*The Earth Summit's*

# AGENDA FOR CHANGE

A plain language version of Agenda 21
and the other Rio Agreements

Published by the
Centre for Our Common Future



Written by Michael Keating

# AGENDA FOR CHANGE

## A Plain Language Version of Agenda 21 and other Rio Agreements

Please note: This is a reconstructed version of an original copy of Agenda for Change, a plain language version of Agenda 21published in 1993. The reason for doing this is because the President's Council on Sustainable Development chartered in 1993 by President William Clinton used this booklet as guidance for the Council's mission of changing the American government and life in America to conform to "sustainability". Sustainability is code for removing the ability of the citizens to use the resources of the country – reserving them for the global corporations and non-profits. Vicky L. Davis 5/6/2022

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**The Centre for Our Common Future**

is a charitable foundation founded in 1988 to encourage greater public and institutional involvement throughout the world in efforts to achieve sustainable development. With the help and support of its network of more than 200 Working Partner institutions in 70 countries, the Centre regularly collects information on sustainable development initiatives taken by all sectors of society and, through its two principal publications, "The Network" and "The Bulletin", disseminates it to more than 35,000 individuals and organizations in over 170 countries. The Centre also encourages and facilitates public participation in national and international decision-making processes, and fosters intersectoral dialogue on issues related to sustainable development.


## *Acknowledgements*

The Centre for Our Common Future would like to express its sincere appreciation to the **Swiss Federal Office of Environment, Forests and Landscape,** for providing the funds for this first edition of the English, French, German, Italian and Russian versions of *The Earth Summit's Agenda for Change.*
It is also grateful to them for having initiated the idea for this important publication and for having sufficient confidence in the Centre to entrust it with the responsibility of producing it.

The Centre would also like to extend a warm thank you to **Dr. Mahendra Shah**, Senior Advisor to the United Nations and former Senior Advisor to the Secretary-General of UNCED who acted as Editorial Advisor on the publication. Without his unique insights into the drafting, content and political subtleties of the Rio Agreements, this 'plain language version' would not have been as true to the content of the original as we had wanted it to be.

Finally, an enormous debt of gratitude is owed to **Michael Keating** for lending his many talents to this project on short notice, and to **Ellen Permato**, the Centre's Director of Information, who toiled many nights and week-ends to produce five language versions of this publication in less than 12 weeks.





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# Contents

# Preface

The Earth Summit was an unprecedented event. It brought together more heads of government than any meeting in history. It effectively focused the world's attention on the most critical issues we face as a global community. And it adopted a global plan of action, Agenda 21, to address those issues. For all of these achievements history will, no doubt, accord it an honoured place.

In retrospect, however, history may, and I believe should, recognize that its most significant contribution was the process it adopted to achieve its objectives. By attempting, at times more successfully than at others, to bring all sectors of society into its deliberative and decision-making functions, it became the first international experiment in democratizing inter-governmental decision-making.

Given the nature of the problems which now confront us as a community of nations and peoples, we are now more than ever bound together by a common destiny. And solutions to those problems will have to be found both nationally and internationally. That means that international institutions and national governments must become increasingly more accountable and responsive to the views and expectations of the world's people as a whole. Indeed, it means that as we approach the next century we must move even further in the direction of a global democracy.

In preparing for the Earth Summit, the first tentative steps in this direction were taken. Never before have so many representatives of peoples' organizations from so many countries directly participated in the formulation of national and international policies. Never before have so many senior representatives of governments met in open debate with citizens from countries other than their own, as they did in the ECO '92 Public Forums held throughout the world in preparation for the Summit. Never before have so many representatives of civil society gathered together to address their own responsibilities in respect of environment and development issues, as they did at the '92 Global Forum in Rio.

These epoch-making first attempts at global democracy must be repeated, and they must be strengthened.

But to play a meaningful role in governance, people in all societies need the information necessary to prepare them for responsible participation. By making Agenda 21 and the other Rio Agreements accessible to people in an easy and understandable format, this book will help provide some of that information.

In publishing ***The Earth Summit's Agenda for Change***, we would like it to be a testament, and a tribute, to the thousands of individuals throughout the world - women, youth, journalists, citizen activists, teachers, business people, religious leaders, local authorities, trade unionists, representatives of indigenous people, scientists and researchers - who participated in framing the thinking of governments at the Earth Summit and contributed to the evolution of Agenda 21. The global momentum to achieve sustainable development and to implement the principles of Agenda 21 will only succeed with their continued participation in decisions which affect their lives, both nationally and internationally.

Establishing the precedent of broad public participation was the real hallmark of the Earth Summit. The Centre for Our Common Future is pleased to have played a part in helping to make that happen and remains committed to working with all groups and sectors of society in building the global partnership' called for in Rio.

**W.H. LINDNER**

**Executive Director**
**Center for Our Common Future**

# *Foreword*

*The United Nations Conference on Environment and Development (UNCED), which took place in Rio de Janeiro in June 1992, was a milestone event which brought together Heads of State and government officials from around the globe together with delegates from United Nations agencies, international organizations and many representatives from non-governmental organizations.*

*The Conference made it plain that we can no longer think of environment and economic and social development as isolated fields. The Declaration of Rio contains fundamental principles on which States must base their future decisions and policies, considering the environmental implications of socio-economic development.*

*Agenda 21, a vast work programme for the 21st century, represents the consensus reached by 179 States in Rio. It is a blueprint for a global partnership aimed at reconciling the twin requirements of a high quality environment and a healthy economy for all peoples of the world.*

*This historic document is 700 pages long and embraces all areas of sustainable development. Because this document concerns each and every one of us, it is essential that it is accessible to all.*

*This effort by the Centre for Our Common Future to transform this mammoth document into a plain language version is aimed at facilitating access to the very important material contained in Agenda 21. We hope that this plain language version can contribute to enhancing public interest in the future of our planet and encourage individuals to become an active part of the search for sustainable development.*

Philippe Roch
Director
Swiss Federal Office of Environment.
Forests and Landscape

# *The Road to Rio*

During the last two decades, people began to realize that we cannot have a healthy society or economy in a world with so much poverty and environmental degradation. Economic development cannot stop, but it must change course to become less ecologically destructive. The challenge of the 1990s is to put this understanding into action, and make the transition sustainable forms of development and lifestyles. From the farm field to the boardroom, from the shopping cart to the national budget, we will have to make major changes.

A road map to sustainable development is now taking shape. Agenda 21 is a guide for business and government policies and for personal choices into the next century. It was endorsed by the 1992 Earth Summit in Rio de Janeiro, Brazil, the largest-ever meeting of world leaders. This meeting took place during the United Nations Conference on Environment and Development which brought together the heads or senior officials of 179 governments. They were joined by hundreds of officials from United Nations organizations, municipal governments, business, scientific, non-government and other groups. Nearby, the '92 Global Forum held a series of meetings, lectures, seminars and exhibits on environment and development issues for the public. This drew 18,000 participants from 166 countries, as well as 400,000 visitors. There were 8,000 journalists covering the Rio meetings, and the results were seen, heard and read about around the world.

The foundations for the Rio process were laid in 1972, when 113 nations gathered for the Stockholm Conference on the Human Environment, the first global environmental meeting. In 1983, the United Nations created the World Commission on Environment and Development. Four years later its landmark report, Our Common Future, warned that people had to change many of the ways in which they did business and lived or the world would face unacceptable levels of human suffering and environmental damage.

The Commission said that the global economy had to meet people's needs and legitimate desires, but growth had to fit within the planet's ecological limits. The Commission, known as the Brundtland Commission after its chairman, called for "a new era of environmentally sound economic development". It said that:

"Humanity has the ability to make development sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."

In 1989, the United Nations began planning a Conference on Environment and Development to spell out how to achieve sustainable development. For two years, experts from around the world hammered out difficult agreements along the road to Rio. The international negotiating system was opened up as never before. Thousands of people from non-governmental organizations, businesses, education, women's groups, indigenous groups and others contributed to the Rio process.

## The Five Rio Documents

Rio produced two international agreements, two statements of principles and a major action agenda on world-wide sustainable development. The five are:

• The Rio Declaration on Environment and Development. Its 27 principles define the rights and responsibilities of nations as they pursue human development and well-being.

• Agenda 21, a blueprint on how to make development socially, economically and environmentally sustainable.

• A statement of principles to guide the management, conservation and sustainable development of all types of forests, which are essential to economic development and the maintenance of all forms of life.

Two major international Conventions were negotiated separately from but in parallel with preparations for the Earth Summit and were signed by most governments meeting at Rio.

• The aim of the United Nations Framework Convention on Climate Change is to stabilize greenhouse gases in the atmosphere at levels that will not dangerously upset the global climate system. This will require a reduction in our emissions of such gases as carbon dioxide, a by-product of the use of burning fuels for energy.

• The Convention on Biological Diversity requires that countries adopt ways and means to conserve the variety of living species, and ensure that the benefits from using biological diversity are equitably shared.

Agenda 21 explains that population, consumption and technology are the primary driving forces of environmental change. It lays out what needs to be done to reduce wasteful and inefficient consumption patterns in some parts of the world, while encouraging increased but sustainable development in others. It offers policies and programmes to achieve a sustainable balance between consumption, population and the Earth's life-supporting capacity. It describes some of the technologies and techniques that need to be developed to provide for human needs while carefully managing natural resources.

Agenda 21 provides options for combating degradation of the land, air and water, conserving forests and the diversity of species of life. It deals with poverty and excessive consumption, health and education, cities and farmers. There are roles for everyone: governments, business people, trade unions, scientists, teachers, indigenous people, women, youth and children. Agenda 21 does not shun business. It says that sustainable development is the way to reverse both poverty and environmental destruction.

We currently gauge the success of economic development mainly by the amount of money it produces. Accounting systems that measure the wealth of nations also need to count the full value of natural resources and the full cost of environmental degradation. The polluter should, in principle, bear the cost of pollution. To reduce the risk of causing damage, environmental assessment should be carried out before starting projects that carry the risk of adverse impacts. Governments should reduce or eliminate subsidies that are not consistent with sustainable development.

A major theme of Agenda 21 is the need to eradicate poverty by giving poor people more access to the resources they need to live sustainably. By adopting Agenda 21, industrialized countries recognized that they have a greater role in cleaning up the environment than poor nations, who produce relatively less pollution. The richer nations also promised more funding to help other nations develop in ways that have lower environmental impacts. Beyond funding, nations need help in building the expertise - the capacity - to plan and carry out

sustainable development decisions. This will require the transfer of information and skills. Agenda 21 calls on governments to adopt national strategies for sustainable development. These should be developed with wide participation, including non-governmental organizations and the public. Agenda 21 puts most of the responsibility for leading change on national governments but says that they need to work in a broad series of partnerships with international organizations, business, regional, state, provincial and local governments and non-governmental and citizens' groups.

As Agenda 21 says, only a global partnership will ensure that all nations will have a safer and more prosperous future.

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## Background Information

### Developing Countries

The phrase "developing countries" is used throughout the Rio documents. There is no single definition for this term, but it generally refers to economic income. Depending on whose definition you use, the term can include more than 140 countries

### Further Reading

The *Earth Summit's Agenda for Change* condenses nearly 180,000 words from the five Rio documents into a form that allows you to understand the key points.

The full text of Agenda 21 is available as *Agenda 21*: *The United Nations Programme of Action from Rio*. This 310 page UN Publications document also contains the Rio Declaration on Environment and Development and the Statement of Principles on Forests. It can be obtained from: UN Publications, Sales Section, Room DC2-0853, United Nations, New York, NY 10017, USA.

The texts of the climate and biodiversity Conventions can be obtained from: Project Manager for Sustainable Development, Department of Public Information, Room S-894, United Nations, New York, NY 10017, USA.

Based on the final text of Agenda 21, *The Global Partnership for Environment and Development: A Guide to Agenda 21*, provides a comprehensive understanding of the issues underlying Agenda 21. It can be obtained from: UN Publications, Sales Section, Room DC2-0853, United Nations, New York, NY 10017, USA.

# *Rio Declaration on Environment and Development*

Recognizing the integral and interdependent nature of the Earth, our home, the nations meeting at the Earth Summit in Rio de Janeiro adopted a set of principles to guide future development. These principles define the rights of people to development, and their responsibilities to safeguard the common environment. They build on ideas from the Stockholm Declaration at the 1972 United Nations Conference on the Human Environment.

The Rio Declaration states that the only way to have long-term economic progress is to link it with environmental protection. This will only happen if nations establish a new and equitable global partnership involving governments, their people and key sectors of societies. They must build international agreements that protect the integrity of the global environment and the development system.

The Rio principles include the following ideas:

• People are entitled to a healthy and productive life in harmony with nature.

• Development today must not undermine the development and environment needs of present and future generations.

• Nations have the sovereign right to exploit their own resources, but without causing environmental damage beyond their borders.

• Nations shall develop international laws to provide compensation for damage that activities under their control cause to areas beyond their borders.

• Notions shall use the precautionary approach to protect the environment. Where there are threats of serious or irreversible damage, scientific uncertainty shall not be used to postpone cost-effective measures to prevent environmental degradation.

• In order to achieve sustainable development, environmental protection shall constitute on integral part of the development process, and cannot be considered in isolation from it.

• Eradicating poverty and reducing disparities in living standards in different parts of the world are essential to achieve sustainable development and meet the needs of the majority of people.

• Nations shall cooperate to conserve, protect and restore the health and integrity of the Earth's ecosystem. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

• Nations should reduce and eliminate unsustainable patterns of production and consumption, and promote appropriate demographic policies.

• Environmental issues are best handled with the participation of all concerned citizens. Nations shall facilitate and encourage public awareness and participation by making environmental information widely available.

• Nations shall enact effective environmental laws and develop national law regarding liability for the victims of pollution and other environmental damage. Where they have authority, nations shall assess the environmental impact of proposed activities that are likely to have a significant adverse impact.

• Nations should cooperate to promote an open international economic system that will lead to economic growth and sustainable development in all countries. Environmental policies should not be used as an unjustifiable means of restricting international trade.

• The polluter should, in principle, bear the cost of pollution.

• Nations shall warn one another of natural disasters or activities that may have harmful transboundary impacts.

• Sustainable development requires better scientific understanding of the problems. Nations should share knowledge and innovative technologies to achieve the goal of sustainability.

• The full participation of women is essential to achieve sustainable development. The creativity, ideals and courage of youth and the knowledge of indigenous people are needed too. Nations should recognize and support the identity, culture and interests of indigenous people.

• Warfare is inherently destructive of sustainable development, and Nations shall respect international laws protecting the environment in times of armed conflict, and shall cooperate in their further establishment.

• Peace, development and environmental protection are interdependent and indivisible.

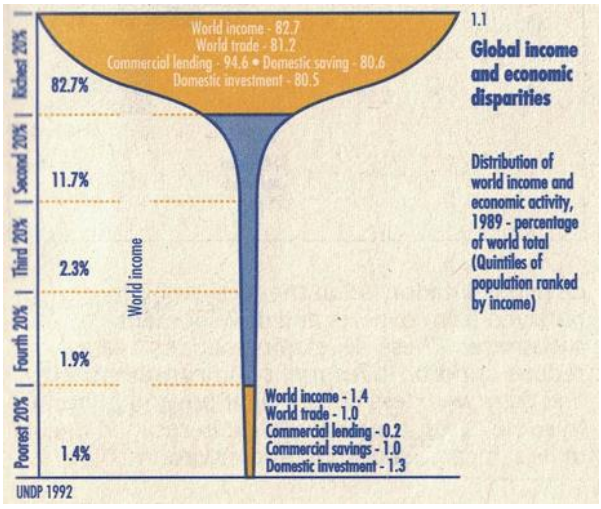
# *Preamble to Agenda 21*

Humanity stands at a defining moment in history. The world is confronted with worsening poverty, hunger, ill health, Illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. The disparities between the rich and poor continue.

The only way to assure ourselves of a safer, more prosperous future is to deal with environment and development issues together in a balanced manner. We must fulfil basic human needs, improve living standards for all and better protect and manage ecosystems. No nation can secure its future alone; but together we can - in a global partnership for sustainable development.

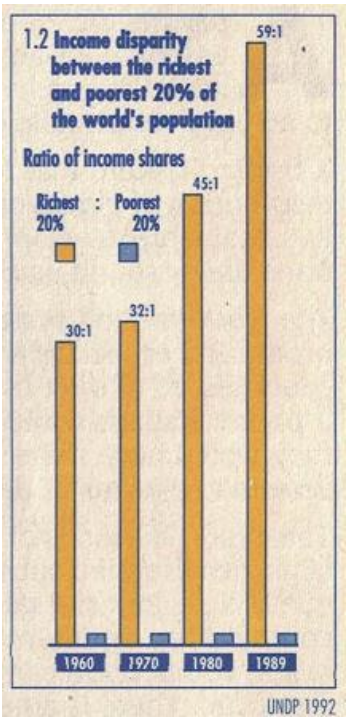
Agenda 21, adopted at the Earth Summit in Rio de Janeiro, reflects a global consensus and political commitment at the highest level on development and environment cooperation.

The Agenda deals with both the pressing problems of today and the need to prepare for the challenges of the next century.




1.1 **Global income and economic disparities**

Distribution of world income and economic activity, 1989 - percentage of world total (Quintiles of population ranked by income)




It recognizes that sustainable development is primarily the responsibility of governments, and this will require national strategies, plans and policies. The efforts of nations need to be linked by international cooperation through such organizations as the United Nations. The broadest public participation. and the active involvement of the non- governmental organizations and other groups should also be encouraged.

The objectives of Agenda 21 require substantial new financial assistance for developing countries. They need this additional support to cover-the incremental costs of actions to deal with global environmental problems, and to accelerate sustainable development. Money is also needed to allow international bodies to implement the recommendations of Agenda 21.

Special attention should be given to nations whose economies are in transition, including eastern Europe and the former Soviet Union, where countries are transforming economies, sometimes in the midst of considerable social and political tension.

# 2

# International Cooperation

A partnership of the world's nations is essential for an efficient and equitable global economy that can help all countries to achieve sustainable development.

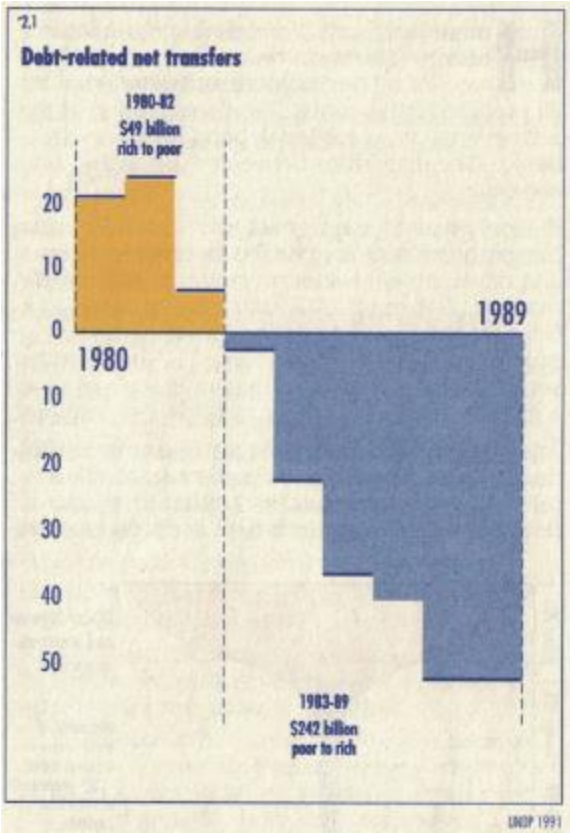
A trading system that favours the optimal distribution of global production can contribute to sustainable development, as long as this is done under sound environmental policies.

The world trading system should allow efficient producers, especially those in developing countries, to market their products successfully. If poorer nations could earn more from exports, they would have more resources to invest in sustainable forms of development.

The export earnings of many developing countries dropped substantially during the 1980s, due to very low and declining prices for most commodities on international markets. In some cases, competition came from subsidized products. There is a need for agreement between producers and consumers that establishes fair prices for commodities, including those such as cocoa, coffee, sugar and tropical timber.

This drop in revenues, combined with heavy foreign debts, left many developing nations with little to invest in sustainable development.

Developing countries critically need investments to stimulate economic growth and meet the basic needs of their people in a sustainable manner. They should diversify exports and cooperate more among themselves in economic development plans.




During the past decade, many developing countries paid out more in debt repayments to developed nations than the total amount they received from exports and development assistance. These developing nations had to reduce imports, investment and consumption, and they were less able to fight poverty at home. In some cases, the financial drain resulted in cuts in health care, education and environmental protection. As a result, some developing countries are in a state of economic stalemate and face increasing social and environmental problems.

An International strategy is needed to reverse these trends. Countries need to:

• Halt and reverse protectionism, including unilateral trade barriers that harm developing nations, and promote trade liberalization.

• Reduce subsidies that lead to unequal forms of competition.

• Ensure that environment and trade policies support sustainable types of development.

• See that environmental regulations, including those related to health and safety standards, do not constitute a means of arbitrary or unjustifiable discrimination, or a disguised restriction on trade.

• Ensure public input in the formation, negotiation and implementation of trade policies.

The strategy should involve both additional Investment from abroad, the return of flight capital that left poor nations, and efficient utilization of resources.

The world needs to provide financial assistance and find ways of reducing the foreign debt of many developing nations, particularly of the poorest countries.

The world also needs to offer assistance to developing nations in managing and diversifying their economies, and in managing natural resources for sustainability. Market forces such as interest and foreign exchange rates need to be stable. The prices of commodities in all nations need to reflect the environmental and social costs of their production.

In order to encourage investment, nations need to eradicate corruption and ensure effective, efficient, honest, equitable and accountable public administrations, along with individual rights and opportunities. They need to provide price stability, realistic foreign-exchange rates and efficient tax systems, and to foster the development of private business.

☛ *For more information on this subject, please see Chapter 33: Financing Sustainable Development.*

UNDP 1992

2.2

**Widening economic gaps between regions**

Percentage of global economic activity

| | Global GNP | | Global trade | | Global commercial bank lending | | Foreign private investment | |
|---|---|---|---|---|---|---|---|---|
| | 1960 | 1989 | 1970 | 1989 | 1970 | 1989 | 1970 | 1989 |
| Sub-Saharan Africa | 1.9 | 1.2 | 3.8 | 1.0 | 0.3 | 0.3 | 24.8 | 15.0 |
| South Asia | 3.1 | 2.8 | 1.3 | 0.9 | 0.1 | 0.1 | 1.5 | 3.1 |
| East and South-East Asia (excl. China) | 1.7 | 2.9 | 4.1 | 8.1 | 5.7 | 12.8 | 11.7 | 33.3 |
| China | 3.0 | 2.0 | 0.8 | 1.9 | 0.4 | 0.2 | 11.8 | 7.0 |
| Arab States | 1.5 | 2.5 | 3.3 | 4.1 | 1.5 | 2.4 | 9.8 | 13.2 |
| Latin America and the Caribbean | 4.7 | 4.4 | 5.6 | 3.3 | 0.8 | 6.4 | 40.4 | 28.4 |
| Developing countries | 15.9 | 15.8 | 18.9 | 19.3 | 8.8 | 22.2 | 100.0 | 100.0 |
| Least developed countries | 1.0 | 0.5 | 0.8 | 0.4 | 0.2 | 0.1 | 1.7 | 2.2 |
| Industrial countries | 84.1 | 84.2 | 81.1 | 80.7 | 91.2 | 77.8 | | |



# Combating Poverty

Poverty has so many causes that no one solution will solve all the problems in every country.

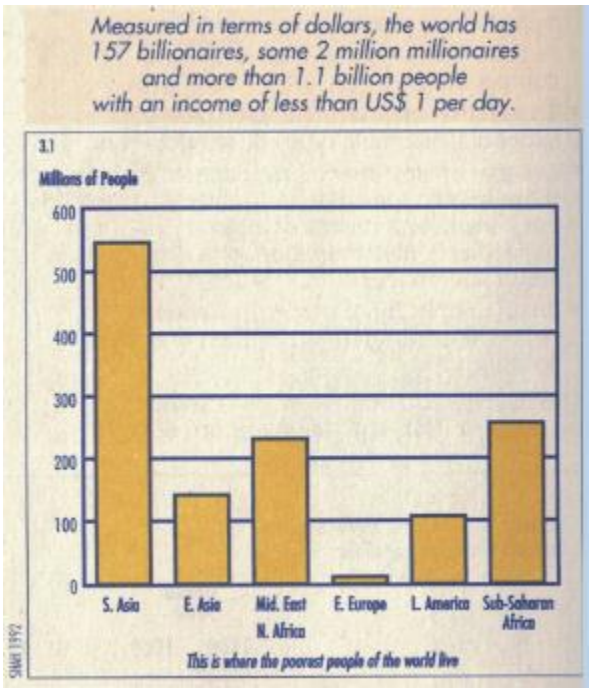
Each nation needs its own programme to eradicate such root causes of poverty as hunger, illiteracy, inadequate medical and child care, lack of employment and population pressures. The actions of individual governments must receive support, including financial assistance, because the struggle against poverty is the shared responsibility of all countries.

The United Nations and its member nations should make the reduction of poverty a major priority.

The aim of anti-poverty programmes is to make people better able to earn a living in a sustainable way. The poor need to become more self-sufficient, rather than having to depend on foreign aid and food shipments. Economic development is needed in poor nations to provide jobs for today's unemployed and under-employed and for the growing work forces.

To be sustainable over the long term, development plans must deal with the conservation and protection of resources. A development policy that focuses mainly on increasing the production of goods without ensuring the sustainability of the resources on which production is based will sooner or later run into declining productivity. This could increase poverty.

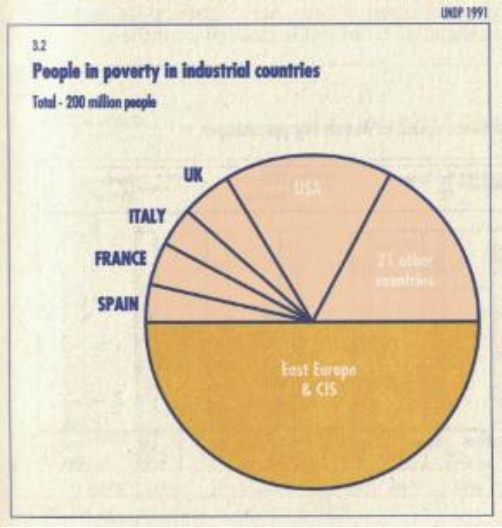
One way that national governments can encourage development is to give more responsibility and resources to local groups and to women. Peoples' organizations, women's groups and non-governmental organizations are



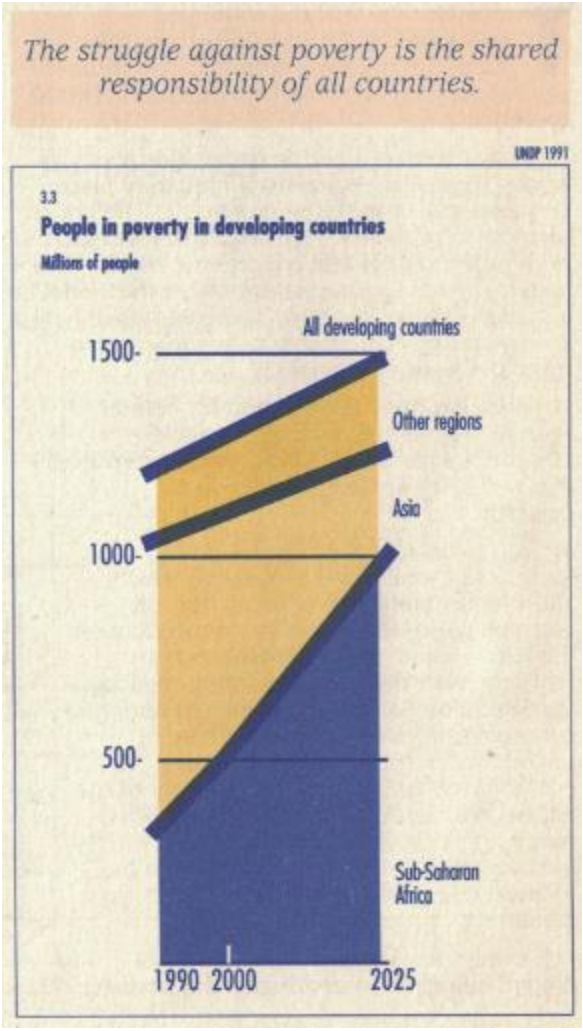

One way that national governments can encourage development is to give more responsibility and resources to local groups and to women. Peoples' organizations, women's groups and non-governmental organizations are important sources of innovation and action at the local level. They have a proven ability to promote sustainable livelihoods.

Local people need to participate in the protection and sustainable management of natural resources. They need access to land, natural resources and enough money to become productive. They also need to share in the benefits of natural resources from their regions. Many people need more education and training in order to become more productive. This can be achieved through community-based learning centres for sustainable development. These need to be linked, so that communities can share their expertise.

There is an urgent need for family planning in parts of the world. Women and men need the same right to decide freely and responsibly on the number and spacing of their children. They need access to information, education and appropriate means to enable them to exercise his right. Governments should provide health programmes and facilities, which include women-centred, women-managed, safe and effective reproductive health care and affordable, accessible services for responsible family planning. They should provide the opportunity for all women to breast-feed fully, at least during the first four months post partum.




Poverty-stricken nations will not be able to develop if they are burdened with huge foreign debts, are unable to finance their development, and if prices for their commodities remain low on world markets. Financial assistance needs to be provided in ways that deal with environmental concerns and maintain basic services to the poor and needy.



# 4

## Changing Consumption Patterns

The major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in the industrialized countries.

Excessive demands and unsustainable lifestyles among the richer segments of humanity place immense stress on the environment. The poorer segments, meanwhile, are unable to meet food, health-care, shelter and educational needs. This pattern, which aggravates poverty in the world, is a matter of grave concern. It is essential to have sustainable consumption patterns in order to reach the goals of Agenda 21.

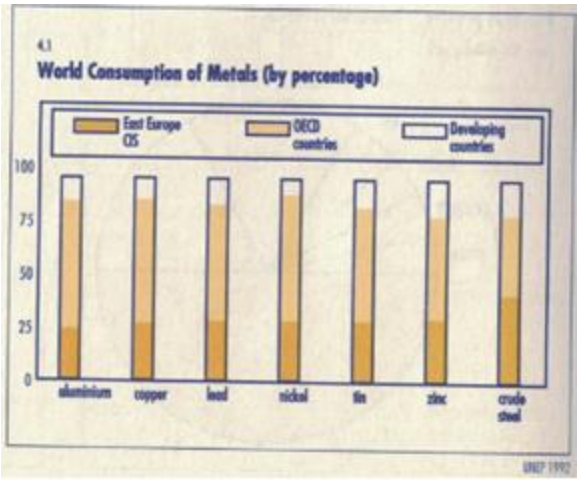
We must examine the demand for natural resources generated by unsustainable consumption and seek ways of using resources that minimize depletion and reduce pollution.

We must consider 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. Some economists are questioning traditional concepts of economic growth. They underline the importance of pursuing economic objectives that take account of the full value of natural resource capital. This may require the development of new indicators that include sustainability in the measurements of the economic well-being of nations.

Achieving sustainable development will require efficiency in production and changes in consumption patterns. In many instances, this will require reorientation of existing production and consumption patterns which have developed in industrial societies and are, in turn, emulated in much of the world.

All countries should strive to promote sustainable consumption patterns, but developed countries should take the lead in achieving this goal.

Developing countries should try to establish sustainable consumption patterns as they build their economies. They need to guarantee the provision of basic needs for the poor, while avoiding unsustainable patterns which are generally recognized as unduly hazardous to the environment, inefficient and wasteful. Such development will require technological and other assistance from industrialized countries.



In order to develop sustainably, countries need to:

- Find ways of making economies grow and prosper while reducing the use of energy and materials and the production of waste.

- Identify balanced patterns of consumption worldwide which the Earth can support in the long term.

Governments should strive to:

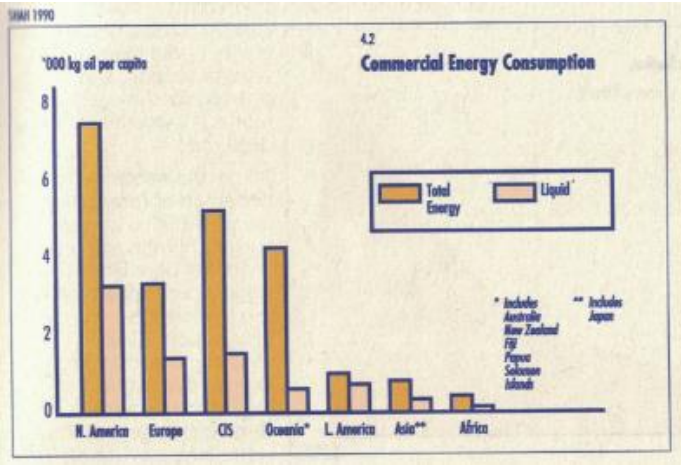
- Promote efficient production and reduce wasteful consumption.

- Develop policies that encourage a shift to sustainable patterns of production and consumption.

- Encourage the transfer of environmentally sound technologies to developing countries.

Governments and industries need to cooperate in the development of environmentally sound and sustainable ways of using resources and of producing and using energy. Reducing the amount of materials and energy used to produce goods and services reduces environmental stress and increases economic productivity and competitiveness.

Society needs to cope with mounting levels of waste products by encouraging recycling, reducing wasteful packaging and encouraging the introduction of more environmentally sound products. In many countries, a more environment-conscious consumer public has emerged, combined with increased interest on the part of some industries in providing environmentally sound consumer products.




Governments, in cooperating with industry and other groups and through such means as consumer legislation, should develop or expand environmental labelling and other information that informs people of the health and environmental impact of products.
Governments themselves are often big consumers, and they should review their purchasing policies to improve the environmental content, where possible.

Significant changes in consumption and production patterns seem unlikely to occur soon without the stimulus of prices and market signals that make clear the environmental costs of the consumption of energy, materials and natural resources and the generation of wastes. The use of market signals, such as environmental charges and taxes and deposit and refund systems should be encouraged.

It is important that individuals take responsibility for consuming goods and services in a sustainable manner. Government and business can promote sustainable consumption through education, public-awareness programmes and the positive advertising of products and services that encourage sustainability.

# 5

## Population and Sustainability

The world's growing population and production, combined with unsustainable consumption patterns, is putting increasing stress on air, land, water, energy and other essential resources. The world's population was more than 5.5 billion in 1993, and is expected to exceed 8 billion by the year 2020.

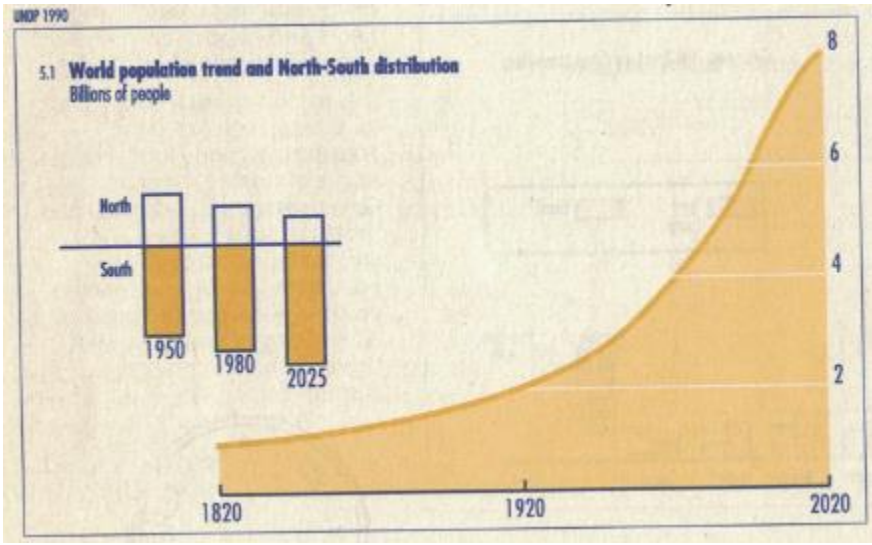
Development strategies will have to deal with the combination of population growth, health of the ecosystem, technology and access to resources. The primary goals of development include poverty alleviation, secure livelihoods, good health and quality of life, including an improvement in the status of women. Development plans have to deal with such needs as food security, basic shelter, essential services, education, family welfare, reforestation, primary environmental care and employment.

*Development strategies will have to deal with the combination of population growth, ecosystem health, technology and access to resources.*

Population concerns should be part of national sustainable development strategies, and countries should establish population goals and programmes. Countries need to assess how the age structure of their populations will create future demands for resources.

Countries need to know their national population-carrying capacity. Special attention should be given to critical resources, such as water and land, and environmental factors, such as ecosystem health and biodiversity.

(The carrying capacity is the ability of the resource base to support and provide for the needs of humans without becoming depleted.)




The world needs to do a better job of forecasting the possible outcomes of current human activities, including population trends, per capita resource use and wealth distribution. One outcome that may be expected is major migrations as a result of climate change and the cumulative environmental that may destroy people's local livelihoods. The world will need policies to deal with both the migrations that result from and lead to environmental disruption.

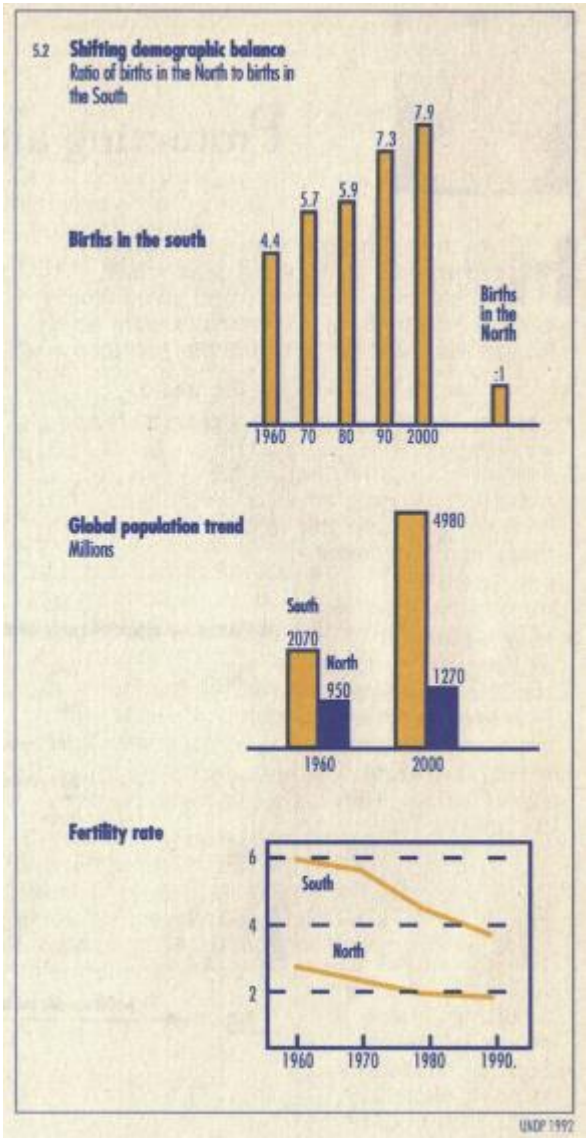
Sustainable development will require reproductive health programmes to reduce maternal and infant mortality, and provide men and women with the information and means to plan family size. Women should have access to prenatal, and the opportunity to breast-feed or at least four months after birth. They should also be assured of education and job opportunities.

Population programmes need to be part of broader policies that also deal with such factors as ecosystem health, technology and human settlements, and with socio-economic structures and access to resources. Resource management must be able to cope with the needs of the people and be sustainable over the long term.

Population programmes will require the support of political, indigenous, religious and traditional authorities, the private sector and the scientific community. The programmes will also need adequate funding, including support to developing countries.

*Population programmes need to be part of broader policies*

*Countries need to know their national population-carrying capacity*



# 6

## Protecting and Promoting Human Health

Human health depends on a healthy environment, including clean water, sanitary waste disposal and an adequate supply of healthy food. We must care for both human health and the health of our environment

Among the challenges facing the world:

At least 15 million children a year die from such preventable causes as birth trauma and asphyxia, acute respiratory infections, malnutrition and diarrhea. Youth is increasingly vulnerable to drug abuse, unwanted pregnancy and sexually transmitted diseases.

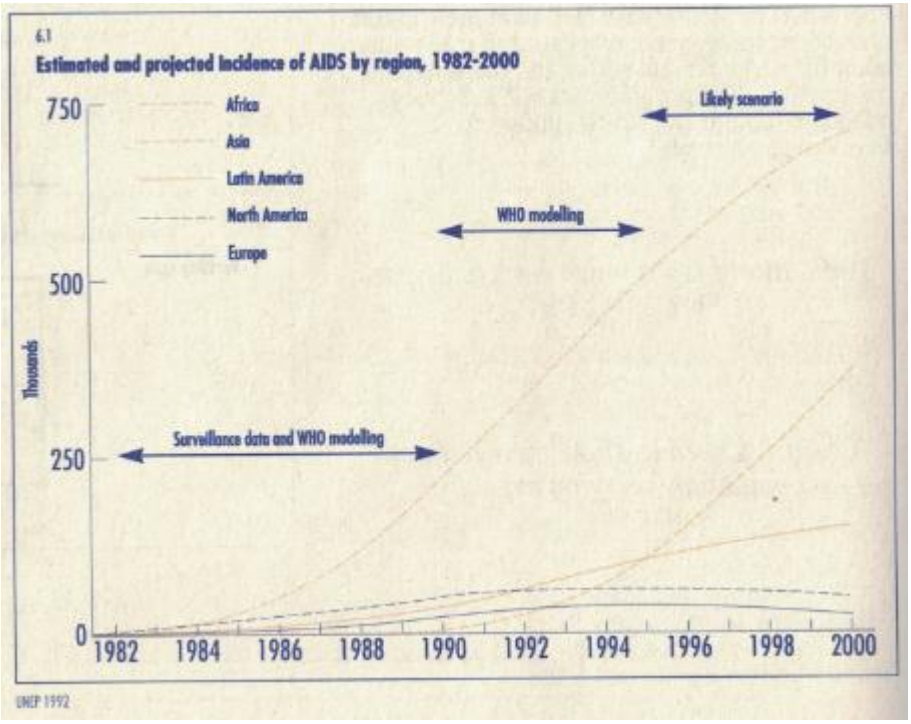
• Most women in developing countries lack the means to improve their health and socio-economic status, or control reproduction. They continue to face increasing poverty, malnutrition and general ill-health.

• Despite the development of vaccines and other medicines, many people still suffer from such diseases as polio, cholera, tuberculosis, leprosy, diarrhea, malaria and schistosomiasis.

These result from a lack of housing, clean water and sanitation, combined with inadequate health care.

• In many regions, urban growth has outstripped society's capacity to meet human needs, leaving hundreds of millions without adequate livelihood, food, shelter or other services. Urban pollution is linked to illness and death, while overcrowding and poor housing contribute to tuberculosis, meningitis, respiratory and other diseases.

• HIV is expected to infect 30 to 40 million people by the year 2000, creating a pandemic



that will affect all countries. This AIDS-related virus will substantially increase health costs, but the cost in lost income and the decreased productivity of working people will be even higher.

• Pollution, from such sources as energy production and use, industry and transportation, affects the health of hundreds of millions of people. Despite some improvements, environmental deterioration continues, because pollution controls have not kept pace with economic development.

• Indigenous peoples, whose traditional lifestyles have often been fundamentally changed, suffer higher than average rates of unemployment, poor housing, poverty and ill health.

Good health depends on social, economic and spiritual development, and a healthy environment, including safe food and water. The world needs to use a broad-based campaign against ill health, ranging from training in molecular biology to educating mothers on how to prevent and treat diarrhea at home. People need health education, immunization and essential drugs. Health care should be adapted to local needs, and local people trained to maintain md repair medical equipment.

Within the overall strategy to achieve health for all by the year 2000, some major goals for the world are:

• Eliminate guinea-worm disease (dracunculiasis) and polio, and control onchocerciasis (river blindness) and leprosy.

• Mobilize and unify national and international efforts to control HIV infection.

• Control tuberculosis, especially the new drug-resistant varieties.

• Provide 95 per cent of the world's children with treatment for acute respiratory infections.

• Cut the number of deaths from childhood diarrhea in developing countries by 50 to 70 per cent.

• Have anti-malaria programmes in all countries where malaria presents a significant health problem.

• Reduce measles deaths by 95 per cent by 1995.

Every country needs a health action plan that includes a national public health system. Countries need to:

• Have a national health watch able to monitor and forecast the introduction of or increase in communicable diseases.

• Develop community-based health-care systems that meet basic health needs for clean water, safe food and sanitation.

• Ensure men and women of the same right and means to choose responsibly the number and spacing of their children.

• Provide children with basic health care, including immunization and nutrition, and protect them from sexual and workplace exploitation.

• Use effective traditional knowledge in national health-care systems.

• Develop programmes to control outdoor and indoor forms of air pollution and to dispose of solid wastes safely.

• Control the distribution and use of pesticides to minimize health risks.

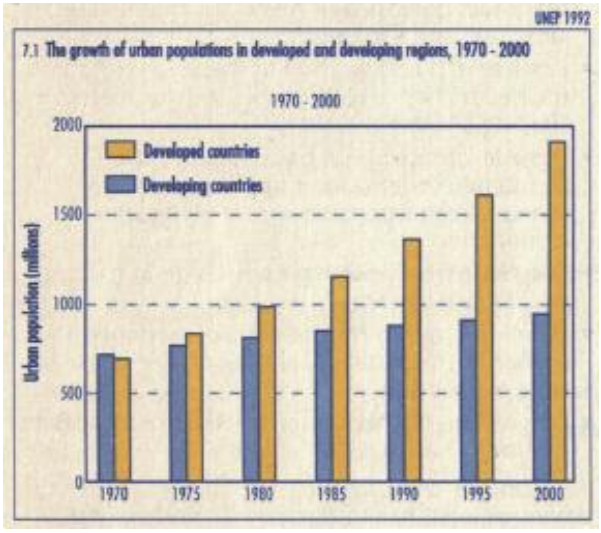
All countries should have programmes to identify environmental health hazards and reduce the risks. They need to make environment and health safeguards part of national development programmes, and train people to deal with environmental health hazards.

*Human health depends on a healthy environment*

# 7

## Sustainable Human Settlements

By the year 2000, half the world's people will be living in cities. The urbanization of society is part of the development process, and cities generate 60 per cent of gross national product.




A growing number of cities, however, are showing symptoms of the global environment and development crisis, ranging from air pollution to homeless street dwellers. In most developing countries, a lack of clean water and sanitation leads to widespread ill-health and many preventable deaths each year.

To make urban life more sustainable, governments should see that the homeless poor and unemployed get access to land, credit and low-cost building materials. People also need security of tenure and legal protection against unfair eviction. Informal settlements and urban slums should be upgraded to ease the deficit in urban shelter. All urban areas need such services as clean water, sanitation and waste collection, and higher-income neighbourhoods should pay the full cost of providing such services.

Construction programmes should emphasize local materials, energy-efficient designs, materials that do not harm health and the environment, and labour-intensive technologies that employ more people.

Transportation uses about 30 per cent of the world's commercial energy production and consumes about 60 per cent of the world's petroleum production. Exhaust gases pollute urban air with ground-level ozone, particulate matter, carbon monoxide and other gases, all of which harm health. National action programmes are needed to promote energy-saving and renewable energy technologies, such as solar, hydro, wind and biomass. Transportation strategies should reduce the need for the motor vehicles by favouring high-occupancy public transport, and providing safe bicycle and foot paths. Municipalities need to be developed in ways that reduce the need for long-distance commuting.

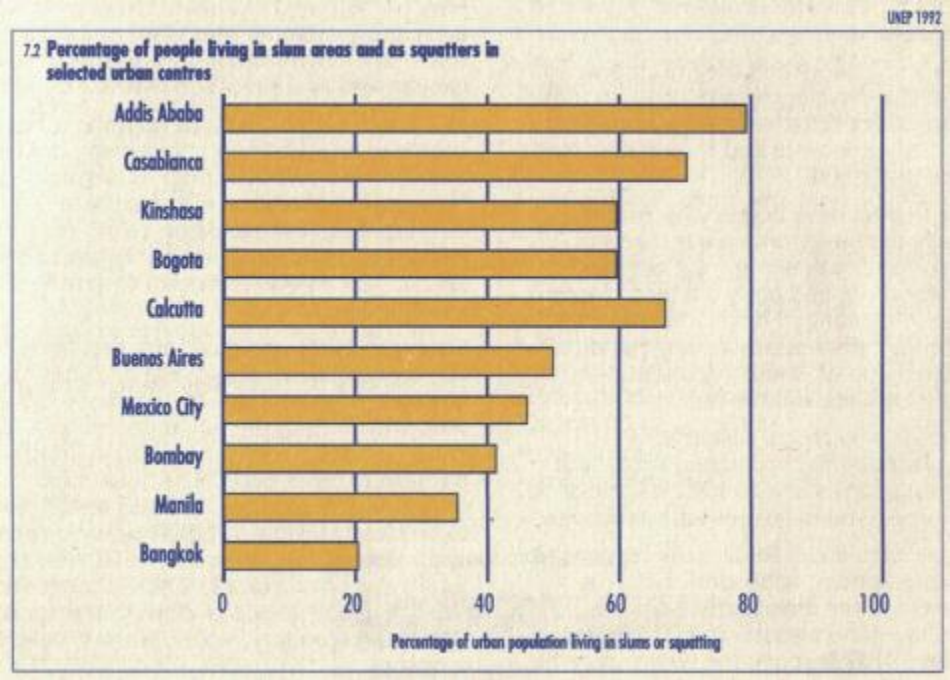
Countries need to reduce urban poverty by supporting the informal economic sector, which operates many small businesses. Governments need to develop urban renewal projects in partnership with non-governmental organizations.

To reduce migration to the big cities, governments should improve rural living conditions and encourage the development of medium-sized cities that create employment and housing. Sound

management is needed to prevent urban sprawl onto agricultural land and environmentally fragile regions.

It also important to see that settlements are built in locations and using designs and materials that reduce the risk of damage from such natural disasters as storms, flooding, earthquakes and landslides.

Developing countries need financial and technical assistance to help train experts in such fields as urban planning, waste reduction, water quality, sanitation, energy efficiency and clean, efficient transportation.




*By the year 2000, half the world's people will be living in cities.*




# Making Decisions for Sustainable Development

The way most people make decisions, whether in government, business or as individuals, separates economic, social and environmental factors.

It is necessary to understand the links-between environment and development in order to make development choices that will be economically efficient, socially equitable and responsible, and environmentally sound.

Some governments have begun to consider systematically the environmental impacts of economic, social, fiscal, energy, agricultural, transportation, trade and other policies. More groups are participating in development decisions through discussions among national and local governments, industry, science, environmental groups and the public.

Governments should create sustainable development strategies to integrate social and environmental policies in all ministries and at all levels, including fiscal measures and the budget.

The strategies should aim for socially responsible economic development while protecting the resource base and the environment for the benefit of future generations. The strategies should be developed through the widest possible participation.

Moving decision-makers from narrow sectoral approaches towards integrating environmental issues into sustainable development policy-making will require changes in information-gathering, management techniques and planning.

To make informed decisions, people need regular sustainable development progress reports that integrate economic and social conditions and trends with information on the state of the environment and natural resources. National accounting systems should measure the crucial role of the environment as a source of natural capital, and as a sink for our waste by-products.

Much environment and development law-making seems to be ad hoc and piecemeal, or lacks enforcement and updating. Governments need to foster the evolution of sustainable development law, based on sound economic, social and environmental principles and appropriate risk assessment, and backed up by enforcement.

Prices, markets and governmental fiscal and economic policies also shape attitudes and behaviour towards the environment. There is a tendency to treat the environment as a "free good", and to pass the costs of environmental damage to other parts of society, other countries, or future generations. Environmental costs need to be clearly visible to producers and consumers, and prices should reflect the relative scarcity and total value of resources. These changes are needed in such fields as energy, transportation, agriculture, forestry, water, wastes, health and tourism.

Governments should remove or reduce subsidies that do not meet sustainable development objectives, and move towards pricing policies consistent with these goals.

Advice and technical support in using markets to make development more sustainable should be provided to countries whose economies are developing or are in transition to market systems.

# 9

## Protecting the Atmosphere

Our atmosphere is under increasing pressure from greenhouse gases that threaten to change the climate and from chemicals that reduce the ozone layer. Other pollutants, including those that cause acid rain, often travel long distances through the atmosphere to cause damage on land and water. In many parts of the world, these harmful substances often cross national borders before they land.

Energy use is a major source of emissions. The use of energy is essential to economic and social development and improved quality of life. Much of the world's energy, however, is produced and consumed in ways that cannot be sustained if overall quantities increase substantially. Controlling emissions will depend on greater efficiency in energy production, transmission, distribution and consumption, and on creating environmentally sound energy systems.

At the same time, there is a need for equity and enough energy to meet increasing consumption in developing countries. Consideration is also needed for countries that are highly dependent on the export or consumption of fossil fuels, or use a lot of energy in their industries. Some countries do not have easy alternatives to fossil fuels.

Governments need to:

• Develop more precise ways of predicting levels of atmospheric pollutants and greenhouse gas concentrations that would cause dangerous interference with the climate system and the environment as a whole.

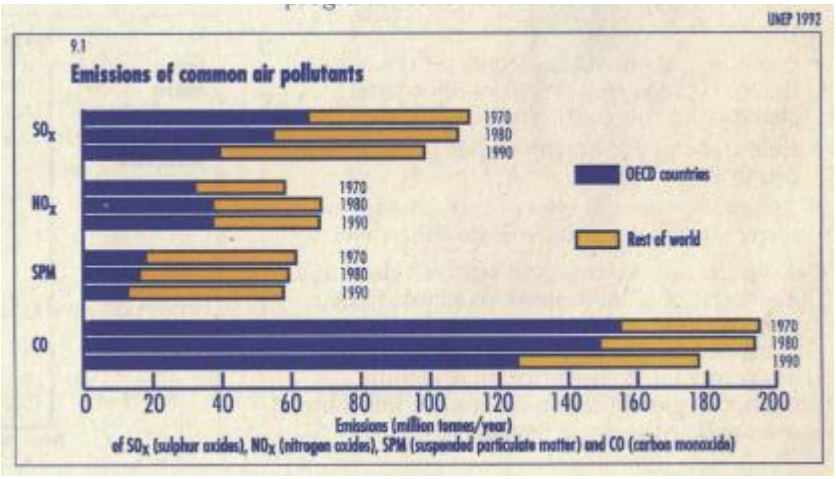
• Modernize existing power systems to gain energy efficiency, and develop new and renewable energy sources, such as solar, wind, hydro, biomass, geothermal, ocean, animal and human power.

• Help people learn how to develop and use more efficient and less-polluting forms of energy.

• Coordinate regional energy plans so that environmentally sound forms of energy can be produced and distributed efficiently.

• Promote environmental assessment and other ways of making decisions that integrate energy, environment and economic policies in a sustainable manner.

• Develop energy efficiency labelling programmes for consumers.



Transportation is essential for economic and social development, and the need will undoubtedly increase, but this activity is also a source of atmospheric emissions. Governments should:

• Promote national energy efficiency and emission standards, and increase public awareness of environmentally sound energy systems.

• Develop efficient, cost-effective, less polluting and safer rural and urban mass transport, along with environmentally sound road networks.

• Encourage forms of transportation that minimize emissions and harmful effects on the environment.

• Plan urban and regional settlements to reduce the environmental impacts of transport. Industry provides goods, services and jobs, but the industrial use of resources and materials causes atmospheric emissions. Industry needs to make more efficient use of materials and resources, install pollution controls, replace chlorofluorocarbons (CFCs) and other ozone-depleting substances with safer substitutes, and reduce wastes. There are environmental and economic benefits from increasing efficiency and waste reduction.

Governments should:

• Use administrative and economic measures that encourage industry to develop safer,
cleaner and more efficient technologies.

• Help transfer such technologies to developing countries.

• Use environmental impact assessments to foster sustainable industrial development.

Certain uses of the land and seas can decrease the amount of plant material available to take carbon dioxide, a greenhouse gas, out of the air.

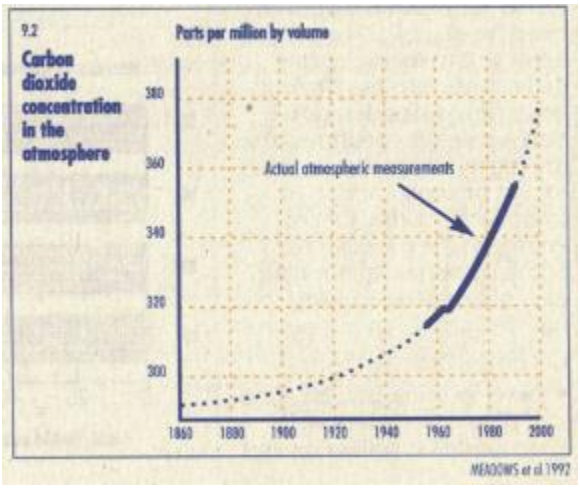
Governments should promote the sustainable management and conservation of natural greenhouse gas sinks and reservoirs, including forests and salt-water ecosystems.

The planet's stratospheric ozone layer continues to decline because of releases of CFCs, halons and other substances containing reactive chlorine and bromine. Governments should put into force international agreements calling for reductions in the use of ozone-depleting substances. It is necessary to develop safe substitutes for these chemicals, and to see that they are made available to developing as well as developed countries.

Based on research on the effects of more ultraviolet radiation reaching the Earth's surface, governments should consider measures to protect human health, agriculture and life in the seas.

Governments should create or strengthen regional agreements, such as the 1979 Convention on Long-range Transboundary Air Pollution, in order to reduce flows of pollutants that harm human health and forests, and acidify lakes and rivers. Countries should also have early-warning systems and responses for air pollution coming from industrial accidents, natural disasters or the destruction of natural resources.

*Our atmosphere is under increasing pressure . . .*



# 10

## Managing Land Sustainably

Increasing human demand for land and its natural resources is creating competition and conflicts. If we are going to meet human requirements in a sustainable manner, we must resolve these conflicts, and find more effective and efficient ways of using land and its natural resources.

The objective is to see that land is used in ways that provide the greatest sustainable benefits. The way to minimize conflicts and make the most efficient trade-offs and an appropriate choice is to link social and economic development with environmental protection and enhancement. We also have to account for protected areas, private property rights, and the rights of indigenous people and other local communities.

As land-use choices arise, there are opportunities to support traditional patterns of sustainable land management, and to protect lands to conserve biological diversity and other ecological benefits.

Governments should take into account environmental, social, population and economic issues, then develop laws, regulations and economic incentives to encourage sustainable use and management of land resources. They should:

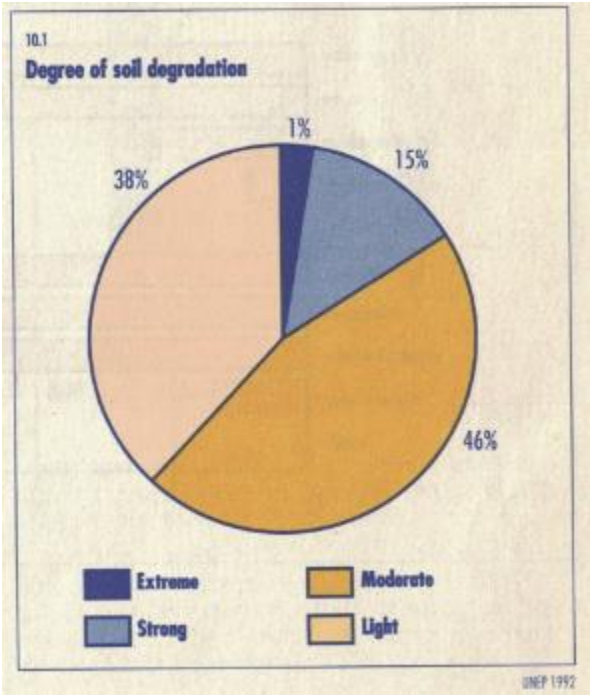
•Develop policies that take into account the land-resource base, population changes and the interests of local people.

• Improve and enforce laws and regulations to support the sustainable use of land, and restrict the transfer of productive arable land to other uses.

• Use techniques such as landscape ecological planning that focus on an ecosystem or a watershed, and encourage sustainable livelihoods.

Include appropriate traditional and indigenous land-use practices, such as pastoralism, traditional land reserves and terraced agriculture in land management.

Encourage the active participation in decision-making of those affected groups that have often been excluded, such as women, youth, indigenous people and other local communities.



• Test ways of putting the value of land and ecosystems into national reports on economic performance, such as the gross national product (GNP).

• Ensure that institutions that deal with land and natural resources integrate environmental, social and economic issues into their planning.

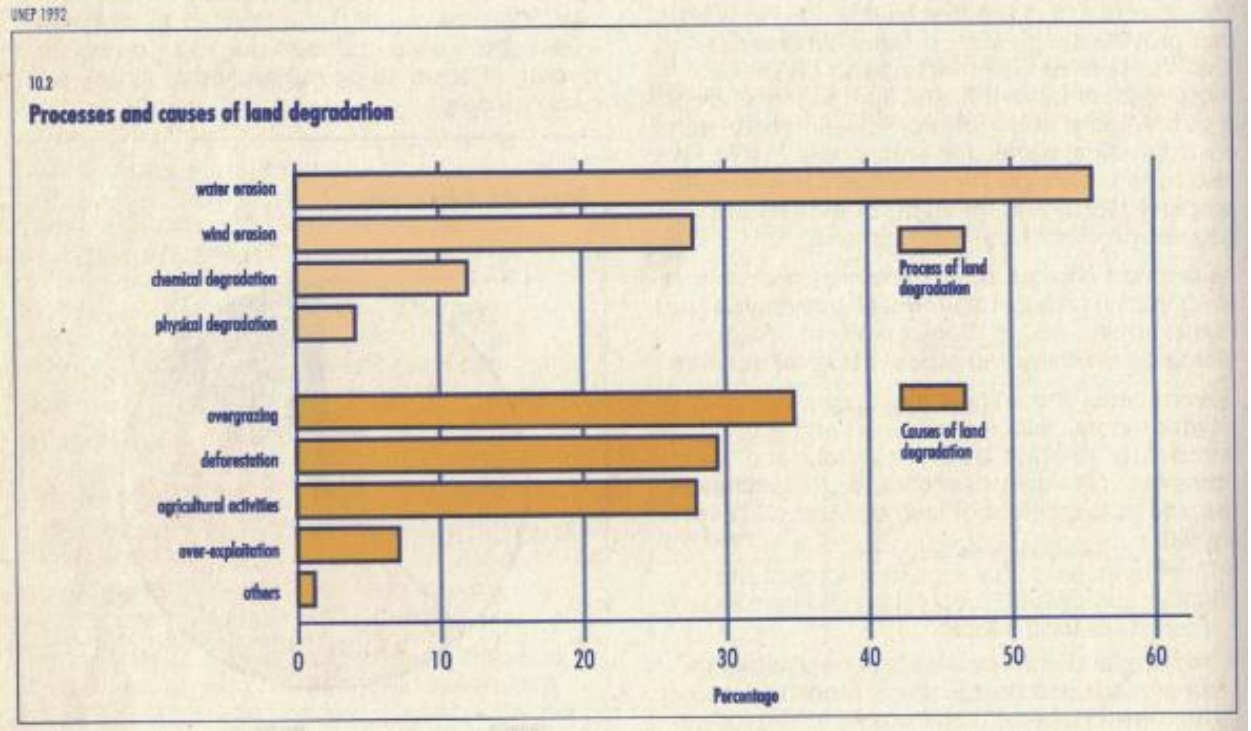
The following are target dates:

• Develop policies for sustainable land management, and make it easier for all people affected by land planning to participate in decisions by 1996.

• Improve ways of coordinating land planning by 1998.

• Have stronger land planning and management systems by 2000.

*Increasing human demand for land and its natural resources is creating competition and conflicts.*



# 11

## Combating Deforestation

Forests are a source of timber, firewood and other goods. They also play an important role in soil and water conservation, maintaining a healthy atmosphere and maintaining biological diversity of plants and animals.

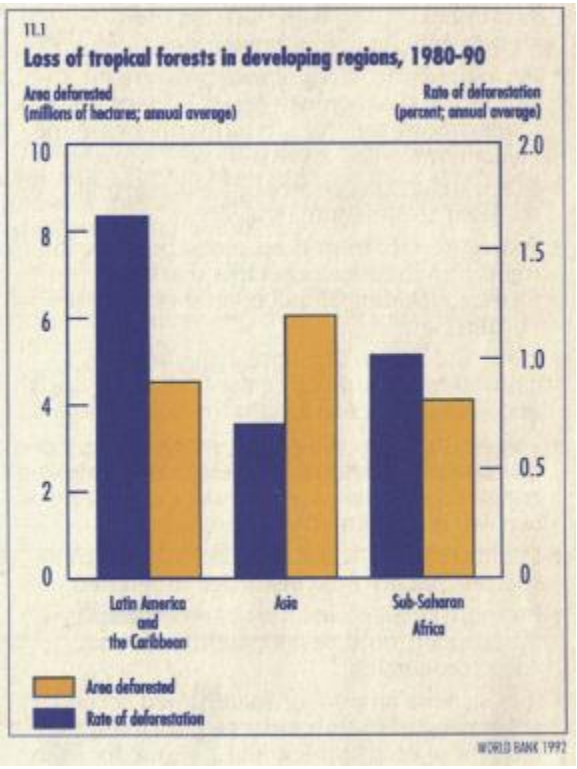
Forests are renewable and, when managed in a way that is compatible with environmental conservation, can produce goods and services to assist in development.

Now, forests world-wide are threatened by uncontrolled degradation and conversion to other uses because of increasing human pressure. There is agricultural expansion, overgrazing, unsustainable logging, inadequate fire control and damage from air pollution. Damage to and loss of forests causes soil erosion, reduces biological diversity and wildlife habitats, degrades watersheds and reduces the amount of fuel-wood, timber and other products available for human development. It also reduces the number of trees that can retain carbon dioxide, a greenhouse gas.

The survival of the forests depends on our recognizing and protecting their ecological, climate-control, social and economic values. These benefits should be included in the national economic accounting systems used to weigh development options.

There is an urgent need to conserve and plant forests in developed and developing countries to maintain or restore the ecological balance, and to provide for human needs. National governments need to work with business, non-governmental organizations, scientists, technologists, local community groups, indigenous people, local governments and the public to create long-term forest conservation and management policies for every forest region and watershed.

Better management will also require more information on the state of forests. In many cases, planners lack even basic information on the size and type of forests, and on the amount of wood being harvested.



Governments should create national action programmes for sustainable forestry development. This will require a broad range of actions, ranging from the use of satellite images of the forests through better logging equipment to government policies that encourage the most efficient use of the trees and other forest products.

Governments, along with business, non-governmental and other groups can:

• Plant more forests to reduce pressure on primary and old-growth forests. Plant valuable crops among the trees to further increase the value of managed forests.

• Breed trees that are more productive and resistant to environmental stress.

• Protect forests from fires, pests, poaching and mining and reduce pollutants that affect forests, including air pollution that flows across borders.

• Limit and aim to halt destructive shifting cultivation by addressing the underlying social and ecological causes.

• Use environmentally sound, more efficient and less polluting methods of forest harvesting and expand forest-based processing industries that use wood and other forest products.

• Minimize wood waste and find uses for tree species that are now discarded or ignored.

• Promote small-scale forest-based enterprises that support rural development and local entrepreneurship.

• Increase the amount of value-added secondary processing of forest products to increase the amount of employment and revenue for each tree harvested.

• Develop urban forestry for the greening of all places where people live.

• Promote the use of such forest products as medicinal plants, dyes, fibres, gums, resins, fodder, rattan, bamboo and works of local

• Encourage low-impact forest use, such as ecotourism and the managed supply of genetic materials, such as those used to develop medicines.

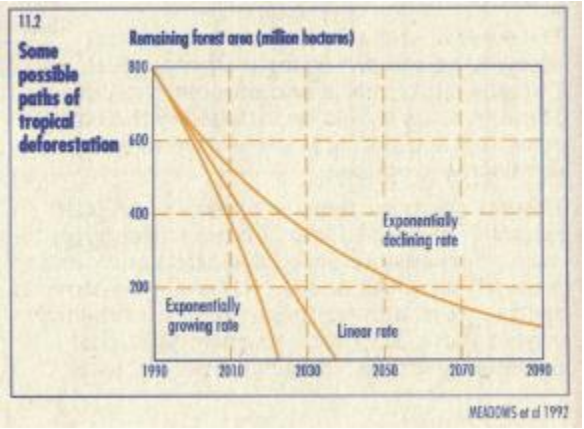
• Reduce damage to forests by promoting sustainable management of areas adjacent to the trees.

In order to get more value from their forests, some countries will need international cooperation in the form of advice on modern technologies, and the use of fair terms of trade, without unilateral restrictions and bans on forest products.

In addition to encouraging sustainable use of forests, countries need to create or expand protected area systems to preserve some forests. Such forests are needed to preserve ecological systems, biological diversity, landscapes and wildlife habitat. Forests also need to be preserved for their social and spiritual values, including that of traditional habitats of indigenous people, forest dwellers and local communities.

☛ *For more information on forests, please see the Statement of Principles on Forests.*

*Governments should create national action programmes for sustainable forestry development.*



# 12

## Combating Desertification and Drought

Desertification is the process of land degradation caused by variations in climate and by human impact. It particularly affects drylands that are already ecologically fragile.

The most obvious impacts of desertification are the degradation of grazing lands, and a decline in food production. The results of drought and desertification include poverty and starvation. An estimated 3 million people died in the mid-I 980s because of drought in sub-Saharan Africa.

The problem is very large. Seventy per cent of all the world's drylands - 3.6 billion hectares - are already affected by degradation. This is one-quarter of the world's land - an area three times larger than Europe. Degradation, particularly salination caused by inadequate drainage, affects large tracts of irrigated cropland.

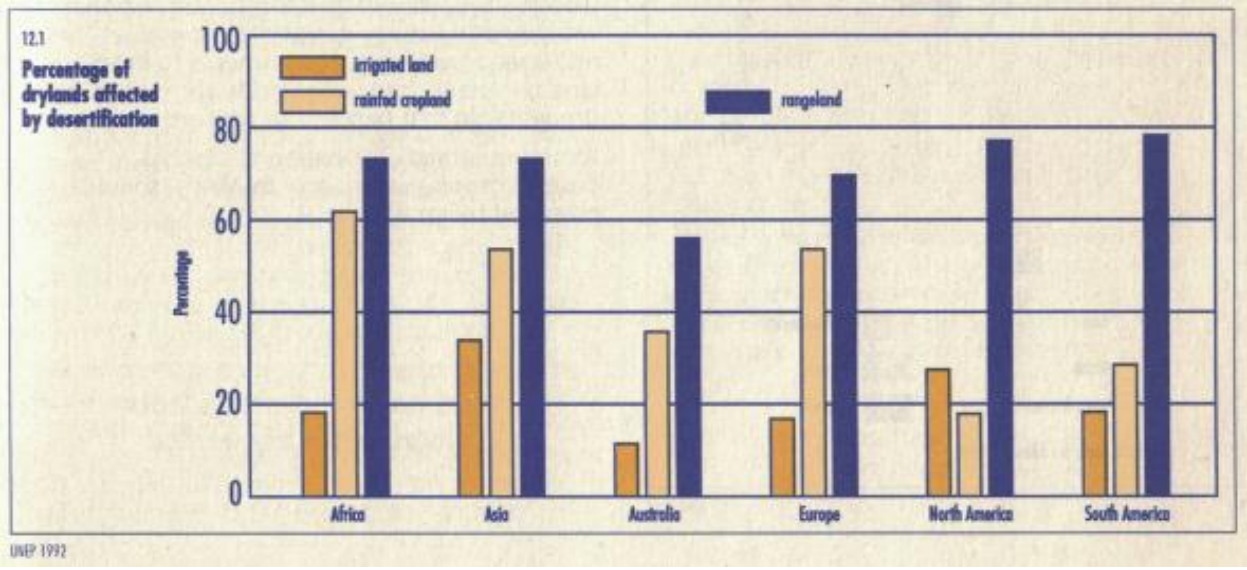
*The results of drought and desertification include poverty and starvation.*

To stop desertification from spreading, land use, including farming and grazing, must be made environmentally sound, socially acceptable, fair and economically feasible.

One of the major tools to fight the spread of deserts is the planting of trees and other plants that retain water and maintain soil quality. Plantations can be harvested for such products as fuel, timber, fodder and food.

To combat desertification, governments should:

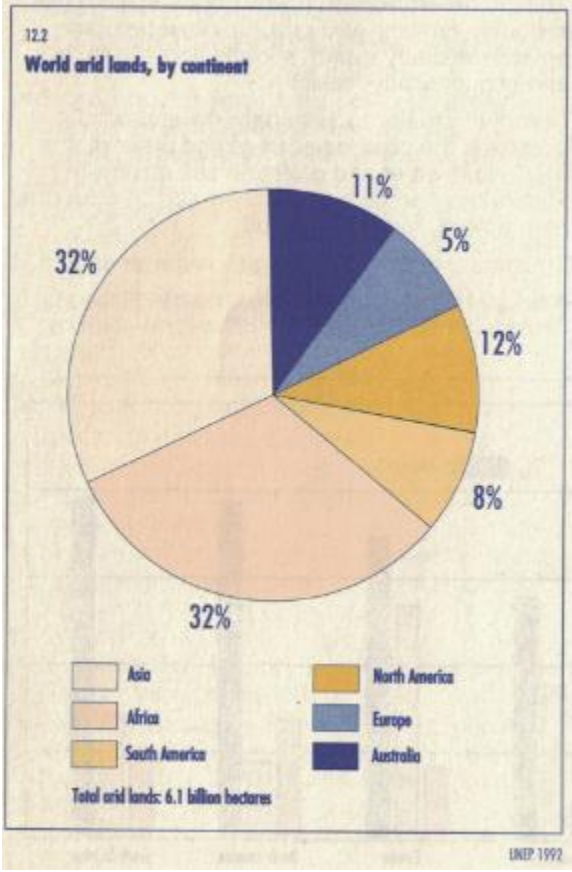
• Adopt national sustainable land-use plans and sustainable management of water resources.



• Accelerate planting programmes, using fast-growing, drought-resistant local trees and other plants.

• Help to reduce the demand for fuel wood through energy efficiency and alternative energy programmes.

In areas prone to desertification and drought, traditional farming and grazing lifestyles are often inadequate and unsustainable, particularly in the face of increasing populations. Rural dwellers should be trained in soil and water conservation, water harvesting, agroforestry and small-scale irrigation. National desertification programmes are needed to raise public awareness of measures needed to combat the problem.




*In areas prone to desertification and drought, traditional farming and grazing lifestyles are often inadequate and unstainable.*

Poverty is a major factor in accelerating the rate of degradation and desertification. To reduce pressure on the fragile lands, it is necessary to rehabilitate degraded lands, and provide alternative livelihoods for people. Rural banking and credit systems should be set up to help people establish small businesses that use local resources.

In addition, it is necessary to establish an international drought emergency-response system equipped with food, health care, shelter, transport and finances.

It is necessary to strengthen such programmes as Earthwatch and the Sahara and Sahel Observatory, as well as national and regional weather and water monitoring networks. Their information will help governments to develop land-use plans, and will provide early warning of droughts, so that people can prepare in time.

An international convention to combat desertification, particularly in Africa, should be prepared by June 1994.

*National anti-desertification programmes are needed.*

# 13

## Sustainable Mountain Development

Mountains are important sources of water, energy, minerals, forest and agricultural products and areas of recreation. They are storehouses of biological diversity, home to endangered species and an essential part of the global ecosystem:

The fate of mountain ecosystems affects half the world's people. About 10 per cent of the Earth's population lives in mountain areas, while about 40 per cent occupies watershed areas below. From the Andes to the Himalayas, and from Southeast Asia to East and Central Africa, there is serious ecological deterioration in these watersheds. Causes include deforestation, excessive livestock grazing and cultivation of marginal soils.

Mountain ecosystems are susceptible to soil erosion, landslides and the rapid loss of habitat and genetic diversity. Among mountain dwellers, there is widespread unemployment, poverty, poor health and bad sanitation. Most mountain areas are experiencing environmental degradation.

The proper management of mountain resources and the socio-economic development of the people need immediate action. There is a need to develop land-use planning and management for mountain-fed watersheds by the year 2000. It should aim at preventing soil erosion, increasing the amount of tree and plant life, and maintaining the ecological balance in mountains.

There is also a need to provide services, such as education, health care and energy for local communities and indigenous people. The people also need more opportunities to earn livelihoods from such activities as sustainable tourism, fisheries, environmentally sound mining and cottage industries, such as the processing of medicinal and aromatic plants.

Governments should:

• Promote erosion-control measures that are low-cost, simple and easily used.

• Offer people incentives to conserve resources and use environment-friendly technologies, help them to understand what kind of development is environmentally sustainable in mountains and involve them in resource management.

• Produce information on alternative livelihoods involving, for example, crops, livestock, poultry, beekeeping, fisheries, village industries, markets and transport.

• Create protected areas to save wild genetic material.

• Identify hazardous areas that are most vulnerable to erosion, floods, landslides, earthquakes, snow avalanches and other natural hazards and develop early-warning systems and disaster-response teams.

• Identify mountain areas threatened by air pollution from neighbouring industrial and urban areas.

• Create centres of information on mountain ecosystems, including expertise on sustainable agriculture and conservation practices where people can turn for help in learning about sustainable mountain development.

*The results of drought and desertification include poverty and starvation.*

# 14

# Sustainable Agriculture and Rural Development

Hunger is already a constant threat to many people, and the world's long-term ability to meet the growing demand for food and other agricultural products is uncertain.

The global population was 5.5 billion in 1993 and is expected to reach 8.5 billion by 2025, when 83 per cent of the world will be living in developing countries. One of the world's great challenges is to increase food production in a sustainable manner so that a rapidly growing global population can be fed.

The productivity of huge food-producing areas is declining, even as the demand for food, fibre and fuel is growing. Soil erosion, salination, waterlogging and loss of soil fertility are increasing in all countries. Increased ultraviolet radiation resulting from thinning of the stratospheric ozone layer may also reduce food production.

Agriculture has to meet the rising needs mainly by increasing productivity, because most of the world's best food lands are already in use. At the same time, further encroachment on land that is only marginally suitable for cultivation must be avoided.

Sustainable agriculture and rural development will require major adjustments in agricultural, environmental and economic policies in all countries, and at the international level. This requires cooperation involving rural people, national governments, the private sector and the international community.

*The world's long-term ability to meet the growing demand for food and other agricultural products is certain.*

Techniques, for increasing production, reducing food spoilage and loss to pests and for conserving soil and water resources are already available but are not widely or systematically applied. By the turn of the century, governments should have sound food policies, based on an awareness of the environmental costs and benefits of various policy choices.

Sustainable land-use policies should encourage planning on a scale large enough to maintain the health of regional ecosystems, such as watersheds. People should be encouraged to invest in the future of the land by giving them ownership and providing access to resources, financing and means to market their produce at fair prices.

People need advice and training in the use of technologies and farming systems that conserve and rehabilitate land, while increasing production. These include conservation tillage, crop rotation, use of plant nutrients (including organic fertilizers), agroforestry, terracing and mixed cropping. Both modern and indigenous conservation techniques should be used.

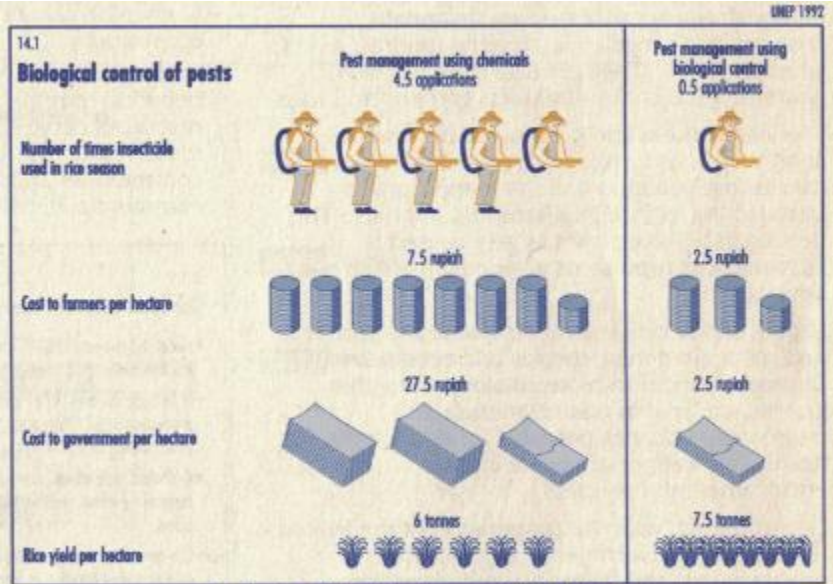
*The productivity of huge food-producing areas is declining.*

More energy will have to be used to increase food production. This should involve a cost-effective mix of fossil and renewable energy sources, including fuels from wood and plants.

Better use of the world's great variety of plant and animal genetic resources is essential to diversify and increase food production and improve the quality of draught animals. There is a steady loss of invaluable plant and animal species, and efforts to promote genetic diversity are underfunded and understaffed. The benefits of research and development in plant breeding and seed production should be shared equitably between sources and users of the material.

The amount of food lost to pests has been estimated at 25 per cent of harvests. Chemical control of food pests has been dominant, but its over-use is costly and has adverse effects on human health and the environment. The best option is integrated pest management, which controls, host-plant resistance and appropriate farming practices, to minimize pesticide use. This technique guarantees food production, reduces costs and is environmentally less harmful.

To keep poor rural populations from using marginal lands, off-farm work such as cottage industries, wildlife utilization, fisheries, village-based light industries and tourism should be developed.



*The advantages of integrated pest management (IPM) to Indonesia. Farmers switched from chemicals to encouraging natural predators of the pest destroying their rice crops.*

# 15

## Conservation of Biological Diversity

The essential goods and services on our planet depend on the variety and variability of genes, species, populations and ecosystems.

Biological resources feed and clothe us, and provide housing, medicines and spiritual nourishment. Those resources are found in natural ecosystems of forests, savannahs, pastures and rangelands, deserts, tundras, rivers, lakes and seas. They are also in farm fields, gardens, gene banks, botanical gardens and zoos.

The loss of the world's biological diversity continues, mainly from habitat destruction, over harvesting, pollution and the inappropriate introduction of foreign plants and animals. This decline in biodiversity is largely caused by humans, and represents a serious threat to our development.

Urgent and decisive action is needed to conserve and maintain genes, species and ecosystems. Recent advances in biotechnology show that genetic material in plants, animals and microorganisms has potential for agriculture, health and welfare of people and for environmental protection.

Governments, with the cooperation of the United Nations, non-governmental organizations, the private sector and financial institutions, should:

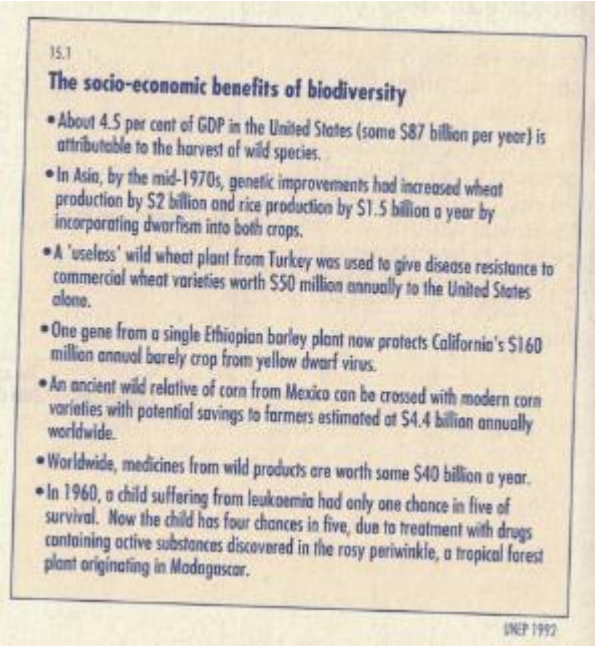
•Conduct national assessments on the state of biodiversity.

• Develop national strategies to conserve and sustainably use biological diversity and make these part of overall national development strategies.

• Conduct long-term research into the importance of biodiversity for ecosystems that produce goods and environmental benefits.

• Encourage traditional methods of agriculture, agroforestry, forestry, range and wildlife management which use, maintain or increase biodiversity. Involve communities, including women, in conserving and managing ecosystems.

• Implement fair and equitable sharing of benefits from the use of biological and genetic resources between the sources and users of these resources. Indigenous people and their communities should share in the economic and commercial benefits.



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**The socio-economic benefits of biodiversity**

- About 4.5 per cent of GDP in the United States (some $87 billion per year) is attributable to the harvest of wild species.
- In Asia, by the mid-1970s, genetic improvements had increased wheat production by $2 billion and rice production by $1.5 billion a year by incorporating dwarfism into both crops.
- A 'useless' wild wheat plant from Turkey was used to give disease resistance to commercial wheat varieties worth $50 million annually to the United States alone.
- One gene from a single Ethiopian barley plant now protects California's $160 million annual barely crop from yellow dwarf virus.
- An ancient wild relative of corn from Mexico can be crossed with modern corn varieties with potential savings to farmers estimated at $4.4 billion annually worldwide.
- Worldwide, medicines from wild products are worth some $40 billion a year.
- In 1960, a child suffering from leukaemia had only one chance in five of survival. Now the child has four chances in five, due to treatment with drugs containing active substances discovered in the rosy periwinkle, a tropical forest plant originating in Madagascar.

UNEP 1992

• Protect natural habitats. Areas can be further protected by promoting environmentally sound development around them.

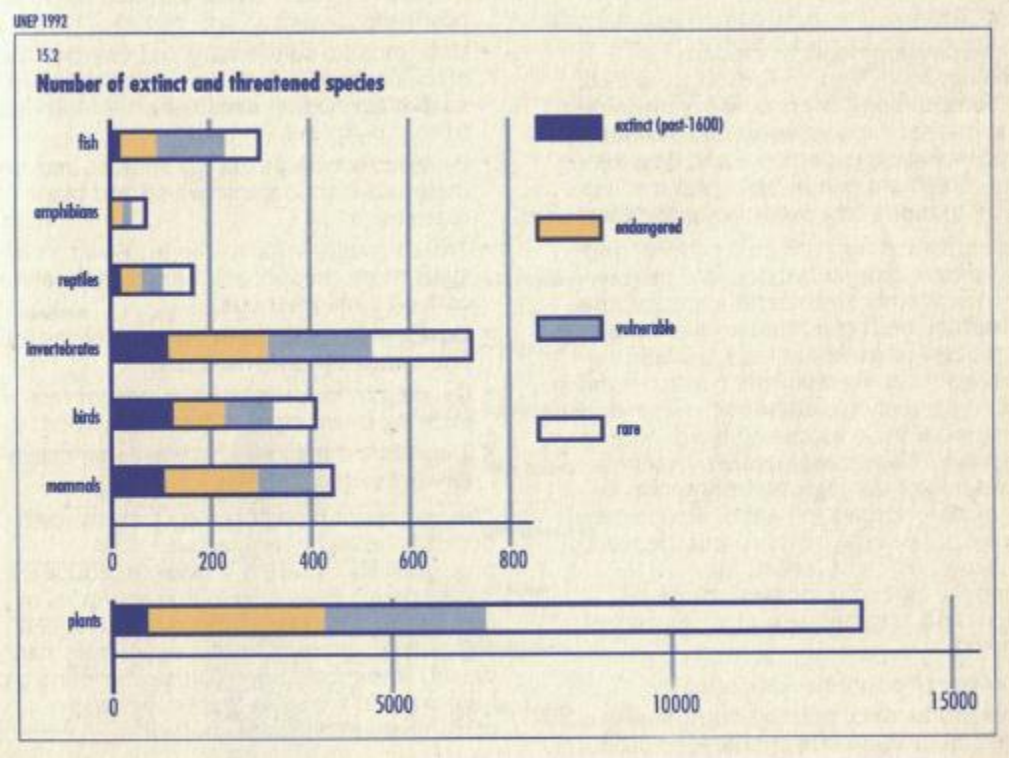
• Promote the rehabilitation of damaged ecosystems, and the recovery of threatened and endangered species.

• Develop sustainable uses of biotechnology, and ways of safely and equitably transferring it, particularly to developing countries.

Governments, business and development agencies need to learn more about how to evaluate the impact of development projects on biological diversity, and how to calculate the costs of losing this diversity. Projects likely to have significant impacts should undergo environmental impact assessments involving the wide public participation.

☛ *For more information on this issue, please see the section on the Convention on Biological Diversity.*

*Biological resources feed and clothe us, and provide housing, medicines and spiritual nourishment.*



# 16

## Management of Biotechnology

Biotechnology uses traditional knowledge and modern technology to change the genetic material in plants, animals and microbes and create new products.

It promises to make a significant contribution to better health, increased food production, better reforestation, more efficient industrial processes, decontamination of water and the cleanup of hazardous wastes.

Most of the developments in modern biotechnology have been in the industrialized world. Biotechnology offers new opportunities for global partnerships between these countries - rich in technological expertise - and developing countries, which are rich in biological resources but lacking in funds and expertise to use them.

Governments, working with international and non-governmental organizations, the private sector and academic and scientific institutions, should improve both plant and animal breeding through the use of traditional and modern biotechnologies. Indigenous peoples have much to contribute arid should share in the economic and commercial benefits arising from biotechnology. Care must be taken that new techniques do not damage environmental integrity or pose threats to health. People need to be aware of both the benefits and the risks of biotechnology. There is a need for internationally agreed principles on risk assessment and management of all aspects of biotechnology.

Biotechnology needs to be developed to:

• Improve productivity and the nutritional quality and shelf-life of food and animal feed products.

• Develop vaccines and techniques for preventing the spread of diseases and toxins.

• Increase crop resistance to diseases and pests, so that there will be less need for chemical pesticides.

• Develop safe and effective methods for the biological control of disease-transmitting insects, especially those resistant to chemical pesticides.

• Contribute to soil fertility and increase the efficiency with which plants use soil nutrients, so that agriculture does not drain nutrients from the ground.

• Provide renewable energy sources and raw materials from organic waste and plant material.

• Treat sewage, organic chemical wastes and oil spills more cheaply and effectively than conventional methods.

• Develop currently under-utilized crops for food and industrial raw materials.

• Develop more productive strains of fast-growing trees, especially for fuel wood.

• Tap mineral resources in ways that cause less environmental damage.

The success of biotechnology programmes depends on highly trained scientific professionals. There is a need to reduce the "brain drain" from developing countries by creating training programmes in advanced technology, geared to meet regional or national needs. The programmes would benefit from funding to allow collaboration between researchers in different countries.

# 17

## Protecting and Managing the Oceans

The oceans, including enclosed and semi-enclosed seas, are an essential part of the global life-support system. They cover much of Earth's surface, influence climate, weather and the state of the atmosphere and provide food and other resources for our growing world population.

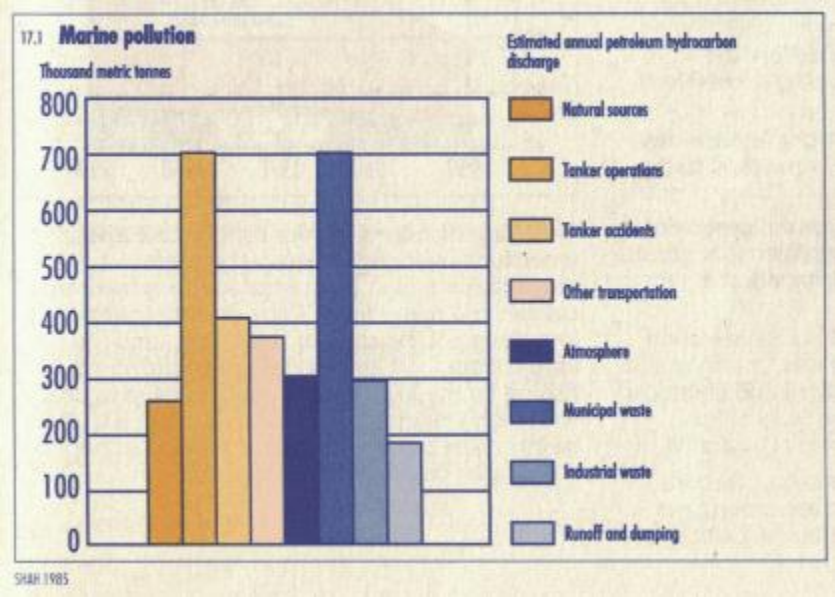
The Law of the Sea provides an international basis for the protection and sustainable use of the seas. However, oceans are under increasing environmental stress from pollution, over-fishing and degradation of coastlines and coral reefs.

About 70 per cent of marine pollution comes from sources on land, including towns and cities, industry, construction, agriculture, forestry and tourism.
The contaminants that pose the greatest threat to the marine environment are sewage, chemicals, sediments, litter and plastics, metals, radioactive wastes and oil. Some of these materials are toxic, slow to break down in the environment and accumulate in living creatures. There is currently no global scheme to address marine pollution from land-based sources.

Pollution also comes from shipping and dumping at sea. About 600,000 tons of oil enter the oceans each year as a result of normal shipping operations, accidents and illegal discharges.

Nations commit themselves to control and reduce degradation of the marine environment so as to maintain and improve its life-support and productive capacities. It is necessary to:

• Anticipate and prevent further degradation of the marine environment and reduce the risk of long-term or irreversible effects on the oceans.




• Ensure prior assessment of activities that may have significant adverse impact on the seas.

• Make marine environmental protection part of general environmental, social and economic development policies.

• Apply the "polluter pays" principle, and use economic incentives to reduce pollution of the seas.

• Improve the living standards of coast-dwellers, particularly in developing countries, so people can help to protect the coastal and marine environment.

Nations need to build and maintain sewage-treatment systems, and avoid discharging sewage near shell fisheries, water intakes and bathing areas. Industrial discharges also need to be controlled and properly treated.

Countries should change sewage- and waste-management, agricultural practices, mining, construction and transportation to control the run-off of pollutants from diffuse sources.

Countries should consider:

• Reducing or eliminating discharges of synthetic chemicals that threaten to accumulate to dangerous levels in marine life.

• Controlling and reducing toxic-waste discharges, and setting up safe land-based waste-disposal systems instead of dumping at sea.

• Stricter international regulations to reduce the risk of accidents and pollution from cargo ships.

• Controlling discharges of nitrogen and phosphorous that threaten to disrupt the marine environment by fertilizing excessive plant growth.

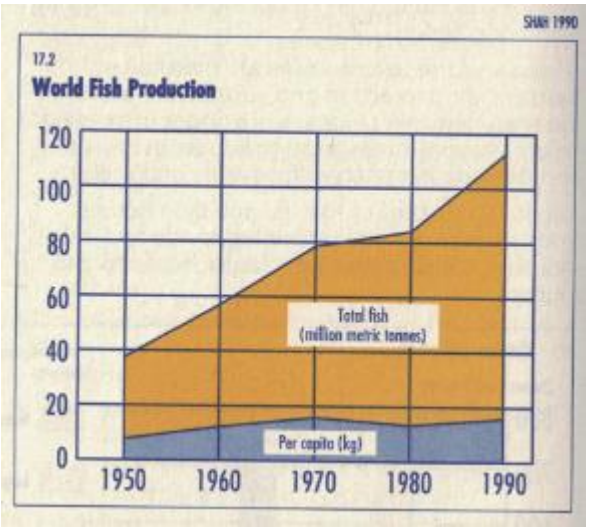
• Developing land-use practices that reduce runoff of soil and wastes to rivers, and thus to the seas.

• Using environmentally less harmful pesticides and fertilizers, and prohibiting those that are environmentally unsound. Using alternative methods for pest control.

• Stopping ocean dumping and the incineration of hazardous wastes at sea. Ports, marinas and fishing harbours should collect oil and chemical wastes and garbage. Pollution from ships should be controlled by stronger regulations.

Parts of the marine environment, such as coral reefs, mangroves and estuaries, are among the most highly diverse and productive of Earth's ecosystems. They protect coastlines and contribute to food, energy, tourism and economic development. In many parts of the world, these ecosystems are under stress or are threatened. Nations need to protect these ecosystems by such methods as controlling and preventing coastal erosion and silting, due to land uses such as construction.

Marine fisheries yield 80 to 90 million tons of fish and shellfish per year, 95 per cent of which is taken from waters under national jurisdiction. Fish landings have increased nearly fivefold over the past 40 years




There are increases in over-fishing, unauthorized incursions by foreign fleets, ecosystem degradation and in inappropriate equipment that catches too many fish. There is inadequate knowledge of the state of fish stocks, and too little cooperation among nations to prevent over-fishing on the high seas. Countries need to deal with highly migratory fish stocks and those which swim across the boundaries of national economic zones, particularly into the high seas.

*About 70% of marine pollution comes from sources on land.*

Nations commit themselves to the conservation and sustainable use of marine life, including fish and marine mammals, which include whales, dolphins, porpoises and seals.

Nations should:

• Set policies for sustainable use of the seas, accounting for the needs of local communities and indigenous people.

• Develop more aquaculture, in which fish are raised in pens in the sea.

• Negotiate international agreements to manage and conserve fish.

• Strengthen surveillance and enforcement of fisheries regulations.

• Reduce wastage in the catching, handling and processing of fish, and minimize the catches of species that are often discarded.

• Assess the environmental impact of major new fishery practices, and use environmentally sound fishing technologies.

• Prohibit dynamiting, poisoning and comparable destructive fishing practices.

• Protect certain areas, including coral reefs, estuaries, mangroves and wetlands, seagrass beds and other marine spawning and nursery areas.

• Deter the reflagging of vessels as a way of avoiding compliance with fishery conservation rules.

• Control the use of large-scale drift-net fishing on the high seas.

Global warming caused by climate change is likely to cause sea levels to rise, and even a small increase could cause significant damage to small islands and low-lying coasts. Precautionary measures should be undertaken to diminish the risks and effects, particularly on small islands and low-lying and coastal areas. Already, more than half the world's population lives within 60 kilometres of the seashore, and this could rise to three quarters by the year 2020.

Small-island developing states are particularly vulnerable, and some could be totally lost to a rise in sea levels. Most tropical islands are now experiencing the more immediate impact of the increasing frequency of cyclones, storms and hurricanes associated with climate change. They need assistance to prepare contingency plans for sea-level rise.

Tropical islands are home to many unique species of plant and animal life, and they have rich and diverse indigenous cultures with knowledge of the sound management of island resources. Development options for such nations are limited by their small size and they need to:

• Investigate their carrying capacity - the level of use their ecosystems can support over the long term.

• Prepare sustainable development plans that emphasize multiple use of resources, integrate environmental and economic planning, maintain cultural and biological diversity, and conserve endangered species and critical marine habitats.

• Review and modify existing unsustainable policies and practices, and identify technologies that should be excluded because they threaten essential island ecosystems.

Other countries and international organizations should assist small-island developing nations to plan and implement sustainable development.

*Marine fisheries yield 80 to 90 million tonnes of fish and shellfish per year.*

# 18

## Protecting and Managing Fresh Water

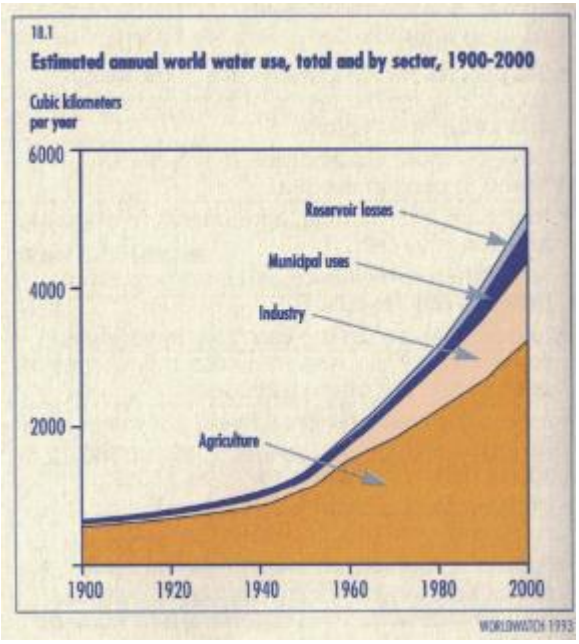
Fresh water is vital for drinking, sanitation, agriculture, industry, urban development, hydro-power generation, inland fisheries, transportation, recreation and many other human activities. It is also critical for the healthy functioning of nature.

In many parts of the world, there is widespread scarcity, gradual destruction and increased pollution of fresh-water resources. The causes include inadequately treated sewage and industrial waste, loss of natural water catchment areas, deforestation and poor agricultural practices, which release pesticides and other chemicals into the water. Dams, river diversions and irrigation schemes also affect water quality and quantity. All these practices harm aquatic ecosystems, and threaten living fresh-water resources.

Food supplies for the world's growing population are highly dependent upon water, but irrigation systems have suffered from waterlogging and salt build-up, which reduce the land's ability to grow food.

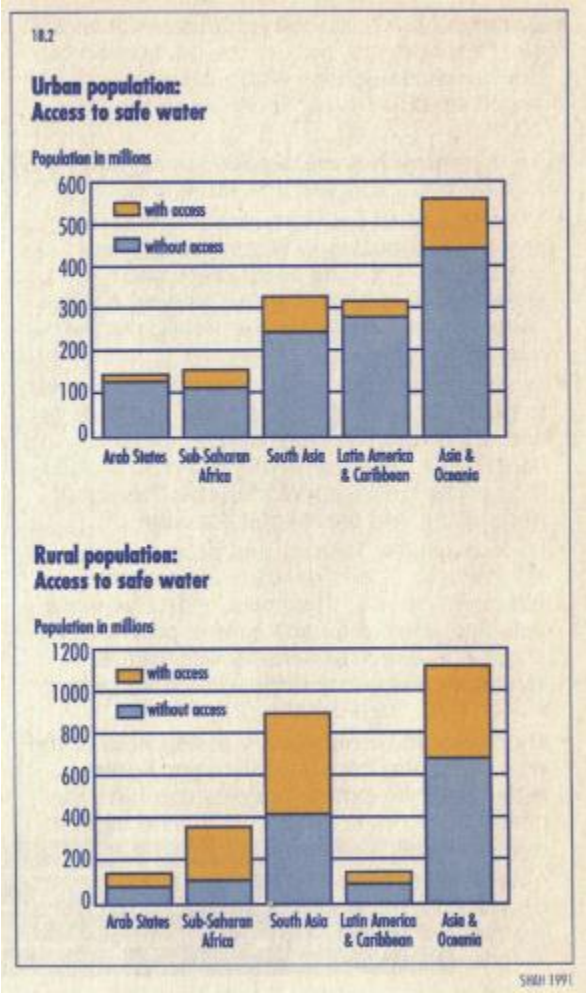
Many of these problems are the result of a development model that is environmentally destructive, and a lack of public awareness and education about the need and the ways to protect water resources. There is widespread failure to understand the linkages between various forms of development and their impact on water resources.

In the developing world, one person in three lacks safe drinking water and sanitation - basic requirements for health and dignity. In these nations, an estimated 80 per cent of all diseases and over one-third of deaths are caused by consumption of contaminated water.




Although there are uncertainties about global climate change, a temperature increase and a decrease in rain and snowfall would further strain the already fragile balance between water supplies and demand in some parts of the world. In other areas, increased precipitation might lead to floods. If the warming causes sea levels to rise, this could cause salt-water intrusion into estuaries and coastal aquifers and flood low-lying areas, particularly low islands. The Ministerial Declaration of the Second World Climate Conference states that "the potential impact of such climate change could pose an environmental threat of an up to now unknown magnitude ... and could even threaten survival in some small island states, and in low-lying coastal, arid and semi-arid areas".

Faced with such an array of threats, ways must be found of supplying everyone on the planet with an adequate supply of good quality water. To do this, human activities must be adapted to fit within the limits of nature, so that the healthy functioning of ecosystems can be preserved. The way to provide all people with basic water and sanitation is to adopt the approach "some for all, rather than more for some". A realistic strategy to meet present and future water needs is to develop low-cost but adequate services that can be installed and maintained at the community level.




Better water management will require innovative technologies, including the improvement of indigenous technologies, to make full use of limited water resources and to safeguard the water from pollution. It will require that water management be integrated into national economic and social policies, including planning of land use, utilization of forest resources and the protection of mountain slopes and river banks.

The management of water resources should be delegated to the lowest appropriate level. It should include full public participation, including that of women, youth, indigenous people and local communities in water management and decision-making.

A realistic target date for universal water supplies is 2025. This can be achieved by developing low-cost services that can be built and maintained at the community level.

An interim set of goals for the year 2000 is:

• To provide all urban residents with at least 40 litres of safe drinking water per person per day.

• To provide 75 per cent of urban dwellers access with sanitation

• To have in force standards for the discharge of municipal and industrial wastes.

• To have three-quarters of solid urban waste collected and recycled, or disposed of in an environmentally safe way.

• To ensure that rural people everywhere have access to safe water and sanitation for healthy lives, while maintaining essential local environments.

• To control water-associated diseases generally, and to set targets, such as the eradication of dracunculiasis (guinea-worm disease) and, onchocerciasis (river blindness) by the year 2000.

Various approaches are needed to provide adequate water supplies and sanitation:

• There is a need for more research into the amount and quality of water that will be available for growing populations and economic needs. This comes at a time when water research lacks adequate funding and qualified experts.

• Water management must recognize the need to protect the integrity of aquatic ecosystems, and to prevent their degradation on a drainage-basin basis. Water protection should include the precautionary approach, with the aim of minimizing and preventing pollution.

• Nations need to identify and protect water resources and see that water is used on a sustainable basis. They need effective water pollution prevention and control programmes. There is a particular need for appropriate sanitation and waste-disposal technologies for-low-income, high-density cities.

• There should be mandatory assessment of the environmental impact of all major water-resource development projects that have the potential to impair water quality and aquatic ecosystems.

• Alternative sources of fresh water must be developed. These include de-salting sea water, catching rain water - particularly on small islands, re-using waste-water and recycling water. Such projects must use low-cost water technologies that are available and affordable to developing countries.

*. . . some for all, rather than more for some.*

*In the developing world, one person in three lacks safe drinking water and sanitation . . .*

• In developing and using water resources, priority has to be given to satisfying basic human needs and to safeguarding ecosystems. Beyond these requirements, water users should be charged appropriately.

• A prerequisite for the sustainable management of water as a scarce and vulnerable resource is the obligation to acknowledge its full cost during the planning and development of all projects.

• Nations need to protect the forest cover of watersheds, and minimize the impacts of agricultural pollutants on water.

• Fresh-water fisheries need to be managed to yield the greatest amount of food in an environmentally sound manner. Care must be taken that fishing and fish-farming do not damage the aquatic ecosystem.

• Livestock need adequate water supplies, and water quality has to be protected from contamination by animal wastes.

• New irrigation projects that may have significant environmental impacts should undergo environmental assessment while in the planning stage.

The world needs more well-trained people to assess and develop fresh-water supplies and to manage water projects for sustainable use. Poor countries, in particular, need access to technologies that will allow them to assess their own water resources.

# 19

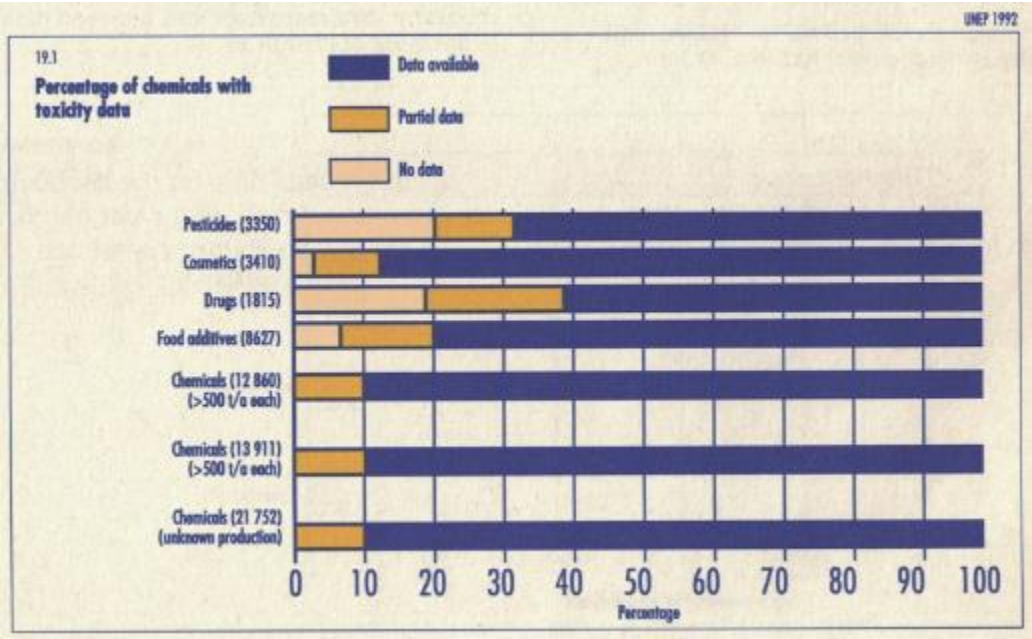
## Safer Use of Toxic Chemicals

Chemicals are used throughout the world and are necessary to meet social and economic goals, but a better job must be made of reducing their health and environmental impacts.

Some of the world's major industrial areas are so contaminated by chemicals that there is damage to human health, genetic structures and reproduction. In addition, long-range pollution is affecting the Earth's atmosphere and climate. The illegal traffic in toxic and dangerous products and wastes involves chemicals banned in one country as hazardous being shipped to other countries, often developing nations.

There are about 100,000 commercial chemicals, although only 1,500 of them account for 95 per cent of world production. However, crucial data needed to assess the health and environmental risks of a great number of these high-volume chemicals are lacking.

Chemicals can be used in a cost-effective manner and with a high degree of safety, but most countries, particularly developing nations, lack the ability to manage chemicals safely. Countries need to develop and share expertise in assessing chemical risks.



*Risks can be reduced by using less-toxic chemicals.*

Governments can control chemical hazards through pollution prevention, emission inventories, product labelling, use limitations, procedures for safe handling and exposure regulations. They could phase out or ban high-risk chemicals that are toxic, persistent and bio-accumulative, and whose use cannot be adequately controlled. Governments should consider policies based on the principle of producer liability.

Risks can be reduced by using less-toxic chemicals or even non-chemical technologies. Governments should review pesticides whose acceptance was based on criteria now recognized as insufficient or outdated, and look at replacing them with other pest-control methods such as biological control.

Governments should provide the public with information on chemical hazards in the languages of those who use the materials. In addition, the world needs a chemical-hazard labelling system using easily understandable symbols. Countries also need emergency-response centres, including poison-control centres.

Industries should:

• Develop an international code of principles on the provision of information on potential risks and environmentally sound disposal practices.

• Adopt community right-to-know programmes that provide information on accidental releases and annual routine emissions of toxic chemicals.

• Ensure that management of toxic chemicals is not less strict in one country than in another.

There is currently no global agreement on traffic in toxic and dangerous products. Governments should control the export of banned or restricted chemicals and should provide information on any exports to the importing countries. There should be joint responsibilities between nations in the trade of chemicals.

*There is currently no global agreement on traffic in toxic and dangerous products.*

*We lack crucial data on the health and environmental risks of a great number of these high-volume chemicals.*

# 20

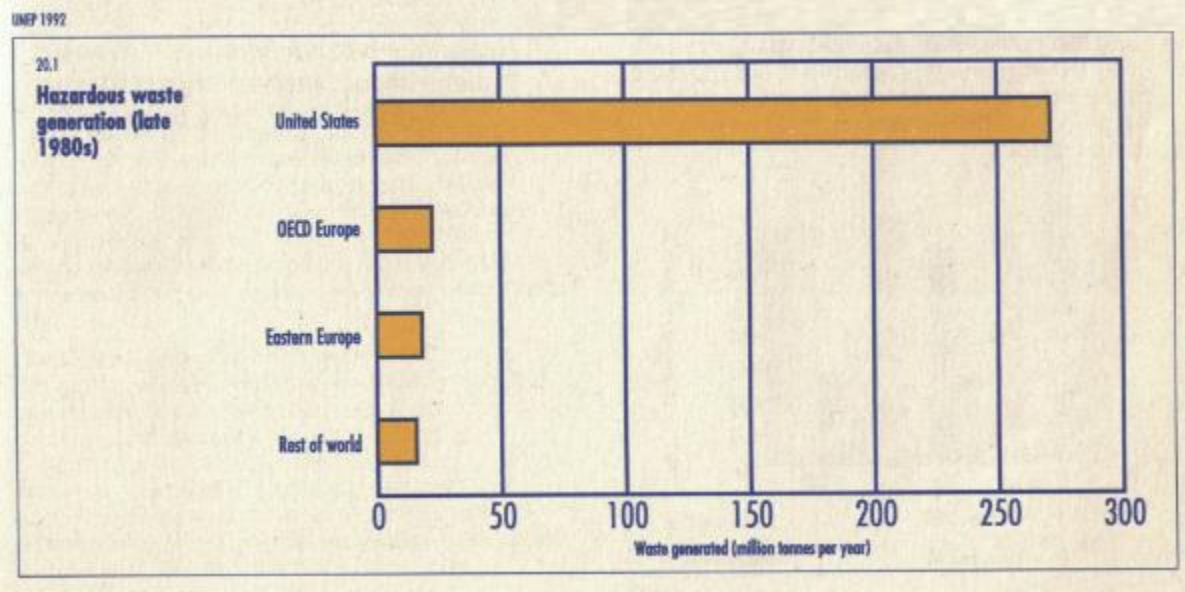
## Managing Hazardous Wastes

An increasing amount of hazardous waste is affecting human health and the environment, but many countries do not have the expertise to manage the problem. Governments often lack information about how much and what types of pollution are released, and what risk they pose to people and the environment.

All national environmental protection plans should include targets for hazardous-waste reduction. Programmes are needed to identify wastes and their potential effects, and to minimize them and treat them safely. They should be based on the "polluter pays" principle.

The priority is to change industrial processes, and this includes setting targets for reducing the amount of hazardous waste produced per unit of manufacture. Governments should work with industry on campaigns to minimize hazardous wastes and on the reduction of other emissions. Industries have a critical role to play, and should promote cleaner production methods on a wide scale and ensure that their hazardous waste standards are not weaker in one country than in another.

*An increasing amount of hazardous waste is affecting human health and the environment*



*Developed countries should promote the transfer of environmentally sound technologies*

Governments should immediately identify contaminated waste-disposal sites and populations at high risk, and take the necessary remedial measures, including cleaning up the sites.

Governments should:

• Require and assist in the innovation by industry of cleaner production methods and of preventive and recycling technologies.

• Encourage the phasing out of processes that produce high risks because of hazardous waste.

• Conduct environmental audits of existing industries to improve hazardous waste management.

• Hold producers responsible for the environmentally sound disposal of the hazardous wastes they generate.

• Establish public information programmes and ensure that training programmes are provided for industry and government workers on hazardous-waste issues, especially waste minimization.

• Build treatment centres for hazardous wastes, either at a national or regional level. Industry should treat, recycle, re-use and dispose of wastes at or close to the site where they are created.

Governments should ensure that the military conforms to national environmental norms for hazardous-waste treatment and disposal.

Developed countries should promote the transfer of environmentally sound technologies and know-how on clean technologies and low-waste production methods to developing countries.

Part of the international movement of hazardous wastes involves illegal shipments, often to developing countries. Governments should ban the export of hazardous wastes to countries that are not equipped to deal with those wastes in an environmentally sound way. They should see that hazardous-waste shipments destined for recovery are handled by environmentally and economically sound recycling systems. Countries should create an alert system to detect illegal traffic in hazardous wastes.

*National environmental protections plans should include targets for hazardous waste reduction.*

# 21

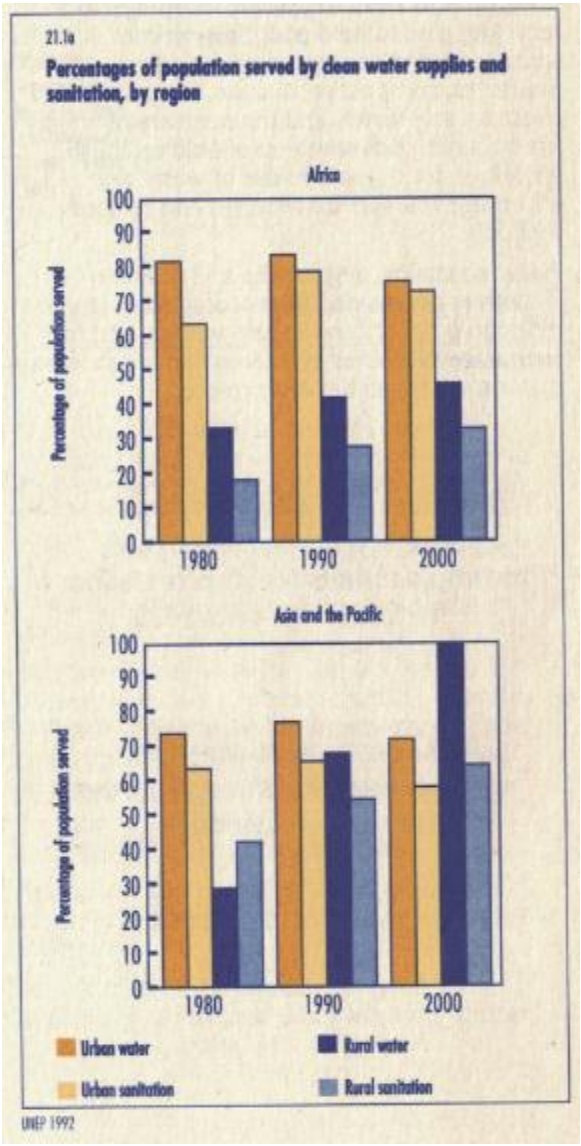
## Managing Solid Wastes and Sewage

Rapidly growing quantities of garbage and sewage from cities pose threats to human health and the environment. Each year as many as 5.2 million people, including 4 million children, die from diseases caused by the improper disposal of sewage and solid waste. Urban wastes pollute the air, land and water over a wide area.

In developing countries, less than 10 per cent of urban wastes are treated, and only a small proportion of that treatment meets acceptable standards. By the end of the century, over 2 billion people will lack basic sanitation, and about half the urban population in developing countries will not have adequate waste disposal.

Unsustainable consumption, particularly in industrialized nations, is increasing the amount and variety of wastes, and quantities could increase four to fivefold by the year 2025. By the end of the decade, waste-disposal costs could double or triple, particularly in industrialized countries, as disposal sites fill up and stricter environmental controls are imposed. Waste-management charges should ensure that those who generate wastes pay the full cost of environmentally safe disposal. This will make waste-recycling and resource-recovery more cost-effective.

The best way to cope with waste problems is through a waste-prevention approach, focused on changes in lifestyles and in production and consumption patterns. National plans are needed to minimize the creation of waste, and to ensure that wastes are re-used, recycled and safely collected and treated. Waste-control programmes should be developed in cooperation with local governments, businesses, non-



governmental organizations and consumer groups.

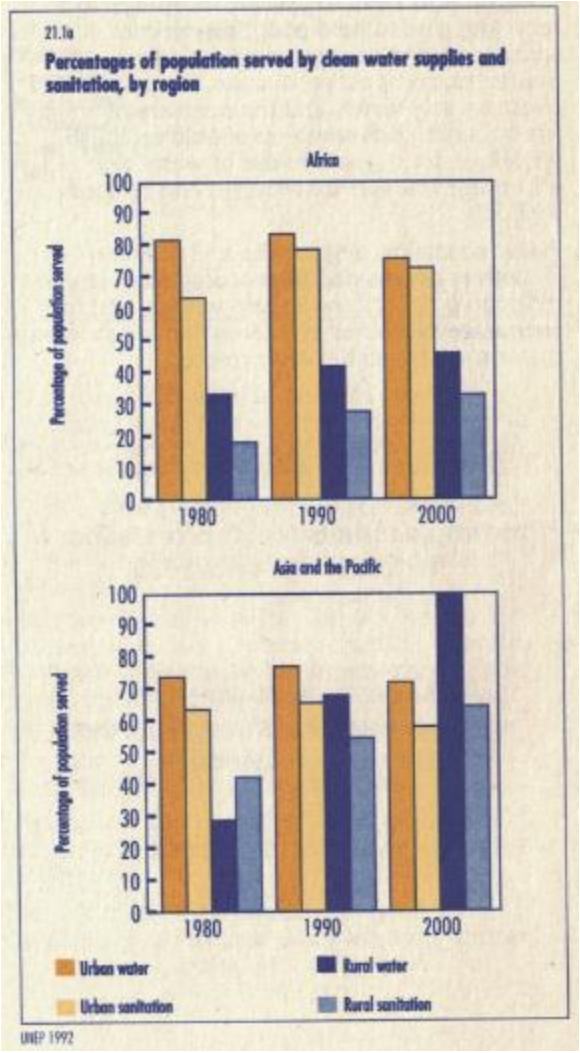
Industrialized countries should have programmes to stabilize or reduce waste production by the year 2000. Developing countries should work towards that goal in ways that do not jeopardize their development prospects.

Governments need to provide incentives to recycling, and to fund pilot programmes, such as small-scale and cottage-based recycling industries, compost production, irrigation using treated waste water and the recovery of energy from wastes. Governments should establish guidelines for the safe re-use of waste and encourage markets for recycled and re-used products.

Public education, regulations and financial incentives are needed to encourage industry to redesign products and reduce wastes, and to encourage industries and consumers to switch to materials that can be safely re-used.

*Growing quantities of garbage and sewage from our cities pose threats . . . quantities could increase four to five fold by the year 2025*

*The best way to cope with waste problems is through a waste prevention approach.*



# 22

## Managing Radioactive Wastes

Given their potential risks, the safe and environmentally sound management of radioactive wastes, including their minimization, transportation and disposal, is important.

The radiological and safety risk from radioactive wastes varies from very low for short-lived, low-level wastes to very great for high-level wastes. Every year, nuclear power production creates about 200,000 cubic metres of low-level and intermediate-level waste and 10,000 cubic metres of high-level waste and used nuclear fuel. The amount of such waste is increasing as more nuclear power plants start up, and others are shut down.

The use of radioactive substances in medicine, research and industry produces much smaller amounts of waste - typically some tens of cubic metres or less per year per country, but the use of radioactive substances is growing, and so is the waste. Stringent measures are needed to see that it does not cause harm.

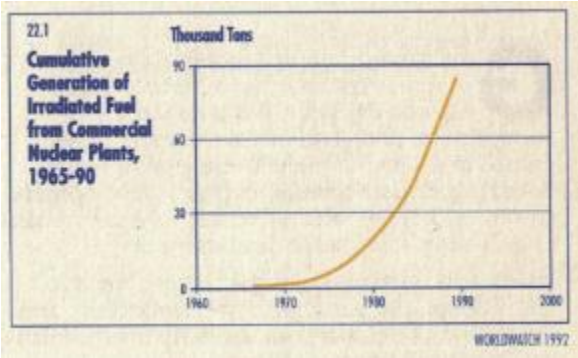
Countries should cooperate with international organizations to:

• Promote ways of minimizing and limiting the creation of radioactive wastes.

• Provide for the safe storage, processing, conditioning, transportation and disposal of such wastes.

• Provide developing countries with technical assistance to help them deal with wastes, or make it easier for such countries to return used radioactive material to suppliers.

• Promote the proper planning of safe and environmentally sound ways of managing radioactive wastes, possibly including assessment of the environmental impact.




• Strengthen efforts to implement the Code of Practice on the Transboundary Movements of Radioactive Waste, and consider whether there should be a legally binding agreement.

• Encourage work to finish studies on whether the current voluntary moratorium on disposal of low-level radioactive wastes at sea should be replaced by a ban.

• Not promote or allow storage or disposal of radioactive wastes near seacoasts or open seas, unless it is clear that this does not create an unacceptable risk to people and the marine environment.

• Not export radioactive wastes to countries that prohibit the import of such waste.
It is important to provide training and financial support to developing countries that have nuclear programmes.

The cost to each country of managing and disposing of radioactive waste are high, and will vary according to the technology used.

# 23

## Strengthening the Role of Major Groups

Governments agreed to a great number of objectives, policies and mechanisms in Agenda 21, but it will take the commitment and genuine involvement of all groups in society to make these goals a reality. Broad public participation in policy development, combined with greater accountability, is essential to achieving sustainable development.

Individuals, groups and organizations need to know about and participate in environment and development decisions, particularly those which can affect their communities.

For people to make informed decisions, national governments should give them access to all relevant information on environment and development issues. This includes information on products and activities that have or are likely to have a significant impact on the environment, and information on environmental protection measures.

Chapters 24 to 32 describe what needs to be done, particularly by governments, to strengthen partnerships with major groups to make development sustainable in our world.

# 24

## Women in Sustainable Development

Women have considerable knowledge and experience in managing and conserving natural resources. However, the role of women in achieving sustainable development has been limited by such barriers as discrimination and lack of access to schooling, land and equal employment.

Governments should consider developing strategies by the year 2000 to eliminate constitutional, legal, administrative, cultural, behavioural, social and economic obstacles to women's full participation in sustainable development and public life.

Countries should increase the proportion of women decision-makers, planners, scientists, technical advisers, managers and extension workers in environment and development fields. It is important to eliminate female illiteracy, assure girls of universal access to primary and secondary education, and provide increased postsecondary training for women in sciences and technology.

To promote the ability of women to play a greater role in sustainable development, governments should:

•Ensure a role for women in national and international ecosystem management and control of environmental degradation.

• Provide comprehensive health care, including prenatal care and the opportunity to breastfeed, and information on maternal and child health, family planning and responsible parenthood.

• Help to reduce the heavy workload on women and girls, at home and outside, by working with employers and other organizations to set up affordable nurseries and kindergartens. National programmes are needed to encourage men to share household tasks equally with women.

*Women have considerable knowledge and experience in managing and conserving natural resources.*

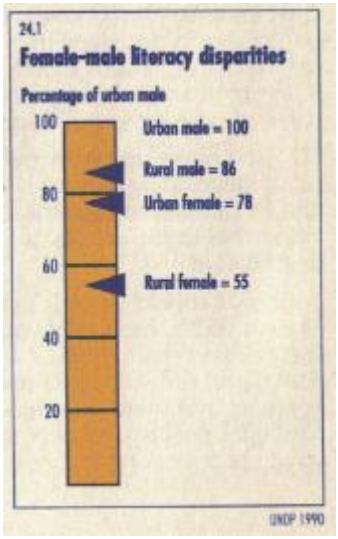
• Provide women with better access to all forms of credit, particularly in the informal sector.

• Ensure women's access to property rights, as well as agricultural inputs and implements.

• Take all necessary measures to eliminate violence against women, and work to eliminate persistent negative images, stereotypes and attitudes and prejudices against women.

• Develop consumer awareness among women to reduce or eliminate unsustainable consumption, particularly in industrialized countries. This would encourage manufacturers to offer products that are more environmentally and socially friendly.

• Begin to count the value of unpaid work, including "domestic" work when measuring the state of the economy.



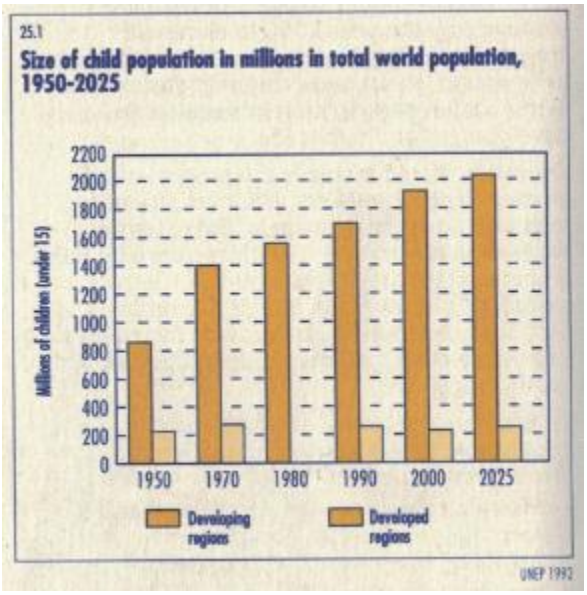
# 25

# Children and Youth in Sustainable Development

Youth makes up nearly one-third of the world's population, and they need a voice in determining their own future. Their active role in the protection of the environment and involvement in decisions on environment and development is critical to the long-term success of Agenda 21.

*Development plans should ensure young people of a secure future.*

Development plans should ensure young people of a secure future, including a healthy environment, improved living standards, education and jobs.




Education levels should be increased so that, by the year 2000, more than half the young men and women in every country will have a chance of secondary schooling or vocational training Students should be taught about the environment and sustainable development throughout their schooling.

Governments should consult and let youth participate in decisions that affect the environment. Youth should also be represented at international meetings, and participate in decision-making at the United Nations.

Children make up nearly half the population in many developing countries. In both developing and industrialized countries, children are highly vulnerable to the effects of environmental degradation.

*Children make up nearly half the population in many developing countries.*

Countries should combat human rights abuses against youth, especially young women and girls, and see that their children are healthy, adequately fed, educated and protected from pollution and toxic substances. Development strategies should deal with the entitlement of young people to natural resources.

# 26

## Strengthening the Role of Indigenous People

Indigenous people, who represent a significant part of the world's population, depend on renewable resources and ecosystems to maintain their well-being.

Over many generations, they have evolved a holistic, traditional scientific knowledge of their land, natural resources and environment. The ability of indigenous people to practise sustainable development on their lands has been limited by economic, social and historical factors.

Governments should recognize that indigenous lands need to be protected from environmentally unsound activities, and from activities the people consider to be socially and culturally inappropriate. There should be national dispute-resolution procedures to deal with concerns about the settlement of land and use of resources.

Some indigenous people may require greater control over their lands, and self-management of their resources. They should also participate in development decisions that affect them, and in the creation of protected areas, such as parks.

Governments should incorporate the rights and responsibilities of indigenous people into national legislation. Countries could also adopt laws and policies to preserve customary practices, and protect indigenous property, including ideas and knowledge.

Indigenous people should be allowed to actively participate in shaping national laws and policies on the management of resources or other development processes that affect them.

Governments and international organizations should recognize the values, traditional knowledge and resource management practices that indigenous people use to manage their environments, and apply this knowledge to other areas where development is taking place. They should also provide indigenous people with suitable technologies to increase the efficiency of their resource management.

26.1

**Estimated population of indigenous peoples, selected countries, 1992**

| Country | Population[1] (million) | Share of national population (percent) |
|---|---|---|
| Papua New Guinea | 3.0 | 77 |
| Bolivia | 5.6 | 70 |
| Guatemala | 4.6 | 47 |
| Peru | 9.0 | 40 |
| Ecuador | 3.8 | 38 |
| Myanmar | 14.0 | 33 |
| Laos | 1.3 | 30 |
| Mexico | 10.9 | 12 |
| New Zealand | 0.4 | 38 |
| Chile | 1.2 | 9 |
| Philippines | 6.0 | 9 |
| India | 63.0 | 7 |
| Malaysia | 0.8 | 4 |
| Canada | 0.9 | 4 |
| Australia | 0.4 | 2 |
| Brazil | 1.5 | 1 |
| Bangladesh | 1.2 | 1 |
| Thailand | 0.5 | 1 |
| United States | 2.0 | 1 |
| Former Soviet Union | 1.4 | 1 |

1. Generally excludes those of mixed ancestry.

WORLDWATCH 1993


# 27

## Partnerships with NGOs

Non-governmental organizations play a vital role in the shaping and implementation of participatory democracy. Independence from government and other sectors of society is one of their major attributes. In addition to their independence, non-governmental organizations have diverse and well-established expertise in fields needed to implement environmentally sound and socially responsible sustainable development.

As a result, the global network of non-governmental organizations should be recognized and supported as partners in implementing Agenda 21. These groups can play an important role in helping society to agree on how to move away from unsustainable development patterns.

*Both the United Nations System and individual governments should invite non-governmental organizations to be involved in making policies and decisions on sustainable development.*

Both the United Nations system and individual governments should invite non-governmental organizations to be involved in making policies and decisions on sustainable development. They should also make non-governmental organizations part of a process to review and evaluate how Agenda 21 is being put into practice. These organizations should be given timely access to the data and information they need to support sustainable development. Government should encourage sustainable development partnerships between non-governmental organizations and local authorities.

The United Nations should see that all its agencies draw on the expertise of non-governmental organizations, and the UN should review its financial and administrative support for these organizations to strengthen their role as partners.

Governments should involve non-governmental organizations in sustainable development plans, making the best use of their abilities in such areas as education, alleviation of poverty and environmental protection and rehabilitation. The findings of non-governmental groups should be used by governments in shaping policies on sustainability.

Countries will need to ensure that non-governmental organizations are allowed to form consultative groups. Governments also need laws giving non-governmental organizations the right to take legal action to protect the public interest.

Non-governmental organizations, particularly in developing countries, will require significant additional funding to help them contribute to sustainable development and to monitor progress on Agenda 21.

# 28

## Local Authorities

Many of the problems and solutions listed in Agenda 21 have their roots in local activities, so local authorities have a key role to play in making sustainable development happen.

Local authorities, such as municipal governments, build and maintain such structures as drinking-water systems and roads. They oversee the planning of housing and industrial development, set local environmental policies and help to implement national environmental policies.

As the level of government closest to the people, they play a vital role in educating and mobilizing the public around sustainable development. By 1996, every local authority should have consulted its citizens and developed "a local Agenda 21" for the community.

*. . . local authorities have a key role to play in making sustainable development happen.*

*By 1996, every local authority should have developed "a local Agenda 21"*

Local officials should consult citizens and community, business and industrial organizations to gather information and build a consensus on sustainable development strategies. This consensus would help them reshape local programmes, policies, laws and regulations to achieve Agenda 21 objectives. The process of consultation would increase people's awareness of sustainable development issues.

During 1993 and 1994, local efforts should start to be linked at the international level, so people can share information and ideas and expertise from the community level. Such organizations as the United Nations Centre for Human Settlements (Habitat), should collect information on local strategies. Support should also come from the United Nations Development Programme, the United Nations Environment Programme, the International Union of Local Authorities, the World Association of the Major Metropolises, the Summit of Great Cities of the World and the United Towns Organization.

# 29

## Workers and Trade Unions

Workers will be among those most affected by the changes needed to achieve sustainable development. Trade unions, which have experience in dealing with industrial change, have a vital role to play in achieving sustainable development. They see protection of the workplace and the related environment and the promotion of socially responsible development as priorities.

Governments, business and industry should foster the active and informed participation of workers and trade unions in shaping and implementing environment and development strategies at both the national and international levels. These strategies will affect employment policies, industrial strategies, labour adjustment programmes and technology transfers.

The goal is full employment which contributes to sustainable livelihoods in safe, clean and healthy environments, at work and beyond.

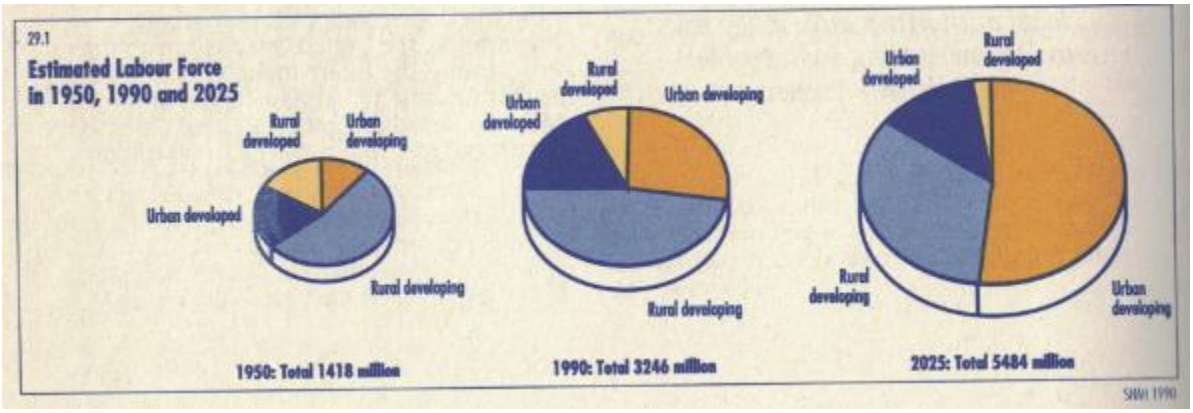
Groups involving workers, employers and governments should be set up to deal with safety, health, environmental awareness and sustainable development.

Unions and employers should design joint environmental policies, and set priorities to improve the working environment and the overall environmental performance of business. Trade unions should develop sustainable development policies, and there should be more collective agreements aimed at achieving sustainability.

There is a need for more worker education and training, both in occupational health and safety and in skills for sustainable livelihoods.

For labour to fully support sustainable development, governments and employers should promote workers' rights to freedom of association and the right to organize.

*Workers will be among those most affected by the changes needed to achieve sustainable development.*



# 30

## Business and Industry

Responsible entrepreneurship can play a major role in improving the efficiency of resource use, minimizing wastes and protecting human health and environmental quality.

Environmental management must be given the highest priority since it is a key to moving to sustainable practices. As part of this move, business and industry need to develop techniques and technologies that reduce harmful environmental impacts. The prices of goods and services should increasingly show the environmental costs of their production, use, recycling and disposal.

Some enlightened business leaders are already implementing product stewardship in the management and use of resources. They are fostering openness and dialogue with employees and the public and are carrying out environmental audits and assessments of compliance with environmental laws and regulations. They are taking voluntary measures to see that their activities have minimal impact on human health and the environment.

Businesses should report annually on their environmental records, and their use of energy and natural resources. They should adopt environmental codes of conduct, such as the Business Charter on Sustainable Development of the International Chamber of Commerce and the chemical industry's Responsible Care programme.

Governments should:

• Use economic incentives, laws, standards and more streamlined administration to promote sustainably managed enterprises with cleaner production.

• Encourage the creation of venture-capital funds for sustainable development projects.

• Cooperate with business, industry, academia and international organizations to support training in the environmental aspects of enterprise management.

Business and industry should:

• Develop policies that result in operations and products that have lower environmental impacts.

• Ensure responsible and ethical management of products and processes from the point of view of health, safety and the environment.

• Make environmentally sound technologies available to affiliates in developing countries without prohibitive charges.

• Encourage overseas affiliates to modify procedures in order to reflect local ecological conditions and share information with governments.

• Create partnerships to help people in smaller companies learn business skills.

• Establish national councils for sustainable development, both in the formal business community and in the informal sector, which includes small-scale businesses, such as artisans.

• Increase research and development of environmentally sound technologies and environmental management systems.

Business and industry, including transnational corporations, and their representative organizations, have a critical role in helping the world achieve the Agenda 21 goals for sustainable development.

# 31

## Scientists and Technologists

It is important that everyone, from policy makers to the general public, understand the roles that science and technology have to play in achieving environmental protection and human development.

Better communication is needed, so that policy makers can get access to the best available knowledge to help them develop strategies for sustainable development. Greater dialogue would help scientists and technologists set research priorities and propose solutions for pressing problems. There is also a need for better communication between scientists and the public, so that policies will respond to public concerns.

Scientists and technologists have special responsibilities to search for knowledge, and to help protect the biosphere. This group, which includes engineers, architects, industrial designers, urban planners and other professionals, should develop codes of practice and guidelines that reconcile human needs and environmental protection. These codes should help them to value the integrity of the planet's life support systems. To be effective and credible, the principles, codes and guidelines must be recognized by society as a whole.

Governments should:

• Decide how national scientific and technological programmes could help development to become more sustainable.

• Provide for full and open sharing of information among scientists and decision makers. There is a need for national reports that are understandable and relevant to local sustainable development needs.

Other actions could include:

• Forming national advisory groups to help scientists and society develop common values on environmental and developmental ethics.

• Putting environment and development ethics into education and research priorities.

☛ *For more information, see also Chapter 35: Science for Sustainable Development*

*Scientists and technologists have special responsibilities to search for knowledge and to help protect the biosphere.*

# 32

## Strengthening the Role of Farmers

Agriculture occupies one third of the land surface of the Earth, and is the central activity for much of the world's population. Indigenous people, rural dwellers and family farmers have been the stewards of much of the Earth's resources.

However, farming, including fishing and forest harvesting, can be vulnerable to over-exploitation and improper management in fragile and marginal areas. There is growing concern about the sustainability of agricultural production systems. Total farm production has increased impressively over the past 20 years, but in some countries it has been outstripped by population growth. Farmers are also affected by international debt and falling commodity prices. In developing countries, they have limited access to resources and means of production.

To develop sustainable farming strategies, governments should collaborate with national and international research centres and non-governmental organizations to:

•Develop environmentally sound farming practices and technologies that improve crop yields, maintain land quality, recycle nutrients, conserve water and energy and control pests and weeds.

• Help farmers share expertise in conserving land, water and forest resources, making the most efficient use of chemicals and reducing or re-using farm wastes.

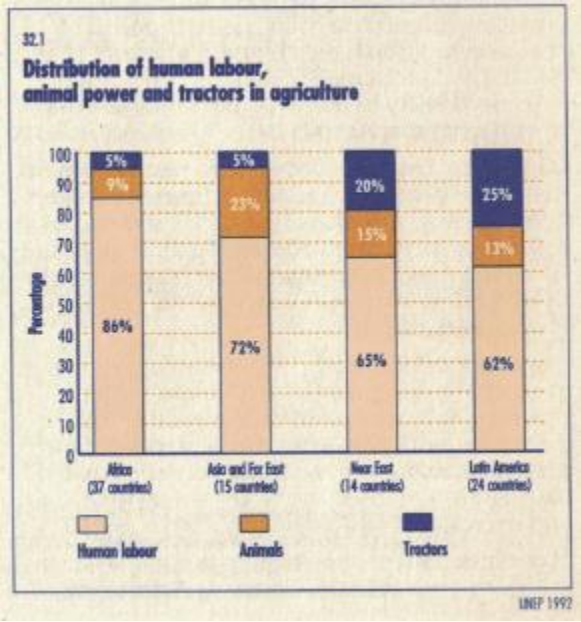
• Encourage self-sufficiency in low-input and low-energy technologies, including indigenous practices.

• Support research on equipment that makes optimal use of human labour and animal power.

To motivate farmers to manage natural resources sustainably, governments should delegate more power and responsibility to those who work the land. Governments should also give people more incentive to care for the land by seeing that men and women can get land tenure, access to credit, technology, farm supplies and training.

Researchers need to develop environment-friendly farming techniques and colleges need to bring ecology into agricultural training.

Prices need to reflect the environmental costs. Price structures, trade policies and farm support payments should encourage efficient and sustainable use of natural resources.



# 33

## Financing Sustainable Development

Very large investments are needed to implement the huge sustainable development programmes of Agenda 21 to which the world's nations committed themselves at Rio de Janeiro. Although most of the funding is to come from a country's own public and private sectors, many developing countries lack the resources and technology to deal with basic development issues and such major international problems as climate change and protecting biological diversity.

Developing countries need to stimulate economic growth and social development and to eradicate poverty. These are essential conditions for global sustainability.

Providing developing countries with adequate resources will serve the common interests of all nations and of future generations. The cost of inaction is likely to outweigh the financial costs of implementing Agenda 21.

Developing countries will have to clearly spell out their priority actions and needs for sustainable development. Developed countries should commit themselves to addressing these priorities. Given the major costs involved, it is essential that developed countries provide new and additional financial resources.

Developed countries reaffirm their commitments to reach the accepted United Nations target of providing 0.7 per cent of their annual Gross National Product (GNP) in official development assistance to the world. Those countries that have already reached the target are commended and encouraged to continue.

Major international funding organizations, such as the International Development Association, regional development banks and the United Nation's Global Environment Facility, should have sufficient flexibility to help developing nations meet the additional expenses needed to carry out Agenda 21 projects. The United Nations Development Programme should have the resources needed to help countries in developing the skills and expertise needed to implement sustainable development.

There is a need for the world to help low- and middle-income developing countries deal with problems of foreign debt, so that they will have funds to invest in sustainable forms of development. There is also a need for higher levels of foreign investment, and the transfer of clean and efficient technologies. These should be encouraged by national policies that promote investment and encourage joint ventures. Developing nations need free trade and access to markets in order to achieve the economic growth that will enable-them to carry out sustainable development programmes.

Special efforts are needed to provide funds through public contributions to non-governmental organizations.

UNDP 1991

33.1 **ODA as a percentage of GNP**

| | 1970 | 1980 | 1989 |
|---|---|---|---|
| Norway | 0.33 | 0.90 | 1.04 |
| Sweden | 0.41 | 0.85 | 0.97 |
| Netherlands | 0.60 | 0.90 | 0.94 |
| Denmark | 0.40 | 0.72 | 0.94 |
| Canada | 0.41 | 0.47 | 0.44 |
| Australia | 0.59 | 0.52 | 0.38 |
| Japan | 0.23 | 0.27 | 0.32 |
| United Kingdom | 0.42 | 0.43 | 0.31 |
| USA | 0.31 | 0.24 | 0.15 |
| Average for industrial countries | 0.33 | 0.35 | 0.32 |

Funds could also be raised by reallocating resources now committed for military purposes.

☛ *For more information on this subject, please see Chapter 2: International Cooperation.*

## Estimated Cost of Agenda 21

The Secretarial of the United Nations Conference on Environment and Development has estimated the cost of implementing the recommendations of Agenda 21. Although Agenda 21 is an action programme for well into the next century, most estimates only cover the period 1993-2000 as the first phase. The estimates in the table below are for the cost to developing countries. According to these calculations, about two-thirds of the money is to come from these nations' own economies. The rest is to come as new concessional financing from the wealthier notions. The following table presents the estimates, in rounded figures of US dollars. Not all chapters have cost estimates. In some chapters without cost estimates, the costs are covered in related chapters.

**Estimated annual cost (1993-2000) for developing countries to implement Agenda 21**

| CHAPTER | TOTAL COST (US$) | AMOUNT THEREOF REQUIRED AS CONCESSIONAL FINANCING (US$) | CHAPTER | TOTAL COST (US$) | AMOUNT THEREOF REQUIRED AS CONCESSIONAL FINANCING (US$) |
|---|---|---|---|---|---|
| 1 Preamble | not applicable | | 21 Solid Wastes/Sewage | 23.3 billion | 6.9 billion |
| 2 International Cooperation | 8.9 billion | 8.9 billion | 22 Radioactive Wastes[1] | 8 million | 8 million |
| 3 Poverty | 30 billion | 15 billion | 23 Preamble/Major Groups | not applicable | |
| 4 Consumption Patterns | no estimate | | 24 Women | 40 million | 40 million |
| 5 Population | 7.1 billion | 3.6 billion | 25 Children/Youth | 1.5 million | 1.5 million |
| 6 Human Health | 51 billion | 6.4 billion | 26 Indigenous People | 3 million | 3 million |
| 7 Human Settlements | 218 billion | 29.5 billion | 27 NGOs | no estimate | |
| 8 Making Decisions | 63 million | 63 million | 28 Local Authorities | 1 million | 1 million |
| 9 Atmosphere | 21 billion | 21 billion | 29 Workers/Trade Unions | 300 million | 300 million |
| 10 Land | 50 million | 50 million | 30 Business/Industry | no estimate | |
| 11 Deforestation | 31.2 billion | 5.7 billion | 31 Scientists/Technologists | 20 million | 20 million |
| 12 Desertification | 8.7 billion | 4.9 billion | 32 Farmers | no estimate | |
| 13 Mountains | 13 billion | 1.9 billion | 33 Financing[3] | | |
| 14 Agriculture | 31.8 billion | 5.1 billion | 34 Technology Transfer | 500 million | 500 million |
| 15 Biological Diversity | 3.5 billion | 1.75 billion | 35 Science | 2.9 billion | 2 billion |
| 16 Biotechnology | 20 billion | 200 million | 36 Education/Training | 14.6 billion | 6 billion |
| 17 Oceans | 13.1 billion | 900 million | 37 Creating Capacity | 650 million | 650 million |
| 18 Fresh Water | 54.8 billion | 17 billion | 38 Organizing Sust. Dev. | no estimate | |
| 19 Toxic Chemicals | 650 million | 200 million | 39 International Law | no estimate | |
| 20 Hazardous Wastes | 4.2 billion | 1.25 billion | 40 Information | 2.1 billion | 2.1 billion |

TOTAL ANNUAL COST : US$ 561.5 billion AMOUNT REQUIRED AS CONCESSIONAL FINANCING: US$ 141.9 billion[2]

1. represents cost required by international organizations • 2. Chapter provides totals for Agenda 21
3. US$ 15 billion per annum of this amount is currently being provided, by way of technical cooperation, to developing countries

# 34

## Technology Transfer

To develop sustainably, all countries need access to and training in the use of technologies that are cleaner and waste fewer resources.

Environmentally sound technologies include not only the hardware but the know-how, services, equipment, organizational and managerial skills to make them work.

Developing countries, in particular, require new and efficient technologies to achieve sustainable development, participate as partners in the global economy, protect the environment and to alleviate poverty and human suffering. They need to upgrade some current technologies and replace others with more environmentally sound substitutes.

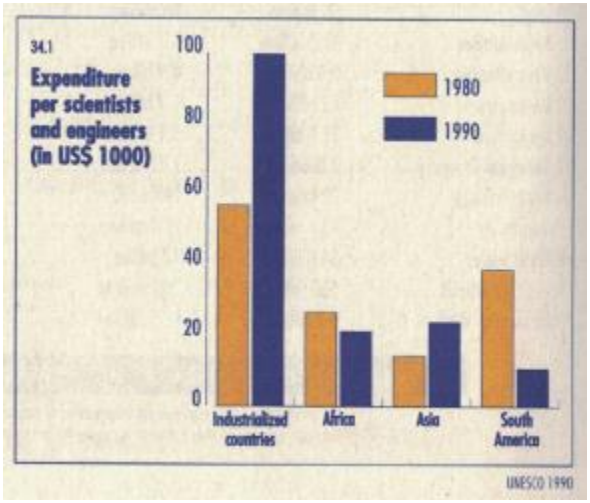
It is essential that developing countries get access to such technologies as well as the economic, technical and managerial skills to use and further develop them. The offer of technologies must include information on their environmental risks, so that countries can make informed choices, and imported technologies must be compatible with social, cultural, economic and environmental priorities. In some cases, imported technologies can be combined with local innovations to evolve new technologies.

Governments and international organizations should promote the transfer of environmentally sound technologies that are not covered by patents or lie in the public domain. They should also purchase patents and licences on commercial terms and transfer them to developing countries on non-commercial terms, as part of assistance for sustainable development. Intellectual property rights should be protected in such transfers.

The use of environmentally sound technology requires the systematic training of craftspersons, technicians and middle-level managers, scientists, engineers and educators. There is a need to train people to assess and manage technologies and conduct environmental impact and risk assessments.

Visits, or the voluntary return, to their home countries by experts from developing countries who are working in institutions in developed countries should be facilitated.

There is a need for a series of international centres of expertise on environmentally sound technology, particularly for such major economic sectors as agriculture, industry and energy. They could conduct research and evaluate technologies. They could help in the development, management and transfer of such technologies between countries, working in close cooperation with the private sector.



# 35

## Science for Sustainable Development

The global environment is changing faster than at any time in recent centuries. The next century could see significant environmental changes, and surprises may be expected.

Human consumption of energy, water and non-renewable resources is increasing, and there may be shortages in many parts of the world, even if environmental conditions were to remain unchanged.

Scientific knowledge can support the prudent management of the environment and development for the daily survival and future of humanity. Scientists have a growing understanding of such issues as climate change, increases in resource consumption, population trends and environmental degradation. This information should be used to shape long-term strategies for sustainable development.

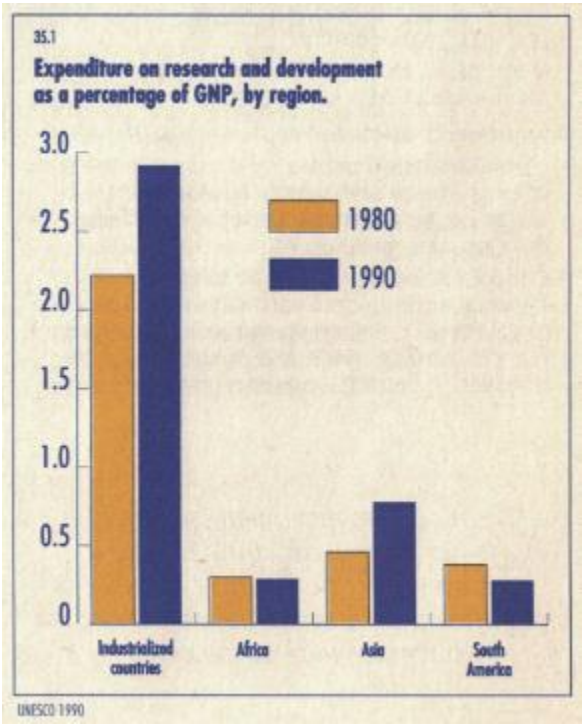
In the face of threats of irreversible environmental damage, scientific uncertainty should not be used as an excuse for postponing actions which are justified in their own right. It would be wise to adopt a precautionary approach in making decisions, to lower the risks of upsetting complex ecological systems.

Governments need to support the kind of science that can provide a clearer picture of how the environment works, and give better estimates of the Earth's capacity to deal with increasing human demands. Scientists can provide ideas on how to use energy and resources more efficiently for such activities as industry, agriculture and transport.

We need to use observations from space to help us better understand how our atmosphere, water and the Earth form a closely linked ecosystem. At the same time, we need to link such "advanced science" with the best indigenous and

We need to use observations from space to help us better understand how our atmosphere, water and the Earth form a closely linked ecosystem. At the same time, we need to link such "advanced science" with the best indigenous and local knowledge from different cultures. Scientists need training in natural systems, ecology and resource management so that they can understand the environmental effects of their research and the resulting development projects.

The world needs long-term scientific assessments on the depletion of resources, energy use, health impacts and population trends. This information



could be used for environment and development assessments at the local, regional and global levels. The assessments need to be made public in forms that can be widely understood.

There is also a need for regular, public audits of the ability of global and regional life-supporting systems to meet the needs of humans and the rest of nature. These audits should help guide development plans by identifying areas and resources vulnerable to further degradation. Science needs to learn what human attitudes and behaviour lead to environmental impacts, and how environmental degradation affects global and local economies.

Countries need to develop tools for sustainable development such as:

• Quality-of-life indicators covering health, education, social welfare and the state of the environment and the economy.

• Economic incentives that will encourage better resource management.

• Ways of measuring the environmental soundness of new technologies.

Governments also need to:

• Use information on the links between the state of ecosystems and human health when weighing the costs and benefits of different development policies.

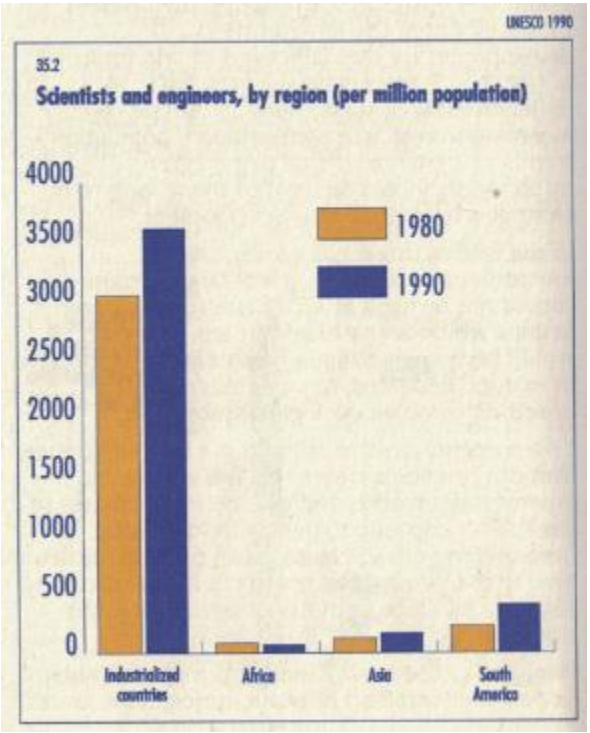
• Conduct scientific studies to help map out national and regional pathways to sustainable development. When sustainable development plans are being made, the public should be involved in setting long-term goals for society.

*The global environment is changing faster than at any time in recent centuries. The next century could see significant environmental changes, and surprises may be expected.*

More scientists are needed in all countries, particularly in developing countries, to provide research and recommendations on environment and development. It is crucial that developing countries have enough qualified scientists to put them on an equal footing with developed nations in negotiations on global environment and development issues.

By the year 2000, there should be a substantial increase in the number of scientists in those developing countries which lack researchers, and the exodus of scientists from developing nations reversed.

☛ *For more information, see also Chapter 31: Scientists and Technologists*



# 36

## Education, Training and Public Awareness

Many people do not understand the close ties between human activities and the environment because they have inaccurate or insufficient information.

There is a need to increase people's sensitivity to, and involvement in, finding solutions for environment and development problems. Education can give people the environmental and ethical awareness, values and attitudes, skills and behaviour needed for sustainable development. To do this, education needs to explain not only the physical and biological environment, but the socio-economic environment and human development.

Basic education is the underpinning for environment and development education. All countries should strive for universal access to education, and achieve primary education for at least 80 per cent of all girls and boys, through formal schooling or non-formal education. Adult illiteracy should be cut to at least half the 1990 level, and literacy levels of women brought into line with those of men.

To improve sustainable development education, nations should seek to:

• Make environment and development education available to people of all ages.

• Work environment and development concepts, including those of population, into all educational programmes, with analyses of the causes of the major issues. There should be a special emphasis on training decision makers.

• Involve schoolchildren in local and regional studies on environmental health, including safe drinking water, sanitation, food and the environmental and economic impacts of resource use.

The world needs a flexible and adaptable work force, equipped to meet growing environment and development problems, and changes during the transition to a sustainable society.

Countries should:

• Set up training programmes for school and university graduates to help them achieve sustainable livelihoods.

• Encourage all sectors of society, including industry, universities, governments, non-governmental organizations and community organizations, to train people in environmental management.

• Provide locally trained and recruited environmental technicians to give local communities services they require, starting with primary environmental care.

• Work with the media, theatre groups, entertainment and advertising industries, to promote a more active public debate on the environment.

• Bring indigenous peoples' experience and understanding of sustainable development into education and training.

*Make environment and development education available to people of all ages.*

# 37

# Creating Capacity for Sustainable Development

A country's ability to develop more sustainably depends on the capacity of its people and institutions to understand complex environment and development issues so that they can make the right development choices.

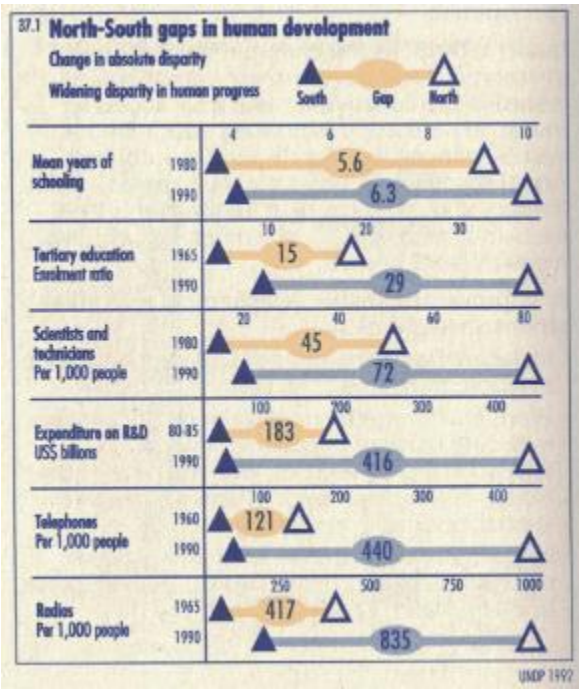
People need to have the expertise to understand the potential and the limits of the environment. They will face difficult policy choices when dealing with such complex problems as global climate change and protecting biodiversity. This will require scientific, technological, organizational, institutional and other skills.

Governments should use wide public consultation to determine what improvements in capacity their people need to implement their national version of Agenda 21 for sustainable development. This analysis should be done by 1994, if possible, and should be based upon a broad national consensus. By 1997, the United Nations should recommend what additional measures are needed to strengthen international technical cooperation programmes for sustainable development.

Capacity building is an essential step in preparing national sustainable development strategies and Agenda 21 action programmes. Countries can build on the experience of preparing national reports for the UN Conference on Environment and Development, as well as existing conservation strategies, development and environment plans.

Developing countries will need more technical cooperation and assistance in setting priorities so that they can deal with new long-term challenges, rather than concentrating only on immediate problems. For example, people in government and business need to know how to evaluate the environmental impact of all development projects, starting from the time the projects are conceived.

Assistance in the form of skills, knowledge and technical know-how can come from the United Nations, national governments, municipalities, non-governmental organizations, universities, research centres, and business and other private organizations. The United Nations Development Programme has been given responsibility for mobilizing international funding and coordination programmes for capacity building.



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## Organizing for Sustainable Development

A large responsibility for following up on the Rio recommendations rests with the General Assembly of the United Nations, where all member countries have policy-making and other responsibilities to fulfil. The United Nations should consider a special session, no later than 1997, to review progress on the implementation of Agenda 21.

The United Nations system has a critical role to play, and will require restructuring and revitalizing in economic, social and related fields to implement the concrete programmes of Agenda 21.

*The United Nations should consider a special session no later than 1997 to review progress on the implementation of Agenda 21*

The UN Conference on Environment and Development recommended that the United Nations create a high-level Commission on Sustainable Development with membership from countries around the world. In its work, the Commission should draw on expertise of United Nations organizations, international financial institutions and of non-governmental organizations, including industry, business and scientific groups. The Commission is to monitor progress and problems in the implementation of Agenda 21, and make recommendations to the United Nations.

The Conference also recommended that the UN Secretary-General appoint a high-level advisory board of environment and development experts.

The United Nations Environment Programme will need to develop and promote natural resource accounting and environmental economics. It also needs to improve environmental monitoring to provide the world with an early-warning system on environmental problems, and to and to develop international environmental law, including treaties. The agency can advise governments on how to integrate environmental considerations into their development policies and programmes.

The United Nations Development Programme, with its global network, will act as the lead agency in mobilizing donor assistance and organizing efforts by the United Nations system to build expertise for sustainable development.

The continued active and effective participation of non-governmental organizations, the scientific community and the private sector, as well as of local groups and communities, is important in the implementation of Agenda 21.

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## International Law

International law on sustainable development needs to be developed in ways that observe the delicate balance between the needs for development and for environmental protection.

Current international environmental laws should be reviewed and developed to make them more effective. International laws should also promote the integration of environment and development policies. Conflicts between environmental and social or economic agreements should be identified and resolved.

The major goals in international law on sustainable development should include:

• The development of universally negotiated agreements that create effective international standards for environmental protection, taking account of the different situations and abilities of various countries.

• An international review of the feasibility of establishing general rights and obligations of nations in the field of sustainable development.

• Measures to avoid or settle international disputes in the field of sustainable development. These measures can range from notification and talks on issues that might lead to disputes, to the use of the International Court of Justice.

*Current international environmental laws should be reviewed and developed to make them more effective.*

*It is essential that all countries participate in the creation of international treaties on sustainable development.*

It is essential that all countries participate in the creation of international treaties on sustainable development. Many existing international environmental agreements were drafted without adequate participation by developing countries. Such pacts may need to be reviewed to reflect the concerns and interests of those nations.

International environmental standards should recognize the different situations and capabilities of countries that are in transition to internationally agreed environmental objectives. Environmental policies should deal with the root causes of environmental degradation, and should not be used to create unnecessary restrictions on international trade.

Developing countries should be given support for their national efforts to implement international agreements, and to participate effectively in the negotiation of new or revised agreements, and in their implementation. This should include financial support and assistance in building up expertise in international law on sustainable development. Support should also include the necessary reference information and scientific and technical expertise that they need to participate in legal agreements.


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## Information for Decision-Making

There is already a wealth of information that could be used for the management of sustainable development, but many people have trouble finding the information they need when they need it.

In many countries, information that exists is not adequately managed due to shortages of technology and trained specialists, lack of awareness of the value and availability of such information and to the demands of other immediate problems. This is especially true in the developing world, and the gap in the availability, quality and accessibility of data between the developed and the developing world has been increasing.

There is also a need for different types of information. Commonly used indicators such as gross national product (GNP) and measurements of individual resource or pollution flows do not provide enough information about sustainability. We need to use environmental, demographic, social and developmental information to produce indicators that show us if we are creating a more sustainable world.

Sustainable development information needs to be provided to people who need it, when they need it, and in forms they can understand. Countries should ensure that local communities and resource users get the information and skills needed to manage their environment and resources sustainably. In some cases, they need to apply traditional and indigenous knowledge.

Countries and international organizations should provide environment, resource and development data needed for the management of sustainable development to people at all levels, and in forms that are understandable. People need:

• More information about the state of urban air, fresh water, land resources (including forests and rangelands), desertification, soil degradation, biodiversity, the high seas and the upper atmosphere.

• More information about population, urbanization, poverty, health and rights of access to resources. Information is needed about the relationships of groups, including women, indigenous peoples, youth, children and the disabled With environment issues.

This should make it easier to produce sustainable development indicators that can be worked into national reports, such as those on the performance of the economy. United Nations programmes to monitor the health of the environment and economic development should be strengthened. Information from both sectors should be used to create a sustainable development watch.

In the case of costly and sophisticated information systems, such as data from satellites, developing countries will need assistance to acquire and use the technologies. Sustainable development information held by companies should also be used and, in some cases, subsidies may be needed to help developing countries get access to this material.

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# Statement of Principles on Forests

By the time of the June 1992 Earth Summit, countries had developed a series of principles for sustainable forest use. This, the first global consensus on forests, deals with the needs of people who want to protect forests for environmental and cultural reasons and with the needs of people who use trees and other forest life for economic development. The Rio forest principles may form the basis of further negotiations towards a binding agreement.

The Rio statement says that forests, with their complex ecological processes, are essential to economic development and the maintenance of all forms of life. They are the source of wood, food and medicine, and are rich storehouses of many biological products yet to be discovered. They act as reservoirs for water and for carbon, that would otherwise get into the atmosphere and act as a greenhouse gas. Forests are home to many species of wildlife and, with their peaceful greenery and sense of history, fulfil human cultural and spiritual needs.

Among the forestry principles:

• All countries should take part in "the greening of the world" through forest planting and conservation.

• Countries have the right to use forests for their social and economic development needs. Such use should be based on national policies consistent with sustainable development.

• The sustainable use of forests will require sustainable patterns of production and consumption at a global level.

• Forests should be managed to meet the social, economic, ecological, cultural and spiritual needs of present and future generations.

• The profits from biotechnology products and genetic materials taken from forests should be shared, on mutually agreed terms, with countries where the forests are located.

• Planted forests are environmentally sound sources of renewable energy and industrial raw materials. The use of wood for fuel is particularly important in developing countries. Such needs should be met through the sustainable use of forests and replanting. The plantations will provide employment and reduce the pressure to cut old-growth forests.

• Notional plans should protect unique examples of forests, including old forests and forests with cultural, spiritual, historical, religious or other values.

• International financial support including some from the private sector should be provided to developing nations to help protect their forests.

• Countries need sustainable forestry plans bused on environmentally sound guidelines. This includes managing the areas around forests in an ecologically sound manner.

• Forestry plans should count both the economic and non-economic values of forests, and the environmental costs and benefits of harvesting or protecting forests. Policies that encourage forest degradation should be avoided.

• The planning and implementation of national forest policies should involve a wide variety of people, including women, forest dwellers, indigenous people, industries, workers and non-governmental organizations.

• Forest policies should support the identity, culture and rights of indigenous people and forest dwellers. Their knowledge of conservation and sustainable forest use should be respected and used in developing forestry programmes. They should be offered forms of economic activity and land tenure that encourage sustainable forest use and provide them with an adequate livelihood and level of well-being.

• Trade in forest products should be based on non-discriminatory rules, agreed on by nations. Unilateral measures should not be used to restrict or ban international trade in timber and other forest products.

• Trade measures should encourage local processing and higher prices for processed products.

Tariffs and other barriers to markets for such goods should be reduced or removed.

• There should be controls on pollutants, such as acidic fallout, that harm forests.

*All countries should take part in "the greening of the world" . . .*

# United Nations Framework Convention on Climate Change

Human activities are releasing substantial amounts of gases, including carbon dioxide, that increase the natural greenhouse effect in the Earth's atmosphere. There is concern that the addition of such gases will cause a further worming of the Earth's surface and atmosphere, and that this warming will have adverse effects on humans and natural ecosystems.

A number of regions are particularly vulnerable. They include: low-lying and other small island states low-lying coastlines and flood-prone areas; areas liable to drought and desertification and fragile mountain ecosystems.

Countries should protect the world's climate system for the benefit of present and future generations. Under the United Nations Charter, countries have the right to exploit their own resources, but they have the responsibility to ensure that activities under their control do not cause damage to the environment beyond their borders.

The global nature of climate change requires the widest possible cooperation by all countries and their participation in an effective and appropriate international response. Countries should enact effective environmental legislation to control greenhouse gas emissions and should ensure the functioning of natural processes that can remove some of the gases from the atmosphere.

The ultimate goal of the climate change Convention is to stabilize greenhouse gases in the atmosphere at levels that will not dangerously upset the global climate system. This should be done within a time frame that allows ecosystems to adapt naturally to climate change, ensures that food production is not threatened and enables economic development to proceed in a sustainable manner.

Most of the world's greenhouse gas emissions have come and continue to come from developed countries, and they should take the lead in combating climate change and its adverse effects.

Developed nations, as well as a number of countries whose economies are in transition, such as in eastern Europe, shall adopt national policies and take measures to limit emissions of greenhouse gases. They shall also protect and improve forests and oceans that act as sinks and reservoirs for greenhouse gases.

The aim for these nations is to reduce their emissions of carbon dioxide and other greenhouse gases to 1990 levels. (The emissions of some other greenhouse gases, which also damage the ozone layer, are being controlled under other international agreements.)

On a per person basis, greenhouse gas emissions from developing countries are still relatively low. For these countries, the first and overriding priorities are economic and social development, and eradication of poverty. The developing nations' share of global emissions will grow as their economies expand and they use more energy.

Some actions to address climate change can be justified economically, and can also help in solving other environmental problems. But a number of countries, particularly developing nations whose economies are dependent on fossil fuels, may have serious difficulties in switching to alternative fuels.

There are still many uncertainties about the timing, magnitude and regional impacts of climate change but, where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing controls.

Developed countries shall help developing nations deal with requirements of the Convention and the effects of climate change by:

- Providing money and technological assistance to help these nations measure flows of greenhouse gases.

- Assisting countries that are particularly vulnerable to harmful effects of climate change to meet the costs of adaptation.

- Providing environmentally sound technologies and know-how, as well as supporting the development of technologies within these nations.

All nations are to:

- Provide information on quantities of greenhouse gases they release, and how much is absorbed by their sinks.

- Publish regular updates on programmes to control emissions, and to adapt to climate change.

- Promote the sound management and conservation of such greenhouse gas sinks as plants, forests and oceans.

• Cooperate in planning for the impact of climate change on coastal zones, water resources and agriculture.

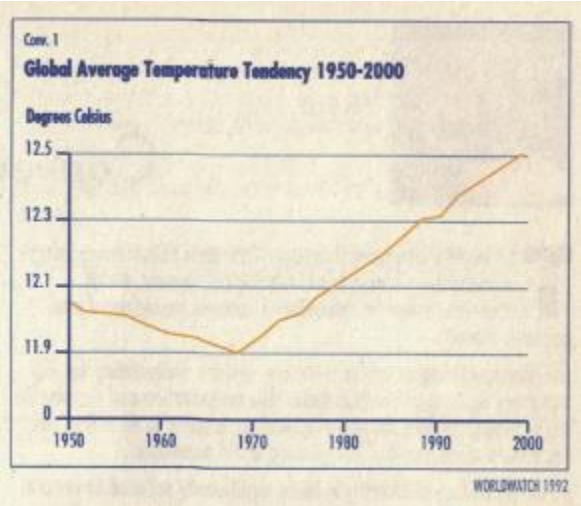
• Cooperate in the protection of areas prone to floods or drought, particularly in Africa.

• Inform the public about climate change and its effects, and promote and facilitate public participation in developing responses.

Although climate change needs to be dealt with, nations should also promote an international economic system that would lead to sustainable economic growth and development in all countries, particularly developing countries. This will make them better able to deal with the problems of climate change. Measures taken to combat climate change should not be used arbitrarily to restrict international trade.

The Convention sets up a specific group to help in the transfer of funds and technology to assist nations in controlling greenhouse gases and dealing with climate change. It will include the Global Environment Facility of the United Nations Development Programme, the United Nations Environment Programme and the International Bank for Reconstruction and Development.

For the Convention to enter into force, it must be ratified by the national legislatures of at least 50 countries.




*. . . enact effective governmental legislation to control greenhouse gas emissions*

# Convention on Biological Diversity

The world's biological diversity— the variability among living organisms— is valuable for ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic reasons.

The diversity is important for evolution, and for maintaining the life-sustaining systems of the biosphere. The conservation and sustainable use of biological diversity are of critical importance to meet the food, health and other needs of the growing world population.

However, biological diversity is being significantly reduced by certain human activities, and it is vital to anticipate, prevent and attack the causes of this loss. Substantial investments are required to conserve biological diversity, but they will pay off with a broad range of environmental, economic and social benefits.

The world needs to conserve biological diversity and make sustainable use of its components in a fair and equitable way. Sustainable use means use in a way and at a rate that does not lead to the long-term decline of biological diversify. This will maintain its potential to meet the needs and aspirations of present and future generations. The uses include those of genetic material, which is any plant, animal, microbial or other material containing functional units of heredity. We also need to conserve ecosystems, which are groupings of living and non-living material that act as a unit.

Countries have rights over their biological resources, but they are also responsible for conserving their biological diversity and for using their biological resources in a sustainable manner.

Nations that join the Convention shall:

• Identify the components of biological diversity important for conservation and sustainable use, and monitor activities which may have adverse impacts this diversity.

• Develop national strategies plans or programmes for the conservation and sustainable use of biological diversity.

• Make conservation and sustainable use of biological diversity part of planning and policy-making.

• Use the media and educational programmes to help people understand the importance of biological diversity and need for measures to conserve it.

• Establish laws to protect threatened species, develop systems of protected areas to conserve biological diversity, and promote environmentally sound development around these areas.

• Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, helping local people to develop and carry out these remedial plans.

• Establish means to control the risks from organisms modified by biotechnology.

• Use environmental impact assessment, with public participation, on projects that threaten biological diversity, in order to avoid or minimize damage.

• Prevent the introduction of, control or eradicate alien species which threaten ecosystems, habitats or species.

Many indigenous and local communities have a close dependence on biological resources, and nations should make use of this traditional knowledge of the conservation and sustainable use of biological diversity. Countries are to preserve and maintain such indigenous and local knowledge and promote its wider use. This is to be done with the approval and involvement of those who have such knowledge, and these people should benefit from the use of their practices.

The Convention says that:

• Countries are to facilitate access to genetic materials within their borders for environmentally sound uses. Access will be allowed with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other uses of genetic resources.

• Developing countries are to have access to environmentally sound technologies that they need for the conservation and sustainable use of biodiversity. This access will be under fair and most favourable terms, and will recognize patent rights.

**• Developing countries are to have access to technology that makes use of resources they provided. They are also to have a role in biotechnological research.**

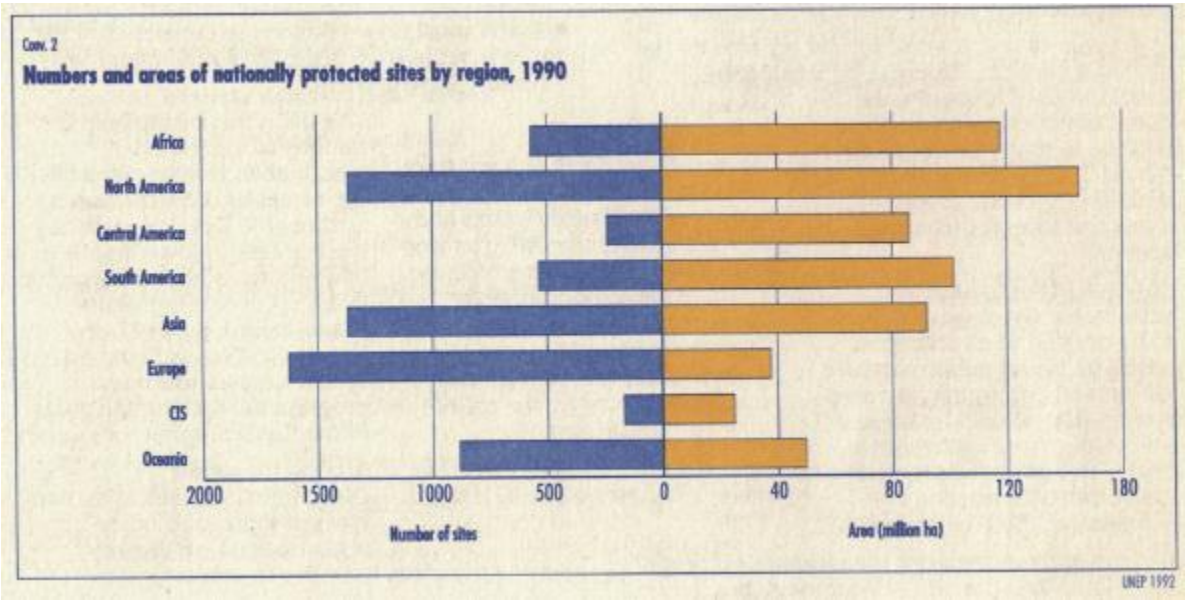
**• Developing notions are to receive technical and scientific assistance, so that they can develop their own institutions and expertise in sustainable use of biological diversity.**

**• Countries are to consider the need for an agreement on the safe handling and use of living organisms modified by biotechnology.**

**• Developed countries that sign the Convention shall provide new financial aid to developing countries to help them implement terms of the Convention. The initial funding will be handled by three United Nations organizations involved in environment and development.**

**The Convention comes into force once it has been ratified by 30 nations.**

☛ *For more information on the subject, please see Chapter 15: Conservation of Biological Diversity*



# The Road from Rio

Agenda 21 and the other Rio documents form a series of stepping stones towards a more socially, economically and environmentally sustainable world. The challenge we face is to put the good ideas from Rio into action, even as we refine them and develop more detailed plans.

Two years of preparation for Rio broadened the global network of expertise on sustainable development. It opened the doors of international negotiations to many people from business, non-governmental and other groups. It created an expectation for follow-up actions.

*The road to the Earth Summit truly constituted a high point in the history of the United Nations and the world community. All of us who shared that great experience now share the responsibility for ensuring that the road from the Summit is indeed the road to a more sustainable, secure and equitable future for the entire human family.*

*Maurice Strong,*
*Secretary General (UNCED)*

National action plans for sustainable development need to be created in all countries, based on broad public participation and community involvement. They should be backed by the specific programmes to deal with human needs, and the sustainable use and conservation of the environment.

It is too early to measure the ultimate success of Agenda 21 and the other documents, but they have already had a clear impact.

The United Nations, which created the Rio process, is deeply involved in seeing that the commitments made by governments are put into action. This means getting ratification of the climate change and biodiversity Conventions and working towards other agreements.

The United Nations has created groups to:

• Draft an international agreement to combat desertification.

• Work out means to prevent over-exploitation of fish in the high seas, beyond national coastal zones.

• Assist small island nations to develop in ways that meet human needs while maintaining a healthy environment.

The UN is increasing help for nations to implement sustainable development. A high-level UN Commission on Sustainable Development has been created.

It will monitor and report on how the world is living up to commitments made in Rio. By 1997, the United Nations will hold a special session to review progress in reaching the goals of the Earth Summit.

It is crucial to maintain the momentum of the Rio process and implement the agreements that were reached. This task will require not only the leadership and funding of governments and business, but also the vision, cooperation and work of every citizen.

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Rio de Janeiro, Brazil, June 1992.
The largest-ever meeting of world leaders makes critical decisions about how we can run our economies and secure our future.

What 179 countries agreed to is nothing less than a blueprint on how to make the future development of our world economically, socially and environmentally sustainable.

The Earth Summit's Agenda for Change explains in clear terms what was decided in Rio. This may be the most important book you will read, because the Rio decisions have the potential to change the way you will live and work from now into the next century.

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Our Common Future