required from international sources. The goal is to mobilize resources amounting to \$9 billion a year by the turn of the century. About \$6 million annually is needed to strengthen international institutions.]**

(b) Research

5.58 Research should be undertaken with a view to developing specific action programmes; it will be necessary to establish priorities between proposed areas of research.

5.59 Socio-demographic research should be conducted on how populations respond to a changing environment.

5.60 Understanding of socio-cultural and political factors that can positively influence acceptance of appropriate population policy instruments should be improved.

5.61 Surveys of changes in needs for appropriate services relating to responsible planning of family size, reflecting variations among different socio-economic groups, and in different geographical regions should be undertaken.

(c) Human resources development and capacity-building

5.62 The areas of human resources development and capacity-building, with particular attention to education and training of women, are areas of critical importance and are a very high priority in the implementation of population programmes.

5.63 Workshops to help programme and projects managers to link population programmes to other development and environmental goals should be conducted.

5.64 Educational materials, including guides/workbooks for planners and decision makers and other actors of population/environment/development programmes, should be developed.

5.65 Cooperation should be developed between Governments, scientific institutions and non-governmental organizations within the region, and similar institutions outside the region. Cooperation with local organizations should be fostered in order to raise awareness, engage in demonstration projects and report on the experience gained.

5.66 Recommendations contained in this chapter should in no way prejudice discussions in the International Conference on Population and Development (1994), which would be the appropriate forum to

deal with population and development issues, taking into account the recommendations of the United Nations Conference on Population (Mexico, 1984) and the Forward-looking Strategies for the Advancement of Women (Nairobi, 1985).

Chapter 6: Protection and promotion of human health

INTRODUCTION

6.1 [Health and development are intimately interconnected. Both insufficient development leading to poverty and inappropriate development resulting in overconsumption coupled with expanding world population can result in severe environmental health problems in both developing and developed nations. Action items under Agenda 21 must address the primary health needs of the world's population since they are integral with the achievement of the goals of sustainable development and primary environmental care. The linkage of health, environmental and socio-economic improvements requires intersectoral efforts. Such efforts involving education, housing, public works and community groups including businesses, schools and universities, religious, civic and cultural organizations, are aimed at enabling people in their communities to ensure sustainable development. Particularly relevant is the inclusion of prevention programmes rather than relying solely on remediation and treatment. Countries ought to develop plans for priority actions, drawing on programme areas (a) to (e) which are based on cooperative planning by the various levels of government, NGOs, and local communities. An appropriate international organization, such as the World Health Organization (WHO) should coordinate these activities.]

PROGRAMME AREAS

6.2 The following programme areas are developed in this chapter of Agenda 21.

- A. Meeting primary health care needs, particularly in rural areas
- B. Control of communicable diseases
- C. Protecting vulnerable groups
- D. Meeting the urban health challenge
- E. Reducing health risks from environmental pollution and hazards
- A. Meeting primary health care needs, particularly in rural areas

Basis for action

6.3 Health ultimately depends on the ability to successfully manage the interaction between the physical, spiritual, biological and economic/social environment. Sound development is not possible without a healthy population, yet most developmental activities affect to some degree the environment which, in turn, causes or exacerbates many health problems. Conversely, it is the very lack of development that adversely affects the health condition of many people and which can be alleviated only through development. The health sector cannot accomplish basic needs and objectives on its own; it is dependent on social, economic, and spiritual development while directly contributing to it. It is also dependent on a healthy environment, including the provision of a safe water supply and sanitation, and the promotion of a safe food supply and proper nutrition. Particular attention should be directed towards food safety with priority on the elimination of food contamination; comprehensive and sustainable water policies to ensure safe drinking water and sanitation to preclude both microbial and chemical contamination; promotion of health education, immunization and provision of essential drugs. Education and appropriate services regarding responsible

planning of family size with respect for cultural, religious, and social aspects in keeping with freedom, dignity and personally held values taking into account ethical and cultural considerations, also contribute to these intersectoral activities.

Objectives

6.4 Within the overall strategy to achieve health for all by the year 2000; to meet basic health needs of rural, peri-urban and urban populations; to provide necessary specialized environmental health services and coordinate involvement of citizens, the health sector, the health related sectors, and relevant non-health sectors (business, social, education and religious institutions) in solutions to health problems. As a matter of priority, health service coverage should be achieved for population groups in greatest need, particularly those living in rural areas.

Activities

6.5 National Governments and local authorities, with the support of relevant NGOs and international organizations, in the light of countries' specific conditions and needs, should strengthen their health sector programmes, with special attention to rural needs, to:

(a) Build basic health infrastructures, monitoring and planning systems

- (i) Develop and strengthen primary health care systems that are practical, community-based, scientifically sound, socially acceptable and appropriate to their needs and meet basic health needs of clean water, safe food and sanitation;
- (ii) Support the use and strengthening of mechanisms which improve the coordination between health and related sectors at all appropriate levels of government, communities and relevant organizations;
- (iii) Develop and implement rational and affordable approaches to the establishment and maintenance of health facilities;
- (iv) Ensure and, where appropriate, increase provision of social services support;
- (v) Develop strategies, including reliable health indicators, to monitor the progress and evaluate the effectiveness of health programmes;
- (vi) Explore ways to finance the health system based on the assessment of the resources needed and identify the various financing alternatives;
- (vii) Promote health education in schools, information exchange, technical support and training;
- (viii) Support initiatives for self-management of services by vulnerable groups;
- (ix) Integrate traditional knowledge and experience into national health systems, as appropriate;
- (x) Promote the provisions for necessary logistics for outreach activities, particularly in rural areas;
- (xi) Promote and strengthen community-based rehabilitation activities

for the rural handicapped.

(b) Support research and methodology development

- (i) Establish mechanisms for sustained community involvement in environmental health activities, including optimization of the appropriate use of community financial and human resources;
- (ii) Conduct environmental health research, including behaviour research and ways to increase coverage and ensure greater utilization of services by peripheral, underserved and vulnerable populations, as appropriate to good prevention services and health care;
- (iii) Conduct research into traditional knowledge of prevention and curative health practices.

Means of implementation

Financing and cost evaluation:

6.6 [Raising of health services levels to achieve objective (a) above requires expenditures of more than \$ 20 billion annually and about the same amount to achieve objective (b), totalling an annual expenditure of more than \$ 40 billion annually for the health sector. A contribution of about \$ 5 billion should be provided from international financial sources. This would include \$ 10 million annually for the strengthening of regional and global institutions which support national capacity-building in this area.]**

Scientific and technological means:

6.7 New approaches to planning and managing health care systems and facilities should be tested and research on ways of integrating appropriate technologies into health infrastructures supported. The development of scientifically sound health technology should enhance the adaptability to local needs and maintainability by community resources, including the maintenance and repair of equipment used in health care. Programmes to facilitate the transfer and sharing of information and expertise should be developed, including communication methods and educational materials.

Human resource development:

6.8 Intersectoral approaches to the reform of health personnel development should be strengthened to ensure its relevance to the "Health for All" strategies. Efforts to enhance managerial skills at the district level should be supported, with the aim of ensuring the systematic development and efficient operation of the basic health system. Intensive, short, practical training programmes with emphasis on skills in effective communication, community organization and facilitation of behaviour change should be developed in order to prepare the local personnel of all sectors involved in social development for carrying out their respective roles. In cooperation with the education sector, special health education programmes should be developed focusing on the role of women in the health care system.

Capacity-building:

6.9 Governments should consider adopting enabling and facilitating strategies to promote community participation in meeting its own needs in addition to providing direct support to the provision of health care services. A major focus should be the preparation of community-based health and health-related workers to assume an active role in community health education with emphasis on team work, social mobilization and the support of other

development workers. National programmes should cover district health systems in urban, peri-urban and rural areas; the delivery of health programmes at the district level, and the development and support of referral services.

B. Control of communicable diseases

Basis for action

6.10 Advances in the development of vaccines and chemotherapeutic agents have brought many communicable diseases under control. However, many important communicable diseases remain for which environmental control measures are indispensable, especially in the field of water supply and sanitation such as cholera, diarrhoeal diseases, leishmaniasis, malaria, and schistosomiasis. In all such instances, the environmental measures, either as an integral part of primary health care or undertaken outside the health sector, form an indispensable component of overall disease control strategies, together with health and hygiene education, and in some cases, are the only component.

6.11 With HIV infection levels estimated to increase to 30-40 million by the year 2000, the socio-economic impact of the pandemic is expected to be devastating for all countries and increasingly for women and children. While direct health costs will be substantial, they will be dwarfed by the indirect costs of the pandemic, i.e. mainly costs associated with the loss of income and decreased productivity of the workforce. The pandemic will inhibit growth of the service and industrial sectors and significantly increase costs of human capacity-building and retraining. The agricultural sector is particularly affected where production is labour-intensive.

Objectives

6.12 A number of goals have been formulated through extensive consultations in various international forums attended by virtually all Governments, relevant United Nations agencies (including WHO, UNICEF, UNFPA, UNESCO, and UNDP), the World Bank and a number of non-governmental organizations. Goals (including but not limited to those listed below) are recommended for implementation by all countries where they are applicable, with appropriate adaptation to the specific situation of each country in terms of phasing, standards, priorities, and availability of resources, with respect for cultural, religious and social aspects in keeping with freedom, dignity and personally held values, taking into account ethical considerations. Additional goals that are particularly relevant to a country's specific situation should be added in the country's national plan of action (Plan of Action for the implementation of the World Declaration on the Survival, Protection and Development of Children in the 1990s). Such national level action plans should be coordinated and monitored from within the public health sector. Some major goals are:

(a) By the year 2000, to eliminate Guinea worm disease (dracunculiasis);

(b) By the year 2000, eradicate polio;

(c) By the year 2000, to effectively control onchocerciasis (river blindness) and leprosy;

(d) By 1995, to reduce measles deaths by 95 per cent and reduce measles cases by 90 per cent compared with pre-immunization levels;

(e) By continued efforts, to provide health and hygiene education and to ensure universal access to safe drinking water and universal access to sanitary measures of excreta disposal, thereby markedly reducing waterborne diseases such as cholera and schistosomiasis; and,

- (i) By the year 2000, to reduce the number of deaths from childhood diarrhoea in developing countries by between 50 to 70 per cent;
- (ii) By the year 2000, to reduce the incidence of childhood diarrhoea in developing countries by at least 25 to 50 per cent;
- (f) By the year 2000, to initiate comprehensive programmes to reduce mortality from acute respiratory infections in children under five years by at least one third, particularly in countries with high infant mortality;
- (g) By the year 2000, to provide 95 per cent of the world's child population with access to appropriate care for acute respiratory infections within the community and at first referral level;
- (h) By the year 2000, to institute anti-malaria programmes in all countries where malaria presents a significant health problem and maintain the transmission-free status of areas freed from endemic malaria;
- (i) By the year 2000, to implement control programmes in countries where major human parasitic infections are endemic and achieve an overall reduction in the prevalence of schistosomiasis and of other trematode infections by 40 per cent and 25 per cent respectively from a 1984 baseline, as well as a marked reduction in incidence, prevalence and intensity of filarial infections;
- (j) To mobilize and unify national and international efforts against AIDS to prevent infection and to reduce the personal and social impact of HIV infection;
- (k) To contain the resurgence of tuberculosis with particular emphasis on multiple antibiotic resistant forms;
- (l) To accelerate research on improved vaccines and implement to the fullest extent possible the use of vaccines in the prevention of disease.

Activities

6.13 Each national Government, in accordance with national plans, for public health priorities and objectives, should consider developing a national health action plan with appropriate international assistance and support including, at a minimum, the following components:

- (a) National public health systems
 - (i) Programmes to identify environmental hazards in the causation of communicable diseases;
 - (ii) Monitoring systems of epidemiological data to ensure adequate forecasting of the introduction, spread or aggravation of communicable diseases;
 - (iii) Intervention programmes, including measures consistent with the principles of the global AIDS strategy;
 - (iv) Vaccines for the prevention of communicable diseases;
- (b) Public information and health education
 - (i) Provide education and disseminate information on the risks of endemic communicable diseases and build awareness on environmental methods for control of communicable diseases to enable communities to play a role in the control of communicable diseases;

- (c) Intersectoral cooperation and coordination
 - (i) Second experienced health professionals, to relevant sectors, such as planning, housing and agriculture;
 - (ii) Develop guidelines for effective coordination in the areas of professional training, assessment of risks and development of control technology;
- (d) Control of environmental factors that influence the spread of communicable diseases
 - (i) Apply methods for the prevention and control of communicable diseases including water supply and sanitation, water pollution control, food quality control, integrated vector control, garbage collection and disposal, and environmentally sound irrigation practices;
- (e) Primary health care system
 - (i) Strengthen prevention programmes with particular emphasis on adequate and balanced nutrition;
 - (ii) Strengthen early diagnostic programmes and improve capacities for early preventative/treatment action;
 - (iii) Reduce the vulnerability to HIV infection of women and of their offspring;
- (f) Support research and methodology development
 - (i) Intensify and expand multidiscipline research, including focused efforts on the mitigation and environmental control of tropical diseases;
 - (ii) Carry out intervention studies to provide a solid epidemiological basis for control policies and to evaluate the efficiency of alternative approaches;
 - (iii) Undertake studies in the population and among health workers to determine the influence of cultural, behavioural and social factors on control policies;
- (g) Development and dissemination of technology
 - (i) Develop new technologies for the effective control of communicable diseases;
 - (ii) Promote studies to determine how to optimally disseminate results from research;
 - (iii) Ensure technical assistance including the sharing of knowledge and know-how.

Means of implementation

Financing and cost evaluation:

6.14 [The health sector expenditure of developing countries for the control and prevention of communicable diseases, particularly the tropical and vector-borne diseases, is estimated at \$ 2 billion annually. The international financial support should contribute about one third of the

health sector costs, or \$ 600 million, annually. This includes \$ 4 million annually for the support of international institutions. In addition, vector control services and insecticides require annual expenditures in the order of \$ 1 billion annually.

6.15 The public health expenditures for the prevention of AIDS and the treatment of AIDS cases is estimated to cost the developing countries around \$ 1 billion annually. The international financial support should cover about \$ 300 million thereof, including global and regional institutions and programmes.]**

Scientific and technological means:

6.16 Efforts to prevent and control diseases should include investigations of the epidemiological, social and economic bases for the development of more effective national strategies for the integrated control of communicable diseases. Cost-effective methods of environmental control should be adapted to local developmental conditions.

Human resources development:

6.17 National and regional training institutions should promote broad intersectoral approaches to prevention and control of communicable diseases, including training in epidemiology and community prevention and control, immunology, molecular biology and the application of new vaccines. Health education materials should be developed for use by community workers and for the education of mothers for the prevention and treatment of diarrhoeal diseases in the home.

Capacity-building:

6.18 The health sector should develop adequate data on the distribution of communicable diseases as well as the institutional capacity to respond and collaborate with other sectors for prevention, mitigation and correction of communicable disease hazards through environmental protection. The advocacy at policy- and decision-making levels should be gained, professional and societal support mobilized, and communities organized in developing their self-reliance.

C. Protecting vulnerable groups

Basis for action

6.19 In addition to meeting basic health needs, specific emphasis has to be given to protecting and educating vulnerable groups, particularly infants, youth, women, indigenous people [, people under occupation] and the very poor as a prerequisite for sustainable development. Special attention should also be paid to the health needs of the elderly and disabled population.

6.20 Infants and children: Approximately one third of the world's population are children under 15 years old. At least 15 million of these children die annually from such preventable causes as birth trauma, birth asphyxia, acute respiratory infections, malnutrition, communicable diseases and diarrhoea. The health of children is affected more severely than other population groups by malnutrition and adverse environmental factors, and many children risk exploitation as cheap labour or in prostitution.

6.21 Youth: As has been the historical experience of all countries, youth are particularly vulnerable to the problems associated with economic development which often weakens traditional forms of social support essential for healthy development of young people. Urbanization and changes in social mores have increased substance abuse, unwanted pregnancy and sexually

transmitted diseases including AIDS. Currently more than half of all people alive are under the age of 25 and 4 of every 5 live in developing countries, therefore it is important to ensure that historical experience is not replicated.

6.22 Women: In developing countries, the health status of women remains relatively low, and during the 1980s poverty, malnutrition and general ill-health in women were even rising. Most women in developing countries still do not have adequate basic educational opportunities and they lack the means of promoting their health, responsibly controlling their reproductive life and improving their socio-economic status. Particular attention should be given to the provision of pre-natal care to ensure healthy babies.

6.23 Indigenous people and their communities: Indigenous people and their communities make up a significant percentage of global population. The outcomes of their experience have tended to be very similar in that the basis of their relationship with traditional lands has been fundamentally changed. They tend to feature disproportionately in unemployment, lack of housing, poverty and poor health. In many countries the number of indigenous people is growing faster than the general population. Therefore it is important to target health initiatives for indigenous people.

Objectives

6.24 The general objectives of protecting vulnerable groups are to ensure that all such individuals should be allowed to develop to their full potential (including healthy, physical, mental and spiritual development): to ensure that young people can develop, establish and maintain healthy lives; to allow women to perform their key role in society; and to support indigenous people [and people under occupation] through educational, economic and technical opportunities.

6.25 Specific major goals for child survival, development and protection were agreed upon at the World Summit for Children and remain valid also for Agenda 21. Supporting and sectoral goals cover women's health and education, nutrition, child health, water and sanitation, basic education and children in difficult circumstances.

6.26 Governments should take active steps to implement, as a matter of urgency, in accordance with country specific conditions and legal systems, measures to ensure that women and men have the same right to decide freely and responsibly on the number and spacing of their children, to have access to the information, education and means, as appropriate, to enable them to exercise this right in keeping with their freedom, dignity and personally held values taking into account ethical and cultural considerations.

6.27 Governments should take active steps to implement programmes to establish and strengthen preventive and curative health facilities which include women-centered, woman-managed, safe and effective reproductive health care and affordable, accessible services as appropriate for the responsible planning of family size, in keeping with freedom, dignity and personally held values, taking into account ethical and cultural considerations. Programmes should focus on providing comprehensive health care, including pre-natal care, education and information on health and responsible parenthood and should provide the opportunity for all women to fully breast feed at least during the first four months post-partum. Programmes should fully support women's productive and reproductive roles and well being, with special attention to the need for providing equal and improved health care for all children and the need to reduce the risk of maternal and child mortality and sickness.

Activities

6.28 National Governments, in cooperation with local and non-governmental organizations should initiate or enhance programmes in the following areas:

(a) Infants and children

- (i) Strengthen basic health care services for children, in the context of primary health care delivery including prenatal care, breast-feeding, immunization and nutrition programmes;
- (ii) Undertake widespread adult education on the use of oral rehydration therapy for diarrhoea, treatment of respiratory infections and prevention of communicable diseases;
- (iii) Promote creation, amendment, and enforcement of a legal framework protecting children from sexual and workplace exploitation;
- (iv) Protect children from the effects of environmental and occupational toxic compounds;

(b) Youth

- (i) Strengthen services for youth in health, education and social sectors in order to provide better information, education, counselling and treatment for specific health problems, including drug abuse;

(c) Women

- (i) Involve women's groups in decision-making at the national and community levels to identify health risks and incorporate health issues in national action programmes on women and development;
- (ii) Provide concrete incentives to encourage and maintain attendance of women of all ages at school and adult education courses, including health education and training in primary, home and maternal health care;
- (iii) Carry out baseline surveys and knowledge, attitude and practice studies on health and nutrition of women throughout their life cycle, especially as related to the impact of environmental degradation and adequate resources;

(d) Indigenous people and their communities

- (i) Strengthen by resource and self-management preventative and curative health services;
- (ii) Integrate traditional knowledge and experience into health systems.

Means of implementation

Financing and cost evaluation:

6.29 [The incremental cost, above the basic health needs, for activities to address the special needs of vulnerable groups is an estimated \$ 3.7 billion per year to cover child health programmes, youth programmes and women's health programmes. About \$ 400 million would be needed from international sources, including \$ 5 million annually to strengthen international institutions.]**

Scientific and technological means:

6.30 Educational, health and research institutions should be strengthened to provide support to improve the health of vulnerable groups. Social research on the specific problems of these groups should be expanded and methods for implementing flexible pragmatic solutions explored with emphasis on preventive measures. Technical support should be provided to Governments, institutions and youths', women's and indigenous peoples' [and people under occupation's] non-governmental organizations in the health sector.

Human resources development:

6.31 The development of human resources for the health of children, youth and women should include reinforcement of educational institutions, promotion of interactive methods of education for health and increased use of mass media in disseminating information to the target groups. This requires the training of more community health workers, nurses, midwives, physicians, social scientists and educators, the education of mothers, families and communities and the strengthening of ministries of education, health, population etc.

Capacity-building:

6.32 The Governments should promote where necessary (i) the organization of national, intercountry and interregional symposia and other meetings for the exchange of information among agencies and groups concerned with the health of children, youth, women and indigenous peoples, and (ii) women's organizations, youth groups and indigenous peoples' organizations [and various bodies and organizations under occupation] to facilitate health and consult them on the creation, amendment and enforcement of legal frameworks to ensure a healthy environment for children, youth, women and indigenous peoples [and people under occupation].

D. Meeting the urban health challenge

Basis for action

6.33 For hundreds of millions of people, the poor living conditions in urban and peri-urban areas are destroying lives, health, social and moral values. Urban growth has outstripped society's capacity to meet human needs, leaving hundreds of millions of people with inadequate incomes, diets, housing and services. Urban growth exposes populations to serious environmental hazards and has outstripped the capacity of municipal and local governments to provide the environmental health services that the people need. All too often, urban development is associated with destructive effects on the physical environment and the resource base needed for sustainable development. Environmental pollution in urban areas is associated with excess morbidity and mortality. Overcrowding and inadequate housing contribute to respiratory diseases, tuberculosis, meningitis and other diseases. In urban environments, many factors that affect human health are outside the health sector. Improvements in urban health therefore will depend on coordinated action by all levels of government, health care providers, businesses, religious groups, social and educational institutions and citizens.

Objectives

6.34 To improve the health and well-being of all urban dwellers, so that they can contribute to economic and social development. The global objective is to achieve a 10 to 40 per cent improvement in health indicators by the year 2000. The same rate of improvement should be achieved for environmental, housing, and health services indicators. These include the development of quantitative objectives for: infant mortality, maternal mortality, percentage of low birth weight newborns, and specific indicators (e.g. tuberculosis as an indicator of crowded housing, diarrhoeal diseases as indicators of inadequate water and sanitation, rates of industrial and transportation accidents that indicate

possible opportunities for prevention of injury, and social problems such as drug abuse, violence and crime that indicate underlying social disorders).

Activities

6.35 Local authorities, with the appropriate support of national Governments and international organizations should be encouraged to take effective measures to initiate or strengthen the following activities:

- (a) Develop and implement municipal and local health plans
 - (i) Establish or strengthen intersectoral committees at both the political and technical level, including active collaboration on linkages with scientific, cultural, religious, medical, business, social and other city institutions, using networking arrangements;
 - (ii) Adopt or strengthen municipal or local "enabling strategies" that emphasize "doing with" rather than "doing for" and create supportive environments for health;
 - (iii) Ensure that public health education in schools, workplace, mass media etc. is provided or strengthened;
 - (iv) Encourage communities to develop personal skills and awareness of primary health care;
 - (v) Promote and strengthen community-based rehabilitation activities for the urban and peri-urban disabled and the elderly;
- (b) Survey, where necessary, the existing health, social and environmental conditions in cities including documentation of intra-urban differences
- (c) Strengthen environmental health services
 - (i) Adopt health impact and environmental impact assessment procedures;
 - (ii) Provide basic and in-service training for new and existing personnel;
- (d) Establish and maintain city networks for collaboration and exchange of models of good practice

Means of implementation

Financing and cost evaluation:

6.36 [Most of the programme activities should be performed by the cities using local resources. For the implementation of healthy cities and other similar programmes, the local cost of activities would be in the order of \$ 200 million annually. The international contributions in support of accelerated development is estimated to be about \$ 20 million per year until the year 2000. Strengthening of international institutions is required to provide collaborative networks, development of assessment methods for planning purposes, design of new technologies and managerial support. International financing of labour \$ 2 million is required annually for this.]**

Scientific and technological means:

6.37 Decision-making models should be further developed and more widely used to assess the costs and the health and environment impacts of alternative

technologies and strategies. Improvement in urban development and management requires better national and municipal statistics based on practical, standardized indicators. Development of methods is a priority for the measurement of intra-urban and intra-district variations in health status and environmental conditions, and for the application of this information in planning and management.

Human resources development:

6.38 Programmes must supply the orientation and basic training of municipal staff required for the healthy city processes. Basic and in-service training of environmental health personnel will also be needed.

Capacity-building:

6.39 The programme is aimed towards improved planning and management capabilities in the municipal and local government and its partners in central Government, the private sector and universities. Capacity development should be focused on obtaining sufficient information, improving coordination mechanisms linking all the key actors, and making better use of available instruments and resources for implementation.

E. Reducing health risks from environmental pollution and hazards

Basis for action

6.40 In many locations around the world the general environment (air, water and land), workplaces and even individual dwellings are so badly polluted that the health of hundreds of millions of people is adversely affected. This is, inter alia, due to past and present developments in consumption and production patterns, lifestyles, in energy production and use, in industry, in transportation etc., with little or no regard for environmental protection. There have been notable improvements in some countries, but deterioration of the environment continues. The ability of countries to tackle pollution and health problems is greatly restrained because of lack of resources. Pollution control and health protection measures have often not kept pace with economic development. Considerable development-related environmental health hazards exist in the newly industrializing countries. Furthermore, the recent analysis of the World Health Organization has clearly established the interdependence among the factors of health, environment and development, and has revealed that most countries are lacking such integration as would lead to an effective pollution control mechanism (Report of the World Health Organization's Commission on Health and Environment, in press, 1992). Without prejudice to such criteria as may be agreed upon by the international community, or to standards which will have to be determined nationally, it will be essential in all cases to consider the systems of values prevailing in each country, and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.

Objectives

6.41 The overall objective is to minimize hazards and maintain the environment to a degree that human health and safety is not impaired or endangered and yet encourage development to proceed. Specific programme objectives are:

(a) By the year 2000, to incorporate appropriate environmental and health safeguards as part of national development programmes in all countries;

(b) By the year 2000, to establish, as appropriate, adequate national infrastructure and programmes for providing environmental injury, hazard

surveillance and the basis for abatement in all countries;

(c) By the year 2000, to establish, as appropriate, integrated programmes for tackling pollution at source and at disposal site with a focus on abatement actions in all countries;

(d) To identify and compile, as appropriate, the necessary statistical information on health effects to support cost benefit analysis including environmental health impact assessment for pollution control, prevention, and abatement measures.

Activities

6.42 Nationally determined action programmes with international assistance, support and coordination, where necessary, in this area should include:

(a) Urban air pollution

- (i) Develop appropriate pollution control technology on the basis of risk assessment and epidemiological research for the introduction of environmentally sound production processes and suitable safe mass transport;
- (ii) Develop air pollution control capacities in large cities emphasizing enforcement programmes using monitoring networks as appropriate;

(b) Indoor air pollution

- (i) Support research and develop programmes for applying prevention and control methods to reducing indoor air pollution, including the provision of economic incentives for the installation of appropriate technology;
- (ii) Develop and implement health education campaigns, particularly in developing countries, to reduce the health impact of domestic use of biomass and coal;

(c) Water pollution

- (i) Develop appropriate water pollution control technologies on the basis of health risk assessment;
- (ii) Develop water pollution control capacities in large cities;

(d) Pesticides

- (i) Develop mechanisms to control the distribution and use of pesticides in order to minimize the risks to human health by transportation, storage, application and residual effects of pesticides used in agriculture and preservation of wood;

(e) Solid waste

- (i) Develop appropriate solid waste disposal technologies on the basis of health risk assessment;
- (ii) Develop appropriate solid waste disposal capacities in large cities;

(f) Human settlements

- (i) Develop programmes for improving health conditions in human settlements, in particular within slums and non-tenured settlements on the basis of health risk assessment;
- (g) Noise
 - (i) Develop criteria for maximum permitted safe noise exposure levels and promote noise assessment and control as part of environmental health programmes;
- (h) Ionizing and non-ionizing radiation
 - (i) Develop and implement appropriate national legislation, standards and enforcement procedures on the basis of existing international guidelines;
- (i) Effects of ultraviolet radiation
 - (i) Undertake, as a matter of urgency, research on the effects on human health of the increasing ultraviolet radiation reaching the earth's surface as a consequence of depletion of the stratospheric ozone layer;
 - (ii) On the basis of the outcome of this research, consider taking appropriate remedial measures to mitigate the above-mentioned effects on human beings;
- (j) Industry and energy production
 - (i) Establish environmental health impact assessment procedures for the planning and development of new industries and energy facilities;
 - (ii) Incorporate appropriate health risk analysis in all national programmes for pollution control and management, with particular emphasis on toxic compounds such as lead;
 - (iii) Establish industrial hygiene programmes in all major industries for the surveillance of workers' exposure to health hazards;
 - (iv) Promote the introduction of environmentally sound technologies within the industry and energy sectors;
- (k) Monitoring and assessment
 - (i) Establish as appropriate adequate environmental monitoring capacities for the surveillance of environmental quality and health status of populations;
- (l) Injury monitoring and reduction
 - (i) Support, as appropriate, the development of systems to monitor the incidence and cause of injury to allow well-targeted intervention/prevention strategies;
 - (ii) Develop, in accordance with national plans, strategies in all sectors (industry, traffic, and others) consistent with the WHO safe cities and safe communities programmes, to reduce the frequency and severity of injury;
 - (iii) Emphasize preventive strategies to reduce occupationally derived diseases and diseases caused by environmental and occupational

toxins to enhance worker safety;

(m) Research promotion and methodology development

- (i) Support the development of new methods for the quantitative assessment of health benefits and cost associated with different pollution control strategies;
- (ii) Develop and carry out interdisciplinary research on the combined health effects of exposure to multiple environmental hazards, including epidemiological investigations of long-term exposures to low levels of pollutants and the use of biological markers capable of estimating human exposures, adverse effects and susceptibility to environmental agents.

Means of implementation

Financing and cost evaluation:

6.43 [The reduction of air pollution in urban areas of the developing countries requires annual investments on the order of \$ 2.5 billion, with a private sector component of about \$ 2.0 billion. The public expenditure component of about \$ 500 million includes an international financial contribution of about \$ 50 million annually. The reduction of indoor air pollution from household biomass use is estimated at \$ 500 million annually with an international financing component of about \$ 50 million annually.

6.44 The establishment and strengthening of health-oriented monitoring systems for air, water and soil in developing countries and of national capacities for dealing with air pollution, indoor air quality, noise, radiation, health impact assessment and research promotion requires about \$ 30 million annually with \$ 15 million coming from international sources, including \$ 2 million for the strengthening of international institutions.]**

Scientific and technological means:

6.45 Although technology to prevent or abate pollution is readily available for a large number of problems, for programme and policy development countries should undertake research within an intersectoral framework. Such efforts should include collaboration from the business sector. Cost-effect analysis and environmental impact assessment methods should be developed through cooperative international programmes and applied to the setting of priorities and strategies in relation to health and development.

6.46 In the activities listed under (a) to (l) above, developing country efforts should be facilitated by access to and transfer of technology, know-how and information, from the repositories of such knowledge and technologies[, on concessional and preferential terms].

Human resource development:

6.47 Comprehensive national strategies should be designed to overcome the lack of qualified human resources, which is a major impediment to progress in dealing with environmental health hazards. Training should include environmental and health officials at all levels from managers to inspectors. More emphasis needs to be placed on including the subject of environmental health in the curricula of secondary schools and universities and on educating the public.

Capacity-building:

6.48 Each country should develop the knowledge and practical skills to

foresee and identify environmental health hazards, and the capacity to reduce the risks. Basic capacity requirements must include: knowledge about environmental health problems and awareness on the part of leaders, citizens and specialists; operational mechanisms for intersectoral and intergovernmental cooperation in development planning and management and in combating pollution; arrangements for involving private and community interests in dealing with social issues; delegation of authority and distribution of resources to intermediate and local levels of government to provide front-line capabilities to meet environmental health needs.

Footnote: These paragraphs contain matters relating to means of implementation, including cost estimates, which are indicative secretariat figures provided pursuant to decision A/CONF/151/PC/L.49*. They remain in brackets as they have not been negotiated.

Chapter 7 - PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT

I. INTRODUCTION

7.1 In industrialized countries, the consumption patterns of cities are severely stressing the global ecosystem while settlements in the developing world need more raw material, energy, and economic development simply to overcome basic economic and social problems. Human settlement conditions in many parts of the world, particularly the developing countries are deteriorating mainly as a result of the low levels of investments in the sector attributable to the overall resource constraints in these countries. In the low-income countries for which recent data are available, an average of only 5.6 per cent of central government expenditure went to housing, amenities, social security and welfare. 1/ Expenditure by international support and finance organizations is equally low. For example, only 1 per cent of the United Nations system's total grant-financed expenditures in 1988 went to human settlements 2/ while in 1991, loans from the World Bank and the International Development Association (IDA) for urban development and water supply and sewerage amounted to 5.5 and 5.4 per cent, respectively, of their total lending. 3/

7.2 On the other hand, available information indicates that technical cooperation activities in the human settlement sector generate considerable public and private sector investment. For example, every dollar of UNDP technical cooperation expenditure on human settlements in 1988 generated a follow-up investment of \$ 122, the highest of all UNDP sectors of assistance. 4/

7.3 This is the foundation of the "enabling approach" advocated for the human settlement sector. External assistance will help to generate the internal resources needed to improve the living and working environments of all people by the year 2000 and beyond, including the growing number of unemployed - the no-income group. At the same time the environmental implications of urban development should be recognized and addressed in an integrated fashion by all countries with high priority being given to the needs of the urban and rural poor, the unemployed and the growing number of people without any source of income.

Human settlement objective

7.4 The overall human settlement objective is to improve the social, economic and environmental quality of human settlements and the living and working environments of all people, in particular the urban and rural poor. Such improvement should be based on technical cooperation activities, partnerships among the public, private and community sectors and participation in the decision making process from community groups and special interest groups such as women, indigenous people, the elderly and the disabled. These approaches should form the core principles of national settlement strategies. In developing these strategies, countries will need to set priorities among the eight programme areas in this document in accordance with their national plans and objectives taking fully into account their social and cultural capabilities. Furthermore, countries should make appropriate provision to monitor the impact of their strategies on marginalized and disenfranchised groups with particular reference to the needs of

women.

7.5 The programme areas included in this chapter are:

- A. Providing adequate shelter for all;
- B. Improving human settlement management;
- C. Promoting sustainable land use planning and management;
- D. Promoting the integrated provision of environmental infrastructure: water, sanitation, drainage, hazardous and solid waste management;
- E. Promoting sustainable energy and transport systems in human settlements;
- F. Promoting human settlement planning and management in disaster-prone areas;
- G. Promoting sustainable construction industry activities;
- H. Promoting human resource development and capacity-building for human settlement development.

II. PROGRAMME AREAS

A. Providing adequate shelter for all

Basis for action

7.6 Access to safe and healthy shelter is essential to a person's physical, psychological, social and economic well-being and should be a fundamental part to national and international action. The right to adequate housing as a basic human right is enshrined in the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights. Despite this, it is estimated that at the present time, at least 1 billion people do not have access to safe and healthy shelter and that if appropriate action is not taken, this number will increase dramatically by the end of the century and beyond.

7.7 A major global programme to address this problem is the Global Strategy for Shelter to the Year 2000, adopted by the General Assembly in December 1988 (resolution 43/181, annex). Despite its widespread endorsement, the Strategy needs a much greater level of political and financial support to enable it to reach its goal of facilitating adequate shelter for all by the end of the century and beyond.

Objective

7.8 The objective is to achieve adequate shelter for rapidly growing populations and for the currently deprived urban and rural poor through an enabling approach to shelter development and improvement which is environmentally sound.

Activities

7.9 The following activities should be undertaken:

(a) As a first step towards the goal of "providing adequate shelter for all" all countries should take immediate measures to provide shelter to their homeless poor, while the international community and financial institutions should undertake actions to support the efforts of the developing countries to provide shelter to the poor;

(b) All countries should adopt and/or strengthen national shelter strategies with targets as appropriate based on the principles and recommendations contained in the Global Strategy for Shelter to the Year 2000. People should be protected by law against unfair eviction from their homes or land;

(c) All countries should, as appropriate, support the shelter efforts of the urban and rural poor, the unemployed and the no-income group by adopting and/or adapting existing codes and regulations, to facilitate their access to land, finance and low-cost building materials and by actively promoting the regularization and upgrading of informal settlements and urban slums as an expedient measure and pragmatic solution to the urban shelter deficit;

(d) All countries should, as appropriate, facilitate access of urban and rural poor to shelter by adopting and utilizing housing and finance schemes and new innovative mechanisms adapted to their circumstances;

(e) All countries should support and develop environmentally compatible shelter strategies at national, state/provincial, and municipal levels for through partnerships among the private, public, and community sectors and with the support of community-based organizations;

(f) All countries, especially developing ones, should, as appropriate, formulate and implement programmes to reduce the impact of the phenomenon of rural to urban drift by improving rural living conditions;

(g) All countries, where appropriate, should develop and implement resettlement programmes which address the specific problems of displaced populations in their respective countries;

(h) All countries should, as appropriate, document and monitor the implementation of their national shelter strategies by using, inter alia, the monitoring guidelines adopted by the Commission on Human Settlements and the shelter performance indicators being produced jointly by the United Nations Centre for Human Settlements (Habitat) and the World Bank;

(i) Bilateral and multilateral cooperation should be strengthened in order to support the implementation of the national shelter strategies of developing countries;

(j) Global progress reports covering national action as well as support activities of international organizations and bilateral donors should be produced and disseminated on a biennial basis as requested by the Global Shelter Strategy for the Year 2000.

Means of implementation

(a) Financing and cost evaluation

[7.10 The total requirements for obtaining adequate shelter conditions for the urban and rural poor by the year 2000 are about \$ 75 billion annually, to be financed primarily from household, community and national resources. About US\$ 10 billion per year in external financing will be needed.]**

[7.11 Annual support costs for strengthening international institutions in support of the Strategy's programme of action are estimated at \$ 10 million per year, a portion of which will be needed by the United Nations Centre for Human Settlements (Habitat), to support its role as the agency designated by the General Assembly as the secretariat for the Strategy.]**

(b) Scientific and technological means

7.12 The requirements under this heading are addressed in each of the other programme areas included in the present chapter.

(c) Human resource development and capacity-building

[7.13 Developed countries and funding agencies should provide specific assistance to developing countries in adopting an enabling approach to the provision of shelter for all, including the no-income group, and covering research institutions and training activities for government officials, professionals, communities and non-governmental organizations and by strengthening local capacity for the development of appropriate technologies.]

B. Improving human settlement management

Basis for action

7.14 By the turn of the century, the majority of the world's population will be living in cities. While urban settlements, particularly in developing countries, are showing many of the symptoms of the global environment and development crisis, they nevertheless generate 60 per cent of gross national product and, if properly managed, can develop the capacity to sustain their productivity, improve the living conditions of their residents and manage natural resources in a sustainable way.

7.15 Some metropolitan areas extend over the boundaries of several political and/or

administrative entities (counties and municipalities) even though they conform a continuous urban system. In many cases this political heterogeneity hinders the implementation of comprehensive environmental management programmes.

Objectives

7.16 The objectives are to ensure sustainable management of all urban settlements, particularly in developing countries, in order to enhance their ability to improve living conditions of residents, especially the marginalized and disenfranchised, thereby contributing to the achievement of national economic development goals.

Activities

(a) Improve urban management

7.17 One existing framework for strengthening management is in the United Nations Development Programme/World Bank/United Nations Centre for Human Settlements (Habitat) Urban Management Programme (UMP), a concerted global effort to assist developing countries in addressing urban management issues. Its coverage should be extended to all interested countries during the period 1993-2000. All countries should as appropriate, and in accordance with national plans, objectives and priorities and with the assistance of NGOs and representatives of local authorities, undertake the following activities at the national, state/provincial, and local levels with the assistance of relevant programmes and support agencies:

(a) Adopt and apply urban management guidelines in the areas of land management, urban environmental management, infrastructure management and municipal finance and administration;

(b) Accelerate efforts to reduce urban poverty through a number of actions, including:

(i) Generate employment for the urban poor, particularly women, through the provision, improvement and maintenance of urban infrastructure and services and the support of economic activities in the informal sector, such as repairs, recycling, services and small commerce;

(ii) Provide specific assistance to the poorest of the urban poor through, inter alia, the creation of social infrastructure in order to reduce hunger and homelessness, and the provision of adequate community services;

(iii) Encourage the organization of indigenous community-based organizations, private voluntary organizations, and other forms of non-governmental entities which can contribute efforts to reduce poverty and improve the quality of life for low-income families;

(c) Adopt innovative city planning strategies to address environmental and social issues by:

(i) Reducing subsidies on, and recovering full costs of, high standard environmental and other services (e.g. water supply, sanitation, waste collection, roads, telecommunications) provided to higher income neighborhoods;

(ii) Improving the level of infrastructure and service provision in poorer urban areas;

(d) Develop local strategies for the improvement of the quality of life and the environment, integrating decisions for land use and land management, investment in public and private sectors, as well as mobilize human and material resources, thereby promoting employment generation which is environmentally sound and protective of human health.

(b) Strengthen urban data systems

7.18 All countries should undertake during the period 1993-2000 with the active participation of the business sector as appropriate pilot projects in selected cities for the collection, analysis and subsequent dissemination of urban data including environmental impact analysis, at the local, state/provincial, national and international levels and the establishment of city data management capabilities. 5/ United Nations organizations such as Habitat, UNEP and UNDP could provide technical advice and model data management systems.

(c) Encourage intermediate city development

7.19 In order to relieve pressure on large urban agglomerations of developing countries, policies and strategies should be implemented towards the development of intermediate cities which create employment opportunities for unemployed labour in the rural areas and support rural-based economic activities, although sound urban management is essential to ensure that "urban sprawl" does not expand resource degradation over an ever wider land area and increase pressures to convert open space and agricultural/buffer lands for development.

7.20 For this purpose, all countries should, as appropriate, conduct reviews of urbanization processes and policies in order to assess environmental impacts of growth and apply urban planning and management approaches specifically suited to the needs, resource capabilities and characteristics of their growing intermediate-sized cities. As appropriate, they should also concentrate on activities aimed at facilitating the transition from rural to urban lifestyles and settlement patterns and at promoting the development of small-scale economic activities, particularly the production of food, to support local income generation and the production of intermediate goods and services for rural hinterlands.

7.21 All cities, particularly those characterized by severe sustainable development problems, should in accordance with national laws, rules and regulations develop and strengthen programmes aimed at addressing such problems and guiding their development along a sustainable path. Some international initiatives in support of such efforts as in the Sustainable

Cities Programme of the United Nations Centre for Human Settlements (Habitat) and the Healthy Cities Programme of the World Health Organization (WHO) should be intensified. Additional initiatives involving the World Bank, the regional development banks and bilateral agencies as well as other interested stakeholders, particularly international and national representatives of local authorities should be strengthened and coordinated. Individual cities should, as appropriate:

(a) Institutionalize a participatory approach to sustainable urban development, based on a continuous dialogue between the actors involved in urban development (public sector, private sector and communities), especially women and indigenous people;

(b) Improve the urban environment by promoting social organization and environmental awareness through the participation of local communities in the identification of public services needs, the provision of urban infrastructure, the enhancement of public amenities and the protection and/or rehabilitation of older buildings, historic precincts and other cultural artifacts. In addition, "green works" programmes should be activated to create self-sustaining human development activities and both formal and informal employment opportunities for low-income urban residents;

(c) Strengthen the capacities of their local governing bodies to deal more effectively with the broad range of developmental and environmental challenges associated with rapid and sound urban growth through comprehensive approaches to planning which recognize the individual needs of cities and which are based on ecologically sound urban design practices;

(d) Participate in international "sustainable city networks" to exchange experiences and mobilize national and international technical and financial support;

(e) Promote the formulation of environmentally sound and culturally sensitive tourism programmes as a strategy of sustainable development of urban and rural settlements and as a way of decentralizing urban development, and of reducing discrepancies among regions;

(f) Establish mechanisms with the assistance of relevant international agencies to mobilize resources for local initiatives for improvements in environmental quality;

(g) Empower community groups, non-governmental organizations and individuals to assume the authority and responsibility for managing and enhancing their immediate environment through participatory tools, techniques and approaches embodied in the concept of environmental care.

7.22 Cities of all countries should reinforce cooperation among themselves and cities of the developed countries, under the aegis of non-governmental organizations active in this field, such as the International Union of Local Authorities (IULA), the International Council for Local Environmental Initiatives (ICLEI) and the World Federation of Twin Cities.

Means of implementation

(a) Financing and cost evaluation

[7.23 Total annual requirements, primarily for infrastructure maintenance and operations for municipal services in developing countries are roughly estimated at \$ 100 billion, to be financed mostly by revenues. The total external financial and technical assistance required is estimated at about \$ 15 billion per year. About \$ 10 million would be needed for strengthening international institutions.]**

(b) Human resource development and capacity-building

7.24 Developing countries should, with appropriate international assistance, consider focusing on training and developing a cadre of urban managers, technicians, administrators and other relevant stakeholders needed to successfully manage environmentally sound urban development and growth and equipped with the skills necessary to analyze and adapt innovative experiences of other cities. For this purpose, the full range of training methods - from formal education to the use of the mass media - should be utilized, as well as the "learning by doing" option.

7.25 Developing countries should also encourage technological training and research through joint efforts by donors, non-governmental organizations and private business in such areas as the reduction of waste, water quality, saving of energy, safe production of chemicals and less polluting transportation.

7.26 Capacity-building activities carried out by all countries, assisted as suggested above, should go beyond the training of individuals and functional groups to include institutional arrangements, administrative routines, inter-agency linkages, information flows and consultative processes.

7.27 In addition, international efforts such as the Urban Management Programme, in cooperation with multilateral and bilateral agencies, should continue to assist the developing countries in their efforts to develop a participatory structure by mobilizing the human resources of the private sector, non-governmental organizations and the poor, particularly women and the disadvantaged.

C. Promoting sustainable land use planning and management

Basis for action

7.28 Access to land resources is an essential component of sustainable low impact lifestyles. Land resources are the basis for (human) living systems and provide soil, energy, water and the opportunity for all human activity. In rapidly growing urban areas, access to land is rendered increasingly difficult by the conflicting demands of industry, housing, commerce, agriculture,

land tenure structures and the need for open spaces. Furthermore, the rising costs of urban land prevent the poor from gaining access to suitable land. In rural areas, unsustainable practices, such as the exploitation of marginal lands and the encroachment on forests and ecologically fragile areas by commercial interests and landless rural populations, result in environmental degradation as well as in diminishing returns for impoverished rural settlers.

Objective

7.29 The objective is to provide for the land requirements of human settlement development through environmentally sound physical planning and land use so as to ensure access to land to all households and where appropriate, the encouragement of communally and collectively owned and managed land. Particular attention should be paid to the needs of women, and indigenous people for economic and cultural reasons.

Activities

7.30 All countries should consider, as appropriate, undertaking a comprehensive national inventory of their land resources in order to establish a land information system in which land resources will be classified according to their most appropriate uses and environmentally fragile or disaster-prone areas will be identified for special protection measures.

7.31 Subsequently, all countries should consider developing national land-resource management plans to guide land-resource development and utilization as follows:

(a) Establish, as appropriate, national legislation to guide the implementation of public policies for environmentally sound urban development, land utilization, housing and for the improved management of urban expansion;

(b) Create, where appropriate, efficient and accessible land markets which meet community development needs by, inter alia, improving land registry systems and streamlining procedures in land transactions;

(c) Develop fiscal incentives and land-use control measures, including land-use planning solutions for a more rational and environmentally sound use of limited land resources;

(d) Encourage partnerships among the public, private and community sectors in managing land resources for human settlements development;

(e) Strengthen community-based land-resource protection practices in existing urban and rural settlements;

(f) Establish appropriate forms of land tenure which provide security of tenure for all land-users, especially indigenous people, women, local communities, the low-income urban dwellers and the rural poor;

(g) Accelerate efforts to promote access to land by the urban and rural poor, including credit schemes for the purchase of land and for building/acquiring or improving safe and healthy shelter and infrastructure services;

(h) Develop and support the implementation of improved land management practices which deal comprehensively with potentially competing land requirements for agriculture, industry, transport, urban development, green spaces, preserves and other vital needs;

(i) Promote understanding among the policy makers of the adverse consequences of unplanned settlements in environmentally vulnerable areas and of the appropriate national and local land use and settlements policies required for this purpose.

7.32 At the international level, global coordination of land resource management activities should be strengthened by the various bilateral and multilateral agencies and programmes such as UNDP, FAO, the World Bank, the regional development banks, other interested organizations and the UNDP/World Bank/United Nations Centre for Human Settlements (Habitat) Urban Management Programme, and action taken to promote the transfer of applicable experience on sustainable land-management practices to and among developing countries.

Means of implementation

(a) Financing and cost evaluation

[7.33 The overall cost is about \$ 3 billion annually, including about \$ 300 million from the international community. About \$ 4 million will be needed for strengthening international organizations. Some aspects of this programme may be funded under the land use programmes detailed in other Agenda 21 chapters. These programmes should be funded in an integrated fashion.]**

(b) Scientific and technological means

7.34 All countries, particularly developing countries, alone or in regional or subregional groupings, should be given access to modern techniques of land-resource management, such as geographical information systems, satellite photography/imagery and other remote-sensing technologies.

(c) Human resource development and capacity-building

7.35 Environmentally focused training activities in sustainable land resources planning and management should be undertaken in all countries with developing countries being given assistance through international support and funding agencies in order to:

(a) Strengthen the capacity of national, state/provincial, and local educational research and training institutions to provide formal training of land management technicians and professionals;

(b) Facilitate the organizational review of government ministries and agencies responsible for land questions, in order to devise more efficient mechanisms of land-resource management, and carry out periodic in-service refresher courses for their managers and staff in order to familiarize them with up-to-date land-resource management technologies;

(c) Where appropriate, equip those agencies with modern equipment, such as computer hardware and software and survey equipment;

(d) Strengthen existing programmes and promote an international and interregional exchange of information and experience in land management through the establishment of professional associations in land management sciences and related activities, such as workshops and seminars.

D. Promoting the integrated provision of environmental infrastructure: water, sanitation, drainage and solid waste management

Basis for action

7.36 The sustainability of urban development is defined by many parameters relating to the availability of water supplies, air quality and the provision of environmental infrastructure for sanitation and waste management. As a result of the density of users, urbanization, if properly managed, offers unique opportunities for the supply of sustainable environmental infrastructure through adequate pricing policies, educational programmes and equitable access mechanisms which are economically and environmentally sound. In most developing countries, however, the inadequacy and lack of environmental infrastructure is responsible for widespread ill-health, and a large number of preventable deaths each year. In those countries conditions are set to worsen due to growing needs beyond governments' capability to respond adequately.

7.37 An integrated approach to the provision of environmentally sound infrastructure in human settlements, in particular for the urban and rural poor, is an investment in sustainable development which can result in improvement to the quality of life, increase productivity, improve health and reduce the burden of investments in curative medicine and poverty alleviation.

7.38 Most of the activities whose management would be improved by an integrated approach, are covered in Agenda 21 as follows: chapters 6 (Protection and promotion of human health conditions), 9 (Protecting the atmosphere), 18 (Protection of the quality and supply of freshwater resources) and 21 (Environmentally sound management of solid wastes and sewage-related issues).

Objective

7.39 The objective is to ensure the provision of adequate environmental infrastructure facilities in all settlements by the year 2025. The achievement of this objective would require that all developing countries incorporate in their national strategies programmes to build the necessary technical, financial and human resource capacity aimed at ensuring better integration of infrastructure and environmental planning by the year 2000.

Activities

7.40 All countries should assess the environmental suitability of infrastructure in human settlements, develop national goals for sustainable management of waste, and implement environmentally sound technology to ensure that the environment, human health and quality of life are protected. Settlement infrastructure and environmental programmes designed to promote an integrated human settlements approach to the planning, development, maintenance and management of environmental infrastructure (water supply, sanitation, drainage, solid waste management) should be strengthened with the assistance of bilateral and multilateral agencies. Coordination among these agencies and with collaboration from international and national representatives of local authorities, the private sector, and community groups should also be strengthened. The activities of all agencies engaged in providing environmental infrastructure should, where possible, reflect an ecosystem or metropolitan area approach to settlements and

should include monitoring, applied research, capacity-building, transfer of appropriate technology and technical cooperation among the range of programme activities.

7.41 Developing countries should be assisted at the national and local levels in adopting an integrated approach to the provision of water supply, energy, sanitation, drainage and solid waste management and external funding agencies should ensure that this approach is applied in particular to environmental infrastructure improvement in informal settlements based on regulations and standards that take into account the living conditions and resources of the communities to be served.

7.42 All countries should, as appropriate, adopt the following principles for the provision of environmental infrastructure:

(a) Adopt policies that minimize if not altogether avoid environmental damage, whenever possible;

(b) Ensure that relevant decisions are preceded by environmental impact assessments and also take into account the costs of any ecological consequences;

(c) Promote development in accordance with indigenous practices and adopt technologies appropriate to local conditions;

(d) Promote policies aimed at recovering the actual cost of infrastructure services, while at the same time recognizing the need to find suitable approaches (including subsidies) to extend basic services to all households;

(e) Seek joint solutions to environmental problems which affect several localities.

7.43 The dissemination of information from existing programmes should be facilitated and encouraged among interested countries and local institutions.

Means of implementation

(a) Financing and cost evaluation

[7.44 Financial requirements for major development programmes are estimated in other chapters, especially those dealing with health, energy, freshwater resources, sanitation and solid wastes. Annual technical assistance requirements for the settlement infrastructure environmental programmes are estimated at about \$ 50 million; \$ 3 million will be needed to strengthen international institutions.]**

(b) Scientific and technological means

7.45 Scientific and technological means within the existing programmes should be coordinated

wherever possible and should:

(a) Accelerate research in the area of integrated policies of environmental infrastructure programmes and projects based on cost-benefit analysis and overall environmental impact;

(b) Promote methods of assessing "effective demand", utilizing environmental and developmental data as criteria for technology choice.

(c) Human resource development and capacity-building

7.46 With the assistance and support of funding agencies, all countries should, as appropriate, undertake training and popular participation programmes aimed at:

(a) Raising awareness of the means, approaches and benefits of the provision of environmental infrastructure facilities, especially among indigenous people, women, low-income groups and the poor;

(b) Developing a cadre of professionals with adequate skills in integrated infrastructural service planning and maintenance of resource efficient, environmentally sound and socially acceptable systems;

(c) Strengthening the institutional capacity of local authorities and administrators in the integrated provision of adequate infrastructure services in partnership with local communities and the private sector;

(d) Adopting appropriate legal and regulatory instruments, including cross-subsidy arrangements, to extend the benefits of adequate and affordable environmental infrastructure to unserved population groups, especially the poor.

E. Promoting sustainable energy and transport systems in human settlements

Basis for action

7.47 Most of the commercial and non-commercial energy produced today is used in, and for, human settlements and a substantial percentage of it is used by the household sector. Developing countries are presently faced with the need to increase their energy production to accelerate development and raise the living standards of their populations, while at the same time reducing energy production costs and energy-related pollution. Increasing the efficiency of energy use to reduce its polluting effects and to promote the use of renewable energies must be a priority in any action taken to protect the urban environment.

7.48 Developed countries, as the largest consumers of energy, are faced with the need for energy planning and management, promoting renewable and alternate sources of energy, and

evaluating the life-cycle costs of current systems and practices as a result of which many metropolitan areas are suffering from pervasive air quality problems related to ozone, particulate matters and carbon monoxide. The causes have much to do with technological inadequacies and with an increasing fuel consumption generated by inefficiencies, high demographic and industrial concentrations and a rapid expansion in the number of motor vehicles.

7.49 Transport accounts for about 30 per cent of commercial energy consumption and for about 60 per cent of total global consumption of liquid petroleum. In developing countries, rapid motorization and insufficient investments in urban transport planning, traffic management and infrastructure, are creating increasing problems in terms of accidents and injury, health, noise, congestion and loss of productivity similar to those occurring in many developed countries. All of these problems have a severe impact on urban populations, particularly the low-income and no-income groups.

Objectives

7.50 The objectives are to extend the provision of more energy-efficient technology and alternative/renewable energy for human settlements and to reduce negative impacts of energy production and use on human health and on the environment.

Activities

7.51 The principal activities relevant to this programme area are included in Agenda 21 as follows: chapter 9 (Protecting the atmosphere), programme area B, sub-programme 1, Energy development, efficiency, [and consumption] and sub-programme 2, transportation.

7.52 A comprehensive approach to human settlements development should include the promotion of sustainable energy development in all countries, as follows:

- (a) Developing countries, in particular and bilateral donors should:
 - (i) Formulate national action programmes to promote and support reafforestation and national forest regeneration with a view to achieve sustained provision of the biomass energy needs of the low-income groups in urban areas and the rural poor, in particular women and children;
 - (ii) Formulate national action programmes to promote integrated development of energy saving and renewable energy technologies particularly for the use of solar, hydro, wind and biomass sources;
 - (iii) Promote wide dissemination and commercialization of renewable energy technologies through suitable measures, inter alia, fiscal and technology transfer mechanisms;
 - (iv) Carry out information and training programmes directed at manufacturers and users

in order to promote energy saving techniques and energy efficient appliances;

(b) International organizations should:

- (i) Support developing countries in implementing national energy programmes in order to achieve widespread use of energy saving and renewable energy technologies, particularly the use of solar, wind, biomass and hydro sources;
- (ii) Provide access to research and development results to increase energy use efficiency levels in human settlements.

7.53 Promoting efficient and environmentally sound urban transport systems in all countries should be a comprehensive approach to urban transport planning and management. For this all countries should:

(a) Integrate land-use and transportation planning to encourage development patterns which reduce transport demand;

(b) Adopt urban transport programmes favoring high-occupancy public transport in countries as appropriate;

(c) Encourage non-motorized modes of transport by providing safe cycleways and footways in urban and suburban centres in countries as appropriate;

(d) Devote particular attention to effective traffic management, to efficient operation of public transport and to maintenance of transport infrastructure;

(e) Promote the exchange of information among countries and representatives of local and metropolitan areas;

(f) Re-evaluate the present consumption and production patterns in order to reduce energy and national resources use.

Means of implementation

(a) Financing and cost evaluation

[7.54 The financing for this programme area is included in the estimate for Chapter 9 of Agenda 21 (Protecting the atmosphere).]**

(b) Human resource development and capacity-building

7.55 In order to enhance the skills of energy service and transport professionals and institutions, all countries should, as appropriate:

(a) Provide on-the-job and other training of government officials, planners, traffic engineers, and managers involved in the energy service and transport section;

(b) Raise public awareness about the environmental impacts of transport and travel behavior through mass media campaigns and support for non-governmental and community initiatives promoting the use of non-motorized transport, shared driving and improved traffic safety measures;

(c) Strengthen regional, national, state/provincial, and private sector institutions that provide education and training on energy service and urban transport planning and management.

F. Promoting human settlement planning and management in disaster-prone areas

Basis for action

7.56 Natural disasters cause loss of life, disruption of economic activities and urban productivity - particularly for highly susceptible low-income groups, and environmental damage, such as loss of fertile agricultural land and contamination of water resources, and can lead to major resettlement of populations. Over the past two decades they are estimated to have caused some 3 million deaths and affected 800 million people. Global economic losses have been estimated by the Office of the United Nations Disaster Relief Coordinator to be in the range of \$ 30-50 billion per year. 7/

7.57 The General Assembly, in resolution 44/236, proclaimed the 1990s as the International Decade for Natural Disaster Reduction. The goals of the Decade 8/ bear relevance to the objectives of the present programme area.

7.58 In addition, there is an urgent need to address the prevention and reduction of man-made disasters and/or disasters caused by, inter alia, industries, unsafe nuclear power generation and toxic wastes (see chapter 6 of Agenda 21 - Protection and Promotion of Human Health conditions).

Objective

7.59 The objective is to enable all countries, in particular those that are disaster-prone, to mitigate the negative impact of natural and man-made disasters on human settlements, national economies and the environment.

Activities

7.60 Three distinct areas of activity are foreseen under this programme area, namely the development of a "culture of safety", pre-disaster planning and post-disaster reconstruction.

(a) Develop a culture of safety

7.61 To promote a "culture of safety" in all countries, especially those that are disaster-prone, the following activities should be carried out:

(a) Complete national and local studies on the nature and occurrence of natural disasters, their impact on people and economic activities, the effects of inadequate construction and land use in hazard-prone areas, and the social and economic advantages of adequate pre-disaster planning;

(b) Implement nationwide and local awareness campaigns through all available media, translating the above knowledge into information easily comprehensible to the general public and

to the populations directly exposed to hazards;

(c) Strengthen, and/or develop global, regional, national and local early warning systems to alert populations to impending disasters;

(d) Identify industrially based environmental disaster areas at the national and international levels and implement strategies aimed at the rehabilitation of these areas through, inter alia:

(i) Restructuring of the economic activities and promoting new job opportunities in environmentally sound sectors;

(ii) Promoting close collaboration between governmental and local authorities, local communities and non-governmental organizations and private business;

(iii) Developing and enforcing strict environmental control standards.

(b) Develop pre-disaster planning

7.62 Pre-disaster planning should form an integral part of human settlement planning in all countries. The following should be included:

(a) Complete multi-hazard research into risk and vulnerability of human settlements and settlement infrastructure, including water and sewerage, communication and transportation networks, as one type of risk reduction may increase vulnerability to another (e.g., an earthquake resistant house made of wood will be more vulnerable to wind storms);

(b) Develop methodologies for determining risk and vulnerability within specific human settlements and incorporate risk and vulnerability reduction into the human settlement planning and management process;

(c) Redirect inappropriate new development and human settlements to areas not prone to hazards;

(d) Prepare guidelines on location, design and operation of potentially hazardous industries and activities;

(e) Develop tools (legal, economic etc.) to encourage disaster-sensitive development, including means of ensuring that limitations on development options are not punitive to owners, or incorporate alternative means of compensation;

(f) Further develop and disseminate information on disaster-resistant building materials and construction technologies for buildings and public works in general;

(g) Develop training programmes for contractors and builders on disaster-resistant

construction methods. Some programmes should be directed particularly to small enterprises, which build the great majority of housing and other small buildings in the developing countries as well as for the rural populations which build their own houses;

(h) Develop training programmes for emergency site managers, non-governmental organizations and community groups which cover all aspects of disaster mitigation, including urban search and rescue, emergency communications, early warning techniques, and pre-disaster planning;

(i) Develop procedures and practices to enable local communities to receive information about hazardous installations or situations in these areas, and facilitate their participation in early warning and disaster abatement and response procedures and plans;

(j) Prepare action plans for the reconstruction of settlements, especially the reconstruction of community life-lines.

(c) Initiate post-disaster reconstruction and rehabilitation planning

7.63 The international community as a major partner in post-reconstruction and rehabilitation should ensure that the countries involved derive the greatest benefits from the funds allocated by undertaking the following activities:

(a) Carry out research on past experiences on the social and economic aspects of post-disaster reconstruction and adopt effective strategies and guidelines for post-disaster reconstruction with particular focus on development focused strategies in the allocation of scarce reconstruction resources, and on the opportunities which post-disaster reconstruction provides to introduce sustainable settlement patterns;

(b) Prepare and disseminate international guidelines for adaptation to national and local needs;

(c) Support efforts of national governments to initiate contingency planning, with participation of affected communities, for post-disaster reconstruction and rehabilitation.

Means of implementation

(a) Financing and cost evaluation

[7.64 External assistance will continue to be required for post-disaster investments, which are roughly estimated to run at about \$ 600 million annually. Technical assistance connected with this programme area could cost about \$ 50 million annually; \$ 2 million is suggested for strengthening international organizations.]**

(b) Scientific and technological means

7.65 Scientists and engineers specializing in this field in both developing and developed countries should collaborate with urban and regional planners in order to provide the basic knowledge and means to mitigate losses due to disasters as well as environmentally inappropriate development.

(c) Human resource development and capacity-building

7.66 Developing countries should conduct training programmes on disaster-resistant construction methods for contractors and builders, who build the majority of housing in the developing countries. This should focus on the small business enterprises, which build the majority of housing in the developing countries.

7.67 Training programmes should be extended to government officials and planners and community and non-governmental organizations to cover all aspects of disaster mitigation, such as early warning techniques, pre-disaster planning and construction, post-disaster construction and rehabilitation.

G. Promoting sustainable construction industry activities

Basis for action

7.68 The activities of the construction sector are vital to the achievement of the national socio-economic development goals of providing shelter, infrastructure and employment. However, they can be a major source of environmental damage through depletion of the natural resource base, degradation of fragile eco-zones, chemical pollution and the use of building materials harmful to human health.

Objectives

7.69 The objectives are first, to adopt policies and technologies and to exchange information on them in order to enable the construction sector to meet human settlement development goals while avoiding harmful side-effects on human health and on the biosphere and, second, to enhance the employment-generation capacity of the construction sector. Governments should work in close collaboration with the private sector in achieving these objectives.

Activities

7.70 All countries should, as appropriate and in accordance with national plans, objectives and priorities:

- (a) Establish and strengthen indigenous building materials industry, based as much as possible, on inputs of locally available natural resources;

(b) Formulate programmes to enhance the utilization of local materials by the construction sector by expanding technical support and incentive schemes for, increasing the capabilities and economic viability of small-scale and informal operatives who make use of these materials and traditional construction techniques;

(c) Adopt standards and other regulatory measures which promote the increased use of energy-efficient designs and technologies and sustainable utilization of natural resources in an economically and environmentally appropriate way;

(d) Formulate appropriate land-use policies and introduce planning regulations specially aimed at protection of eco-sensitive zones against physical disruption by construction and construction-related activities;

(e) Promote the use of labour-intensive construction and maintenance technologies which generate employment in the construction sector for the underemployed labour force found in most large cities while at the same time promoting the development of skills in the construction sector;

(f) Develop policies and practices to reach informal sector and self-help housing builders by adopting measures to increase the affordability of building materials on the part of the urban and rural poor, through, inter alia, credit schemes and bulk procurement of building materials for sale to small-scale builders and communities.

7.71 All countries should:

(a) Promote the free exchange of information on the whole range of environmental and health aspects of construction including the development and dissemination of databases on the adverse environmental effects of building materials through the collaborative efforts of the private and public sectors;

(b) Promote the development and dissemination of databases on the adverse environmental and health effects of building materials and introduce legislation and financial incentives to promote recycling of energy-intensive materials in the construction industry and conservation of waste energy in building-materials production methods;

(c) Promote the use of economic instruments, such as product charges, to discourage the use of construction materials and products which create pollution during their life-cycle;

(d) Promote information exchange and appropriate technology transfer among all countries, with particular attention to developing countries, for resource management in construction, particularly for non-renewable resources;

(e) Promote research in construction industries and related activities, and establish and strengthen institutions in this sector.

Means of implementation**(a) Financing and cost evaluation**

[7.72 It is roughly estimated that the construction activities of developing countries amount to about \$ 400 billion annually and will increase by about \$ 20 billion annually. The stream of new investments for these levels of activity and to bring in clean technologies is estimated at \$ 40 billion annually, primarily from private sources. If 10 per cent of the new investments come from the international community, this would amount to \$ 4 billion annually. About \$ 3 million would be needed to strengthen international organizations.]**

(b) Human resource development and capacity-building

7.73 Developing countries should be assisted by international support and funding agencies in upgrading the technical and managerial capacities of the small entrepreneur and the vocational skills of operatives and supervisors in the building materials industry, using a variety of training methods. These countries should also be assisted in developing programmes to encourage the use of non-waste and clean technologies through appropriate transfer of technology.

7.74 General education programmes should be developed in all countries, as appropriate, to increase builder awareness of available sustainable technologies.

7.75 Local authorities are called upon to play a pioneering role in promoting the increased use of environmentally sound building materials and construction technologies, e.g., by pursuing an innovative procurement policy.

H. Promoting human resource development and capacity-building for human settlements development

Basis for action

7.76 Most countries, in addition to shortcomings in the availability of specialized expertise in the areas of housing, settlement management, land management, infrastructure, construction, energy, transport, and pre-disaster planning and reconstruction, face three cross-sectoral human resource development and capacity-building shortfalls. First is the absence of an enabling policy environment capable of integrating the resources and activities of the public sector, the private sector and the community, or social sector; second is the weakness of specialized training and research institutions; and third is the insufficient capacity for technical training and assistance for low-income communities, both urban and rural.

Objective

7.77 The objective is to improve human resource development and capacity-building in all countries by enhancing the personal and institutional capacity of all actors, particularly indigenous people and women, involved in human settlement development. In this regard, account should be taken of traditional cultural practices of indigenous people and their relationship to the environment.

Activities

7.78 Specific human resource development and capacity-building activities have been built into each of the programme areas of this chapter. More generally, however, additional steps should be taken to reinforce those activities. In order to do so, all countries, as appropriate should take the following action:

(a) Strengthen the development of the human resources and of capacities of public sector institutions through technical assistance and international cooperation so as to achieve by the year 2000 substantial improvement in the efficiency of governmental activities;

(b) Create an enabling policy environment supportive of the partnership between the public, private and community sectors;

(c) Provide enhanced training and technical assistance to institutions providing training for technicians, professionals and administrators, and appointed, elected, and professional members of local governments and strengthen their capacity to address priority training

needs, particularly in regard to social, economic and environmental aspects of human settlements development;

(d) Provide direct assistance for human settlement development at the community level, inter alia, by:

- (i) Strengthening and promoting programmes for social mobilization and awareness raising of the potential of women and youth in human settlements activities;
- (ii) Facilitating coordination of the activities of women, youth, community groups, and non-governmental organizations in human settlements development;
- (iii) Promoting research on women's programmes and other groups, and evaluate progress made with a view to identifying bottlenecks and needed assistance;

(e) Promote the inclusion of integrated environmental management into general local government activities.

7.79 Both international organizations and non-governmental organizations should support the above activities by, inter alia, strengthening subregional training institutions, providing updated training materials and disseminating the results of successful human resource and capacity-building activities, programmes and projects.

Means of implementation

(a) Financing and cost evaluation

[7.80 International technical assistance to support national programmes is estimated at about \$ 60 million annually; \$ 5 million will be needed for strengthening international institutions.]**

(b) Scientific and technological means

7.81 Both formal training and non-formal types of human resource development and capacity-building programmes should be combined, and use should be made of user-oriented training methods, up-to-date training materials and modern audio-visual communication systems.

Notes

1/ No aggregate figures are available on internal expenditure or official development assistance on human settlements. However, data available in the World Development Report, 1991, for 16 low-income developing countries show that the percentage of central government expenditure on housing, amenities, and social security and welfare for 1989 averaged 5.6 per cent, with a high of 15.1 per cent in the case of Sri Lanka, which has embarked on a vigorous

housing programme. In OECD industrialized countries, during the same year, the percentage of central government expenditure on housing, amenities and social security and welfare ranged from a minimum of 29.3 per cent to a maximum of 49.4 per cent, with an average of 39 per cent (World Bank, World Development Report, 1991, World Development Indicators, table 11 (Washington, D.C., 1991)).

2/ See the report of the Director-General for Development and International Economic Cooperation, containing preliminary statistical data on operational activities of the United Nations system for 1988 (A/44/324-E/1989/106/Add.4, annex).

3/ World Bank Annual Report, 1991 (Washington, D.C., 1991).

4/ UNDP, "Reported investment commitments related to UNDP-assisted projects, 1988", table 1, "Sectoral distribution of investment commitment in 1988-1989".

5/ A pilot programme of this type, the City Data Programme (CDP), is already in operation in the United Nations Centre on Human Settlements (Habitat) aimed at the production and dissemination to participating cities of micro-computer application software designed to store, process and retrieve city data for local, national and international exchange and dissemination.

6/ This calls for integrated land-resource management policies, which are also addressed in, chapter 10 of Agenda 21 (Integrated Approach to Planning and Management of Land Resources).

7/ Estimates of the Office of the United Nations Disaster Relief Coordinator.

8/ The goals of the International Decade for Natural Disaster Reduction, set out in the annex to General Assembly resolution 44/236 are as follows:

(a) To improve the capacity of each country to mitigate the effects of natural disasters expeditiously and effectively, paying special attention to assisting developing countries in the assessment of disaster damage potential and in the establishment of early warning systems and disaster-resistant structures when and where needed;

(b) To devise appropriate guidelines and strategies for applying existing scientific and technical knowledge, taking into account the cultural and economic diversity among nations;

(c) To foster scientific and engineering endeavours aimed at closing critical gaps in knowledge in order to reduce loss of life and property;

(d) To disseminate existing and new technical information related to measures for the assessment, prediction and mitigation of natural disasters;

(e) To develop measures for the assessment, prediction, prevention and mitigation of natural disasters through programmes of technical assistance and technology transfer, demonstration projects, and education and training, tailored to specific disasters and locations, and to evaluate the effectiveness of those programmes.

NOTE TO THE READER:

Please note that this is the final text which resulted from the negotiations at the 4th Session of the UNCED Preparatory Committee. This draft will be edited and translated into the official languages of the United Nations before it is formally released.

CHAPTER 8

INTEGRATION OF ENVIRONMENT AND DEVELOPMENT IN DECISION MAKING

INTRODUCTION

8.1. The present chapter consists of four programmes:

- (a) Integrating environment and development at the policy, planning and management levels;
- (b) Providing an effective legal and regulatory framework;
- (c) Making effective use of economic instruments and market and other incentives;
- (d) Establishing systems for environmental accounting;

PROGRAMME AREAS

- A. Integrating environment and development at the policy, planning and management level

Basis for action

8.2. Prevailing systems for decision-making in many countries tend to separate economic, social and environmental factors - at the policy, planning and management levels. This influences the actions of all groups in society, including Governments, industry and individuals, and has important implications for the efficiency and sustainability of development. An adjustment or even a fundamental reshaping of decision-making, in light of country-specific conditions, may be necessary if environment and development is to be put at the center of economic and political decision-making - in effect achieving a full integration of these factors. In recent years, some Governments have also begun to make significant changes in the institutional structures of government in order to enable more systematic consideration of the environment when decisions

are made on economic, social, fiscal, energy, agricultural, transportation, trade, and other policies, as well as the implications of policies in these areas for the environment. New forms of dialogue are also being developed for achieving better integration among national and local government, industry, science, environmental groups and the public in the process of developing effective approaches to environment and development. The responsibility for bringing about changes lies with Governments in partnership with the private sector and local authorities, and in collaboration with national, regional and international organizations including in particular UNEP, UNDP and the World Bank. Exchange of experience between countries can also be significant. National plans, goals and objectives, national rules and regulations and law; and the specific situation in which different countries are placed are the overall framework in which such integration takes place. In this context it must be borne in mind that environmental standards may pose severe economic and social costs if they are uniformly applied in developing countries.

Objectives

8.3. The overall objective is to improve or restructure the decision-making process so that consideration of socio-economic and environmental issues is fully integrated and a broader range of public participation assured. Recognizing that countries will develop their own priorities in accordance with their prevailing conditions, needs, national plans, policies and programmes, the following objectives are proposed:

- (a) To conduct a national review of economic, sectoral and environmental policies, strategies and plans to ensure the progressive integration of environmental and developmental issues;
- (b) To strengthen institutional structures to allow the full integration of environmental and developmental issues, at all levels of decision-making;
- (c) To develop or improve mechanisms to facilitate the involvement of concerned individuals, groups and organizations in decision-making at all levels;
- (d) To establish domestically determined procedures to integrate environment and development issues in decision-making.

Activities

(a) Improve decision-making processes

8.4. The primary need is to integrate environmental and developmental decision-making processes. To do this, Governments should conduct a national review, and, where appropriate, improve the processes of decision-making so as to achieve the progressive integration of economic, social and environmental issues in the pursuit of development that is economically efficient, socially equitable and responsible and environmentally sound. Countries will develop their own priorities in accordance with their national plans, policies and programmes for the following activities:

- (a) Ensuring the integration of economic, social and environmental considerations in decision-making at all levels and in all ministries;

(b) Adopting a domestically formulated policy framework that reflects a long-term perspective and cross-sectoral approach as the basis for decisions, taking account of the linkages between and within the various political, economic, social and environmental issues involved in the development process;

(c) Establishing domestically determined ways and means to ensure the coherence of sectoral, economic, social, and environmental policies, plans and policy instruments, including fiscal measures and the budget; these mechanisms should apply at various levels and bring together those interested in the development process;

(d) Monitoring and evaluating the development process systematically, conducting regular reviews of the state of human resources development, economic and social conditions and trends, the state of the environment and natural resources; this could be complemented by annual environment and development reviews, with the view to assessing sustainable development achievements by the various sectors and departments of government;

(e) Ensuring transparency of, and accountability for, the environmental implications of economic and sectoral policies;

(f) Ensuring access by the public to relevant information, facilitating the reception of public views and allowing for effective participation.

(b) Improve planning and management systems

8.5. To support a more integrated approach to decision-making, the data systems and analytical methods used to support such decision-making processes may need to be improved. Governments, in collaboration, where appropriate, with national and international organizations, should review the status of the planning and management system and, where necessary, modify and strengthen procedures so as to facilitate the integrated consideration of social, economic and environmental issues. Countries will develop their own priorities in accordance with their national plans, policies and programmes for the following activities:

(a) Improving the use of data and information at all stages of planning and management, making systematic and simultaneous use of social, economic, developmental, ecological and environmental data; analysis should stress interactions and synergisms; a broad range of analytical methods should be encouraged so as to provide various points of view;

(b) Adopting comprehensive analytical procedures for prior and simultaneous assessment of the impacts of decisions, including the impacts within and among the economic, social and environmental spheres; these procedures should extend beyond the project level to policies and programmes; analysis should also include assessment of costs, benefits and risks;

(c) Adopting flexible and integrative planning approaches that allow the consideration of multiple goals and enable adjustment of changing needs; integrative area approaches at the ecosystem or watershed level can assist in this approach;

(d) Adopting integrated management systems, particularly for the management of natural resources. Traditional or indigenous methods should be studied and considered wherever they have proved effective; women's traditional roles should not be marginalized as a result of the introduction of new

management systems;

(e) Adopting integrated approaches to sustainable development at a regional level, including transboundary areas, subject to the requirements of particular circumstances and needs;

(f) Using policy instruments (legal/regulatory and economic) as a tool for planning and management, seeking incorporation of efficiency criteria in decisions; instruments should be regularly reviewed and adapted to ensure that they continue to be effective;

(g) Delegating planning and management responsibilities to the lowest level of public authority consistent with effective action; in particular the advantages of effective and equitable opportunities for participation by women should be discussed;

(h) Establishing procedures for involving local communities in contingency planning for environmental and industrial accidents, and maintaining an open exchange of information on local hazards.

(c) Data and information

8.6. Countries could develop systems for monitoring and evaluation of progress towards achieving sustainable development by adopting indicators that measure changes across economic, social and environmental dimensions.

(d) Adopt a national strategy for sustainable development

8.7. Governments, in cooperation, where appropriate, with international organizations, should adopt a national strategy for sustainable development based on, inter alia, the implementation of decisions taken at the Conference, particularly in respect of Agenda 21. This strategy should build upon and harmonize the various sectoral economic, social and environmental policies and plans that are operating in the country. The experience gained through existing planning exercises such as national reports for the Conference, national conservation strategies and environment action plans should be fully used and incorporated into a country-driven sustainable development strategy. Its goals should be to ensure socially responsible economic development while protecting the resource base and the environment for the benefit of future generations. It should be developed through the widest possible participation. It should be based on a thorough assessment of the current situation and initiatives.

Means of implementation

(a) Financing and cost evaluation

[8.8. To assist developing countries, it is suggested that the requisite technical and technological cooperation funding from international sources should be made available to developing countries at an annual cost of about \$ 50 million.] **

(b) Research environment and development interactions

8.9. Governments, in collaboration with the national and international scientific community and in cooperation with international organizations, as appropriate, should intensify efforts to clarify the interactions between and within social, economic and environmental considerations. Research should be undertaken with the explicit objective of assisting policy decisions and providing recommendations on improving management practices.

(c) Enhance education and training

8.10. Countries, in cooperation, where appropriate, with national, regional or international organizations, should ensure that essential human resources exist, or be developed, to undertake the integration of environment and development at various stages of the decision-making and implementation process. To do this, they should improve education and technical training, particularly for women and girls, by including interdisciplinary approaches, as appropriate, in technical, vocational and university and other curricula. They should also undertake systematic training of government personnel, planners and managers on a regular basis, giving priority to the requisite integrative approaches and planning and management techniques that are suited to country-specific conditions.

(d) Promote public awareness

8.11. Countries, in cooperation with national institutions and groups, the media and the international community, should promote awareness in the public at large, as well as in specialized circles, of the importance of considering environment and development in an integrated manner, and should establish mechanisms for facilitating a direct exchange of information and views with the public. Priority should be given to highlighting the responsibilities and potential contributions of different social groups.

(e) Strengthen national institutional capacity

8.12. Governments, in cooperation, where appropriate, with international organizations, should strengthen national institutional capability and capacity to integrate social, economic, developmental and environmental issues at all levels of development decision-making and implementation. Attention should be given to moving away from narrow sectoral approaches, progressing towards full cross-sectoral coordination and cooperation.

B. Providing an effective legal and regulatory framework

Basis for action

8.13. Laws and regulations suited to country-specific conditions are among the most important instruments for transforming environment and development policies into action - not only through "command and control" methods, but also as a normative framework for economic planning and market instruments. Yet although the volume of legal texts in this field is steadily increasing, much of the law-making in many countries seems to be ad hoc and piecemeal, or has not been endowed with the necessary institutional machinery and authority for enforcement and timely adjustment.

8.14. While there is continuous need for law improvement in all countries, many developing countries have been affected by shortcomings of laws and regulations. To effectively integrate environment and development in the policies and practices of each country, it is essential to develop and implement integrated, enforceable, effective laws and regulations that are based upon sound social, ecological, economic and scientific principles. It is equally critical to develop workable programmes to review and enforce compliance with the laws, regulations and standards that are adopted. Technical support may be needed for many countries to accomplish these goals. Technical cooperation requirements in this field include legal information, advisory services and specialized training and institutional capacity-building.

8.15. The enactment and enforcement of laws and regulations (at the regional, national, state/provincial or local/municipal level) are also essential for the implementation of most international agreements in the field of environment and development, as illustrated by the frequent treaty obligation to report on legislative measures. The survey of existing agreements undertaken in the context of conference preparations has indicated problems of compliance in this respect, and the need for improved national implementation and, where appropriate, related technical assistance. In developing their national priorities, countries should take account of their international obligations.

Objectives

8.16. The overall objective is to promote, in light of country-specific conditions, the integration of environment and development policies through appropriate legal and regulatory policies, instruments and enforcement mechanisms at the national, state, provincial, and local level. Recognizing that countries will develop their own priorities in accordance with their needs and national, and where appropriate, regional plans, policies and programmes, the following objectives are proposed:

(a) To disseminate information on effective legal and regulatory innovations in the field of environment and development, including appropriate instruments and compliance incentives, with a view to encouraging their wider use and adoption at the national, state, provincial, and local level;

(b) To support countries which request it in their national efforts to modernize and strengthen the policy and legal framework of governance for sustainable development, having due regard for local social values and infrastructures;

(c) To encourage the development and implementation of national, state, provincial and local programmes which assess and promote compliance and respond appropriately to non-compliance.

Activities

(a) Make laws and regulations more effective

8.17. Governments, with the support of competent international organizations, where appropriate, should regularly assess the laws and regulations enacted and the related institutional/administrative machinery established at the national/state and local/municipal level in the field of environment and sustainable development, with a view to rendering them effective in practice. Programmes for this purpose could include the promotion of public awareness, preparation and distribution of guidance material, and specialized training, including workshops, seminars, education programmes, and conferences, for public officials who design, implement, monitor and enforce laws and regulations.

(b) Establish judicial and administrative procedures

8.18. Governments and legislators, with the support, where appropriate, of competent international organizations, should establish judicial and administrative procedures for legal redress and remedy of actions affecting environment and development that may be unlawful or infringe on rights under the law, and should provide access to individuals, groups and organizations with a recognized legal interest.

(c) Provide legal reference and support services

8.19. Competent intergovernmental and non-governmental organizations could cooperate to provide Governments and legislators, upon request, with an integrated programme of environment and development law (sustainable development law) services, carefully adapted to the specific requirements of the recipient legal and administrative systems. Such systems could usefully include assistance in the preparation of comprehensive inventories and reviews of national legal systems. Past experience has demonstrated the usefulness of combining specialized legal information services with legal expert advice. Within the United Nations system, closer cooperation between all agencies concerned would avoid duplication of databases and facilitate division of labor. These agencies could examine the possibility and merit of performing reviews of selected national legal systems.

(d) Establish a cooperative training network for sustainable development law

8.20. Competent international and academic institutions could - within agreed frameworks - cooperate to provide, especially for trainees from developing countries, postgraduate programmes and in-service training facilities in environment and development law. Such training should address both the effective application and the progressive improvement of applicable laws, the related skills of negotiating, drafting and mediation, and the training of trainers. Intergovernmental and non-governmental organizations already active in this field could cooperate with related university programmes to harmonize curriculum planning and to offer an optimal range of options to interested Governments and potential sponsors.

- (e) Develop effective national programmes for reviewing and enforcing compliance with national, state, provincial and local laws on environment and development

8.21. Each country should develop integrated strategies to maximize compliance with its laws and regulations relating to sustainable development, with assistance from international organizations and other countries as appropriate. The strategies could include:

(a) Enforceable, effective laws, regulations and standards that are based on sound economic, social and environmental principles and appropriate risk assessment, incorporating sanctions designed to punish violations, obtain redress, and deter future violations;

(b) Mechanisms for promoting compliance;

(c) Institutional capacity for collecting compliance data, regularly reviewing compliance, detecting violations, establishing enforcement priorities, undertaking effective enforcement, and conducting periodic evaluations of the effectiveness of compliance and enforcement programmes;

(d) Mechanisms for appropriate involvement of individuals and groups in the development and enforcement of laws and regulations on environment and development.

- (f) National monitoring of legal follow-up to international instruments

8.22. Contracting parties to international agreements, in consultation with the appropriate secretariats of relevant international conventions as appropriate, should improve practices and procedures for information on legal and regulatory measures taken. Contracting parties to international agreements could undertake sample surveys of domestic follow-up action subject to agreement by the sovereign States concerned.

Means of implementation

- (a) Financing and cost evaluation

[8.23. Most of the programme activities could be carried out, with government consent, through organizations and institutions already active or competent in this field, including mechanisms of technical cooperation between developing countries.

[(a) Additional technical cooperation costs for a projected series of 20 country missions per year with the consent of the sovereign States concerned (to prepare comprehensive inventories of national legal systems with regard to sustainable development), and for direct assistance to developing countries in national implementation of international instruments, are estimated at \$4 million;]

[(b) Additional support costs to international organizations and institutions (to provide, upon request and under preferential conditions, legal reference, advisory and training services to Governments of developing countries

and economies in transition) are estimated at \$2 million per year.]**

(b) Scientific and technological means

8.24. The programme relies essentially on a continuation of ongoing work for legal data collection, translation and assessment. Closer cooperation between existing databases may be expected to lead to better division of labor (e.g., in geographical coverage of national legislative gazettes and other reference sources) and to improved standardization and compatibility of data, as appropriate.

(c) Human resources development

8.25. Participation in training is expected to benefit practitioners from developing countries and to enhance training opportunities for women. Demand for this type of postgraduate and in-service training is known to be high. The seminars, workshops, and conferences on review and enforcement that have been held to date have been very successful and well attended. The purpose of these efforts is to develop resources (both human and institutional) to design and implement effective programmes to continuously review and enforce national and local laws, regulations, and standards on sustainable development.

(d) Strengthen legal and institutional capacity

8.26. A major part of the programme should be oriented towards improving the legal-institutional capacities of countries to cope with national problems of governance and effective law-making and law-applying in the field of environment and sustainable development. Regional centers of excellence could be designated and supported to build up specialized databases and training facilities for linguistic/cultural groups of legal systems.

C. Making effective use of economic instruments and market and other incentives

Basis for action

8.27. Environmental law and regulation are important but cannot alone be expected to deal with the problems of environment and development. Prices, markets and governmental fiscal and economic policies also play a complementary role in shaping attitudes and behavior towards the environment.

8.28. During the past several years, many Governments, primarily in industrialized countries but also in Central and Eastern Europe and in developing countries, have been making increasing use of economic approaches including those that are market-oriented. Examples include the polluter pays principle and the more recent natural resource user pays concept.

8.29. Within a supportive international and national economic context and

given the necessary legal and regulatory framework economic and market-oriented approaches can in many cases enhance capacity to deal with the issues of environment and development. This would be achieved by providing cost-effective solutions, applying integrated pollution prevention control, promoting technological innovation and influencing environmental behavior, as well as providing financial resources to meet sustainable development objectives.

8.30. What is needed is an appropriate effort to explore and make more effective and widespread use of economic and market-oriented approaches within a broad framework of development policies, law and regulation suited to country-specific conditions, as part of a general transition to economic and environmental policies which are supportive and mutually reinforcing.

Objectives

8.31. Recognizing that countries will develop their own priorities in accordance with their needs and national plans, policies and programmes, the challenge is to achieve significant progress in the years ahead in meeting three fundamental objectives:

(a) To incorporate environmental costs in the decisions of producers and consumers, to reverse the tendency to treat the environment as a "free good" and to pass these costs on to other parts of society, other countries, or to future generations;

(b) To move more fully towards integration of social and environmental costs into economic activities, so that prices will appropriately reflect the relative scarcity and total value of resources and contribute towards the prevention of environmental degradation;

(c) To include wherever appropriate the use of market principles in the framing of economic instruments and policies to pursue sustainable development.

Activities

(a) Improve or reorient governmental policies

8.32. In the near term, Governments should consider gradually building on experience with economic instruments and market mechanisms by undertaking to reorient their policies, keeping in mind national plans, priorities and objectives, in order to:

(a) Establish effective combinations of economic, regulatory and voluntary (self-regulatory) approaches;

(b) Remove or reduce those subsidies which do not conform with sustainable development objectives;

(c) Reform or recast existing structures of economic and fiscal incentives to meet environment and development objectives;

(d) Establish a policy framework which encourages the creation of new markets in pollution control and environmentally sounder resource management;

(e) Move towards pricing consistent with sustainable development

objectives.

8.33. In particular, Governments should explore, in cooperation with business and industry, as appropriate, how effective use can be made of economic instruments and market mechanisms in the following areas:

- (a) Issues related to energy, transportation, agriculture and forestry, water, wastes, health, tourism and tertiary services;
- (b) Global and transboundary issues;
- (c) The development and introduction of environmentally sound technology and its adaptation, diffusion and transfer to developing countries, [on concessional and preferential terms.]

- (b) Take account of the particular circumstances of developing countries and countries with economies in transition

8.34. A special effort should be made to develop applications of the use of economic instruments and market mechanisms geared to the particular needs of developing countries and countries with economies in transition, with the assistance of regional and international economic and environmental organizations and as appropriate non-governmental research institutes, by:

- (a) Providing technical support to these countries on issues relating to the application of economic instruments and market mechanisms;
- (b) Encouraging regional seminars and, possibly, the development of regional centers of expertise.

- (c) Create an inventory of effective uses of economic instruments and market mechanisms

8.35. Given the recognition that the use of economic instruments and market mechanisms is relatively recent, exchange of information about different countries' experiences with such approaches should be actively encouraged. In this regard, Governments should encourage the use of existing means of information exchange to look at effective uses of economic instruments.

- (d) Increase understanding of the role of economic instruments and market mechanisms

8.36. Governments should encourage research and analysis on effective uses of economic instruments and incentives with the assistance and support of regional and international economic and environmental organizations, as well as non-governmental research institutes, with a focus on such key issues as:

- (a) The role of environmental taxation suited to national conditions;
- (b) The implications of economic instruments and incentives for competitiveness and international trade, and potential needs for appropriate future international cooperation and coordination;
- (c) The possible social and distributive implications of using various

instruments.

(e) Establish a process for focusing on pricing

8.37. The theoretical advantages of using pricing policies where appropriate need to be better understood, and accompanied by greater understanding of what it means to take significant steps in this direction. Processes should therefore be initiated, in cooperation with business, industry, large enterprises, transnational corporations, as well as other social groups, as appropriate, at both the national and international levels to examine:

(a) The practical implications of moving towards greater reliance on pricing that internalize environmental costs appropriate to help achieve sustainable development objectives;

(b) The implications for resource pricing in the case of resource-exporting countries, including the implications of such pricing policies for developing countries;

(c) The methodologies used in valuing environmental costs.

(f) Enhance understanding of sustainable development economics

8.38. Increased interest in economic instruments including market mechanisms also requires a concerted effort to improve understanding of sustainable development economics by:

(a) Encouraging institutions of higher learning to review their curricula and strengthen studies in sustainable development economics;

(b) Encouraging regional and international economic organizations and non-governmental research institutes with expertise in this area to provide training sessions and seminars for government officials.

(c) Encouraging business and industry, including large industrial enterprises and transnational corporations with expertise in environmental matters, to organize training programmes for the private sector and other groups.

Means of implementation

8.39. This programme involves adjustments or reorientation of policies on the part of Governments. It also involves international and regional economic and environmental organizations and agencies with expertise in this area, including transnational corporations.

(a) Financing and cost evaluation

[8.40. Additional costs associated with implementing these activities would be minimal, in the range of not more than \$5 million annually, associated with the creation of a global inventory and regional seminars. Any costs are far outweighed by the potential for additional financial resources arising from increased reliance on economic instruments and market incentives.] **

D. Establishing systems for integrated environmental and economic accounting

Basis for action

8.41. A first step towards the integration of sustainability into economic management is the establishment of better measurement of the crucial role of the environment as a source of natural capital and as a sink for by-products generated during the production of man-made capital and other human activities. As sustainable development encompasses social, economic and environmental dimensions, it is also important that national accounting procedures are not restricted to measuring the production of goods and services that are conventionally remunerated. A common framework needs to be developed whereby the contributions made by all sectors and activities of society, that are not included in the conventional national accounts, are included, to the extent consistent with sound theory and practicability, in satellite accounts. A programme to develop national systems of integrated environmental and economic accounting in all countries is proposed.

Objectives

8.42. The main objective is to expand existing systems of national economic accounts in order to integrate environment and social dimensions in the accounting framework including at least satellite systems of accounts for natural resources in all member States. The resulting systems of integrated environmental and economic accounting (IEEA) to be established in all member States at the earliest date should be seen as a complement to, rather than a substitute for, traditional national accounting practices for the foreseeable future. IEEAs would be designed to play an integral part in the national development decision-making process. National accounting agencies should work in close collaboration with national environmental statistics as well as the geographic and natural resource departments. The definition of economically active could be expanded to include people performing productive but unpaid tasks in all countries. This would enable their contribution to be adequately measured and taken into account in decision-making.

Activities

(a) Strengthen international cooperation

8.43. The United Nations Statistical Office should:

(a) Make available to all member States the methodologies contained in the SNA Handbook on Integrated Environmental and Economic Accounting;

(b) In collaboration with other relevant United Nations agencies, further develop, test, refine, and then standardize the provisional concepts and methods such as those proposed by the SNA Handbook, keeping member States informed of the status of the work throughout this process;

(c) Coordinate, in close cooperation with other international organizations, the training of national accountants, environmental statisticians and national technical staff in small groups for the establishment, adaptation and development of national IEEAs.

8.44. The Department of Economic and Social Development of the Secretariat in close collaboration with other relevant United Nations agencies should:

(a) Support, in all member States, the utilization of sustainable development indicators in national economic and social planning and decision-making practices with a view to ensuring that IEEAs are usefully integrated in economic development planning at the national level;

(b) Promote improved environmental and economic and social data collection.

(b) Strengthen national accounting systems

8.45. At the national level, the programme could be adopted mainly by the agencies dealing with national accounts, in close cooperation with environmental statistics and natural resource departments with a view to assisting national economic analysts and decision makers in charge of national economic planning. National institutions should play a crucial role not only as the depository of the system but also in its adaptation, establishment and continuous use. Unpaid productive work such as domestic work and child care should be included, where appropriate, in satellite national accounts and economic statistics. Time-use surveys could be a first step in the process of developing these satellite accounts.

(c) Establish an assessment process

8.46. At the international level, the Statistical Commission should assemble and review experience and advise member States on technical and methodological issues related to the further development and implementation of IEEAs in member States.

8.47. Governments should seek to identify and consider measures to correct price distortions arising from environmental programmes affecting land, water energy and other natural resources.

8.48. Governments should encourage corporations to :

(a) Provide relevant environmental information through transparent reporting to shareholders, creditors, employees, governmental authorities, consumers and the public;

(b) Develop and implement methods and rules for accounting for sustainable development;

(d) Strengthen data and information collection

8.49. National Governments could consider implementing the necessary enhancement in data collection to set in place national IEEAs with a view to contributing pragmatically to sound economic management. Major efforts should be made to augment the capacity to collect and analyze environmental data and

information and to integrate it with economic data, including gender desegregated data. Efforts should also be made in order to develop physical environmental accounts. International donor agencies should consider financing the development of intersectoral data banks to help ensuring that national planning for sustainable development is based on precise, reliable and effective information and is suited to national conditions.

(e) Strengthen technical cooperation

8.50. The United Nations Statistical Office, in close collaboration with the relevant United Nations agencies, should strengthen existing mechanisms for technical cooperation among countries. This should also include exchange of experience in the establishment of IEEAs particularly in connection with the valuation of non-marketed natural resources and standardization in data collection. The cooperation of business and industry, including large industrial enterprises and transnational corporations with experience in valuation of such resources, should also be sought.

Means of implementation

(a) Financing and cost evaluation

[8.51. Financing will have to be increased, particularly for activities connected to environmental data gathering and assessment at both the national and international levels. Based on the experience and estimates by the United Nations Statistical Office, the establishment of IEEAs requires some additional international funding. However, the costs can be significantly higher if countries do not have reasonably developed national statistical systems. Cost estimates assume that national counterparts play an instrumental role in the process and that contributions in terms of human resources and infrastructure are readily available in the country. Approximately \$ 2 million per year in external costs will be needed.] **

(b) Strengthen institutions

8.52. To ensure the application of IEEAs:

(a) National institutions in developing countries could be strengthened to ensure the effective integration of environment and development at the planning and decision-making levels;

(b) The Statistical Office should provide the necessary technical support to member States in close collaboration with the assessment process to be established by the Statistical Commission. The Statistical Office should provide appropriate support for establishing IEEAs in collaboration with relevant United Nations agencies.

(c) Enhance use of information technology

8.53. Guidelines and mechanisms could be developed and agreed for the adaptation and diffusion of information technologies to developing countries.

State-of-the-art data management technologies should be adopted for the most efficient and widespread use of IEEAs.

(d) Strengthen national capacity

8.54. Governments, with the support of the international community, should strengthen national institutional capacity to collect, store, organize, assess and use data in decision-making. Training in all areas related to the establishment of IEEAs, and at all levels, will be required especially in developing countries. This should include technical training of those involved in economic and environmental analysis, data collection, national accounting as well as training decision makers to use such information in a pragmatic and appropriate way.

NOTE:

- ** This paragraph contains matters relating to means of implementation, including cost estimates, which are indicative Secretariat figures provided pursuant to decision A/CONF.151/PC/L.49*. They remain in brackets as they have not been negotiated.

NOTE TO THE READER:

Please note that this is the final draft of the text which resulted from the negotiations at the 4th Session of the UNCED Preparatory Committee. This draft will be edited and translated into the official languages of the United Nations before its is formally released.

[PROTECTION OF THE ATMOSPHERE

(Chapter 9 of Agenda 21)

INTRODUCTION

9.1 [The drafting of the introduction will be dependent on the outcome of the negotiations of the Intergovernmental Negotiating Committee on a Framework Convention for Climate Change.]

9.2 The present chapter includes four programme areas:

- A. Addressing the uncertainties: improving the scientific basis for decision-making;
- B. Promoting sustainable development:
 - 1. Energy development, efficiency [and consumption];
 - 2. Transportation;
 - 3. Industrial development;
 - 4. Terrestrial and marine resource development and land use;
- C. Stratospheric ozone depletion: implications and response strategies;

D. Transboundary atmospheric pollution.

PROGRAMME AREAS

A. Addressing the uncertainties: improving the scientific basis for decision-making

Basis for action

9.3 Substantial knowledge of the environmental and development issues related to the atmosphere has been gained. However, concern over climate change and climate variability, air pollution and ozone depletion has created new demands for scientific, economic and social information, to reduce the remaining uncertainties in these fields. Better understanding and prediction of the various properties of the atmosphere and of the affected ecosystems, as well as health impacts and their interactions with socio-economic factors are needed.

Objectives

9.4 The objectives of this programme area are:

(a) To improve the understanding of the processes that influence and are influenced by the Earth's atmosphere on a global, regional and local scale, including, inter alia, physical, chemical, geological, biological, oceanic, hydrological, economic and social processes; and to reduce uncertainties with regard to the economic and social consequences of response measures taken in this regard;

(b) To develop, maintain and, where appropriate, enhance systematic observations of the atmosphere and affected ecosystems, as well as impacts on human health and social and economic systems. The emphasis should be on assembling coincident and supportive databases, where possible, and on exchanging these data and related information to the fullest extent possible;

(c) To enhance international cooperation in building the capacities and abilities of countries to identify atmospheric problems, to conduct research, to assemble, collect and assess data by using existing data and by establishing and expanding systematic observation capabilities, and to participate in the exchange of the resulting data and information.

Activities

9.5 Governments [at the appropriate level], with the cooperation of the relevant United Nations bodies and, as appropriate, intergovernmental and non-governmental organizations, the private sector and financial institutions, should:

(a) Identify priority areas of scientific, technical and socio-economic research related to the critical linkages between the environmental and development issues arising in

all sectors, as they relate to the atmosphere, with the support of relevant United Nations bodies, regional and subregional organizations, industry, research institutions and other non-governmental organizations;

(b) Promote studies on issues concerning the interaction between socio-economic parameters and atmospheric changes, such as climate change, enhanced ultraviolet radiation and increase in various air pollutants, as they relate to various ecosystems; oceans and all seas and their surface layers; economic sectors, especially at the regional and local levels; soils; and biodiversity in general;

(c) Ensure a more balanced geographical coverage of the Global Climate Observing System and its components, including the Global Atmosphere Watch by facilitating, inter alia, the establishment and operation of additional systematic observation stations; and by contributing to the development, utilization, and accessibility of these data bases.

(d) Promote cooperation in the development of early detection systems concerning changes in the atmosphere, both those resulting from human activities and others;

(e) [Invite the Intergovernmental Panel on Climate Change (IPCC) to examine the feasibility of, and where appropriate, develop scientifically credible methodologies for identifying critical loads for greenhouse gas emissions;]

(f) Cooperate in facilitating the participation and training of experts and technical staff, particularly of developing countries, in the fields of research, data assembly, collection and assessment, and systematic observation related to the atmosphere;

(g) Promote the exchange of data and information, including those related to national, subregional and regional experiences for air pollution control;

(h) Maintain, enhance or establish the capability to predict atmospheric changes and fluctuations and to assess the resulting environmental consequences and socio-economic impacts.

B. Promoting sustainable development

1. Energy development, efficiency [and consumption]

Basis for action

9.6 Much of the world's energy is produced and used in ways that could not be sustained if technology were to remain constant and if overall quantities were to increase substantially.

This is particularly true in so far as atmospheric emissions are concerned. The international community should continue to strive for economically efficient energy development paths that are increasingly [safe and] environmentally sound. This will require reliance on environmentally [safe and] sound energy systems, increasingly based on efficiency in energy production, transmission, distribution and consumption, as well as on the use of new and renewable sources of energy¹. All energy sources will need to be used in ways that respect the atmosphere and the environment as a whole.

9.7 The existing constraints to increasing [[safe and] environmentally sound] energy supplies required for pursuing the path towards sustainable development, particularly in developing countries, need to be removed.

Objectives

9.8 The objectives of this programme are:

(a) As a long-term objective, to adopt[, as appropriate, cost effective] methods and techniques which move towards less polluting and more efficient energy systems as well as an increased use of economically viable, new and renewable sources of energy, with a view to reduce any adverse effects on the atmosphere, bearing in mind the need for increasing energy consumption by developing countries.

(b) To promote efficient, safe and environmentally sound energy production, transmission, distribution and use;

(c) To promote the use of [safe and] efficient and less polluting technologies in the production and consumption of energy from fossil fuels and other [safe,] conventional sources, which will remain important, as well as new and renewable sources of energy;

(d) To increase the contribution of environmentally [safe and] sound energy systems to the energy supply and consumption mix, [in particular]/[including] through the promotion, distribution and development of renewable sources of energy;

(e) To promote and enhance adequate [and equitable] energy availability in economically viable and environmentally [safe and] sound ways to respond to the increasing energy needs for sustainable economic and social development, particularly in developing countries;

(f) To cooperate to undertake the necessary technical, research, development and adaptation measures to support a transition to environmentally [safe and] sound energy systems. [Special]/[Full] consideration will need to be given to countries heavily dependent on the production, export and consumption of fossil fuels to ensure that the transition does not adversely affect their development[, and export revenues].

Activities

9.9 Governments at the appropriate level, with the cooperation of the relevant United Nations bodies and, as appropriate, intergovernmental and non-governmental organizations, the private sector and financial institutions, should:

- (a) Cooperate in identifying and developing [safe] energy sources to promote the availability of increased energy supplies, to support sustainable development efforts, in particular in developing countries;
- (b) Cooperate in the development of appropriate methodologies for making integrated energy, environment and economic policy decisions in a sustainable and a long-term framework, and furthermore they should be encouraged to carry out environmental impact assessments of relevant policy decisions and projects. Planning and [economically feasible] implementation of energy efficiency should as much as possible be adopted by countries, taking into account regional and subregional energy strategies, where appropriate;
- (c) Promote the transfer, development and use of improved energy-efficient technologies, including indigenous technologies, in all relevant sectors, [giving special attention to renewable sources of energy and the rehabilitation and modernization of power systems,] through capacity-building and management, particularly in developing countries;
- (d) Review current energy supply mixes to determine how the contribution of environmentally [safe and] sound energy systems as a whole, particularly new and renewable energy systems could be increased in an economically efficient manner, taking into account respective countries' unique social, physical, economic and political characteristics examining and implementing, where appropriate, measures to overcome any barriers [to their development and use]/[in the domestic energy markets to the development and use of all safe and environmentally sound energy systems];
- (e) Coordinate energy plans regionally and subregionally, where applicable, and study the feasibility of efficient distribution of [safe] energy from new and renewable energy sources;
- (f) To consider, with a view to increasing research, development and the introduction of environmentally [safe and] sound energy systems, [particularly for renewable energy sources and to promote research and development, particularly in developing countries];
- (g) Cooperate to increase the availability of capacity, capabilities and relevant technologies - recognizing that technology includes biotechnology - in developing countries for utilizing and producing environmentally [safe and] sound renewable energy resources, such as solar, wind, geothermal, hydropower and biomass, including woodfuel resources.

Each should be utilized in a manner that fosters sustainable development and minimizes environmental stress and health impacts, emphasizing the need for easily available, cleaner burning, smoke-free household fuel;

(h) [Develop sustainable energy policies and programmes in order to improve energy efficiency by, inter alia:

- (i) Formulating, in cooperation with the private sector, appropriate objectives or policies relating to energy production and consumption, in order to improve energy efficiency, and achieve appropriate structural change;
- (ii) Promoting, as appropriate, the development and application of economic and regulatory measures with a view to take into account environmental and other social costs;
- (iii) Building capacity for energy planning and programme management in energy efficiency, as well as for the development, introduction, and promotion of new and renewable sources of energy;]

(i) [Develop and/or strengthen existing and/or set new energy efficiency and emission standards or recommendations on specific technologies, as appropriate. Countries may wish to coordinate these standards or recommendations at regional and subregional levels. Such standards or recommendations should provide ongoing incentives for more efficient and less polluting energy use, with special attention being paid to the promotion of the development and use of alternative and less polluting technologies;]

(j) Encourage education and awareness-raising programmes at the local, national, subregional and regional levels concerning energy efficiency and environmentally [safe and] sound energy systems;

(k) Establish or enhance, as appropriate, in cooperation with the private sector, labelling programmes for products to provide decision makers and consumers with information on opportunities for energy efficiency.

2. Transportation

Basis for action

9.10 [The transport sector is a source of atmospheric emissions. With increasing economic development there will be consequent increases in transportation needs, which could be accompanied by related emissions, unless appropriate action is taken. There is need for a

review of existing transport systems, involving vehicle emissions, the reorientation and management of traffic and transport systems].

Objectives

9.11 The objectives of this programme are:

(a) To develop and promote, as appropriate, [cost effective] programmes and strategies to limit and reduce, as appropriate, emissions of pollutants into the atmosphere and other adverse environmental effects of the transport sector, taking into account development priorities, as well as the specific local and national circumstances and safety aspects;

(b) To plan and develop [safe and] more efficient and less polluting transportation systems, especially mass transit, to support economic development efforts in an environmentally [safe and] sound way, giving special attention to urban and metropolitan areas.

Activities

9.12 Governments [at the appropriate level], with the cooperation of the relevant United Nations bodies and, as appropriate, intergovernmental and non-governmental organizations, the private sector and financial institutions, should:

(a) Develop and promote[, as appropriate, safe and] more efficient and less polluting transport systems, particularly integrated rural and urban mass transit, as well as environmentally sound road networks, taking into account the needs for sustainable social [and]/[,] economic [and] development[priorities], particularly in developing countries;

(b) Facilitate at the international, regional subregional and national levels [cooperation related to] the transfer of safe, energy-efficient and less polluting transport technologies, particularly to the developing countries, including the implementation of appropriate training programmes;

(c) Strengthen, as appropriate, their efforts at collecting, analysing and exchanging relevant information on the relation between environment and transport. Particular attention needs to be given to systematic observation of emissions and to the development of a transport database;

(d) [With the aim of enhancing and developing environmentally sustainable transportation systems, evaluate and, as appropriate, promote economic mechanisms, including pricing, which, inter alia seek to discourage large, fuel-consuming and polluting vehicles, and encourage the development and use of alternative fuels];

(e) [Develop or enhance, as appropriate, mechanisms to integrate the transport planning strategies and urban and regional settlement planning strategies, with the aim of reducing additional needs for transport];

(f) [Study, within the framework of the United Nations and appropriate international bodies, the feasibility of convening regional conferences on transport and the environment and their scope; such conferences could involve governmental representation and relevant international organizations, as well as the private sector and relevant academic institutions.]

3. Industrial development

Basis for action

9.13 Industry is essential for the production of goods and services and is a major source of employment and income, and industrial development as such is essential for economic growth. At the same time, industry is a major energy user and consequently results in emissions into the atmosphere and the environment as a whole. Protection of the atmosphere can be enhanced, inter alia, by increasing energy efficiency in industry, installing or improving pollution abatement technologies and replacing CFCs and other ozone-depleting substances with appropriate substitutes, as well as by promoting and implementing practices based on recycling and reducing wastes and by-products.

Objectives

9.14 The objectives of this programme are:

(a) To increase countries' capacities to undertake industrial development efforts in an environmentally [safe and] sound manner to support their development objectives;

(b) To increase efficiency in the production and consumption by industry of [energy and other] resources and materials;

(c) To improve pollution-abatement technologies, develop new, environmentally [safe and] sound technologies and facilitate [cooperation related to] the transfer of those technologies [by inter alia, supporting and implementing relevant international agreements, as appropriate].

Activities

9.15 Governments at the appropriate level, with the cooperation of the relevant United Nations bodies and, as appropriate, intergovernmental and non-governmental organizations,

the private sector and financial institutions, should:

(a) Encourage industry to increase and strengthen its capacity to develop products and processes that are more energy-efficient, safe and environmentally sound;

(b) Develop, improve and apply environmental impact assessments to foster sustainable industrial development;

(c) Support the promotion of less polluting and more efficient technologies and processes in industries, taking into account area-specific accessible potentials for energy, particularly safe and renewable sources of energy, with a view to limiting industrial pollution;

(d) [Continue research and other work aimed at developing methodologies and criteria for incorporating the social costs of the environmental and other impacts caused by industrial production, as well as the treatment and disposal of wastes generated, into the prices of the final products];

(e) [Promote efficient use of materials and resources, taking into account all aspects related to life cycles of products.]

4. Terrestrial and marine resource development and land use

Basis for action

9.16 Land-use and resource policies will both affect and be affected by changes in the atmosphere. Certain practices related to terrestrial and marine resources and land use can decrease greenhouse gas sinks and increase atmospheric emissions. The loss of biological diversity may reduce the resilience of ecosystems to climatic variations and air pollution damage. Atmospheric changes can have important impacts on forests, biodiversity, and freshwater and marine ecosystems, as well as on economic activities, such as agriculture. Policy objectives in different sectors may often diverge and will need to be handled in an integrated manner.

Objectives

9.17 The objectives of this programme are:

(a) To promote terrestrial and marine resource utilization and [develop policies for] land-use practices that contribute to:

- (i) Reducing atmospheric pollution or limiting anthropogenic emissions of greenhouse gases;
- (ii) The conservation, sustainable management and enhancement, where appropriate, of all sinks for greenhouse gases;
- (iii) The conservation and sustainable use of natural and environmental resources[, in particular, in agriculture and forestry sectors];

(b) To ensure that actual and potential atmospheric changes and their socio-economic and ecological impacts are fully taken into account in planning and implementing policies and programmes concerning terrestrial and marine resources utilization and land-use practices.

Activities

9.18 Governments [at the appropriate level], with the cooperation of the relevant United Nations bodies and, as appropriate, intergovernmental and non -governmental organizations, the private sector and financial institutions, should:

(a) Implement policies and programmes that will discourage inappropriate and polluting land-use practices and promote sustainable utilization of terrestrial and marine resources and environmentally sound land-use practices;

(b) Consider promoting the development and use of terrestrial and marine resources and land-use practices that will be more resilient to atmospheric changes and fluctuations.

(c) [Develop policies to reduce the global rate of deforestation and increase the global green cover;]

(d) [Study the feasibility of convening and the scope of an international conference on agriculture and the environment with a view to agree on measures to reduce the use of chemicals, air pollution including transboundary air pollution, and soil degradation and to promote environmentally sound waste management in agriculture.]

C. Preventing stratospheric ozone depletion

Basis for action

9.19 Analysis of recent scientific data has confirmed the growing concern over the continuing depletion of the Earth's stratospheric ozone layer by reactive chlorine and

bromine from man-made chlorofluorocarbons (CFCs), halons and related substances. While the 1985 Vienna Convention for the Protection of the Ozone Layer and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (as amended in London in 1990) were important steps in international action, the total chlorine loading of the atmosphere of ozone-depleting substances has continued to rise. This can be changed through compliance with the control measures identified within the Protocol.

Objectives

9.20 The objectives of this programme area are:

(a) To realize the objectives defined in the Vienna Convention and the Montreal Protocol and its 1990 amendments, including the consideration in those instruments of the special needs and conditions of the developing countries and the availability to them of alternatives to substances that deplete the ozone layer. Technologies and natural products that reduce demand for these substances should be encouraged;

(b) To develop strategies aimed at mitigating the adverse effects of ultraviolet radiation reaching the Earth's surface as a consequence of depletion and modification of the stratospheric ozone layer.

Activities

9.21 Governments at the appropriate level, with the cooperation of the relevant United Nations bodies and, as appropriate, intergovernmental and non-governmental organizations, the private sector and financial institutions, should:

(a) Ratify, accept or approve the Montreal Protocol and its 1990 amendments; pay their contributions towards the Vienna/Montreal trust funds and the interim multilateral ozone fund promptly; and contribute as appropriate, towards ongoing efforts under the Montreal Protocol and its implementing mechanisms, including making available substitutes for CFCs and other ozone-depleting substances and facilitating the transfer of the corresponding technologies to developing countries in order to enable them to comply with the obligations of the protocol;

(b) Support further expansion of the Global Ozone Observing System by facilitating - through bilateral and multilateral funding - the establishment and operation of additional systematic observation stations, especially in the tropical belt in the southern hemisphere; participate actively in the continuous assessment of scientific information and the health and environmental effects, as well as of the technological/economic implications of stratospheric ozone depletion; and consider further actions that prove warranted and feasible on the basis of these assessments;

(c) Based on the results of research on the effects of the additional ultraviolet radiation reaching the Earth's surface, consider taking appropriate remedial measures in the fields of human health, agriculture and marine environment;

(d) Replace CFCs and other ozone-depleting substances, consistent with the Montreal Protocol, recognizing that a replacement's suitability should be evaluated holistically and not simply based on its contribution to solving one atmospheric or environmental problem;

D. Transboundary atmospheric pollution

Basis for action

9.22 Transboundary air pollution has adverse health impacts on humans and other detrimental environmental impacts, such as tree and forest loss and the acidification of water bodies. The geographical distribution of atmospheric pollution monitoring networks is uneven, with the developing countries severely underrepresented. The lack of reliable emissions data outside Europe and North America is a major constraint to controlling transboundary air pollution. There is also insufficient information on the environmental and health effects of air pollution in other regions.

9.23 The 1979 Economic Commission for Europe Convention on Long-range Transboundary Air Pollution and its protocols have established a regional regime in Europe and North America, based on a review process and cooperative programmes for systematic observation of air pollution, assessment and information exchange. These programmes need to be continued and enhanced, and their experience needs to be shared with other regions of the world.

Objectives

9.24 The objectives of this programme area are:

(a) To develop and apply pollution control and measurement technologies for stationary and mobile sources of air pollution and to develop alternative environmentally [safe and] sound technologies;

(b) To observe and assess systematically the sources and extent of transboundary air pollution resulting from natural processes and anthropogenic activities;

(c) To strengthen the capabilities, particularly of developing countries, to measure, model and assess the fate and impacts of transboundary air pollution, through, inter alia, exchange of information and training of experts;

(d) To develop capabilities to assess and mitigate transboundary air pollution

resulting from industrial [and nuclear] accidents, natural disasters and the deliberate and/or accidental destruction of natural resources;

(e) To encourage the establishment of new and the implementation of existing regional agreements for limiting transboundary air pollution;

(f) To develop strategies aiming at the reduction of emissions causing transboundary air pollution and their effects.

Activities

9.25 Governments at the appropriate level, with the cooperation of the relevant United Nations bodies and, as appropriate, intergovernmental and non-governmental organizations, the private sector and financial institutions, should:

(a) Establish and/or strengthen regional agreements for transboundary air pollution control and cooperate, particularly with developing countries, in the areas of systematic observations and assessment, modelling and the development and exchange of emission control technologies of mobile and stationary sources of air pollution. In this context, greater emphasis should be put on addressing the extent, causes, health and socio-economic impacts of ultraviolet radiation, acidification of the environment and photo oxidant damage to forests and other vegetation;

(b) Establish or strengthen early warning systems and response mechanisms for transboundary air pollution resulting from industrial accidents and natural disasters and the deliberate and/or accidental destruction of natural resources;

(c) Facilitate training opportunities and exchange of data, information and national and/or regional experiences;

(d) Cooperate on regional, multilateral and bilateral bases to assess transboundary air pollution, and elaborate and implement programmes identifying specific actions to reduce atmospheric emissions and to address their environmental, economic, social and other effects.

[Means of implementation

(a) [Financial and cost-evaluation**

9.26 The major financial implications for programme area A (Addressing the uncertainties: improving the scientific basis for decision-making) would be for additional systematic observation and assessment of atmosphere-related issues. These are assessed in more detail

in section IV, chapter 9 of Agenda 21. It is estimated that \$675 million per year will be needed in international financing for developing country programmes, as follows:

(a) Additional monitoring and assessments for these global issues in developing countries will cost on the average about \$640 million per year, all of which will need to come from international sources;

(b) The early detection system will require \$5 million annually from international sources; strengthening regional monitoring activities and international coordination of these will cost about \$30 million per year.

9.27 The major financial implications of programme area B (Promoting sustainable development) are as follows:

(a) During the 1990s, the total developing country energy investment requirements are expected to rise to \$120 billion per year. In order to keep the same percentage of the energy investments from international sources, at least \$4-\$4.5 billion per year will be required for the developing countries only. About \$3.5 billion are being covered from international sources at present, representing about 3-4 per cent of total investment requirements. Were this to double, annual requirements would be on the order of \$9 billion;

(b) To ensure that more efficient energy systems and renewable energy sources would be used in developing countries, thereby ensuring reduced carbon dioxide emissions, an additional sum of about \$5 billion would be required from the international community. These are issues that relate directly to climate change, as both efficiency increases and alternative fuel supplies result in lower greenhouse gas emissions. Consequently, these are issues that are at present being negotiated within the Intergovernmental Negotiating Committee on a Framework Convention for Climate Change, and any decision within Agenda 21 will need to be adjusted in accordance with the outcome of those negotiations;

(c) Finally, to ensure environmentally sound energy development, up to \$1 billion per year would be required from international sources;

(d) The approximately \$10 billion needed from the international community for implementing this programme area would be divided about equally between funds for accelerating development and those needed for global issues;

(e) The national costs of promoting mass transit, as well as fuel efficiency and vehicle emission standards, are likely to be negative over time. Nevertheless, initial capital investments will be required, over and above existing plans. The magnitude of these funds will also need to be determined through the proposed regional conferences;

(f) In the area of industry, the major costs involved for developing countries will be for the development or purchase and management of new and cleaner industrial production technologies, in addition to the energy efficiency measures for industry, already covered in programme area B.1. Of particular interest is the increased cost of licensing newer, more efficient and less polluting industrial technologies. It is not possible to give an overall figure for the financial needs for these. However, since the activities to be undertaken in this area are similar to those for energy efficiency and for pollution abatement, it is possible to estimate that total requirements will be an additional \$25 billion per year, of which 3-10 per cent or \$1-\$2 billion per year could come from international sources during the 1990s. Were the percentage of international contributions to double, the requirements would be \$2-\$4 billion per year;

(g) In the area of terrestrial and marine resource development and land use, most of the activities proposed are activities that are being dealt with in other programme areas. The difference is that the objectives, and consequently the implementation, should shift in ways that take into account expected atmospheric changes. The extra cost to the international community of developing new crop varieties and agricultural practices that will be more resilient to atmospheric changes may be an additional \$100 million per year. It should be possible to absorb the additional cost for the coordination of efforts at the national and the international levels within existing budgets.

9.28 The annual costs to the international community for phasing out ozone-depleting substances by the year 2000 are estimated in the range of \$160-\$590 million per year. These are funds needed in addition to those already made available under the Montreal Protocol. Annual costs for the WMO Global Ozone Observing System, including the establishment of additional monitoring stations, will be less than \$1 million per year.

9.29 Technical assistance and pilot programmes related to transboundary air pollution efforts will cost about \$2 million annually.]

(b) Scientific and technological means

9.30 Developed countries should cooperate, in particular with developing countries to enable them to acquire or develop the relevant new, energy efficient and less polluting technologies, practices and policies. ***

(c) [Institutional means*

9.31 Changes to existing and new institutional mechanisms of technical and financial assistance may be needed at national, regional and global levels. There is particularly urgent need for work in the areas of energy efficiency and environmentally sound energy systems, especially renewable sources.

(i) National level

9.32 At the national level most countries have appropriate institutions dealing with energy. Their mandates, however, need to be considerably expanded to include responsibilities for the social and environmental impacts caused by the energy systems and to fully integrate the energy needs of the rural sector. Countries need to ensure the intersectoral collaboration of agricultural, forestry and rural development authorities for the latter.

(ii) Regional and subregional level

9.33 Regional and subregional institutions exist in a number of areas and are undertaking regional energy-related work. Some of these are within regional economic commissions, and others are regional, intergovernmental organizations. The work of these regional and subregional bodies needs to be strengthened, and other regional energy bodies may need to be set up to ensure that all the activities of a regional character of this programme area can be undertaken by them, particularly the regional energy efficiency activities that are being proposed above.

(iii) Global level

9.34 In addition to strengthening existing and creating new regional institutions, a global level institutional response will also be required. There is, at present no lead agency responsible for the whole range of energy issues within the United Nations.

9.35 United Nations collaborating centres. Collaborating centres could be set up by relevant United Nations bodies, with existing or new governmental or non-governmental institutions, at the regional or global level, to assist countries and United Nations agencies in implementing environmentally sound energy activities.

9.36 Review of public financial institutions. Countries should ensure that public financial institutions at the national and international levels review their programmes to determine the extent to which they are contributing to or are promoting investments that encourage the use of environmentally [safe and] sound energy systems and thereby better serve environmental and developmental objectives.]

(d) Capacity-building

9.37 Countries, in cooperation with the relevant United Nations bodies, international donors and non-governmental organizations, should mobilize technical and financial resources and facilitate technical cooperation with developing countries to reinforce their technical, managerial, planning and administrative capacities to promote sustainable development and the protection of the atmosphere, in all relevant sectors.

(e) Human resource development

9.38 Education and awareness-raising programmes need to be introduced and strengthened at the local, national and international levels concerning the promotion of sustainable development and the protection of the atmosphere, in all relevant sectors.]

1./ New and renewable energy sources are: solar thermal, solar photovoltaic, wind, hydro, biomass, geothermal, ocean, animal and human power, as referred to in the reports of the Committee on the Development and Utilization of New and Renewable Sources of Energy, prepared specifically for the Conference (see A/CONF.151/PC/119 and A/AC.218/1992/5).

*/ These paragraphs in the section on means of implementation have not been negotiated. It is expected that their status can be resolved at an early date during the conference.

**/ These paragraphs contain matters relating to means of implementation, including cost estimates, which are indicative secretariat figures provided pursuant to decision A/CONF.151/PC/L/49. They remain bracketed as they have not been negotiated.

***/ Language to be supplemented following agreement on "Technology transfer".

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NOTE TO THE READER:

Please note that this is the final text which resulted from the negotiations at the 4th Session of the UNCED Preparatory Committee. This draft will be edited and translated into the official languages of the United Nations before it is formally released.

CHAPTER 10

INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

INTRODUCTION

10.1. Land is normally defined as a physical entity in terms of its topography and spatial nature; a broader integrative view also includes natural resources: the soils, minerals, water and biota that the land comprises. These components are organized in ecosystems which provide a variety of services essential to the maintenance of the integrity of life-support systems and the productive capacity of the environment. Land resources are used in ways that take advantage of all these characteristics. Land is a finite resource, while the natural resources it supports can vary over time and according to management conditions and uses. Expanding human requirements and economic activities are placing ever increasing pressures on land resources, creating competition and conflicts and resulting in suboptimal use of both land and land resources. If, in the future, human requirements are to be met in a sustainable manner, it is now essential to resolve these conflicts and move towards more effective and efficient use of land and its natural resources. Integrated physical and land-use planning and management is an eminently practical way to achieve this. By examining all uses of land in an integrated manner, it makes it possible to minimize conflicts, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development. The essence of the integrated approach finds expression in the coordination of the sectoral planning and management activities concerned with the various aspects of land use and land resources.

10.2. The chapter consists of one programme, "Integrated approach to the planning and management of land resources", which deals with the reorganization and, where necessary, some strengthening of the decision-making structure, including existing policies, planning and management procedures and methods that can assist in putting in place an integrated approach to land resources. It does not deal with the operational aspects of planning and management, which are more appropriately dealt with under the relevant sectoral programmes. Since the programme deals with an important cross-sectoral aspect of decision-making for sustainable development, it is closely related to a number of other programmes

that deal with that issue directly.

PROGRAMME AREA

A. Integrated approach to the planning and management of land resources

Basis for action

10.3. Land resources are used for a variety of purposes which interact and may compete with each other; therefore it is desirable to plan and manage all uses in an integrated manner. Integration should take place at two levels, considering, on the one hand, all environmental, social and economic factors (including, for example, impacts of the various economic and social sectors on the environment and natural resources), and, on the other, all environmental and resource components together (i.e., air, water, biota, land, geological and natural resources). Integrated consideration facilitates appropriate choices and trade offs, thus maximizing sustainable productivity and use. Opportunities to allocate land to different uses arise in the course of major settlement or development projects or in a sequential fashion as lands become available on the market. This in turn provides opportunities to support traditional patterns of sustainable land management, or to assign protected status for conservation of biological diversity or critical ecological services.

10.4. A number of techniques, frameworks and processes can be combined to facilitate an integrated approach. They are the indispensable support for the planning and management process, at the national and local level, ecosystem or area levels and for the development of specific plans of action. Many of its elements are already in place, but need to be more widely applied, further developed and strengthened. This programme is concerned primarily with providing a framework that will coordinate decision-making; the content and operational functions are therefore not included here but are dealt with in the relevant sectoral programmes of Agenda 21.

Objectives

10.5. The broad objective is to facilitate allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources. In doing so, environmental, social and economic issues should be taken into consideration. Protected areas, private property rights, the rights of indigenous people and their communities and other local communities and the economic role of women in agriculture and rural development, among other issues, should be taken into account. In more specific terms, the objectives are to:

(a) Review and develop policies to support the best possible use of land and sustainable management of land resources, by not later than 1996;

(b) Improve and strengthen planning, management and evaluation systems for land and land resources, by not later than 2000;

(c) Strengthen institutions and coordinating mechanisms for land and land resources, by not later than 1998;

(d) Create mechanisms to facilitate the active involvement and participation of all concerned, particularly communities and people at the local level, in decision-making on land use and management, by not later than 1996.

Activities

(a) Management-related activities

Develop supportive policies and policy instruments

10.6. Governments at the appropriate level, with the support of regional and international organizations, should ensure that policies and policy instruments support the best possible land use and sustainable management of land resources. Particular attention should be given to the role of agricultural land. To do this, they should:

(a) Develop integrated goal-setting and policy formulation at the national, regional and local levels which takes into account environmental, social, demographic and economic issues;

(b) Develop policies that encourage sustainable land use and management of land resources and take the land resource base, demographic issues and the interests of the local population into account;

(c) Review the regulatory framework, including laws, regulations and enforcement procedures, in order to identify improvements needed to support sustainable land use and management of land resources and restricts the transfer of productive arable land to other uses;

(d) Apply economic instruments and develop institutional mechanisms and incentives to encourage the best possible land use and sustainable management of land resources;

(e) Encourage the principle of delegating policy-making to the lowest level of public authority consistent with effective action and a locally driven approach.

Strengthen planning and management systems

10.7. Governments at the appropriate level, with the support of regional and international organizations, should review and, if appropriate, revise planning and management systems to facilitate an integrated approach. To do this, they should:

(a) Adopt planning and management systems that facilitate the integration

of environmental components such as air, water, land and other natural resources, using landscape ecological planning (LANDEP) or other approaches that focus on, for example, an ecosystem or a watershed;

(b) Adopt strategic frameworks that allow the integration of both developmental and environmental goals; examples of these frameworks include sustainable livelihood systems, rural development, the World Conservation Strategy/Caring for the Earth, primary environmental care (PEC) and others;

(c) Establish a general framework for land-use and physical planning within which specialized and more detailed sectoral plans (e.g., for protected areas, agriculture, forests, human settlements, rural development) can be developed; establish intersectoral consultative bodies to streamline project planning and implementation;

(d) Strengthen management systems for land and natural resources by including appropriate traditional and indigenous methods; examples of these practices include pastoralism, Hema reserves (traditional islamic land reserves) and terraced agriculture;

(e) Examine and, if necessary, establish innovative and flexible approaches to programme funding;

(f) Compile detailed land capability inventories to guide sustainable land resources allocation, management and use at the national and local levels.

Promote application of appropriate tools for planning and management

10.8. Governments at the appropriate level, with the support of national and international organizations, should promote the improvement, further development and widespread application of planning and management tools that facilitate an integrated and sustainable approach to land and resources. To do this, they should:

(a) Adopt improved systems for the interpretation and integrated analysis of data on land use and land resources;

(b) Systematically apply techniques and procedures for assessing the environmental, social and economic impacts, risks, costs and benefits of specific actions;

(c) Analyses and test methods to include land and ecosystem functions and land resources values in national accounts.

Raise awareness

10.9. Governments at the appropriate level, in collaboration with national institutions and interest groups and with the support of regional and international organizations, should launch awareness-raising campaigns to alert and educate people on the importance of integrated land and land resources

management and the role that individuals and social groups can play in it. This should be accompanied by provision of the means to adopt improved practices for land use and sustainable management.

Promote public participation

10.10. Governments at the appropriate level, in collaboration with national organizations and with the support of regional and international organizations, should establish innovative procedures, programmes, projects and services that facilitate and encourage the active participation of those affected in the decision-making and implementation process, especially of groups that have, hitherto, often been excluded, such as women, youth, indigenous people and their communities and other local communities.

(b) Data and information

Strengthen information systems

10.11. Governments at the appropriate level, in collaboration with national institutions and the private sector and with the support of regional and international organizations, should strengthen the information systems necessary for making decisions and evaluating future changes on land-use and management. The needs of both men and women should be taken into account. To do this, they should:

(a) Strengthen information, systematic observation and assessment systems for environmental, economic and social data related to land resources at the global, regional, national and local levels and for land capability and land-use and management patterns;

(b) Strengthen coordination between existing sectoral data systems on land and land resources and strengthen national capacity to gather and assess data;

(c) Provide the appropriate technical information necessary for informed decision-making on land use and management in an accessible form to all sectors of the population, especially to local communities and women;

(d) Support low-cost, community-managed systems for the collection of comparable information on the status and processes of change of land resources, including soils, forest cover, wildlife, climate and other elements.

(c) International and regional coordination and cooperation

Establish regional machinery

10.12. Governments, at the appropriate level, with the support of regional and international organizations, should strengthen regional cooperation and exchange of information on land resources. To do this, they should:

(a) Study and design regional policies to support programmes for land-use and physical planning;

(b) Promote the development of land-use and physical plans in the countries of the region;

(c) Design information systems and promote training;

(d) Exchange, through networks and other appropriate means, information on experiences with the process and results of integrated and participatory planning and management of land resources at the national and local levels.

Means of implementation

(a) [Financing and cost evaluation

Sources of funds and concessional financing

10.13. It is assumed that most costs will be borne by Governments as part of the regular planning and management process. It is suggested that technical cooperation funding from international sources be made available at an annual cost of about \$ 50 million.] **

(b) Scientific and technological means

Enhance scientific understanding of the land resources system

10.14. Governments, at the appropriate level, in collaboration with the national and international scientific community and with the support of appropriate national and international organizations, should promote and support research, tailored to local environments, on the land resources system and the implications for sustainable development and management practices. Priority should be given, as appropriate, to:

- (a) assessment of land potential/capability and ecosystem functions;
- (b) ecosystemic interactions and interactions between land resources and social, economic and environmental systems;
- (c) develop indicators of sustainability for land resources, taking into account environmental, economic, social, demographic, cultural and political factors.

Test research findings through pilot projects

10.15. Governments, at the appropriate level, in collaboration with the national and international scientific community and with the support of the relevant international organizations, should research and test, through pilot projects, the applicability of improved approaches to the integrated planning and management of land resources, including technical, social and institutional factors.

(c) Human resources development

Enhance education and training

10.16. Governments, at the appropriate level, in collaboration with the appropriate local authorities, non governmental organizations and international institutions, should promote the development of the human resources that are required to plan and manage land and land resources sustainably. This should be done by providing incentives for local initiatives and by enhancing local management capacity, particularly of women, through:

(a) emphasizing interdisciplinary and integrative approaches in the curricula of schools and technical, vocational and university training;

(b) training all relevant sectors concerned to deal with land resources in an integrated and sustainable manner;

(c) training communities, relevant extension services, community based groups and NGOs on land management techniques and approaches applied successfully elsewhere.

(d) Capacity-building

Strengthen technological capacity

10.17. Governments, at the appropriate level, in cooperation with other Governments and with the support of relevant international organizations, should promote focused and concerted efforts for education and training and transfer of techniques and technologies that support the various aspects of the sustainable planning and management process at the national, state/provincial and local levels.

Strengthen institutions

10.18. Governments, at the appropriate level, with the support of appropriate international organizations, should:

(a) Review, and where appropriate, revise the mandates of institutions that deal with land and natural resources to include explicitly the interdisciplinary integration of environmental, social and economic issues;

(b) Strengthen coordinating mechanisms between institutions that deal with land-use and resources management to facilitate integration of sectoral concerns and strategies;

(c) Strengthen local decision-making capacity and improve coordination with higher levels.

NOTE:

- ** This paragraph contains matters relating to means of implementation, including cost estimates, which are indicative Secretariat figures provided pursuant to decision A/CONF.151/PC/L.49*. They remain in brackets as they have not been negotiated.

Chapter 11. Combatting deforestation

INTRODUCTION

11.1 This chapter refers to the four programme areas resulting from negotiations held at the Fourth Session of the Preparatory Committee.

PROGRAMME AREAS

A. Sustaining the multiple roles and functions of all types of forests, forest lands, and woodlands

Basis for action

11.2 There are major weaknesses in the policies, methods and mechanisms adopted to support and develop the multiple ecological, economic, social and cultural roles of trees, forests and forest lands. Many developed countries are confronted with the effects of air pollution and fire damage on their forests. More effective measures and approaches are often required at the national level to improve and harmonize policy formulation, planning and programming; legislative measures and instruments; development patterns; participation of the general public, especially women and indigenous people; involvement of youth; roles of the private sector, local organizations, NGOs and cooperatives; development of technical and multidisciplinary skills and quality of human resources; forestry extension and public education; research capability and support; administrative structures and mechanisms, including intersectoral coordination, decentralization, and responsibility and incentive systems; dissemination of information and public relations. This is especially important to ensure a rational and holistic approach to a sustainable and environmentally sound development of forests. The need for securing the multiple roles of forests and forest lands through adequate and appropriate institutional strengthening has been repeatedly emphasized in many of the reports, decisions and recommendations by FAO, ITTO, UNEP, the World Bank, IUCN, and other organizations.

Objectives

11.3 Strengthen forest related national institutions, to enhance the scope and effectiveness of activities related to management, conservation and sustainable development of forests, and to effectively ensure sustainable utilization and production of forests' goods and services in both developed and developing countries. By the year 2000, strengthen the capacities and capabilities of national institutions to enable them to acquire necessary knowledge for the protection and conservation of forests as well as in expanding their scope and correspondingly enhancing effectiveness of programmes and activities related to management and development of forests.

11.4 Strengthen and improve human, technical and professional skills as well as expertise and capabilities to effectively formulate and implement policies, plans, programmes, research and projects on management, conservation and sustainable development of all types of forests and

forest based resources, forest lands inclusive, as well as other areas from where forest benefits can be derived.

Activities

(a) Management-related activities:

11.5 Governments, at the appropriate levels, with the support of regional, sub-regional and international organizations, should [where necessary,] enhance institutional capability to promote the multiple roles and functions of all types of forests and vegetation inclusive of other related lands and forest based resources in supporting sustainable development and environmental conservation in all sectors. This should be done wherever possible and necessary by strengthening and/or modifying the existing structures and arrangements, and improving cooperation and the coordination of their respective roles. Some of the major activities in this regard are:

(a) To rationalize and strengthen administrative structures and mechanisms, including provision of adequate levels of staff and allocation of responsibilities, decentralization of decision-making, provision of infrastructural facilities and equipment, intersectoral coordination and an effective system of communication;

(b) To promote participation of the private sector, labour unions, rural cooperatives, local communities, indigenous people, youth, women, users groups and NGOs in forest related activities, and access to information and training programmes within the national context;

(c) To review and, if necessary, revise measures and programmes relevant to all types of forests and vegetation, inclusive of other related lands and forest based resources and relate them to other land uses and development policies and legislation; promote adequate legislation and other measures as a basis against uncontrolled conversion to other types of land uses;

(d) To develop and implement plans and programmes, including definition of national, and if necessary, regional and sub-regional goals, programmes and criteria for their implementation and subsequent improvement;

(e) To establish, develop and sustain an effective system of forest extension and public education to ensure better awareness, appreciation, and management of forests with regard to the multiple roles and values of trees, forests and forest lands;

(f) To establish and/or strengthen institutions for forest education and training as well as in forestry industries for developing an adequate cadre of trained and skilled staff at the professional, technical and vocational levels, with emphasis on youth and women.

(g) To establish and strengthen capabilities for research related to the different aspects of forests and forest products, for example on sustainable management of forests, research on biodiversity, on the effects of, air-borne pollutants, traditional uses of forest resources by local populations and indigenous people, and on improving market returns and other non-market

values from the management of forests, etc.

(b) Data and information

11.6 Governments, at the appropriate level, where relevant, with the assistance and cooperation of international, regional, subregional and bilateral agencies should develop adequate database and baseline information necessary for planning and programme evaluation. The following are some of the more specific activities:

(a) To collect, compile and regularly update and distribute information on land classification and land use, including data on forest cover, areas suitable for afforestation, endangered species, ecological values, traditional/indigenous land use values, biomass and productivity and correlate demographic, socio-economic and forest resources information at micro- and macro-levels, and undertake periodic analysis of forest programmes;

(b) To establish linkages with other data systems and sources relevant to supporting forest management, conservation and development while further developing or reinforcing existing systems such as geographic information systems as appropriate;

(c) To create mechanism to ensure public access to this information.

(c) International and regional cooperation and coordination:

11.7 Governments, at the appropriate level, and institutions should cooperate in the provision of expertise and other support, promote international research efforts, in particular with a view to enhancing transfer of technology and specialized training and ensuring access to experiences and research results. There is need for strengthening coordination and improving the performance of existing forest related international organizations in providing technical cooperation and support to interested countries for the management, conservation and sustainable development of forests.

Means of implementation

(a) Financial and cost evaluation:

11.8 [Annual estimated funding required to implement these activities is about \$ 2,500 million for the period 1993-2000. A major part required will need to be financed from national governments, the private sector and in some cases, NGOs.] **

11.9 [The estimated amount of international financing required, annually, for developing countries has been estimated at \$ 860 million, of which \$ 840 million are related to accelerating development and \$ 20 million for strengthening the capacity of international institutions. Accelerating development would consist of implementing management-related and data/information activities listed above.] **

(b) Scientific and technological means:

11.10 The planning, research and training activities specified will form the scientific and technological means for implementing the programme, as well as its output. The systems, methodology and know-how generated by the programme will help improve efficiency. Some of the specific steps involved should include:

(a) Analysis of achievements, constraints and social issues for supporting programmes formulation and implementation;

(b) Analysis of research problems and research needs, research planning and implementation of specific research projects;

(c) Assessment of needs for human resources, skill development and training;

(d) Development, testing and application of appropriate methodologies/approaches in implementing forest programmes and plans.

(c) Human resources development:

11.11 The specific components of forest education and training will effectively contribute to human resources development. These include:

(a) Launching of graduate and post-graduate degree, specialization and research programmes;

(b) Strengthening of pre-service, in-service and extension service training programmes at the technical and vocational levels, including training of trainers/teachers, and developing curriculum and teaching materials/methods;

(c) Special training for staff of national forest related organizations in aspects such as project formulation, evaluation and periodical evaluations.

(d) Capacity building:

11.12 This programme area is specifically concerned with capacity building in the forest sector and all programme activities specified contribute to that end. In building new strengthening capacities, full advantage should be taken of the existing systems and experience.

B. Enhancement of the protection, sustainable management and conservation of all forests, and the greening of degraded areas, through forest rehabilitation, afforestation, reforestation and other rehabilitative means

Basis for action

11.13 Forests worldwide have been and are threatened by uncontrolled degradation and

conversion to other types of land uses, influenced by increasing human needs; agricultural expansion; environmentally harmful mismanagement, which includes, for example, lack of adequate forest fire control and anti-poaching measures, unsustainable commercial logging, overgrazing and unregulated browsing, harmful effects of airborne pollutants, economic incentives and other measures taken by other sectors of the economy. The impacts of loss and degradation of forests are in the form of soil erosion; loss of biological diversity, damage to wildlife habitat and degradation of watershed areas, deterioration of the quality of life and reducing the options for development.

11.14 The present situation calls for urgent and consistent action for the need to conserve and sustain forest resources. Greening of suitable areas, in all its component activities, is an effective way of increasing public awareness and participation in protecting and managing forest resources. It should include the consideration of land use and tenure patterns and local needs and should spell-out and clarify the specific objectives of the different types of greening activities.

Objectives

11.15 Maintain existing forests through conservation and management, and sustain and expand areas under forest and tree cover, in appropriate areas of both developed and developing countries through conservation of natural forests, protection, forest rehabilitation, regeneration, afforestation, reforestation, tree planting, with a view to maintaining or restoring the ecological balance and expanding their contribution to human needs and welfare.

11.16 As appropriate prepare and implement National Forestry Action Programmes and/or plans for the management, conservation and sustainable development of forests. These plans and/or programmes should be integrated with other land-uses. In this context, country driven National Forestry Action Programmes and/or Plans under the Tropical Forestry Action Programme are currently being implemented in more than 80 countries with the support of the international community.

11.17 Ensure the sustainable management, and where appropriate, conservation of existing and future forest resources.

11.18 Maintain and increase the ecological, biological, climatic, socio-cultural and economic contributions of forest resources.

11.19 Facilitate and support effective implementation of the non-legally binding authoritative statement of principles for a global consensus on the management, conservation, and sustainable development of all types of forests, adopted by UNCED, and on the basis of those principles, give all possible support to efforts to [develop appropriate international cooperation] [negotiate an appropriate legal instrument] to promote the implementation of national strategies and programmes aimed at forest management, conservation, and sustainable development of all types of forests, including afforestation, reforestation, and rehabilitation.

Activities

(a) Management related:

11.20 Governments should recognize the importance of categorizing forests, in the framework of long-term forest conservation and management policy, into different forest types and setting up sustainable units in every region/watershed with a view to securing the forest conservation. Governments, with the participation of the private sector, non-governmental organizations, local community groups, indigenous people, women, local government units and the public at large should act to maintain and expand the existing vegetative cover wherever ecologically, socially and economically feasible, through technical cooperation and other forms of support. Major activities to be considered are:

(a) Ensure a sustainable management of all forest ecosystems, and woodlands, through improved proper planning, management, and timely implementation of silvicultural operations, including inventory and relevant research as well as rehabilitation of degraded natural forests to restore productivity and environmental contributions giving particular attention to human needs for economic and ecological services, wood-based energy, agroforestry, non-timber forest products and services, watershed and soil protection, wildlife management, and forest genetic resources;

(b) Establish, expand and manage, as appropriate to each national context, Protected Area Systems, which includes systems of conservation units for their environmental, social and spiritual functions and values, including conservation of forests in representative ecological systems and landscapes, primary old-growth forests, conservation and management of wildlife, nomination of World Heritage Sites under the World Heritage Convention as appropriate, conservation of genetic resources involving in situ and ex situ measures and undertaking supportive measures to ensure sustainable utilization of biological resources and conservation of biological diversity and the traditional forest habitats of indigenous people forest dwellers and local communities.

(c) Undertake and promote buffer and transition zone management;

(d) Carry out revegetation in appropriate mountain areas, highlands, bare lands, degraded farm lands, arid and semi-arid lands and coastal areas for combating desertification and preventing erosion problems and for other protective functions and national programmes for rehabilitation of degraded lands, including community forestry, social forestry, agroforestry and silvopasture while also taking into account the role of forests as national carbon reservoirs and sinks;

(e) Develop industrial and non-industrial planted forests in order to support and promote national ecologically sound afforestation and reforestation/regeneration programmes in suitable sites, including up-grading of existing planted forests of both industrial and non-industrial and commercial purpose to increase their contribution to human needs and offset pressure on primary/old growth forest. Measures should be undertaken to promote and provide intermediate yields and to improve the rate of returns on investments in planted forests, through interplanting and underplanting valuable crops;

(f) Develop/strengthen a national and/or master plan for planted forests as a priority, indicating inter alia the location, scope, species, specifying area of existing planted forests requiring rehabilitation, taking into account the economic aspect, for future planted forests development giving emphasis to native species;

(g) Increase protection of forests from pollutants, fire, pests and diseases and other human-made interferences such as forest poaching, mining, and unmitigated shifting cultivation, uncontrolled introduction of exotic plant and animal species as well as develop and accelerate research for a better understanding of problems relating to the management and regeneration of all types of forests. Strengthen and/or establish appropriate measures to assess and/or check inter-border movement of plants and related materials;

(h) Stimulate development of urban forestry for greening of urban, peri-urban and rural human settlements for amenity, recreation and production purposes and for protecting trees and groves;

(i) Launch or improve opportunities for participation of all people, including youth, women, indigenous people and local communities in the formulation, development and implementation of forest-related programmes and other activities taking due account of the local needs and cultural values;

(j) Limit and aim to halt destructive shifting cultivation by addressing the underlying social and ecological causes.

(b) Data and information:

11.21 The management-related activities should involve collection, compilation and analysis of data/information, including baseline surveys. The following are some of the specific activities:

(a) Carry out surveys and develop and implement land use plans for appropriate greening/planting/afforestation/reforestation/forest rehabilitation;

(b) Consolidate and update land use and forest inventory and management information for management and land use planning of wood and non-wood resources, including data on shifting cultivation and other agents of forest destruction;

(c) Consolidate information on genetic resources and related bio-technology, including surveys and studies as necessary;

(d) Carry out surveys and research on local/indigenous knowledge of trees and forests and their uses to improve the planning and implementation of sustainable forest management;

(e) Compile and analyse research data on species/site interaction of species used in planted forests and assess the potential impact on forests of climatic change as well as effects of forests on climate, and initiate in-depth studies on the carbon cycle relating to different forest types to provide scientific advice and technical support;

(f) Establish linkages with other data/information sources that relate to sustainable management and use of forests and improve access to data and information;

(g) Develop and intensify research to improve knowledge and understanding of problems and natural mechanism related to the management and rehabilitation of forests, including research on fauna and its interrelation with forests;

(h) Consolidate information on forest conditions and site-influencing emissions and emissions.

International and regional cooperation and coordination:

11.22 Greening of appropriate areas is a task of global importance and impact. The international and regional community should provide technical cooperation and other means for this programme. Specific activities of international nature, in support of national efforts, should include the following:

(a) Increase cooperative actions to reduce pollutants and trans-boundary impacts affecting the health of trees and forests and conservation of representative ecosystems;

(b) Coordinate regional and subregional research on carbon sequestration, air pollution and other environmental issues;

(c) Document and exchange information/experience for the benefit of countries with similar problems and prospects;

(d) Strengthen the coordination and improve the capacity and ability of intergovernmental organizations such as FAO, ITTO, UNEP, UNESCO, to provide technical support for the management, conservation and sustainable development of forests, including the support for the negotiation of the International Tropical Timber Agreement (ITTA) of 1983, due in 1992/1993.

Means of implementation

(c) Financial and cost evaluation:

11.23 [The estimated annual financing required to implement these activities is about \$ 10 billion for the period 1993-2000. Of this amount about \$ 3.7 billion in international financing will be needed for developing countries. From that amount \$ 3,510 million are related to accelerating development; \$ 150 million are needed for global environmental issues and \$ 20 million for strengthening the capacity of international institutions.] **

(b) Scientific and technological means:

11.24 Data analysis, planning, research, transfer/development of technology and/or training activities form an integral part of the programme activities, providing the scientific and

technological means of implementation. National institutions should:

(a) Develop feasibility studies and operational planning related to major forest activities;

(b) Develop and apply environmentally sound technology relevant to the various activities listed;

(c) Increase action related to genetic improvement and application of biotechnology for improving productivity and tolerance to environmental stress and including, for example, tree breeding, seed technology, seed procurement networks, germplasm banks, "in vitro" techniques, in situ and ex situ conservation.

(c) Human resources development:

11.25 Essential means for effectively implementing the activities include training and development of appropriate skills, working facilities and conditions, public motivation and awareness. Specific activities include:

(a) Provide specialized training in planning, management, environmental conservation, biotechnology, etc;

(b) Establish demonstration areas to serve as models and training facilities;

(c) Support local organizations, communities, NGOs, private land owners, in particular women, youth, farmers and indigenous people/shifting cultivators, through extension, provision of inputs and training.

(d) Capacity building:

11.26 The national Governments, the private sector, local organizations/communities, indigenous people, labour unions and NGOs should develop capacities, duly supported by relevant international agencies, to implement the programme activities. Such capacity should be developed and strengthened in harmony with the programme activities. Capacity-building activities include policy and legal frameworks, national institution building, human resource development, development of research and technology, development of infrastructure, enhancement of public awareness, etc.

C. Promoting efficient utilization and assessment to recover the full valuation of the goods and services provided by forests, forest lands and woodlands

Basis for action

11.27 The vast potential of forests and forest lands as a major resource for development is not

yet fully realized. Improved management of forests can increase the production of goods and services and in particular the yield of wood and "Non-Wood Forest Products", thus helping generate additional employment and income, addition of value through processing and trade of forest products, increase contribution to foreign exchange earnings, and increase return on investment. Forest resources, being renewable, can be sustainably managed in a manner that is compatible with environmental conservation. The implications of the harvesting of forest resources for the other values of the forest should be taken fully into consideration in the development of forests policies. It is also possible to increase the value of forests through "non-damaging" uses such as eco-tourism and managed supply of genetic materials. There is need for concerted action in order to increase people's perception of the value of forests and of the benefits they provide. The survival of the forests and their continued contribution for human welfare depends highly on succeeding in this endeavour.

Objectives

11.28 Improve recognition of the social, economic and ecological values of trees, forests and forest lands including the consequences of the damage caused by the lack of forest. Promote methodologies in view to incorporate social, economic and ecologic values of trees, forest and forest lands into the national economic accounting systems. Ensure their sustainable management in a way which is consistent with land use, environmental considerations and development needs.

11.29 Promote efficient, rational and sustainable utilization of all types of forests and vegetation inclusive of other related lands and forest-based resources, including through the development of efficient forest-based processing industries, value-adding secondary processing and trade in forest products, based on sustainably managed forest resources and in accordance with plans which integrate all wood and non-wood values of forests.

11.30 Promote more efficient and sustainable use of forest and trees for fuelwood and energy supply.

11.31 Promote more comprehensive use and economic contributions of forest areas by incorporating eco-tourism into forest management and planning.

Activities

(a) Management related:

11.32 Governments, and where appropriate, with the support of the private sector, scientific institutions, indigenous people, NGOs, cooperatives and entrepreneurs should undertake the activities below, properly coordinated at the national level along with financial and technical cooperation from international agencies. Major activities to be considered are:

(a) Carry out detailed investment studies, supply-demand harmonization and environmental impact analysis to rationalize and improve trees and forest utilization and to develop and establish appropriate incentive schemes and regulatory measures, including tenurial

arrangements, to provide a favourable investment climate and promote better management;

(b) Formulate scientifically sound criteria and guidelines for the management, conservation and sustainable development of all types of forests;

(c) Improve environmentally sound methods and practices of forest harvesting which are ecologically sound and economically viable, including planning and management, improved use of equipment, storage and transportation to reduce and if possible maximize the use of waste, and improve value of both wood and non-wood forest products;

(d) Promotion of a better use and development of natural forests and woodlands, including planted forests wherever possible, through appropriate and environmentally sound and economically viable activities including silvicultural practices and management of other plant and animal species;

(e) Promote and support the downstream processing of forest products to increase retained value and other benefits;

(f) Promote/popularize non-wood forest products and other forms of forest resources, apart from fuelwood (e.g. medicinal plants, dyes, fibres, gums, resins, fodder, cultural products, rattan, bamboo etc.) through programmes and social forestry/participatory forest activities, including research on their processing and uses;

(g) Develop, expand and/or improve effectiveness and efficiency of forest-based processing industries, both wood and non-wood based, involving such aspects as efficient conversion technology and improved sustainable utilization of harvesting and process residues; promotion of underutilized species in natural forests through research, demonstration and commercialization; promotion of value-adding secondary processing for improved employment, income and retained value; and promotion/improvement of markets for, and trade in, forest products through relevant institutions, policies and facilities.

(h) Promote and support the management of wildlife, as well as eco-tourism, including farming, as well as to encourage and support the husbandry and cultivation of wild species for improved rural income and employment, ensuring economic and social benefits without harmful ecological impacts;

(i) Promote appropriate small-scale forest-based enterprises for supporting rural development and local entrepreneurship;

(j) Improve and promote methodologies for the comprehensive assessment that will capture the full value of forests with a view to including this value in the market-based pricing structure of wood and non-wood based products;

(k) Harmonize sustainable development of forests with national development needs and trade policies which are compatible with the ecologically sound use of forest resources, using for example the ITTO Guidelines for Sustainable Management of Tropical Forests;

(l) Develop, adopt and strengthen national programmes for accounting the economic and non-economic value of forests.

(b) Data and information:

11.33 The objectives and the management related activities presuppose data and information analysis, feasibility studies, market surveys and review of technological information. Some of the relevant activities include:

(a) Undertake analysis of supply and demand for forest products and services, to ensure efficiency in their utilization, wherever necessary;

(b) Carry out investment analysis and feasibility studies, including environmental impact assessment, for establishing forest-based processing enterprises;

(c) Conduct research on the properties of currently underutilized species for their promotion and commercialization;

(d) Support market surveys of forest products for trade promotion and intelligence;

(e) Facilitate the provision of adequate technological information as a measure to promote better utilization of forest resources.

(c) International and regional cooperation and coordination:

11.34 Cooperation and assistance of international agencies and the international community in technology transfer, specialization, and promotion of fair terms of trade, without resorting to unilateral restrictions and/or bans on forest products contrary to GATT and other multilateral trade agreements, the application of appropriate market mechanisms and incentives will help in addressing global environmental concerns. Strengthening of the coordination and performance of existing international organizations and in particular FAO, UNIDO, UNESCO, UNEP, ITC/UNCTAD/GATT, ITTO and ILO for providing technical assistance and guidance in this programme area is another specific activity.

Means of implementation

(a) Financial and cost evaluation:

11.35 [Estimated annual financing required to implement the programme activities is about \$ 18 billion, for the period 1993-2000. The bulk of it is expected to be invested by the private sector. Part of it will also be invested by the national governments. Smaller investments will come from cooperatives and households. International assistance will, however, act as a catalyst and stimulant to promote development.] **

11.36 [The amount of international financing, required annually by developing countries has been estimated at \$ 880 million of which \$ 660 million are related to accelerated development;

\$ 200 million for global environmental issues and \$ 20 million for strengthening the capacity of international organizations.] **

(b) Scientific and technological means:

11.37 The programme activities pre-suppose major research efforts and studies as well as improvement of technology. This should be coordinated by national governments in collaboration with, and supported by, relevant international agencies and institutions. Some of the specific components include:

(a) Research on properties of wood and non-wood products and on their uses, to promote improved utilization;

(b) Development and application of environmentally sound and less-polluting technology for forest utilization;

(c) Models and techniques of outlook analysis and development planning;

(d) Scientific investigations on the development and utilization of non-timber forest products;

(e) Appropriate methodologies to comprehensively assess the value of forests.

(c) Human resources development:

11.38 The success and effectiveness of the programme depends on availability of skilled personnel. Specialized training is an important factor in this regard. New emphasis should be given to the incorporation of women. Human resource development for programme implementation, in quantitative and qualitative terms should include:

(a) Develop the required specialized skills to implement the programme, including establishment of special training facilities at all levels;

(b) Introduce/strengthen refresher training courses, including fellowships and study tours, to update skills and technological know-how and improve productivity;

(c) Strengthen capability for research, planning, economic analysis, periodical evaluations and evaluation, relevant to improved utilization of forest resources;

(d) Promote efficiency and capability of private and cooperative sectors through provision of facilities and incentives.

(d) Capacity building:

11.39 Capacity building, including strengthening of existing capacity, is implicit in the programme activities. Improving administration, policy and plans, national institutions, human

resources, research and scientific capabilities, technology development, and periodical evaluations and evaluation are important components of capacity building.

D. Establish and/or strengthen capacities for the planning, assessment and periodical evaluations of forests and related programmes, progress, activities, including commercial trade and processes

Basis for action

11.40 Assessment and periodical evaluations are essential components of long-term planning, for evaluating effects, quantitatively and qualitatively, and for rectifying inadequacies. This mechanism, however, is one of the often neglected aspects of forest resources, management, conservation and development. In many cases, even the basic information related to the area and types of forests, existing potential and volume of harvest etc. is lacking. In many developing countries, there is a lack of structures and mechanisms to carry out these functions. There is an urgent need to rectify this situation for a better understanding of the role and importance of forests and to realistically plan for their effective conservation, management, regeneration, sustainable development.

Objectives

11.41 Strengthen or establish systems for the assessment and periodical evaluations of forest and forest lands with a view to assessing the impacts of programmes, projects and activities on the quality and extent of forest resources, land available for afforestation, land tenure, and to integrate the systems in a continuing process of research and in-depth analysis, while ensuring necessary modifications and improvements for planning and decision-making process. Specific emphasis should be given to the participation of the rural people in these processes.

11.42 Provide the economists, planners, decision makers and local communities with sound and updated adequate information on forest and forest land resources.

Activities

(a) **Management related:**

11.43 Governments and institutions in collaboration, where necessary, with appropriate international agencies and organizations, universities and NGOs, should undertake assessments and systematic observations of forests and related programmes and processes with a view to their continuous improvement. This should be linked to related activities of research and management and, wherever possible, be built upon existing systems. Major activities to be considered are:

(a) **Assess and carry systematic observations of the quantitative and qualitative situation and changes of forest cover and forest resources endowments, including land classification, land use and its status updates, at the appropriate national level, and link this**

activity, as appropriate, with planning as a basis for policy and programme formulation;

(b) Establish national assessment and systematic observation systems and evaluation of programmes and processes, including establishment of definitions, standards, norms, and intercalibration methods, and capability for initiating corrective actions as well as improving formulation and implementation of programmes and projects;

(c) Make estimates of impacts of activities affecting forestry developments and conservation proposals, in terms of key variables such as developmental goals, benefits and costs, contributions of forests to other sectors, community welfare, environmental conditions and biological diversity and their impacts at the local, regional and global levels where appropriate, to assess the changing technological and financial needs of countries;

(d) Develop national systems of forest resource assessment and valuation, including necessary research and data analysis, which account for, where possible, the full range of wood and non-wood forest products and services, and incorporate results in plans and strategies and, where feasible, in national systems of accounts and planning;

(e) Establish necessary inter-sectoral and programme linkages, including improved access to information in order to support a holistic approach to planning and programming.

(b) Data and information:

11.44 Reliable data and information are vital to this programme. The national Governments, in collaboration, where necessary, with relevant international agencies, should, as appropriate, undertake to continuously improve data and information and ensure its exchange. Major activities to be considered are:

(a) Collect, consolidate and exchange existing information and establish baseline information on aspects relevant to this programme;

(b) Harmonize the methodologies for programmes involving data and information activities to ensure accuracy and consistency;

(c) Undertake special surveys on, for example, land capability and suitability for afforestation action;

(d) Enhance research support and improve access to and exchange of research results.

(c) International and regional cooperation and coordination:

11.45 The international community should extend to the Governments concerned necessary [technical and financial support] for implementing this programme, including consideration of the following:

(a) Establish conceptual framework and formulate acceptable criteria, norms and

definitions for systematic observations and assessment of forest resources;

(b) Establish and strengthen national institutional coordination mechanisms for forest assessment and systematic observations activities;

(c) Strengthen existing regional and global networks for exchange of relevant information.

(d) Strengthen the capacity and ability and improve the performance of existing international organizations such as the Consultative Group on International Agricultural Research (CGIAR), FAO, ITTO, UNEP, UNESCO and UNIDO to provide technical support and guidance in this programme area.

Means of implementation

(a) Financial and cost evaluation:

11.46 [Estimated annual financing required to implement the activities is about \$ 750 million for the period 1993-2000. About 70 per cent of the required financing will come from national governments and from the private sector. The amount of annual international financing required, by developing countries has been estimated at \$ 230 million, of which \$ 180 million are related to accelerating development, \$ 30 million for global environmental issues and \$ 20 million for strengthening the capacity of international organizations.] **

11.47 Accelerating development consists of implementing the management-related and data/information activities cited above. Activities related to global environment issues are those which will contribute to the global information for assessing/evaluating/addressing environmental issues on worldwide basis. Strengthening the capacity of international institutions consists of enhancing the technical staff and the executing capacity of several international organizations in order to meet the requirements of countries.

Scientific and technological means:

11.48 Assessment and periodical evaluations activities involve major research efforts, statistical modelling and technological innovation. These have been internalized into the management-related activities. The activities in turn will improve the technology and scientific content of assessment and periodical evaluations. Some of the specific scientific and technological components included under the activities are:

(a) Development of technical, ecological and economic methods and models related to periodical evaluations and evaluation;

(b) Development of data systems, data processing and statistical modelling;

(c) Remote sensing and ground surveys;

- (d) Development of Geographic Information Systems (GIS);
- (e) Assessment and improvement of technology.

11.49 These are to be linked and harmonized with similar activities and components in the other programmes.

- (c) Human resources development:

11.50 The programme activities foresee the need, and include provision for human resource development in terms of specialization (e.g. the use of remote sensing, mapping, statistical modelling), training, technology transfer, fellowships, and field demonstrations.

- (d) Capacity building:

11.51 The national governments in collaboration with appropriate international agencies and institutions should develop the necessary capacity for implementing this programme. This should be harmonized with capacity building for other programmes. Capacity building should cover such aspects as policies, public administration, national level institutions, human resource and skill development, research capability, technology development, information system, programme evaluation, intersectoral coordination and international cooperation.

11.52 [Funding of international and regional cooperation. The estimated investment required annually to implement international and regional cooperation is estimated at about \$ 750 million, for the period 1993-2000. Nearly 70 per cent of the required financing would come from international sources. The amount of international financing required annually has been estimated to be \$ 530 million of which \$ 430 million are related to accelerating development; \$ 80 million for global environmental issues and \$ 20 million for strengthening the capacity of international organizations.] *

Notes:

- * These paragraphs in the sections on means of implementation have not been negotiated. It is expected that their status can be resolved at an early date during the Conference.
- ** These paragraphs contain matters relating to means of implementation, including cost estimates, which are indicative secretariat figures provided pursuant to decision A/CONF.151/PC/L.49*. They remain in brackets as they have not been negotiated.

Chapter 12

MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

INTRODUCTION

12.1, Fragile ecosystems are important ecosystems, with unique features and resources. Fragile ecosystems include deserts, semi-arid lands, mountains, wetlands, small islands and certain coastal areas. Most of these ecosystems are regional in scope, as they transcend national boundaries. This chapter addresses land resource issues in deserts, as well as arid, semi-arid and dry sub-humid areas. Sustainable mountain development is addressed in Chapter 13 of Agenda 21. Small islands and coastal areas are discussed in Chapter 17 of Agenda 21.

12.2, Desertification is land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. Desertification affects about one sixth of the world's population, 70 per cent of all drylands, amounting to 3.6 billion hectares, and one quarter of the total land area of the world. The most obvious impact of desertification, in addition to widespread poverty, is the degradation of 3.3 billion hectares of the total area of rangeland, constituting 73 per cent of the rangeland with a low potential for human and animal carrying capacity; decline in soil fertility and soil structure on about 47 per cent of the dryland areas constituting marginal rainfed cropland; and the degradation of irrigated cropland, amounting to 30 per cent of the dryland areas with a high population density and agricultural potential.

12.3, The priority in combating desertification should be the implementation of preventive measures for lands that are not yet degraded, or which are only slightly degraded. However, the severely degraded areas should not be neglected. In combating desertification and drought, the participation of local communities, rural organizations, national Governments, non-governmental organizations and international and regional organizations is essential.

12.4, The following programme areas are included in this chapter:

- A. Strengthening the knowledge base and developing information and monitoring systems for regions prone to desertification and drought, including the economic and social aspects of these ecosystems;
- B. Combating land degradation through, inter alia, intensified soil conservation, afforestation and reforestation activities;
- C. Developing and strengthening integrated development programmes for the eradication of poverty and promotion of alternative livelihood systems in areas prone to desertification;

- D. Developing comprehensive anti-desertification programmes and integrating them into national development plans and national environmental planning;
- E. Developing comprehensive drought preparedness and drought-relief schemes, including self-help arrangements, for drought-prone areas and designing programmes to cope with environmental refugees;
- F. Encouraging and promoting popular participation and environmental education, focusing on desertification control and management of the effects of drought.

PROGRAMME AREAS

Strengthening the knowledge base and developing information and monitoring systems for regions prone to desertification and drought, including the economic and social aspects of these ecosystems

Basis for action

12.5, The global assessments of the status and rate of desertification conducted by the United Nations Environment Programme (UNEP) in 1977, 1984 and 1991 have revealed insufficient basic knowledge of desertification processes. Adequate worldwide systematic observation systems are helpful for the development and implementation of effective anti-desertification programmes. The capacity of existing international, regional and national institutions, particularly in developing countries, to generate and exchange relevant information is limited. An integrated and coordinated information and systematic observation system based on appropriate technology and embracing global, regional, national and local levels is essential for understanding the dynamics of desertification and drought processes. It is also important for developing adequate measures to deal with desertification and drought and improving socio-economic conditions.

Objectives

12.6, The objectives of this programme area are:

- (a) To promote establishment and/or strengthening of national environmental information coordination centres that will act as focal points within Governments for sectoral ministries and provide the necessary standardization and back-up services; ensuring also that national environmental information systems on desertification and drought are linked together through a network at subregional, regional and interregional levels;
- (b) To strengthen regional and global systematic observation networks linked to the development of national systematic observation systems for the observation of land degradation and desertification caused both by climate fluctuations and by human impact, and identifying priority areas for action;
- (c) To establish a permanent system at both national and international levels for monitoring desertification/land degradation with the aim of improving living

conditions in the affected areas.

Activities

(a) Management-related activities

12.7, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Establish and/or strengthen environmental information systems at the national level;
- (b) Strengthen national, state/provincial and local assessment and ensure cooperation/networking between existing environmental information and monitoring systems, such as Earthwatch and the Sahara and Sahel Observatory;
- (c) Strengthen the capacity of national institutions to analyse environmental data so that ecological change can be monitored and environmental information obtained on a continuing basis at the national level.

(b) Data and information

12.8, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Review and study the means for measuring the ecological, economic and social consequences of desertification and land degradation and introduce the results of these studies internationally into desertification and land degradation assessment practices;
- (b) Review and study the interactions between the socio-economic impacts of climate, drought and desertification and utilize the results of these studies to secure concrete action.

12.9, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Support the integrated data collection and research work of programmes related to desertification and drought problems;
- (b) Support national, regional and global programmes for integrated data collection and research networks carrying out assessment of soil and land degradation;
- (c) Strengthen national and regional meteorological and hydrological networks and monitoring systems to ensure adequate collection of basic information and communication among national, regional and international centres.

(c) International and regional cooperation and coordination

12.10, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Strengthen regional programmes and international cooperation, such as the Permanent Inter-State Committee on Drought Control in the Sahel (CILSS), the Intergovernmental Authority for Drought and Development (IGADD), the Southern African Development Coordination Conference (SADCC), Arab Maghreb Union (UMA)

and other regional organizations, as well as such organizations as the Sahara and Sahel Observatory;

(b) Establish and/or develop a comprehensive desertification, land degradation and human condition database component that incorporates both physical and socio-economic parameters. This should be based on existing and, where necessary, additional facilities, such as those of Earthwatch and other information systems of international, regional and national institutions strengthened for this purpose;

(c) Determine benchmarks and define indicators of progress that facilitate the work of local and regional organizations in tracking progress in the fight for anti-desertification. Particular attention should be paid to indicators of local participation.

Means of implementation

(a) Financing and cost-evaluation

12.11, [The total financing required to implement this programme area is about \$350 million a year, while the average annual financing required from international sources is about \$175 million. From this international figure, the average annual costs related to accelerated development would be about \$165 million and the costs for strengthening the capacity of international institutions would be about \$10 million a year.]**

(b) Scientific and technological means

12.12, Governments at the appropriate level and with the support of the relevant international and regional organizations working on the issue of desertification and drought should:

(a) Undertake and update existing inventories of natural resources, such as energy, water, soil, minerals, plant and animal access to food, as well as other resources, such as housing, employment, health, education and demographic distribution in time and space;

(b) Develop integrated information systems for environmental monitoring, accounting and impact assessment;

(c) International bodies should cooperate with national Governments to facilitate the acquisition and development of appropriate technology for monitoring and combating drought and desertification.

(c) Human resource development

12.13, Governments at the appropriate level, with the support of the relevant international and regional organizations working on the issue of desertification and drought, should develop the technical and professional skills of people engaged in monitoring and assessing the issue of desertification and drought.

(d) Capacity-building

12.14, Governments at the appropriate level, with the support of the relevant

international and regional organizations working on the issue of desertification and drought, should:

- (a) Strengthen national and local institutions by providing adequate staff equipment and finance for assessing desertification;
- (b) Promote the involvement of the local population, particularly women and youth, in the collection and utilization of environmental information through education and awareness-building.

B. Combating land degradation through, inter alia, intensified soil conservation, afforestation and reforestation activities

Basis for action

12.15, Desertification affects about 3.6 billion hectares, which is about 70 per cent of the total area of the world's drylands or nearly one quarter of the global land area. In combating desertification on rangelands, rainfed cropland and irrigated land preventative measures should be launched in areas which are not yet affected or are only slightly affected by desertification; corrective measures should be implemented to sustain the productivity of moderately desertified land; and rehabilitative measures should be taken to recover severely or very severely desertified drylands.

12.16, An increasing vegetation cover would promote and stabilize the hydrological balance in the dryland areas and maintain land quality and land productivity. Prevention of not yet degraded land and application of corrective measures and rehabilitation of moderate and severely degraded drylands, including areas affected by sand dune movements, through the introduction of environmentally sound, socially acceptable, fair and economically feasible land use systems. This will enhance the land carrying capacity and maintenance of biotic resources in fragile ecosystems.

Objectives

12.17, The objectives of this programme area are:

- (a) As regards areas not yet affected or only slightly affected by desertification, to ensure appropriate management of existing natural formations (including forests) for the conservation of biodiversity, watershed protection, sustainability of their production and agricultural development, and other purposes, with the full participation of indigenous people;
- (b) To rehabilitate moderately to severely desertified drylands for productive utilization and sustain their productivity for agropastoral/agroforestry development through, inter alia, soil and water conservation;
- (c) To increase the vegetation cover and support management of biotic resources in regions affected or prone to desertification and drought, notably through such activities as afforestation/reforestation, agroforestry, community forestry and vegetation retention schemes;
- (d) To improve management of forest resources, including woodfuel, and to reduce woodfuel consumption through more efficient utilization, conservation and the

enhancement, development and use of other sources of energy, including alternative sources of energy.

Activities

(a) Management-related activities

12.18, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Implement urgent direct preventive measures in drylands that are vulnerable but not yet affected, or only slightly desertified drylands, by introducing (i) improved land-use policies and practices for more sustainable land productivity; (ii) appropriate, environmentally sound and economically feasible agricultural and pastoral technologies; and (iii) improved management of soil and water resources;

(b) Carry out accelerated afforestation and reforestation programmes, using drought-resistant, fast-growing species, in particular native ones, including legumes and other species, combined with community-based agroforestry schemes. In this regard, creation of large-scale reforestation and afforestation schemes, particularly through the establishment of green belts, should be considered, bearing in mind the multiple benefits of such measures.

(c) Implement urgent direct corrective measures in moderately to severely desertified drylands, in addition to the measures listed in paragraph 19 (a) above, with a view to restoring and sustaining their productivity;

(d) Promote improved land/water/crop-management systems, making it possible to combat salinization in existing irrigated croplands; and to stabilize rainfed croplands and introduce improved soil/crop-management systems into land-use practice;

(e) Promote participatory management of natural resources, including rangeland, to meet both the needs of rural populations and conservation purposes, based on innovative or adapted indigenous technologies;

(f) Promote in situ protection and conservation of special ecological areas through legislation and other means for the purpose of combating desertification while ensuring the protection of biodiversity;

(g) Promote and encourage investment in forestry development in drylands through various incentives, including legislative measures;

(h) Promote the development and use of sources of energy which will lessen pressure on ligneous resources, including alternative sources of energy and improved stoves.

(b) Data and information

12.19, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Develop land-use models based on local practices for the improvement of such practices, with a focus on preventing land degradation. The models should give a better understanding of the variety of natural and human-induced factors that may contribute to desertification. Models should incorporate the interaction of both new and traditional practices to prevent land degradation and reflect the resilience of the whole

ecological and social system;

(b) Develop, test and introduce, with due regard to environmental security considerations, drought resistant, fast-growing and productive plant species appropriate to the environment of the regions concerned.

(c) International and regional cooperation and coordination

12.20, The appropriate United Nations agencies, international and regional organizations, non-governmental organizations and bilateral agencies should:

(a) Coordinate their roles in combating land degradation and promoting reforestation, agroforestry and land-management systems in affected countries;

(b) Support regional and subregional activities in technology development and dissemination, training and programme implementation to arrest dryland degradation.

12.21, The national Governments concerned, the appropriate United Nations agencies and bilateral agencies should strengthen the coordinating role in dryland degradation of subregional intergovernmental organizations set up to cover these activities, such as CILSS, IGADD, SADCC and the Arab Maghreb Union.

Means of implementation

(a) Financing and cost-evaluation

12.22, [The total financing required to implement this programme area in developing countries is about \$6 billion a year, while the average annual financing required from international sources is about \$3 billion. From this international figure, costs related to accelerated development would be about \$2.6 billion a year, the requirements for global environmental issues would be about \$370 million a year, and the amount for strengthening the capacity of international institutions would be about \$30 million a year.]**

(b) Scientific and technological means

12.23, Governments at the appropriate level and local communities, with the support of the relevant international and regional organizations, should:

(a) Integrate indigenous knowledge related to forests, forest lands, rangeland and natural vegetation into research activities on desertification and drought;

(b) Promote integrated research programmes on the protection, restoration and conservation of water and land resources and land-use management based on traditional approaches, where feasible.

(c) Human resource development

12.24, Governments at the appropriate level and local communities, with the support of the relevant international and regional organizations, should:

(a) Establish mechanisms to ensure that land users, particularly women, are the main actors in implementing improved land use, including agroforestry systems, in combating land degradation;

(b) Promote efficient extension-service facilities in areas prone to desertification and drought, particularly for training farmers and pastoralists in the improved management of land and water resources in drylands.

(d) Capacity-building

12.25, Governments at the appropriate level and local communities, with the support of the relevant international and regional organizations, should:

(a) Develop and adopt, through appropriate national legislation, and introduce institutionally, new and environmentally sound development-oriented land-use policies;

(b) Support community-based people's organizations, especially farmers and pastoralists.

C. Developing and strengthening integrated development programmes for the eradication of poverty and promotion of desertification livelihood systems in areas prone

Basis for action

12.26, In areas prone to desertification and drought, current livelihood and resource-use systems are not able to maintain living standards. In most of the arid and semi-arid areas, the traditional livelihood systems based on agropastoral systems are often inadequate and unsustainable, particularly in view of the effects of drought and increasing demographic pressure. Poverty is a major factor in accelerating the rate of degradation and desertification. Action is therefore needed to rehabilitate and improve the agropastoral systems for sustainable management of rangelands, as well as alternative livelihood systems.

Objectives

12.27, The objectives of this programme area are:

(a) To create the capacity of village communities and pastoral groups to take charge of their development and the management of their land resources on a socially equitable and ecologically sound basis;

(b) To improve production systems in order to achieve greater productivity within approved programmes for conservation of national resources and in the framework of an integrated approach to rural development;

(c) To provide opportunities for alternative livelihoods as a basis for reducing pressure on land resources while at the same time providing additional sources of income, particularly for rural populations, thereby improving their standard of living.

Activities

(a) Management-related activities

12.28, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Adopt policies at the national level regarding a decentralized approach to land-resource management, delegating responsibility to rural organizations;

- (b) Create or strengthen rural organizations in charge of village and pastoral land management;
- (c) Establish and develop local, national and intersectoral mechanisms to handle environmental and developmental consequences of land tenure expressed in terms of land use and land ownership. Particular attention should be given to protecting the property rights of women and pastoral and nomadic groups living in rural areas;
- (d) Create or strengthen village associations focused on economic activities of common pastoral interest (market gardening, transformation of agricultural products, livestock, herding, etc.);
- (e) Promote rural credit and mobilization of rural savings through the establishment of rural banking systems;
- (f) Develop infrastructure, as well as local production and marketing capacity, by involving the local people to promote alternative livelihood systems and alleviate poverty;
- (g) Establish a revolving fund for credit to rural entrepreneurs and local groups to facilitate the establishment of cottage industries/business ventures and credit for input to agropastoral activities.

(b) Data and information

12.29, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Conduct socio-economic baseline studies in order to have a good understanding of the situation in the programme area regarding, particularly, resource and land tenure issues, traditional land-management practices and characteristics of production systems;
- (b) Conduct inventory of natural resources (soil, water and vegetation) and their state of degradation, based primarily on the knowledge of the local population (e.g., rapid rural appraisal);
- (c) Disseminate information on technical packages adapted to the social, economic and ecological conditions of each;
- (d) Promote exchange and sharing of information concerning the development of alternative livelihoods with other agro-ecological regions.

(c) International and regional cooperation and coordination

12.30, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Promote cooperation and exchange of information among the arid and semi-arid land research institutions concerning techniques and technologies to improve land and labour productivity, as well as viable production systems;
- (b) Coordinate and harmonize the implementation of programmes and projects funded by the international organization communities and non-governmental organizations that are directed towards the alleviation of poverty and promotion of an alternative livelihood system.

Means of implementation(a) Financing and cost-evaluation

12.31, [The total financing required for these programme areas is about \$3 billion a year, while the average annual financing required from international sources is about \$1.5 billion].**

(b) Scientific and technological means

12.32, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Undertake applied research in land-use with the support of local research institutions;

(b) Facilitate regular national, regional and interregional communication on and exchange of information and experience between extension officers and researchers;

(c) Support and encourage the introduction and use of technologies for the generation of alternative sources of incomes.

(c) Human resource development

12.33, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Train members of rural organizations in management skills and train agropastoralists in such special techniques as soil and water conservation, water harvesting, agroforestry and small-scale irrigation;

(b) Train extension agents and officers in the participatory approach to integrated land management.

(d) Capacity-building

12.34 Governments at the appropriate level and with the support of the relevant international and regional organizations should establish and maintain mechanisms to ensure the integration into sectoral and national development plans and programmes of strategies for poverty alleviation among the inhabitants of lands prone to desertification.

D. Developing comprehensive anti-desertification programmes and integrating them into national developing plans and national environmental planning

Basis for action

12.35, In a number of developing countries affected by desertification, the natural resource base is the main resource upon which the development process must rely. The social systems interacting with land resources make the problem much more complex, requiring an integrated approach to the planning and management of land resources. Action plans to combat desertification and drought should include management aspects of the environment and development, thus conforming with the approach of integrating national development plans and national environmental action plans.

Objectives

12.36, The objectives of this programme area are:

- (a) To strengthen national institutional capabilities to develop appropriate anti-desertification programmes and to integrate them into national development planning;
- (b) To develop and integrate strategic planning frameworks for the development, protection and management of natural resources in dryland areas into national development plans, including national plans to combat desertification, and environmental action plans in countries most prone to desertification;
- (c) To initiate a long-term process for implementing and monitoring strategies related to natural resources management;
- (d) To strengthen regional and international cooperation for combating desertification [through, inter alia, the adoption of legal and other instruments].

Activities

(a) Management-related activities

12.37, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Establish or strengthen, national and local anti-desertification authorities within government and local executive bodies, as well as local committees/associations of land-users, in all rural communities affected, with a view to organizing working cooperation between all actors concerned, from the grass-roots level (farmers and pastoralists) to the higher levels of government;
- (b) Develop national plans of action to combat desertification and as appropriate, make them integral parts of national development plans and national environmental action plans;
- (c) Implement policies directed towards improving land use, managing common lands appropriately, providing incentives to small farmers and pastoralists, involving women and encouraging private investment in the development of drylands;
- (d) Ensure coordination among ministries and institutions working on anti-desertification programmes at national and local levels.

(b) Data and information

12.38, Governments at the appropriate level and with the support of the relevant international and regional organizations should promote information exchange and cooperation with respect to national planning and programming among affected countries, inter alia, through networking.

(c) International and regional cooperation and coordination

12.39, The relevant international organizations, multilateral financial institutions, non-governmental organizations and bilateral agencies should strengthen their cooperation in assisting with the preparation of desertification control programmes and their integration into national planning strategies, with the establishment of national coordinating and systematic observation mechanisms and with the regional and global networking of these plans and mechanisms.

12.40, [Governments, intergovernmental organizations, relevant non-governmental organizations, and the scientific community should improve and strengthen international cooperation and solidarity in the fight against desertification through the preparation and adoption of an international convention to combat desertification in all affected areas of the world, particularly in Africa. This convention should contain concrete and specific commitments from the participating parties (both the countries affected by desertification and other countries parties to the convention) and should take into account the needs of Governments as well as of populations affected by desertification. It is proposed that the servicing of the mechanism that will be set up for the preparation of that convention could be entrusted to the United Nations Sudano-Sahelian Office, thereby benefiting from the experience gained by that organization in desertification control activities.]

Means of implementation

(a) Financing and cost-evaluation

12.41, [The total financing required to implement this programme area is about \$180 million a year, while the average annual financing required from international sources is about \$90 million. Of this latter figure, costs related to accelerated development would amount to about \$80 million a year, and costs for strengthening the capacity of international institutions would be about \$10 million a year.]**

(b) Scientific and technological means

12.42, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Develop and introduce appropriate improved sustainable agricultural and pastoral technologies that are socially and environmentally acceptable and economically feasible;

(b) Undertake applied study on the integration of environmental and developmental activities into national development plans.

(c) Human resource development

12.43, Governments at the appropriate level and with the support of the relevant international and regional organizations should undertake nation-wide major anti-desertification awareness/training campaigns within countries affected through existing national mass media facilities, educational networks and newly created or strengthened extension services. This should ensure people's access to knowledge of desertification and drought and to national plans of action to combat desertification.

(d) Capacity-building

12.44, Governments at the appropriate level and with the support of the relevant international and regional organizations should establish and maintain mechanisms to ensure coordination of sectoral ministries and institutions, including local-level institutions and appropriate non-governmental organizations, in integrating anti-desertification programmes into national development plans and national

environmental action plans.

E. Developing comprehensive drought preparedness and drought-relief schemes, including self-help arrangements, for drought-prone areas and designing programmes to cope with environmental refugees

Basis for action

12.45, Drought, in differing degrees of frequency and severity, is a recurring phenomenon throughout much of the developing world, especially Africa. Apart from the human toll - an estimated 3 million people died in the mid-1980s because of drought in sub-Saharan Africa - the economic costs of drought-related disasters are also high in terms of lost production, misused inputs and diversion of development resources.

12.46, Early-warning systems to forecast drought will make possible the implementation of drought-preparedness schemes. Integrated packages at the farm and watershed level, such as alternative cropping strategies, soil and water conservation and promotion of water harvesting techniques, could enhance the capacity of land to cope with drought and provide basic necessities, thereby minimizing the number of environmental refugees and the need for emergency drought relief. At the same time, contingency arrangements for relief are needed for periods of acute scarcity.

Objectives

12.47, The objectives of this programme area are:

- (a) To develop national strategies for drought preparedness in both the short and long term, aimed at reducing the vulnerability of production systems to drought;
- (b) To strengthen the flow of early-warning information to decision makers and land users to enable nations to implement strategies for drought intervention;
- (c) To develop and integrate drought-relief schemes and means of coping with environmental refugees into national and regional development planning.

Activities

(a) Management-related activities

12.48, In drought-prone areas, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Design strategies to deal with national food deficiencies in periods of production shortfall. These strategies should deal with issues of storage and stocks, imports, port facilities, food storage, transport and distribution;
- (b) Improve national and regional capacity for agrometeorology and contingency crop planning. Agrometeorology links the frequency, content and regional coverage of weather forecasts with the requirements of crop planning and agricultural extension;
- (c) Prepare rural projects for providing short-term rural employment to

drought-affected households. The loss of income and entitlement to food is a common source of distress in times of drought. Rural works help to generate the income required to buy food for poor households;

- (d) Establish contingency arrangements, where necessary, for food and fodder distribution and water supply;
- (e) Establish budgetary mechanisms for providing, at short notice, resources for drought relief;
- (f) Establish safety nets for the most vulnerable households.

(b) Data and information

12.49, Governments of affected countries, at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Implement research on seasonal forecasts to improve contingency planning and relief operations and allow preventive measures to be taken at the farm level, such as the selection of appropriate varieties and farming practices, in times of drought;
- (b) Support applied research on ways of reducing water loss from soils, on ways of increasing the water absorption capacities of soils and on water harvesting techniques in drought-prone areas;
- (c) Strengthen national early-warning systems, with particular emphasis on the area of risk-mapping, remote-sensing, agrometeorological modelling, integrated multidisciplinary crop-forecasting techniques and computerized food supply/demand analysis.

(c) International and regional cooperation and coordination

12.50, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Establish a system of stand-by capacities in terms of foodstock, logistical support, personnel and finance for a speedy international response to drought-related emergencies;
- (b) Support programmes of the World Meteorological Organization (WMO) on agrohydrology and agrometeorology, the Programme of the Regional Training Centre for Agrometeorology and Operational Hydrology and their Applications (AGRHYMET), drought-monitoring centres and the African Centre of Meteorological Applications for Development (ACMAD), as well as the efforts of the Permanent Inter-State Committee on Drought Control in the Sahel (CILSS) and the Intergovernmental Authority for Drought and Development (IGADD);
- (c) Support FAO programmes and other programmes for the development of national early-warning systems and food security assistance schemes;
- (d) Strengthen and expand the scope of existing regional programmes and the activities of appropriate United Nations organs and organizations, such as the World Food Programme (WFP), the Office of the United Nations Disaster Relief Coordinator (UNDRO) and the United Nations Sudano-Sahelian Office as well as of non-governmental organizations, aimed at mitigating the effects of drought and emergencies.

Means of implementation(a) Financing and cost-evaluation

12.51, [This programme area requires two sets of cost-evaluations. The first set deals with developing drought-preparedness and drought-relief schemes, the total cost of which is about \$200 million a year, the average annual financing required from international sources amounting to about \$100 million. From this international figure, costs related to accelerated development would be about \$90 million a year and the amount for strengthening the capacity of international institutions would be about \$10 million a year. The second set deals with the cost required to cope with environmental refugees displaced from their homes by emergencies such as drought, among other natural disasters. The international financing required to cope with such emergencies is about \$1 billion a year.]**

(b) Scientific and technological means

12.52, Governments at the appropriate level and drought-prone communities, with the support of the relevant international and regional organizations should:

(a) Use traditional mechanisms to cope with hunger as a means of channelling relief and development assistance;

(b) Strengthen and develop national, regional and local interdisciplinary research and training capabilities for drought-prevention strategies.

(c) Human resource development

12.53, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Promote the training of decision makers and land users in the effective utilization of information from early-warning systems;

(b) Strengthen research and national training capabilities to assess the impact of drought and to develop methodologies to forecast drought.

(d) Capacity-building

12.54, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Improve and maintain mechanisms with adequate staff, equipment and finances for monitoring drought parameters to take preventive measures at regional, national and local levels;

(b) Establish interministerial linkages and coordinating units for drought monitoring, impact assessment and management of drought-relief schemes.

F. Encouraging and promoting popular participation and environmental education, focusing on desertification control and management of the effects of drought

Basis for action

12.55, The experience to date on the successes and failures of programmes and projects points to the need for popular support to sustain activities related to

desertification and drought control. But it is necessary to go beyond the theoretical ideal of popular participation and to focus on obtaining actual active popular involvement, rooted in the concept of partnership. This implies the sharing of responsibilities and the mutual involvement of all parties. In this context, this programme area should be considered an essential supporting component of all desertification-control and drought-related activities.

Objectives

12.56, The objectives of this programme area are:

- (a) To develop and increase public awareness and knowledge concerning desertification and drought, including the integration of environmental education in the curriculum of primary and secondary schools;
- (b) To establish and promote true partnership between government authorities, at both the national and local levels, other executing agencies, non-governmental organizations and land users stricken by drought and desertification, giving land users a responsible role in the planning and execution processes in order to benefit fully from development projects;
- (c) To ensure that the partners understand one another's needs, objectives and points of view by providing a variety of means such as training, public awareness and open dialogue;
- (d) To support local communities in their own efforts in combating desertification, and to draw on the knowledge and experience of the populations concerned, ensuring the full participation of women and indigenous populations.

Activities

(a) Management-related activities

12.57, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Adopt policies and establish administrative structures for more decentralized decision-making and implementation;
- (b) Establish and utilize mechanisms for the consultation and involvement of land users and for enhancing capability at the grass-roots level to identify and/or contribute to the identification and planning of action;
- (c) Define specific programme/project objectives in cooperation with local communities; design local management plans to include such measures of progress, thereby providing a means of altering project design or changing management practices, as appropriate;
- (d) Introduce legislative, institutional/organizational and financial measures to secure user involvement and access to land resources;
- (e) Establish and/or expand favourable conditions for the provision of services, such as credit facilities and marketing outlets for rural populations;
- (f) Develop training programmes to increase the level of education and participation of people, particularly women and indigenous groups, through, inter alia, literacy and the development of technical skills;

- (g) Create rural banking systems to facilitate access to credit for rural populations, particularly women and indigenous groups, and to promote rural savings;
- (h) Adopt appropriate policies to stimulate private and public investment.

(b) Data and information

12.58, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Review, develop and disseminate gender-disaggregated information, skills and know-how at all levels on ways of organizing and promoting popular participation;
- (b) Accelerate the development of technological know-how, focusing on appropriate and intermediate technology;
- (c) Disseminate knowledge about applied research results on soil and water issues, appropriate species, agricultural techniques and technological know-how.

(c) International and regional cooperation and coordination

12.59, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Develop programmes of support to regional organizations such as CILSS, IGADD, the Southern African Development Coordination Conference (SADCC) and the Arab Maghreb Union and other intergovernmental organizations in Africa and other parts of the world, to strengthen outreach programmes and increase the participation of non-governmental organizations together with rural populations;
- (b) Develop mechanisms for facilitating cooperation in technology and promote such cooperation as an element of all external assistance and activities related to technical assistance projects in the public or private sector;
- (c) Promote collaboration among different actors in environment and development programmes;
- (d) Encourage the emergence of representative organizational structures to foster and sustain interorganizational cooperation.

Means of implementation

(a) Financing and cost-evaluation

12.60, [The total financing required for this programme area is about \$2.5 billion a year, while the average annual financing required from international sources is about \$1 billion.]**

(b) Scientific and technological means

12.61, Governments at the appropriate level and with the support of the relevant international and regional organizations should promote the development of indigenous know-how and technology transfer.

(c) Human resource development

12.62, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Support and/or strengthen institutions involved in public education,

including the local media, schools and community groups;

(b) Increase the level of public education.

(d) Capacity-building

12.63, Governments at the appropriate level and with the support of the relevant international and regional organizations should promote members of local rural organizations and train and appoint more extension officers working at the local level.

note on ** These paragraphs contain matters relating to means of implementation, including cost estimates, which are indicative secretariat figures provided pursuant to decision A/CONF.151/PC/L.49**. They remain in brackets as they have not been negotiated.

Chapter 13

Managing Fragile Ecosystems: Sustainable Mountain Development

INTRODUCTION

13.1, Mountains are an important source of water, energy and biological diversity. Furthermore they are a source of key resources such as water, minerals, forest products, agricultural products and recreation. As a major ecosystem representing the complex and interrelated ecology of our planet, mountain environments are essential to the survival of the global ecosystem. Mountain ecosystems are, however, rapidly changing. They are susceptible to accelerated soil erosion, landslides and rapid loss of habitat and genetic diversity. On the human side, there is widespread poverty among mountain inhabitants and loss of indigenous knowledge. As a result, most global mountain areas are experiencing environmental degradation. Hence, the proper management of mountain resources and socio-economic development of the people deserves immediate action.

13.2, About 10 per cent of the world's population depends on mountain resources. A much larger percentage draws on other mountain resources, including and especially water. Mountains are a storehouse of biological diversity and endangered species.

13.3, Two programme areas are proposed to further elaborate the problem of fragile ecosystems with regard to all the mountains of the world. These are:

- A. Generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems
- B. Promoting integrated watershed development and alternative livelihood opportunities

PROGRAMME AREAS

A. Generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems

Basis for action

13.4, Mountains are highly vulnerable to human and natural ecological imbalance. Mountains are the most sensitive areas to all climatic changes in the atmosphere. Specific information on ecology, natural resource potential and socio-economic activities is essential. Mountain and hillside areas hold a rich variety of ecological systems. Because of their vertical dimensions, mountains create gradients of temperature, precipitation and insolation. A given mountain slope may include several climatic regimes such as tropics, subtropics, temperate and alpine, each of

which represents microcosms of larger habitat diversity. There is, however, a lack of knowledge of mountain ecosystems. The creation, therefore, of a global mountain database is vital for launching programmes that would contribute to sustainable development of mountain ecosystems.

Objectives

13.5, The objectives of this programme area are:

- (a) Undertake a survey of the different forms of soils, forest, water use, crop, plant and animal resources of mountain ecosystems, taking into account the work of existing international and regional organizations.
- (b) Maintain and generate database and information systems to facilitate the integrated management and environmental assessment of mountain ecosystems, taking into account the work of existing international and regional organization.
- (c) Improve and build the existing land/water ecological knowledge base regarding technologies and agricultural and conservation practices in the mountain regions of the world with the participation of local communities.
- (d) Create and strengthen the communications network and information clearing-house for existing organizations concerned with mountain issues.
- (e) Improve coordination of regional efforts to protect fragile mountain ecosystems through the consideration of appropriate mechanisms, including regional legal and other instruments.
- (f) Generate information to establish database and information systems to facilitate an evaluation of environmental risks and of natural disaster in mountain ecosystems.

Activities

(a) Management-related activities

13.6, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Strengthen existing institutions or establish new ones at local, national and regional levels to generate a multidisciplinary land/water ecological knowledge base on mountain ecosystems;
- (b) Promote national policies that would provide incentives to local people for the use and transfer of environment-friendly technologies as well as farming and conservation practices;
- (c) Build up the knowledge base and understanding by creating mechanisms for cooperation and information exchange among national and regional institutions working on fragile ecosystems;
- (d) Encourage policies that would provide incentives to farmers and local people to undertake conservation and regenerative measures;
- (e) Diversify mountain economies including creating and/or strengthening of tourism in accordance with integrated management of mountain areas;
- (f) Integrate all forest, rangelands and wildlife activities in such a way that specific mountain ecosystems are maintained;
- (g) Establish appropriate natural reserves in representative species-rich sites and areas.

(b) Data and information

13.7, Governments at the appropriate level and with the support of the relevant international

and regional organizations should:

- (a) Maintain and establish meteorological, hydrological and physical monitoring analysis and capabilities that would encompass the climatic diversity as well as water distribution of various mountain regions of the world;
- (b) Build an inventory of different forms of soils, forest, water use and crop, plant and animal genetic resources, giving priority to those under threat of extinction. Genetic resources should be protected in situ by maintaining and establishing protected areas and improving traditional farming and animal husbandry activities and establishing programmes for evaluating the potential value of the resources;
- (c) Identify hazardous areas that are most vulnerable to erosion, floods, landslides, earthquakes, snow avalanches and other natural hazards;
- (d) Identify mountain areas threatened by air pollution from neighbouring industrial and urban areas.

(c) International and regional cooperation

13.8, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Coordinate regional and international cooperation and facilitate an exchange of information and experience among the specialized agencies, the World Bank, the International Fund for Agricultural Development (IFAD) and other international and regional organizations, national Governments, research institutions and non-governmental organizations working on mountain development;
- (b) Encourage regional, national and international networking of people's initiatives and the activities of international, regional and local non-governmental organizations working on mountain development, such as the United Nations University (UNU), the Woodland Mountain Institutes (WMI), the International Center for Integrated Mountain Development (ICIMOD), the International Mountain Society (IMS), the African Mountain Association and the Andean Mountain Association, besides supporting those organizations in exchange of information and experience;
- (c) Protect Fragile Mountain Ecosystem through the consideration of appropriate mechanisms including regional legal and other instruments.

Means of implementation

(a) Financing and cost evaluation

13.9, [The total cost required to implement this programme area is about US\$ 330 million a year, while the average annual financing required from international sources is about US\$ 50 million. This includes US\$ 40 million for technical cooperation and US\$ 10 million for the strengthening of international institutions, particularly the United Nations Educational, Scientific and Cultural Organization, the United Nations University, the World Conservation Union (IUCN), the International Mountain Society (IMS), the Woodland Mountain Institutes (WMI) and the International Center for Integrated Mountain Development (ICIMOD), as well as the African Mountain Association and the Andean Mountain Association.]**

(b) Scientific and technological means

13.10, Governments at the appropriate level and with the support of the relevant international and regional organizations should strengthen scientific research and technological development programmes including diffusion through national and regional institutions particularly in meteorology, hydrology, forestry, soil sciences and plant sciences.

(c) Human resource development

13.11, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Launch training and extension programmes in environmentally appropriate technologies and practices that would be suitable to mountain ecosystems;

(b) Support higher education through fellowships and research grants for environmental studies in mountains and hill areas, particularly for candidates from indigenous mountain populations.

(c) Undertake environmental education for farmers, in particular for women, to help the rural population better understand the ecological issues regarding the sustainable development of mountain ecosystems.

(d) Capacity-building

13.12, Governments at the appropriate level and with the support of the relevant international and regional organizations should build up national and regional institutional bases that could carry research, training and dissemination of information on the sustainable development of the economies of fragile ecosystems.

B. Promoting integrated watershed development and alternative livelihood opportunities

Basis for action

13.13, Nearly half of the world's population is affected in various ways by mountain ecology and the degradation of watershed areas. About 10 per cent of the Earth's population lives in mountain areas with higher slopes while about 40 per cent occupies the adjacent medium- and lower-watershed areas. There are serious problems of ecological deterioration in these watershed areas. For example, in the hillside areas of the Andean countries of South America a large portion of the farming population is now faced with a rapid deterioration of land resources. Similarly, the mountain and upland areas of the Himalayas, South-East Asia and East and Central Africa, which make vital contributions to agricultural production, are threatened by cultivation of marginal lands due to expanding population. In many areas this is accompanied by excessive livestock grazing, deforestation and loss of biomass cover.

13.14, Soil erosion can have a devastating impact on the vast numbers of rural people who depend on rainfed agriculture in the mountain and hillside areas. Poverty, including unemployment, poor health and bad sanitation, are widespread. Promoting integrated watershed development programmes through effective participation of local people is a key to preventing further ecological imbalance. An integrated approach is needed for conserving, upgrading and using the natural resource base of land, water, plant, animal and human resources. In addition,

promoting alternative livelihood opportunities, particularly through development of employment schemes that increase the productive base, will have a significant role in improving the standard of living among the large rural population living in mountain ecosystems.

Objectives

13.15, The objectives of this programme area are:

- (a) By the year 2000, develop appropriate land use planning and management for both arable and non-arable land in mountain-fed watershed areas to prevent soil erosion, increase biomass production and maintain the ecological balance.
- (b) Promote income-generating activities such as sustainable tourism, fisheries and environmentally sound mining and improvement in infrastructure and social services, in particular to protect the livelihoods of local communities and indigenous people.
- (c) Develop technical and institutional arrangements for affected countries to mitigate the effects of natural disasters through hazard-prevention measures, risk zoning, early-warning systems, evacuation plans and emergency supplies.

Activities

(a) Management-related activities

13.16, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Undertake measures to prevent soil erosion and promote erosion-control activities in all sectors;
- (b) Establish task forces or watershed development committees, complementing existing institutions, to coordinate integrated services to support local initiatives in animal husbandry, forestry, horticulture and rural development at all administrative levels;
- (c) Enhance popular participation in the management of local resources through appropriate legislation;
- (d) Support non-governmental organizations and other private groups assisting local organizations and communities in the preparation of projects that would enhance participatory development of local people;
- (e) Provide mechanisms to preserve threatened areas that could protect wildlife, conserve biological diversity or serve as national parks;
- (f) Develop national policies that would provide incentives to farmers and local people to undertake conservation measures as well as to use environment-friendly technologies;
- (g) Undertake income-generating activities in cottage and agro-processing industries, such as the cultivation and processing of medicinal and aromatic plants;
- (h) Undertake the above activities, taking into account the need for full participation of women, including indigenous people and local communities, in development.

(b) Data and information

13.17, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

- (a) Maintain and establish systematic observation and evaluation capacities at the national, State or provincial level to generate information for daily operations as well as to assess the

environmental and socio-economic impacts of projects;

(b) Generate data on alternative livelihoods and diversified production systems at the village level on annual and tree crops, livestock, poultry, beekeeping, fisheries, village industries, markets, transport and income-earning opportunities, taking fully into account the role of women and integrating them into the planning and implementation process.

(c) International and regional cooperation

13.18, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Strengthen the role of appropriate international research and training institutes of the Consultative Group on International Agricultural Research Centers (CGIAR) and the International Board for Soil Research and Management (IBSRAM) as well as regional research centers such as the Woodland Mountain Institutes and the International Center for Integrated Mountain Development in undertaking applied research relevant to watershed development;

(b) Promote regional cooperation and exchange of data and information among countries sharing the same mountain ranges and river basins, particularly those affected by mountain disasters and floods;

(c) Maintain and Establish partnerships with non-governmental organizations and other private groups working in watershed development.

Means of implementation

(a) Financial and cost evaluation

13.19, [Total funding required to implement this programme area is about US\$ 13 billion a year, mostly from national local and private sources. Of the US\$ 13 billion about US\$ 1.9 billion would be needed from international sources. About US\$ 1.7 billion would be related to development and about US\$ 1.7 billion could be ascribed to global environmental issues. About US\$ 30 million is needed for strengthening the capacity of international institutions, in particular those involved in watershed development such as the United Nations Development Programme, the Food and Agriculture Organization of the United Nations and the World Bank.]**

13.20, Financing for the promotion of alternative livelihoods in mountain ecosystems should be viewed as part of a country's anti-poverty or alternative livelihoods programme, which is also discussed in the chapters on Combating Poverty and Promoting Sustainable Agriculture and Rural Development.

(b) Scientific and technical means

13.21, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Consider undertaking pilot projects that combine environmental protection and development functions with particular emphasis on some of the traditional environmental management practices/systems that have good environmental impact;

(b) Generate technologies for specific watershed and farm conditions through a participatory approach involving local men and women, researchers and extension agents who will carry out

experiments and trials on farm conditions;

(c) Promote technologies of vegetative conservation measures for erosion prevention, in situ moisture management, improved cropping technology, fodder production and agroforestry that are low-cost, simple and easily adopted by local people.

(c) Human resource development

13.22, Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Promote a multidisciplinary and cross-sectoral approach in training and dissemination of knowledge to local people on wide-ranging issues such as household production systems, conservation and utilization of arable and non-arable land, treatment of drainage lines and recharging of groundwater, livestock management, fisheries, agroforestry and horticulture;

(b) Develop human resources by providing access to education, health, energy and infrastructure;

(c) Promote local awareness and preparedness for disaster prevention and mitigation combined with the latest available technology for early warning and forecasting.

(d) Capacity-building

13.23, Governments at the appropriate level and with the support of the relevant international and regional organizations should develop and strengthen national centers for watershed management to encourage a comprehensive approach to the environmental, socio-economic, technological, legislative, financial and administrative aspects and provide support to policy makers, administrators, field staff and farmers for watershed development.

13.24, The private sector and local communities in cooperation with national Governments should promote local infrastructure development, including communication networks, mini- or micro-hydro development to support cottage industries, and access to markets.

note on ** These paragraphs contain matters relating to means of implementation, including cost estimates, which are indicative secretariat figures provided pursuant to decision A/CONF.151/PC/L.49**. They remain in brackets as they have not been negotiated.
