

# JOHANNESBURG SUMMIT 2002

## UNITED REPUBLIC OF TANZANIA



### COUNTRY PROFILE



UNITED NATIONS

## **INTRODUCTION - 2002 COUNTRY PROFILES SERIES**

Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, underscored the important role that States play in the implementation of the Agenda at the national level. It recommended that States consider preparing national reports and communicating the information therein to the Commission on Sustainable Development (CSD) including, activities they undertake to implement Agenda 21, the obstacles and challenges they confront, and other environment and development issues they find relevant.

As a result, in 1993 governments began preparing national reports for submission to the CSD. After two years of following this practice, the CSD decided that a summarized version of national reports submitted thus far would be useful. Subsequently, the CSD Secretariat published the first Country Profiles series in 1997 on the occasion of the five-year review of the Earth Summit (Rio + 5). The series summarized, on a country-by-country basis, all the national reports submitted between 1994 and 1996. Each Profile covered the status of all Agenda 21 chapters.

The purpose of Country Profiles is to:

- Help countries monitor their own progress;
- Share experiences and information with others; and,
- Serve as institutional memory to track and record national actions undertaken to implement Agenda 21.

A second series of Country Profiles is being published on the occasion of the World Summit on Sustainable Development being held in Johannesburg from August 26 to September 4, 2002. Each profile covers all 40 chapters of Agenda 21, as well as those issues that have been separately addressed by the CSD since 1997, including trade, energy, transport, sustainable tourism and industry.

The 2002 Country Profiles series provides the most comprehensive overview to date of the status of implementation of Agenda 21 at the national level. Each Country Profile is based on information updated from that contained in the national reports submitted annually by governments.

Preparing national reports is often a challenging exercise. It can also be a productive and rewarding one in terms of taking stock of what has been achieved and by increasing communication, coordination and cooperation among a range of national agencies, institutions and groups. Hopefully, the information contained in this series of Country Profiles will serve as a useful tool for learning from the experience and knowledge gained by each country in its pursuit of sustainable development.

## NOTE TO READERS

The 2002 Country Profiles Series provides information on the implementation of Agenda 21 on a country-by-country and chapter-by-chapter basis (with the exception of chapters 1 and 23, which are preambles). Since Rio 1992, the Commission on Sustainable Development has specifically addressed other topics not included as separate chapters in Agenda 21. These issues of trade, industry, energy, transport and sustainable tourism are, therefore, treated as distinct sections in the Country Profiles. In instances where several Agenda 21 chapters are closely related, for example, chapters 20 to 22 which cover environmentally sound management of hazardous, solid and radioactive wastes, and chapters 24 to 32 which refer to strengthening of major groups, the information appears under a single heading in the Country Profile Series. Lastly, chapters 16 and 34, which deal with environmentally sound management of biotechnology, and transfer of environmentally sound technology, cooperation, capacity-building respectively, are presented together under one heading in those Country Profiles where information is relatively scarce.

*At the release of this Country Profile, the United Republic of Tanzania had not updated it and therefore any new changes will appear on our web page: <http://www.un.org/esa/agenda21/natlinfo>.*

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**LIST OF COMMONLY USED ACRONYMS**

ACS	Association of Caribbean States
AMCEN	Africa Ministerial Conference on the Environment
AMU	Arab Maghreb Union
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CARICOM	The Caribbean Community and Common Market
CBD	Convention on Biological Diversity
CIS	Commonwealth of Independent States
CGIAR	Consultative Group on International Agricultural Research
CILSS	Permanent Inter-State Committee for Drought Control in the Sahel
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COMESA	Common Market for Eastern and Southern Africa
CSD	Commission on Sustainable Development of the United Nations
DESA	Department for Economic and Social Affairs
ECA	Economic Commission for Africa
ECCAS	Economic Community for Central African States
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ECOWAS	Economic Community of West African States
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FIDA	Foundation for International Development Assistance
GATT	General Agreement on Tariffs and Trade
GAW	Global Atmosphere Watch (WMO)
GEF	Global Environment Facility
GEMS	Global Environmental Monitoring System (UNEP)
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GLOBE	Global Legislators Organisation for a Balanced Environment
GOS	Global Observing System (WMO/WWW)
GRID	Global Resource Information Database
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IAEA	International Atomic Energy Agency
ICSC	International Civil Service Commission
ICSU	International Council of Scientific Unions
ICT	Information and Communication Technology
ICTSD	International Centre for Trade and Sustainable Development
IEEA	Integrated Environmental and Economic Accounting
IFAD	International Fund for Agricultural Development
IFCS	Intergovernmental Forum on Chemical Safety
IGADD	Intergovernmental Authority on Drought and Development

ILO	International Labour Organisation
IMF	International Monetary Fund
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPCS	International Programme on Chemical Safety
IPM	Integrated Pest Management
IRPTC	International Register of Potentially Toxic Chemicals
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature and Natural Resources
LA21	Local Agenda 21
LDCs	Least Developed Countries
MARPOL	International Convention for the Prevention of Pollution from Ships
MEAs	Multilateral Environmental Agreements
NEAP	National Environmental Action Plan
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organizations
NSDS	National Sustainable Development Strategies
OAS	Organization of American States
OAU	Organization for African Unity
ODA	Official Development Assistance/Overseas Development Assistance
OECD	Organisation for Economic Co-operation and Development
PPP	Public-Private Partnership
PRSP	Poverty Reduction Strategy Papers
SACEP	South Asian Cooperative Environment Programme
SADC	Southern African Development Community
SARD	Sustainable Agriculture and Rural Development
SIDS	Small Island Developing States
SPREP	South Pacific Regional Environment Programme
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNCED	United Nations Conference on Environment and Development
UNCCD	United Nations Convention to Combat Desertification
UNCHS	United Nations Centre for Human Settlements (Habitat)
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRO	Office of the United Nations Disaster Relief Coordinator
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNIFEM	United Nations Development Fund for Women
UNU	United Nations University

WFC	World Food Council
WHO	World Health Organization
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WWF	World Wildlife Fund
WWW	World Weather Watch (WMO)



## **CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES**

**Decision-Making:** No information available.

**Programmes and Projects:** No information available.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## **CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES - TRADE**

**Decision-Making:** Since 1985, the Government of Tanzania has implemented a number of policy reforms. The main objectives of the reforms have been and continue to be to achieve economic growth, to reduce dependence on external balance of payment support, to reduce inflation, to improve social services and economic infrastructure, to alleviate, reduce, and ultimately eradicate poverty, to manage the ecosystem, and to use natural resources sustainably. These reforms are being implemented together with equally significant political and social reforms. The measures, such as introduction of a multi-party democracy, liberalization of most economic sectors, privatization of parastatals engaged in commercial production and marketing (over 400 parastatals are to be restructured or diversified, sold, leased, or made to enter joint venture arrangements), reform of the financial sector, and liberalization of the foreign exchange regime, have been instituted. Current efforts focus on public sector reforms with the objective of increasing government revenue through tax reforms and improved management of revenue collection, and reduction of the size of the civil service. Decentralizing Government activities are being implemented with the aim of transferring authority and functions to lower levels of administration (districts), which are closer to the people and, therefore, will be more effective and efficient in the management of sustainable development activities.

**Programmes and Projects:** No information available.

**Status:** The Gross Domestic Product (GDP) registered a growth rate of 3.9% in 1995, compared to 3.0% in 1994. Agriculture continues to contribute the largest share of about 55%, with a growth rate of about 7%, compared to 2% in 1994. The major export cash crops are cotton and coffee. The manufacturing industry accounts for about 17% of the foreign exchange earnings, while the mining industry accounts for only 5%. The foreign trade sector, and consequently the trade account deficit, have recently shown some significant improvements. This has been possible through the implementation of macro-economic and budgetary measures, including reductions in tax remissions (in particular, Investment Promotion Centre (IPC) exemptions have been modified and limited to capital goods only); establishment of the Tanzania Revenue Authority, which is now responsible for revenue collection and tax administration; and establishment of the "Inputs Revolving Fund" to encourage agricultural production. The budgetary measures are also aimed at realizing the following broad policy objectives: achievement of a real GDP growth of 5%; generation of recurrent budget savings; reduction of the rate of inflation to below 10%; and reduction of Government indebtedness to the banking system. Tanzania is conscious of the possible widening of the income gap as the economy recovers and grows. This and other related issues are being addressed through consideration of the social dimensions of the structural adjustment programmes.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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### CHAPTER 3: COMBATING POVERTY

**Decision-Making:** The Poverty Alleviation Department is a division in the Office of the Vice President. Past efforts to eradicate poverty had some shortcomings mainly because there was no coherent policy to provide direction and guidance to stakeholders. A policy on poverty eradication is now under consideration. Its overall goals are oriented towards creating an enabling environment for effective poverty eradication, empowering the poor to participate in poverty eradication programmes, ensuring full participation of women in poverty eradication initiatives, providing coordination mechanisms for the implementation of poverty eradication initiatives, and promoting equality of opportunity for men and women to lead a decent and productive life.

Besides the government, non-governmental, community, and religious organizations are playing an important role in eradicating poverty. These organizations have been particularly active in the provision of education at both primary and secondary levels, and health care facilities.

**Programmes and Projects:** With respect to health care, about 49% of the hospitals in the country have been constructed and are managed by voluntary organizations.

**Status:** Since independence, the government has sought to combat poverty. To achieve this, various strategies have been launched including state intervention to reduce economic and social inequalities in resource distribution and control. The per capita income was estimated to be Tshs. 5890 in 1995 at 1985 prices, having increased from Tshs. 4919 in 1985 (National Economic Survey for 1995 published in June, 1996). Employment opportunities have been limited in the recent past due to the slow growth of the economy, and the freezing of new recruitment in the public sector. However, employment opportunities in the informal sector have increased in the recent past. A survey of the city of Dar es Salaam undertaken in 1995 indicates that this sector provides employment to about 65% of the city's labour force.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 4: CHANGING CONSUMPTION PATTERNS

**Decision-Making:** In the energy-sector in Tanzania, a number of actions and programmes relevant to Agenda 21 have been initiated including the development of a National Energy Policy. The main objective of the policy is to establish an efficient energy production, procurement, transportation, distribution, and end-use system in an environmentally sound manner. This is to be accomplished through: exploitation of the abundant hydro-electric resources; development and utilization of natural gas resources; development and utilization of coal resources; increased petroleum exploration activities; arresting wood fuel depletion by developing more appropriate land management practices and more efficient woodfuel use technologies; development and utilization of forest and agricultural residue for power and cooking energy production; minimization of energy price fluctuations; development of human resources for development of energy technologies; and ensuring the continuity and security of energy supplies. The strategies for implementing the policy include: more efficient use of energy in the transport and industry sectors; rehabilitation of the electric power generation, transmission, and distribution infrastructure; rehabilitation and rationalization of petroleum refining, storage, and distribution infrastructure; promotion of alternative energy sources; development and dissemination of efficient woodfuel conversion and utilization technologies; and development and dissemination of simple and affordable kerosene stoves for rural and urban households. In the power sub-sector, a number of technological options have been proposed for implementation. These include: increasing the efficiency of the presently installed equipment and retrofitting the thermal power plants to improve their combustion efficiencies; retiring the less efficient plants in favour of more efficient ones and institution of demand side management; institution of fuel switching, for example, changing from industrial diesel oil to natural gas where feasible; and developing renewable energy sources, such as hydro, wind, biomass, and solar energy.

**Programmes and Projects:** Taka is a Swahili word for waste and Takagas is therefore gas from waste. The goal of the Takagas project is to reduce emissions of greenhouse gases (GHG) in Tanzania by substituting bioenergy (methane gas and electricity), produced from anaerobic digestion of industrial and municipal waste in the Dar es Salaam area, for fossil fuels. Additional greenhouse gas reduction will be achieved by lowering the uncontrolled release of methane from improperly disposed organic waste. This will produce organic fertilizer. The plant will have the capacity to treat about 57 tonnes of organic waste per day, or about 3% of the daily waste generated in Dar es Salaam. The project combines methane emission reduction for GHG mitigation, with production of electricity, fuel for transport, and fertilizer. The installed capacity of the biogas plant will be 1 MW. The project is being funded by the Global Environmental Facility (GEF) and the Danish International Development Agency (DANIDA). This project is a collaborative effort of the Ministry of Energy and Minerals, the Dar es Salaam City Council, and the University of Dar es Salaam.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** A survey of 20 selected industries to investigate the relationship between production and electricity costs, and sensitivity of production costs to changes in electricity tariff has been implemented by the Tanzania Industrial Research Organization (TIRDO). Walk-through audits, semi-detailed audits, and full energy audits for 41 industries have also been implemented by TIRDO. These activities have been sponsored by the United Nations Industrial Development Organization (UNIDO), the Tanzania Investment Bank (TIB), and the World Bank.

**Financing:** No information available.

**Cooperation:** No information available.

## CHAPTER 4: CHANGING CONSUMPTION PATTERNS - ENERGY

**Decision-Making:** In the energy-sector in Tanzania, a number of actions and programmes relevant to Agenda 21 have been initiated including the development of a National Energy Policy. The main objective of the policy is to establish an efficient energy production, procurement, transportation, distribution, and end-use system in an environmentally sound manner. The strategies for implementing the policy include: more efficient use of energy in the transport and industry sectors; rehabilitation of the electric power generation, transmission and distribution infrastructure; rehabilitation and rationalization of petroleum refining, storage and distribution infrastructure; promotion of alternative energy sources; development and dissemination of efficient wood fuel conversion and utilization technologies; and development and dissemination of simple and affordable kerosene stoves for rural and urban households. In order to meet its energy policy objective, the Government intends to exploit the abundant hydroelectric potential and to develop other indigenous energy sources such as natural gas, coal and petroleum in collaboration with the private sector. The power sector is being restructured. Private participation in investment in the Songo Songo natural gas project is a precursor to wider private sector participation in the energy sector. In the power sub-sector, a number of technological options have been proposed for implementation.

**Programmes and Projects:** The goal of the Takagas project is to reduce emissions of greenhouse gases (GHG) in Tanzania by substituting bioenergy (methane gas and electricity), produced from anaerobic digestion of industrial and municipal waste in the Dar es Salaam area, for fossil fuels. Additional greenhouse gas reduction will be achieved by lowering the uncontrolled release of methane from improperly disposed organic waste. This will produce organic fertilizer. The plant will have the capacity to treat about 57 tonnes of organic waste per day, or about 3% of the daily waste generated in Dar es Salaam. The project combines methane emission reduction for GHG mitigation, with production of electricity, fuel for transport and fertilizer. The installed capacity of the biogas plant will be 1 MW. The project is being funded by the Global Environmental Facility (GEF) and the Danish International Development Agency (DANIDA). This project is a collaborative effort of the Ministry of Energy and Minerals, the Dar es Salaam City Council, and the University of Dar es Salaam.

**Status:** Domestic energy demand in Tanzania has been rising rapidly in recent years because of population growth. Tanzanian forests supply the bulk of the energy demand. Wood accounts for 90% of the total energy used in Tanzania. While the supply of fuelwood is dwindling, demand is rapidly increasing. More than 90% of the population depends on woodfuel energy.

Charcoal is used widely in urban centres with an estimated consumption of 392,000 tonnes per annum and charcoal burners/producers are licensed to burn charcoal in both public woodlands and productive forest reserves. Firewood is mostly used in rural and peri-urban areas.

In 1993 fuelwood consumption was estimated at 45 million cubic meters per annum, with a per capita wood consumption of 2.0 cubic meters of roundwood per annum. The rural areas alone consumed about 43.8 million cubic meters of firewood. By the year 2000, fuelwood demand is expected to surpass 60 million cubic meters. It was also estimated that an average of 45,000 trees of 0.2 cubic meters size were cut daily for fuelwood in the 1980s. Other uses of fuelwood include: fish smoking; salt pans; tobacco curing; bricks and tile kilns; pottery, ceramics, and kaolin production.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** A survey of 20 selected industries to investigate the relationship between production and electricity costs, and sensitivity of production costs to changes in electricity tariff has been implemented by the Tanzania Industrial Research Organization (TIRDO). Walk-through audits, semi-detailed audits, and full energy audits for 41 industries have also been implemented by TIRDO. These activities have been sponsored by the United Nations Industrial Development Organization (UNIDO), the Tanzania Investment Bank (TIB), and the World Bank.

**Financing:** No information available.

**Cooperation:** No information available.

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## **CHAPTER 4: CHANGING CONSUMPTION PATTERNS - TRANSPORT**

**Decision-Making:** The development of the National Energy Policy, with its main objective to establish an efficient energy production, procurement, transportation, distribution, and end-use system in an environmentally sound manner, will effect the transportation industry. The strategies for implementing the policy include more efficient use of energy in the transport and industry sectors.

**Programmes and Projects:** No information available.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 5: DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

**Decision-Making:** Tanzania adopted a National Population Policy (NPP) in 1992. The policy recognizes that there is no simple cause and effect relationship between population growth and economic growth, and that population growth may not be the primary obstacle to development. Nevertheless, it is appreciated that a high population growth rate aggravates the difficult economic situation and renders remedial measures more difficult. At the macro level, a rapid and high population growth rate results in increased outlays on private and public consumption, drawing resources away from savings for productive investment. The NPP spells out as its principal objective, the reinforcement of national development through exploiting available resources to improve the quality of life of the people, with special emphasis on regulating population growth rate, enhancing the quality of life, and improving the health and welfare of women and children. The NPP underscores the following: the impact of population growth on natural resources and the environment; the increased pressure on natural resources, leading to their over-utilization and degradation due to rapid population growth and the increased number of livestock; the increased demand on the environment for land use expansion for agricultural purposes, housing requirements, and recreational amenities; and the need for capacity building, advocacy, and population education through information, education, and communication. Other NPP goals include: the promotion of a sustainable relationship between population, resources, and environment; and the promotion of a more harmonious relationship between urban and rural development in order to achieve a spatial distribution of the population conducive to the optimal utilization of resources.

**Programmes and Projects:** No information available.

**Status:** In 1995, the population of Tanzania was estimated to be 28.9 million. The population has more than doubled since 1967 when it was 12.3 million. Comparable figures for the 1978 and 1988 census were 17.5 million and 23.1 million, respectively. It must be noted that the national census is the main source of population information in Tanzania as the country does not yet have reliable records of births and deaths, nor data on migratory movements. The current population growth rate is 2.8% per year. There are marked differential regional rates of population growth. Generally regional population growth rates are high, above 2.0% per year, with the exception of Mtwara. A number of regions have growth rates higher than 3.0% per year. These include Dar es Salaam, Rukwa, Arusha, Ruvuma and Mbeya. With the exception of Iringa, Mara, and Coast regions, the growth rates of all other regions declined in 1978/88 when compared with the 1967/78 inter-census period. At the national level, population growth is mainly due to natural increase, that is the differences between births and deaths. The population of Tanzania depicts a typical young age structure, with about 46% of its total population below age 15; 50% between the ages of 15 and 64 years; and only 4.3% of the total population being 65 years and older. The implication of this age structure becomes even more important when the proportion of the young population (that is, the population aged 15 – 24 years) is added to the proportion of the population below age 15 years. The proportion of young people increases to about 66% of the total population. Age dependency ratios indicate the estimated number of people supported by one hundred in the working age group 15 – 64 years. The dependency ratio for Tanzania is relatively high because more than 100 persons are being supported by 100 workers. The younger age group is the main contributor to the high dependency ratio in Tanzania. This has implications for the social services needs for this population, especially the provision of education and health care. Due to limited opportunities for schooling beyond primary education, provision of employment for youth is also a major problem. The broad based young population structure of Tanzania has another implication. More and more persons enter child bearing age every year, with the attendant increase of births annually, thus perpetuating the high growth rate of the population. Population distribution is the spread of the population within an area available to them for exploitation. The 28.9 million people living in Tanzania in 1995 occupied a total land area of 885,987 km<sup>2</sup>. Historically, development has been associated with the urbanization of society. In Tanzania, for example, the proportion of the population in the rural area has been decreasing over time. Before independence, the proportion was 97%. It decreased to 95% in 1965, 85% in 1978, and 75% in 1988. It is anticipated that this proportion will decrease further by the year 2000. This population growth trend is linked to rural-to-urban migration. Population distribution and, in particular the urban and rural spread, will be an important factor in Tanzania's development beyond the year 2000. Even with this growth in urbanization, Tanzania is still one of the least urbanized countries



in Africa. The main features of population distribution are: sharp discontinuities in density, with a number of densely populated areas separated from each other by zones of sparse population; the comparatively low population density in much of the interior of the country; and in most parts of the country, rural settlements tend to consist of scattered individual homesteads rather than nuclear villages. The population involved in agriculture has traditionally settled in areas suitable for crop production and mixed farming. Indigenous knowledge of trees and grasses was used as an indicator of land suitability. Today, rainfall and soil fertility are still decisive factors governing population distribution and density. About 10% of the country receives adequate rain (over 1000 mm per annum) and carries 60% of the population; 8% is fairly well watered and carries 18% of the population; 20% is poorly watered and carries 18% of the population; and 62% is poorly watered and carries 1% of the population. Thus, about four fifths of Tanzania's population today is concentrated on only one fifth of its land. The rapid population growth is an environmental concern because of several reasons which include, among others: threatening what is already a precarious balance between natural resources and people; shortening of fallow cycles, exhausting soil nutrients in agricultural activities; and increasing the demand for food and services, and consequently land.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## **CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH**

**Decision-Making:** The Tanzanian Ministry of Health is implementing the various programmes to curb communicable diseases including cholera, malaria, schistosomiasis and diarrhoea diseases. There are also plans to reduce HIV infection levels and implementation of family planning programmes. The Constitution of the Republic of Tanzania was amended in 1984 to provide for the Bill of Rights. Article 14 of the Bill of Rights stipulates that every person has a right to life and to the protection of life by society.

One of the obligations given to governments include the building of basic health infrastructures, paying particular attention to the provision of safe water and food supplies, sanitation services, proper nutrition, health education, immunization and essential drugs.

**Programmes and Projects:** No information available.

**Status:** AIDS seems to be a factor that is likely to affect population growth as well as increase poverty, leading to reduced environmental quality. Its impact on slowing population growth is generally projected to be insignificant due to the current high level of fertility according to recent studies. However, this impact could become severe if the epidemic spreads more rapidly than is considered likely, and if mortality from other diseases were exacerbated as a result of the HIV epidemic.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## **CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT**

**Decision-Making:** Urban services are still in a very poor state. There has been a rapid deterioration of the existing infrastructure and extensive erosion of the level of services available to the rapidly increasing urban population. It is the intention of the government to prepare an urban management service delivery and infrastructure investment policy aimed at creating an effective institutional and financial framework for operating a sustainable service delivery system in urban centres. Already municipalities have been given a greater voice in the management of infrastructure. In the water sector, this is being accomplished through the establishment of urban water and sanitation boards. At least six such boards are now operational.

The government has reoriented policy reforms towards increased allocation of resources to the social sector. Basic social services including primary education, primary health care, nutrition, and rural water supply will benefit from this move. The government has also introduced cost sharing measures as a way of ensuring full participation by the beneficiaries in the sustainable provision of the services. High priorities are accorded to the supply of water and sanitation services to rural and urban areas. However, success in the human settlements sector is hampered by the high investment, operational, and maintenance costs.

**Programmes and Projects:** No information available.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 8: INTEGRATING ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING

**Decision-Making:** The Office of the Vice President is responsible for the Environment. This Office, using the Division of Environment, is responsible for the development of policy options, and coordination of the broad-based environmental programmes and projects. It is also responsible for facilitating meaningful involvement of civil society in environmental activities. The strategic functions of the Office of the Vice President form the basis for the effective inter-ministerial cooperation and coordination, which, for example, has been underscored in the National Environment Policy and the National Environmental Action Plan (NEAP).

The National Environment Management Council (NEMC) was established by an Act of Parliament in 1983 to advise Government in the field of environment. It serves as a think-tank for the Government, undertakes environmental information generation, assembly, and exchange.

Apart from the Vice President's Office and NEMC, many government ministries have been undertaking activities relevant to the implementation of Agenda 21. The complexity and inter-relatedness of the environmental problems have necessitated the involvement of almost every sector in environmental protection.

The Constitution of the Republic of Tanzania was amended in 1984 to provide for the Bill of Rights. Article 14 of the Bill of Rights stipulates that every person has a right to life and to the protection of life by society. In addition, Article 9 of the Constitution requires the Government to ensure that national resources are harnessed, preserved, and applied toward the common good. Although this Article is part of the non-judicial "fundamental objective and directive principles of the state policy" provisions of the Constitution, it portrays the commitment of the Government to ensure sustainable development.

The bill to enact the Tanzania Investment Act, 1997 is under consideration by Parliament. The bill stipulates that one of the functions of the Investment Promotion Center (IPC) will be liaison with appropriate agencies to ensure investment projects use environmentally sound technologies and will restore, preserve, and protect the environment. Under this important step, IPC vets unscrupulous investors who may want to maximize profits at the expense of the environment.

The management of the environment in Tanzania has been undertaken on the basis of a plethora of laws and regulations. Almost the whole corpus of environmental law is statutory based. Few cases have been decided on the basis of these laws. However, the common law of torts on nuisance and negligence are applicable in Tanzania. It should be noted, however, that much of the existing environmental legislation is outdated.

One of the challenges facing Tanzania is taking necessary legislative steps to ensure sustainable development. Of late, the country's environment has been heavily affected by the influx of refugees from Rwanda, Burundi and Zaire. Again, important aspects like air pollution and environmental disaster preparedness are virtually unlegislated. The existing legal framework was not molded to absorb such challenges.

Tanzania has a number of other statutes sometimes referred to as environmental laws, but which are actually resource exploitation statutes. These include the Mining Act (1979), Fisheries Act (1974), Water Utilization and Control Act (1974), and the Forest Ordinance (1959). All these Acts are currently under review to reflect sustainable utilization of resources. The challenge ahead is to incorporate the requisite institutional machinery and enforcement authority, including effective judicial procedures and compliance with international agreements into these laws, and to ensure their periodic review. The government will also try to direct fiscal and economic policies to reflect environmental costs in the daily decision making processes.

A compilation and evaluation of sectoral environmental laws has been undertaken by the Division of Environment. A national workshop to initiate the formulation of a framework environmental legislation and review of sectoral laws was held in September 1995. The workshop proceedings have been prepared, as well as a project proposal to develop the framework and review. Efforts are underway to secure funds to support the preparation process with the Division of Environment now working on new comprehensive environmental legislation.

The National Environmental Policy provides a framework for making fundamental changes that are needed to bring environmental considerations into the mainstream of decision making in Tanzania.

The overall objectives of the National Environmental Policy are, therefore, to ensure sustainable and equitable use of resources without degrading the environment or risking health or safety; to prevent and control degradation of land, water, vegetation, and air which constitute the essential life support systems; to conserve and enhance natural and man-made heritage, including the biological diversity of the unique ecosystems of Tanzania; to improve the condition and productivity of degraded areas including rural and urban settlements in order that all Tanzanians may

live in safe, productive and aesthetically pleasing surroundings; to raise public awareness; to promote individual and community participation; and to promote international cooperation.

The National Environmental Policy also provides for the execution of a range of strategic functions using policy instruments such as environmental impact assessments, environmental legislation, economic instruments and environmental standards, and indicators.

The National Environmental Policy provides a unifying set of principles and objectives for an integrated and multi-sectoral approach addressing the totality of the environment. With the enunciation of the Policy, the main challenge is to ensure that all sectors and interest groups take priority actions in a mutually supportive manner. It is in this regard, therefore, that an action plan has been developed as a first step towards the incorporation of environmental concerns in the national development planning process.

Until recently, environmental issues were the responsibility of sectoral ministries. However, institutional structures and strategies are changing towards cross-sectoral coordination with the growing awareness of the importance, severity, cross cutting, and complex nature of environmental issues. In line with this new thinking, the government is currently reviewing all sectoral policies to ensure that they are consistent with current macro-economic reforms and national environmental policy. The underlying premises of the sectoral policy reviews are the need to balance accelerated economic growth with more efficient and sustainable use of the environment and natural resources; and the need to integrate environmental management into all sectors.

The mining sector policy is aimed at creating an enabling environment for investors in the sector. Specifically, the government intends to revise the legal framework related to mining in order to increase consistency and transparency. In this regard the following legislation is being revised: the Mining Act of 1979; the Income Tax Act of 1973; and the Investment Promotion Act of 1991. The Model Mineral Agreement is also being reviewed and mineral licensing procedures streamlined. The divestiture of public mining companies and the re-organization of the State Mining Company (STAMICO) is underway. The environmental impacts of the mining sector are to be addressed through the Mining Sector Environmental Action Plan which will include provision for health, safety, and environmental regulations.

Agricultural sector development has been undertaken with the objective of increasing the production of food and cash crops in order to improve food security, generate foreign exchange, supply domestic industries with raw materials, and raise rural income levels to alleviate poverty.

In 1995, a comprehensive wildlife sector review was completed. A number of recommendations were given and the government is making a concerted follow up. In addition, the National Parks Ordinance is being reviewed with technical assistance from the Food and Agriculture Organization (FAO).

The Government has reoriented policy reforms towards increased allocation of resources to the social sector. Basic social services including primary education, primary health care, nutrition, and rural water supply will benefit from this move. The government has also introduced cost sharing measures as a way of ensuring full participation by the beneficiaries in the sustainable provision of services. High priority is being accorded to the supply of water and sanitation services to rural and urban areas. However, success in this sector is hampered by the high investment, operational, and maintenance costs.

**Programmes and Projects:** The Integrated Roads Programme (IRP) has made remarkable progress towards the rehabilitation of major roads in the country. The Government intends to strengthen this activity through improvements to the organizational, management, and financial arrangements for this sector. Divestiture plans are underway for the regional transport companies and the Plant and Equipment Hire Company.

The Government of Tanzania has taken important strides to address environmental problems through policy, programme, and the legislative framework. In March 1993, the then Ministry of Tourism, Natural Resources and Environment held a workshop on the national programme and plan of action for the implementation of Agenda 21.

**Status:** The Government, with assistance of the United States Aid for International Development (USAID), will support a five year project on Participatory Environment and Natural Resources Management which will explore the best ways of involving local stakeholders in managing the environment.

**Capacity-Building, Education, Training and Awareness-Raising:** The Vice President's office, through the Division of Environment, is implementing a capacity building project. The project is being funded by the

Norwegian Agency for Development Cooperation. (NORAD) and the United Nations Development Programme (UNDP).

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** UNDP and the United Nations Environment Programme (UNEP) are collaborating on the Joint Project on Environmental Law and Institutions in Africa. The project is being implemented at the sub-regional level involving the three East African states of Kenya, Uganda, and Tanzania. In addition, the Inter-regional Water Law and Policy Advisory Programme involving four countries, namely, Tanzania, Sri Lanka, Niger, and Uganda is funded by the Netherlands Government. A Review of the National Parks Legislation is funded by the United Nations Food and Agricultural Organization (FAO), while a Review of the Land Legislation is funded by the Overseas Development Organization of the United Kingdom.

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## **CHAPTER 9: PROTECTION OF THE ATMOSPHERE**

**Decision-Making:** In order to fulfil the obligations of the UNFCCC, a National Action Plan on Climate Change in Tanzania is under development.

**Programmes and Projects:** Activities in the area of pollution prevention and control include the promotion of awareness to users of chemicals in Lake Zone Regions; training of National Environmental Management Council (NEMC) staff on data base formulation and analysis related to pollution levels and control; preparation of environmental standards for water and air; and industrial pollution monitoring programmes in lake regions Morogoro and Dar es Salaam. These activities are funded by the Swedish International Development Agency (SIDA).

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** Various studies have been undertaken by the Centre for Energy, Environment, Science and Technology (CEEST) on behalf of the Tanzania Government. An inventory of emissions by source and removal by sinks of greenhouse gases in the country has been completed based on 1990 data. A study on the technological and other options for the mitigation of greenhouse gases in Tanzania has also been completed.

**Financing:** No information available.

**Cooperation:** The Vienna Convention for the Protection of the Ozone Layer was acceded to by Tanzania on 7 April, 1993. The Montreal Protocol (1987) and the London Amendment (1990) to the Protocol were acceded to on 16 April, 1993. The United Nations Framework Convention on Climate Change (UNFCCC) was signed by Tanzania on 12 June 1992, and ratified on 1 March 1996.

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## CHAPTER 10: INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

**Decision-Making:** The National Land Use Planning Commission (NLUPC) has undertaken a number of initiatives which are all in accord with Agenda 21. These include, among others, the preparation of the Northern Zone Physical Plan, covering administrative areas of Tanga, Kilimanjaro, and Arusha regions; the preparation of village land use plans for villages in Dodoma district; Urambo District land use plan; and Southern Zone Land Use Plan, covering Lindi, Mtwara, and Ruvuma. For sustainable and systematic utilization of land and land based natural resources, a land policy is essential. Therefore, in 1995, the new Land Policy was adopted. The Ministry responsible for lands is working on translating this policy into legislation. The NLUPC has also conducted research on the development of land use planning and land tenure systems in Tanzania. The study has resulted in the drafting of a national strategy for land delivery. The strategy will reduce competition on land use and stimulate sustainable land use development and natural resource utilization.

**Programmes and Projects:** No information available.

**Status:** Land degradation is reducing the productivity of soils in many parts of Tanzania. Soil loss has been measured in Shinyanga region over a long time period. Rates in the 1970's were twice the rates of the early 1960's (105 tons/ha/year, 1960-1965; 224 tons/ha/year, 1970-1980). Measurements in Dodoma, Morogoro, and Arusha regions suggest similar high rates of soil loss. A number of factors contribute to land degradation. These include, among others, inappropriate cultivation techniques; a growing population; growing energy requirements; over stocking; and insecure land tenure. In the densely populated highland areas, the average farm size has decreased. In some areas, stocking rates have risen well beyond the carrying capacity of the rangelands. The expansion of agriculture has often taken the form of shifting cultivation which is detrimental to vegetation. Traditionally, farmers in Tanzania practice shifting cultivation or "slash and burn" agriculture. Under this system a family can grow crops on the same plot of land for two to three years only and must then move on to another plot, leaving the previous one to lie fallow. Due to population pressure, however, the long periods of fallow with short periods of farming have been replaced by long periods of farming with short fallow periods. This practice does not allow sufficient time for revegetation and recovery of soil fertility. About half of the land area of Tanzania can be categorized as grazing land, but 60% of this is tsetse fly infested. Livestock is therefore concentrated in the semi-arid savanna areas of north and central Tanzania, where grasses are associated with widely scattered shrubs and stunted trees. Two fifths of the livestock population is concentrated in Arusha, Shinyanga, and Mwanza regions, which account for only one fifth of the human population. In many regions the livestock population far exceeds the carrying capacity of the land resulting in overgrazing. In Shinyanga, especially Meatu district, and Mbulu in Arusha region, the excess is reported to be over 200%.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 11: COMBATING DEFORESTATION

**Decision-Making:** In Tanzania, the Ministry of Natural Resources and Tourism is responsible for forest resources. The Forest Ordinance is the major legal instrument of the Tanzania forest policy. It covers the creation and declaration of forest resources. The requirements necessary for declaring an area as a forest reserve are spelled out. The Forest Ordinance is an administrative instrument which enables the establishment of reserves.

The Ordinance will be extended to cover the establishment of institutions other than state forest reserves, such as village forest reserves, controlled areas, silvi-pastoral areas for pastoralists, etc. Minimum management standards for village and private forest lands will be included in the forest ordinance, with a provision that the Forest and Beekeeping Division supervises their enforcement. Key areas will be reserved for biological conservation as strict nature resources. Appropriate incentives in the form of subsidies, subsidized loans or tax reductions are considered desirable for fostering afforestation. The Ministry of Natural Resources and Tourism will take the necessary action to implement these provisions.

Royalties and penalties in the Forest Ordinance Rules are established by the Government in such a way that fees are payable on non-plantation and plantation forest produce by types. These royalties are periodically adjusted. The fees neither reflect the value of forest products to the society nor the resource replacement cost. This contributes to deforestation and forest degradation. At the same time artificially low wood prices are hampering farmers to make investment in tree growing, due to low expected earnings. The Government will in the future subsidize conservation and not consumption.

Tanzania has initiated actions towards incorporating environmental concerns in forestry. These initiatives include the review of sectoral policies (forestry, agriculture, land policy, etc.); and adoption of the Tanzania Forestry Action Plan (TFAP), the National Conservation Strategy for Sustainable Development (NCSSD), the National Environmental Action Plan, and the National Environmental Policy. The first National Forest Policy was enunciated in 1953 and reviewed in 1963 to detail the manner in which forest and tree resources of Tanzania would be managed sustainably to meet the needs of society. The Forest policy is under review in order to reflect social, economic, cultural, and political changes that have taken place since then.

**Programmes and Projects:** Forestry development in the country is centered around the implementation of the TFAP. Contained in the TFAP is a forestry development programme with eight action areas: a) sustainable land husbandry; b) community and farm forestry; c) forest management; d) bioenergy development; e) forest industries; f) beekeeping; g) wildlife management; and h) conservation of ecosystems and biodiversity. One of the important projects in implementing TFAP has been the Forest Resources Management Project. The objective of the project is to improve the management of the forest and woodlands by strengthening the capacities of institutions responsible for developing and implementing forest and land policies

The number of forestry-related projects has increased significantly during TFPA implementation. There are more than 120 forestry-related projects either being implemented or planned. However, implementation success varies. Some programmes, such as land husbandry, and community and farm forestry have progressed well, largely due to donor interest.

Forest research is being carried out by the Tanzania Forestry Research Institute (TAFORI) and the Sokoine University of Agriculture (SUA). The forest research programme of TFAP is based on TAFORI's master plan. This programme is made up of the following elements: a) scientific research in protected forests and woodlands (Eastern Arc, miombo woodland, lowland forests and mangroves); b) silviculture and ecology of non-protection forests and woodlands (Eastern Arc, semi-arid zone and miombo); c) agro-silvopastoral production systems and soil conservation (Eastern arc, lowland forests, semi-arid zone, miombo woodland); d) tree breeding (in all major zones); e) silviculture and ecological management in plantations (highlands, semi-arid zones, Lake zone); f) soils and plantation nutrition (highland plantations, Eastern Arc, lowland forests and for community forestry in all zones); g) growth and yield studies (in plantations); h) forest protection (all zones); and i) timber utilization.

**Status:** It is estimated that the country's forest area has declined from 44,300,000 ha or 50% of total land area in 1938 to 33,096,000 ha or 43% of total land area in 1987. Currently forests are estimated to cover 33.5 million ha. Causes of deforestation are mainly heavy pressure from agricultural expansion, livestock grazing, wildfire, over-

exploitation of wood resources for various purposes, and other human activities. There are no reliable figures on deforestation in Tanzania although according to United Nations Food and Agriculture Organization (FAO) estimates, it ranges from 130,000 to 500,000 ha per annum. The major effect of deforestation is the deterioration of the ecological system with resulting negative impacts on soil fertility, water flows, and biological diversity. Domestic energy demand in Tanzania has been rising rapidly in recent years because of population growth. Tanzanian forests supply the bulk of the energy demand. Wood accounts for 90% of the total energy used in Tanzania. While the supply of fuel wood is dwindling, demand is rapidly increasing. More than 90% of the population depends on wood fuel energy. Charcoal is used widely in urban centres with an estimated consumption of 392,000 tonnes per annum and charcoal burners/producers are licensed to burn charcoal in both public woodlands and productive forest reserves. Firewood is mostly used in rural and peri-urban areas. In 1993, fuel wood consumption was estimated at 45 million cubic meters per annum, with a per capita wood consumption of 2.0 cubic meters of round wood per annum. The rural areas alone consumed about 43.8 million cubic meters of firewood. By the year 2000, fuel wood demand is expected to surpass 60 million cubic meters. It was also estimated that an average of 45,000 trees of 0.2 cubic meters size were cut daily for fuel wood in the 1980s. Other uses of fuel wood include: fish smoking; salt pans; tobacco curing; bricks and tile kilns; pottery, ceramics, and kaolin production. Over the past three decades, perspectives on the role of the forest have changed considerably. There is also pressure arising from the ever increasing demand for wood fuels, fodder, timber and forest land for other uses, especially agriculture. The challenge now is how to manage the forest resources as a national heritage on an integrated basis in order to optimise their environmental, economic, social, and cultural benefits.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 12: MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

**Decision-Making:** The International Convention to Combat Desertification in Countries Experiencing Drought and/or Desertification Particularly in Africa signed by Tanzania in 1997 is being implemented through a consultative and participatory process which gathers all concerned actors of civil society. It is seen as a springboard for a process of improving the standards of living of rural communities, particularly in arid and semi-arid areas of the country. The Convention also provides a focal point for coordination, planning, monitoring, and evaluation of the many, sometimes conflicting and overlapping projects, related to land degradation. The problems of land degradation and desertification continue to be major threats to the environment and have been identified as priority problems in the National Environmental Policy, the National Conservation Strategy for Sustainable Development (NCSSD), the National Environmental Action Plan (NEAP), and the Tanzania Forestry Action Plan (TFAP). Institutional arrangements for the implementation of the Convention have been finalized. A National Steering Committee has been established and is composed of members from relevant government ministries and departments. The Committee is charged with providing guidance and advising the government on the implementation of the National Plan to Combat Desertification (NAP). Both a National Secretariat and a National Technical Committee for the NAP process have been established. The Technical Committee is composed of representatives from the Government, NGOs, and the business community.

**Programmes and Projects:** Tanzania is already taking initiatives to implement interim measures called for under the resolution on "Urgent Action for Africa" which was adopted during the conclusion of the Convention in Paris in June 1994. For example, direct anti-desertification activities have involved the establishment of a drought and desertification control unit within the National Environment Management Council (NEMC), and the formulation of the NAP. In addition, the Government has taken a number of remedial measures to address the problem of desertification in the affected areas by launching conservation/control projects. The growing awareness of the problem of desertification has led to a number of new district and regional based programmes initiated through the Ministry of Tourism and Natural Resources. These projects include: Land Management Programme for Environment Conservation (LAMP) in Babati District; Kigoma and Rukwa Integrated Development Programme; Hifadhi Ardhi Dodoma (HADO) and Hifadhi Ardhi Shinyanga (HASHI), two soil and water conservation projects addressing forestry, land-use and livestock in an integrated fashion; Hifadhi Mazingira (HIMA) a regional based soil and water conservation programme in Iringa region; Soil Erosion Control and Agroforestry Programme (SECAP) in Lushoto, dealing with soil, land, and water conservation; Soil Conservation and Agroforestry Programme (SCAPA) in Arumeru, dealing with soil, and water conservation.

**Status:** The productivity of soils has been considerably reduced in many parts of Tanzania. Land degradation also results from the removal of woody vegetation especially when the rate of removal is higher than the rate of regeneration. Only 3.2% of Tanzania is covered by closed dense forests. The remainder of forest comprise mainly of miombo woodlands and large areas of thorn-bush. According to the United Nations Sudano Sahelian Office (UNSO), about 33% of Tanzania is affected by desertification. The most affected areas are those in the arid, semi-arid, and dry sub humid areas with potential economic resources and biodiversity which are most vulnerable to land degradation.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** In order to implement the Desertification Convention, particularly at the grassroots level in Tanzania, a financial mechanism will be established. The process of establishing a National Desertification/Environment fund has been started. A National Task Force has been formed and has been charged with carrying out consultations for the establishment of the fund. The fund is intended to support community level anti-desertification and drought

mitigating activities. It is to be established as a trust, and will offer grants for the implementation of projects at grassroots level.

**Cooperation:** The International Convention to Combat Desertification in Countries Experiencing Drought and/or Desertification Particularly in Africa was signed by Tanzania on April 16, 1997. Since the first UN Conference on Desertification held in Nairobi, in 1977, the issue of desertification has been on the international agenda as a world wide economic, social, and environmental problem. The UNSO was set up to provide assistance to drought prone countries in West Africa, but later on expanded its assistance to cover 22 countries south of the Sahara and north of the Equator. Tanzania is one of these countries. In Tanzania, the NAP process has been initiated and is being funded by the Danish International Development Agency (DANIDA). A Memorandum of Understanding to this effect was signed by the United Nations Development Programme (UNDP), UNSO, and the Government in 1996.

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## **CHAPTER 13: MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT**

**Decision-Making:** No information available.

**Programmes and Projects:** No information available.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

**Decision-Making:** The Government of Tanzania has had an Agricultural Policy in place since 1983. Emphasis has been put on increased output and efficiency of agricultural production at the village level; timely delivery and efficient use of energy inputs into agriculture; increase in use of tractors and/or animal-drawn implements for farming; introduction of village-level transport and the use of small scale human or draught-animal-powered technologies; use of renewable energy resources; and introduction of improved efficiency barns for curing tobacco, drying tea, and smoking fish to reduce the use of woodfuel. In its 1993 revised form, the policy has also underscored the promotion and adoption of environmentally friendly technology and methods through collaboration with other ministries and institutions, enhancing environmental awareness through education extension services, and undertaking further research and dissemination of sustainable agricultural practices. The National Land Policy reinforces the objectives of the Agricultural Policy especially in the treatment of shifting cultivation which contributes to land and soil degradation. It is stipulated in the National Land Policy that shifting cultivation will be controlled through the allocation of land to peasants on a tenure basis.

**Programmes and Projects:** No information available.

**Status:** Agriculture is the mainstay of the economy. It employs about 80% of the work force and accounts for over 50% of Gross Domestic Product (GDP) at factor cost and over 50% of foreign exchange earnings. It is also the major source of food supply and raw material for the industrial sector. Furthermore it provides the market for industrial products. The major export cash crops are cotton and coffee. Agricultural sector development has been undertaken with the objective of increasing the production of food and cash crops in order to improve food security, generate foreign exchange, supply domestic industries with raw materials, and raise rural income levels to alleviate poverty. Short term policies in this sector have focused on removing price distortions and minimizing losses due to inefficiencies in marketing and in process industries respectively. Direct involvement and control of the agricultural sector by the Government has been reduced. Emphasis is being put on research and extension services.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

**Decision-Making:** The Convention on Biological Diversity gives an opportunity for Tanzania to contribute to the global initiatives for the conservation of biological resources and makes it eligible to benefit from technology transfer, financial assistance, scientific and research cooperation, and capacity building. In addition, Tanzania stands to benefit from other provisions of the Convention relating to: research and training; public education and awareness; the need for impact assessments with respect to projects that may threaten genetic resources, species, or habitat; exchange of information; and technical cooperation. These provisions provide avenues for the development of a technical, social and management infrastructure that is conducive to better protect Tanzanian biological diversity. It also creates a basis for exchange and cooperation among country parties. CITES endeavours to regulate and restrict trade in endangered species, both between member parties, and between member parties and non-members. The Convention covers both flora and fauna, including captive bred (non-wild) species. This Convention mandates signatories to establish a Management Authority responsible for issuing permits, and a Scientific Authority responsible to advise the Management Authority. Such advice might include whether export of a species would be detrimental to its survival. Pursuant to the Convention, Tanzania designated the Wildlife Division of the Ministry of Tourism and Natural Resources to be the Management Authority, while the Scientific Authority is an individual scientist. Tanzania has also in the recent past conducted a thorough wildlife sector review and assessment.

**Programmes and Projects:** A number of programmes and projects supporting biodiversity in Tanzania result from international cooperation. The Lake Victoria Environmental Management Programme is a joint initiative of the three East African countries Kenya, Uganda, and Tanzania. The objective is to implement a five year programme for strengthening regional coordination in the management of the Lake resources, including fisheries management, control of water hyacinth, management of water quality and land use, including wetlands. Formulation of the Programme was completed in December 1995. The project has secured funds from the World Bank and the Global Environment Facility (GEF) totalling US\$20.4 million. A secretariat is in place and implementation of the project started in March 1997. The long term goal of a capacity building for environmental management and pollution abatement project is to improve the environmental condition in Mwanza, and consequently Lake Victoria. The project, funded by the Danish International Development Agency (DANIDA), is to be implemented in 1998-2000. It will promote environmentally sustainable socio-economic strength and development through the preparation of a dynamic strategic development plan and investment strategy to address problems of soil erosion, water pollution, solid and hazardous waste, and industrial waste water. It also aims at increasing awareness and participation of stakeholders in the minimization and prevention of pollution. The Lake Tanganyika biodiversity and pollution control project is a five year regional project of the riparian states of Burundi, Tanzania, Zaire, and Zambia. The project aims to control pollution and to prevent the loss of the exceptional diversity of Lake Tanganyika. The preparation process, approved in September 1995, has commenced. The United Nations Development Programme (UNDP) and GEF are the funding agencies for the project which is expected to cost US\$10 million. The overall objective of a National biological diversity country study project has been to gather and analyze biological and socio-economic data that would provide an information base for the development of national strategies, programmes, and action plans for the conservation and sustainable use of Tanzania's biological diversity. This study, covering the Tanzania mainland only, was undertaken between April 1995 to March 1996, with the consolidation of the report accomplished by October 1996. The study engaged local experts from Government and NGOs. The National Environment Management Council (NEMC) coordinated this project on behalf of the government.

**Status:** The extensive national parks, 'the Eastern Arc' mountains, wetlands, coastal forests, marine and fresh water systems as outstanding reservoirs of plant and animal species make Tanzania one of the world's greatest reservoirs of wildlife and biodiversity. Statistics indicate that of the 10,000 plant species so far recorded, over a quarter are endemic. Tanzania is also home to 31 endemic species of amphibians, 18 endemic species of lizards, 9 species of snakes, 10 bird species, forty percent of the world's wild coffee varieties, and about 80% of the famous African violet flowers. Tanzania is a custodian of world heritage in the form of game reserves and national parks. The Selous Game Reserve, the Ngorongoro Crater and Serengeti National Park are World Heritage Sites. Lake Manyara

National Park, the Ngorongoro Crater and Serengeti National Park have been designated as biosphere reserves. Land and natural resource use conflicts in buffer zones and poaching are major problems in these areas.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** A study to develop a strategy for the conservation of coastal biological diversity of mainland Tanzania was completed by the Centre for Environmental Engineering and Science Technologies (CEEST) under the auspices of the Tanzania Division of Environment, and funded by the World Bank. The study has identified some implications for specific biodiversity objectives in relation to sectoral programmes and forestry, agriculture, industry, and tourism interests in coastal Tanzania.

**Financing:** No information available.

**Cooperation:** The Convention on Biological Diversity was signed by Tanzania on 12 June 1992, and ratified on 1 March 1996. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was ratified by Tanzania on 29 November, 1979. Supporting CITES, the Regional Lusaka Agreement on cooperative enforcement operations directed at illegal trade in wild fauna and flora, adopted in 1994, was signed by Tanzania on 8 September 1994. The Convention on the Conservation of Migratory Species of Wild Animals, was adopted in 1979. The International Plant Protection Convention, was adopted in 1951. The Convention Concerning the Protection of the World's Cultural Heritage, adopted in 1972, was ratified by Tanzania on 20 November 1987.

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## **CHAPTERS 16 AND 34: ENVIRONMENTALLY SOUND MANAGEMENT OF BIOTECHNOLOGY AND TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY, COOPERATION AND CAPACITY-BUILDING**

### **Decision-Making:**

*Technologies:* No information available.

*Biotechnologies:* No information available.

### **Programmes and Projects:**

*Technologies:* The Cleaner Production Centre of Tanzania (CPCT), established in October 1995, is part of the world-wide United Nations Environment Programme (UNEP)/United Nations Industrial Development Organization (UNIDO) National Cleaner Production Centres (NCPCs) project. UNIDO and UNEP have joined forces to help promote cleaner production in developing countries where the economy is in transition over a period of five years. The main objective of the CPCT is to facilitate the transfer of technical information, know-how, and cleaner technology from developed and developing countries to industrial enterprises and environmental management agencies in Tanzania, in order to incorporate cleaner production techniques and technologies in industrial pollution reduction programmes. CPCT is a semi-autonomous body within the Tanzania Industry Research and Development Organization (TIRDO) and is managed by experienced national professionals. The Centre, under the Director, is governed by an Advisory Board comprising of members from the Government, industry, academia, R&D institutions, NGOs, and TIRDO. The Advisory Board guides the Centre in the preparation of its strategic and annual work plans, oversees the programme accomplishments and financial expenditures, gives guidance in policy, and provides advisory dialogue with the Government and industry. CPCT serves a coordinating and catalytic role for cleaner production in the country through four major activities, such as collection and dissemination of information on cleaner production to its stakeholders which include industry, government agencies, NGOs, R&D institutions, and academia, supporting the demonstration of cleaner production techniques and technologies in industry, training industry personnel and government officials on this new area of environmental management, and advising policy makers on the promotion of cleaner production.

*Biotechnologies:* No information available.

### **Status:**

*Technologies:* The agro-industries, which include the sugar, sisal, vegetable oil/fat refineries, dairies, breweries, cotton ginneries, distilleries, coffee processing factories, and tanneries, use technologies which can cause environmental problems in the form of pollution. Heavy-industries include: Aluminium Africa (ALAF); the Southern Paper Mills (SPM); the Tanzanian and Italian Petroleum Refinery Company (TIPER); and the three cement factories (Dar es Salaam, Tanga, and Mbeya). Except for SPM, all the other industries are located in urban areas. Their environmental effects, therefore, are bound to be even more apparent. The underlying causes of industrial pollution in Tanzania result from the use of inappropriate and harmful technologies; the lack of awareness on cleaner production technologies; the lack of investment capability in acquiring and diffusing newer and cleaner technologies; the lack of capability to introduce minor changes to the existing technologies; and the lack of a maintenance culture. The greatest challenge facing all nations is still one of achieving sustainable development resulting in improvements to welfare. In this regard, technology plays a very crucial role. In Tanzania almost all modern technology has to be imported. In the process, possibilities exist for importing environmentally 'unfriendly' technologies. Industry is the sector which can be adversely affected because it depends on and utilizes imported technology.

*Biotechnologies:* No information available.

### **Capacity-Building, Education, Training and Awareness-Raising:**

*Technologies:* No information available.

*Biotechnologies:* No information available.

### **Information:**

*Technologies:* No information available.

*Biotechnologies:* No information available.

**Research and Technologies:**

*Technologies:* No information available.

*Biotechnologies:* No information available.

**Financing:**

*Technologies:* No information available.

*Biotechnologies:* No information available.

**Cooperation:**

*Technologies:* No information available.

*Biotechnologies:* No information available.

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**CHAPTER 17: PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES.**

**Decision-Making:** Tanzania stands to benefit from The Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (the Nairobi Convention) and its Protocols. Priority areas include coastal management, pollution monitoring, contingency planning to combat marine pollution, coastal erosion, and environmental impact assessment. Parties cooperate in information sharing on the conservation and management of natural resources, and exchange expertise within the sub-region. In 1994, the Marine Parks and Reserve Act (No. 29 of 1994) was enacted. This new Act aims, inter alia, to protect, conserve, and restore the species and genetic diversity of living and non-living marine resources and the ecosystem processes of marine and coastal areas. It also marks the beginning of the enactment of environmental legislation which includes community-based conservation through the involvement of villagers and local resident users dependent on a marine park or marine reserve. These stakeholders are involved in all phases of the planning, development and management of the particular marine park or reserve, and share in the benefits of its operation as a protected area. The Mafia Marine Park is the first marine park to be established in the country.

**Programmes and Projects:** No information available.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** The United Nations Convention on the Law of the Sea was ratified by Tanzania on 30 September 1985. Other relevant Conventions or Treaties to oceans and coastal area management in Tanzania include: the Convention on the Continental Shelf, adopted in 1958; The Convention on the High Seas, adopted in 1958; the International Convention for the Protection of Pollution from Ships, adopted in 1973; and the International Convention on Oil Pollution Preparedness, Response and Cooperation, adopted in 1990. The Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (the Nairobi Convention), was adopted on 21 June 1985 and acceded to by Tanzania on 1 March 1996. This regional Convention includes two Protocols and an Action Plan. The objective of the Convention is to ensure sound environmental management of the maritime and coastal areas of the East African region. It provides a framework for the protection and development of marine and coastal resources. The protocols focus on the conservation of flora and fauna and on measures for combating marine and coastal pollution. The Convention is an initiative considering the economic and social value of the Eastern African marine and coastal environment, the unique hydrographic and ecological characteristics of the region, local shortcomings in the integration of environmental protection in national planning, and the inability of the more broad-based environmental conventions "to entirely meet the special requirements of the Eastern African region."

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## **CHAPTER 18: PROTECTION OF THE QUALITY AND SUPPLY OF FRESHWATER RESOURCES: APPLICATION OF INTEGRATED APPROACHES TO THE DEVELOPMENT, MANAGEMENT AND USE OF WATER RESOURCES.**

**Decision-Making:** The overall national objective of the Water Policy is to provide adequate clean and safe water within easy reach, to satisfy other water needs, and to protect water sources. Specific environmental objectives of the water policy include: protection of water catchment areas; promotion of efficient use of water; promotion of efficient water treatment, and waste water treatment; promotion of water recycling; institution of water charges that reflect full value of water resources; prevention of water pollution; and improved management and conservation of water bodies and wetlands.

**Programmes and Projects:** The river basin management and small-holder irrigation improvement project aims to strengthen national capacity to manage water resources, and to address national water-related environmental concerns and those in the Rufiji and Pangani River Basins. Furthermore, it is intended to improve irrigation efficiency of selected small-holder traditional irrigation schemes in the river basins. The project is financed by the International Development Association (IDA) and implemented by the Ministries of Water and Agriculture.

**Status:** Aquatic resources in Tanzania include: fresh water ecosystems, wetlands, lakes and rivers. These resources provide the livelihood and food source for a significant part of the population. They also contribute to the tourist industry. Concerns over aquatic resources in Tanzania arise because of such practices as environmentally destructive fishing using dynamite, excessive trawling, chemical poisoning, and use of small mesh size nets. Ground water is a key source of water for both rural and urban areas in Tanzania. It is the source of water for the municipalities of Arusha, Dodoma, and Mtwara. Shallow aquifers are emphasized for water supply because they are less costly. However, their vulnerability to pollution is high. The increased pressure on surface water is due to a number of factors. Surface water levels are reported to have been decreasing because of loss of vegetation cover and changes in land use patterns, resulting from population increases. Rivers which used to be perennial have become intermittent. While irrigation is expected to increase, unregulated abstraction of water is already a source of concern in all major river basins. The demand for water in a number of major urban centres is increasing because the population is also increasing at a fast rate. In urban areas the largest use of water is household consumption. In Dar es Salaam, for example, domestic consumption accounts for approximately 70% of the total water used. Industry typically accounts for about 10-20% of total consumption. The demand for water exceeds supply in most urban centres. In rural areas water is used primarily for domestic purposes and for livestock. The total amount of irrigated land remains limited despite considerable potential, particularly within the major river basins such as the Pangani and Rufiji. Nationally approximately 150,000 ha are under irrigation. Irrigated areas are usually small scale projects with predominant crops of rice and sugar cane. The development potential for irrigation is large, with almost 900,000 ha being suitable. Over 50% of this total is in the Rufiji River Basin, where water allocation conflicts are already evident. In addition, some 80,000 ha are located in the Ruvu Basin, the current source of water for Dar es Salaam, and another 85,000 ha in the nearby Wami Basin. Water is also used for the production of electricity. Eighty percent of installed electric generation capacity relies on hydropower. The two large projects, Mtera and Kidatu in the Rufiji River Basin, account for most of the hydropower capacity (280MW), while four smaller projects in the Pangani Basin account for approximately 70MW. Conflicting priorities of water use in the Rufiji Basin, combined with the effects of land degradation on sustained low flows and low precipitation, have created water shortages. Barely 65% of urban and 43% of rural residents in Tanzania have access to potable water within 400 metres. Thus, providing safe drinking water, and environmentally acceptable sanitation and sewage treatment remain priority issues in Tanzania. The Ministry of Agriculture, with assistance from the United Nations Food and Agriculture Organization (FAO) and the United Nations Development Programme, has been reviewing experience with irrigation projects. The conclusions reached are as follows: Emphasis should remain on existing small holder schemes, and future development should be based on stage improvement and expansion of existing local technology, which allow farmers to adapt at their own pace. Equal emphasis should be given to operational and extension support to farmers at existing schemes. Projects undertaken to-date have been too sophisticated, requiring expensive structures and massive capital outlays. The funds for completing these projects have often not materialized, causing a waste of resources invested in unused, and uncompleted schemes. For small holder

irrigation schemes to succeed, management of water and land use should be in the hands of associations representing the interests of small scale farmers. A ranking of potential projects has been made, and a small holder-focused irrigation rehabilitation and development programme has been proposed.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** See under **Status** .

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**CHAPTER 19: ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS,  
INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN  
TOXIC AND DANGEROUS PRODUCTS.**

**Decision-Making:** No information available.

**Programmes and Projects:** No information available.

**Status:** Recognizing the dangers of releasing pollutants into the atmosphere, the chemical industry in Tanzania has embarked on identifying and reducing pollutants by adding effluent treatment and scrubbing units to existing processes. A few operators have succeeded in optimising operations in order to reduce fugitive emissions and waste generations. An example is the introduction of membrane separation to replace mercury-based techniques in the calor-alkali industry. Some firms have been able to substitute dangerous organic chemicals and trichloroethylene with less hazardous alternatives.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTERS 20 TO 22: ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS, SOLID AND RADIOACTIVE WASTES.

### Decision-Making:

*Hazardous wastes:* The Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal prohibits importation or exportation to Africa of hazardous substances banned or refused registration in the country of manufacture on account of human health or environmental concerns. Thus, the Government of Tanzania banned importation of dichlorodiphenyltrichloroethane (DDT) into the country. The Bamako Convention also makes illegal trafficking of hazardous wastes a criminal offence and extraditable among parties. Parties also committed to establish appropriate national legislation to prevent and punish illegal traffic. Tanzania has yet to enact such legislation.

*Solid wastes:* The provision of environmentally acceptable sanitation and sewage treatment, together with access to safe drinking water remain priority issues in Tanzania. Specific environmental objectives of the Water Policy include promotion of efficient use of water; promotion of efficient water treatment, and waste water treatment; promotion of water recycling; institution of water charges that reflect full value of water resources and; prevention of water pollution.

*Radioactive wastes:* No information available.

### Programmes and Projects:

*Hazardous wastes:* No information available.

*Solid wastes:* Taka is a Swahili word for waste and Takagas is therefore gas from waste. The goal of the Takagas project is to reduce emissions of greenhouse gases (GHG) in Tanzania by substituting bioenergy (methane gas and electricity), produced from anaerobic digestion of industrial and municipal waste in the Dar es Salaam area, for fossil fuels. Additional greenhouse gas reduction will be achieved by lowering the uncontrolled release of methane from improperly disposed organic waste. This will produce organic fertilizer. The plant will have the capacity to treat about 57 tonnes of organic waste per day, or about 3% of the daily waste generated in Dar es Salaam. The project combines methane emission reduction for GHG mitigation, with production of electricity, fuel for transport and fertilizer. The installed capacity of the biogas plant will be 1 MW. The project is being funded by the Global Environmental Facility (GEF) and the Danish International Development Agency (DANIDA). This project is a collaborative effort of the Ministry of Energy and Minerals, the Dar es Salaam City Council, and the University of Dar es Salaam.

*Radioactive wastes:* No information available.

### Status:

*Hazardous wastes:* No information available.

*Solid wastes:* No information available.

*Radioactive wastes:* No information available.

### Capacity-Building, Education, Training and Awareness-Raising:

*Hazardous wastes:* No information available.

*Solid wastes:* No information available.

*Radioactive wastes:* No information available.

### Information:

*Hazardous wastes:* No information available.

*Solid wastes:* No information available.

*Radioactive wastes:* No information available.

### Research and Technologies:

*Hazardous wastes:* No information available.

*Solid wastes:* No information available.

*Radioactive wastes:* No information available.

**Financing:**

*Hazardous wastes:* No information available.

*Solid wastes:* No information available.

*Radioactive wastes:* No information available.

**Cooperation:**

*Hazardous wastes:* The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was acceded to by Tanzania on 7 April 1993. The Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa was adopted in 1991. Tanzania ratified the Convention on 7 April 1993. The Bamako Convention takes its cue from the Basel Convention on the control of transboundary movements of Hazardous Wastes and their Disposal (1989). In addition, the Organization of African Unity (OAU) decided to formulate a legal framework that would complement the Basel Convention. The latter does not prohibit exports of hazardous wastes from industrialized countries to developing countries.

*Solid wastes:* No information available.

*Radioactive wastes:* No information available.

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## CHAPTERS 24 TO 32: STRENGTHENING THE ROLE OF MAJOR GROUPS

**Women:** Decision-making: The Tanzanian Government through the Ministry of Women, Children and Community Development is keen to enhance women's participation in development and environmental management through credit provision, encouraging the use of fuel efficient cooking stoves, training on various development issues, and other activities. Status: In Tanzania, as in many other developing countries, the social position of women makes them closer to the environment than men. Since the division of labour (mostly in rural areas) is still gender-based, women perform chores like fuel wood collection, water fetching from distant places, hand-hoe cultivation, etc. Notwithstanding the importance of involving women in natural resource management, women continue to be inhibited by some traditions and by statutory provisions in Tanzania's laws. For example, some codified customary laws prevent a woman from inheriting land in the event of the death of her husband or father. The government through the Law Reform Commission is working to amend and/or repeal such discriminatory laws.

**Children and Youth:** Decision-making: The government in 1996 enacted the Vocational Education and Training Authority Act through which a statutory fund was launched for purposes of supporting vocational training. Status: Tanzania's employment in the formal sector depicts a downward trend falling from 12% in 1978 to 5.5% in 1995. Reasons for this fall include, among others, the fall in the Gross National Product, growth of the number of graduates, and shrinkage of the public sector. In Tanzania, youth make up a substantial part of the population and a significant part of its working population. There is a need therefore to involve them in major decisions. To this end, development plans should contain initiatives to provide the youth (and the general population) with a healthy environment, improved standards of living, education and employment opportunities.

**Indigenous People:** No information available.

**Non-Governmental Organizations:** Decision-making: Most NGOs were formed after the Bill of Rights came into force in 1987. This Bill guaranteed the right to free association and freedom of speech. However, the regulatory framework for NGOs is based on the Societies Ordinance Cap. 337 of the Laws of Tanzania which was mainly meant to govern charitable organizations. Status: Most of the NGOs are either registered as societies under the Ministry of Home Affairs or as companies limited by guarantee under the Registrar of Companies. Generally speaking, the smaller NGOs are community based and are continuously affected by problems of poor leadership and lack of financial resources. Donor dependence has also affected the functioning of most NGOs. Research NGOs are affiliated with universities and academic institutions. In Tanzania, NGOs have been playing a very important role in managing the environment and spearheading development programmes. NGOs render technical support to community-based projects. They are familiar with community problems, needs, and solutions. They also assist communities in interpreting laws and regulations

**Local Authorities:** Programmes and Projects: Participatory Environmental Resource Management (PERM) is a US\$10 million five year project whose objective is to strengthen environmental management through the encouragement of community-based natural resource management (CBNRM) in Tanzania. The project will assist the government, NGOs, the private sector, and individuals to identify and implement CBNRM programmes based on indigenous knowledge, practices, and experience. Project implementation has started.

**Workers and Trade Unions:** Cooperation: The following conventions are relevant to workers and trade unions in Tanzania: the Convention Concerning the Protection of Workers Against Occupational Hazards in the Working Environment due to Air Pollution, Noise and Vibration, adopted in 1977, entered into force in Tanzania on May 30, 1984; the Convention Concerning Occupational Safety and Health, and the Working Environment, adopted in 1981; and the Convention Concerning Prevention and Control of Occupational Hazards Caused by Carcinogenic Substances and Agents, adopted in 1974.

**Business and Industry:** Decision-making: The Government has appointed a Business Sector Advisory Committee on Economic Empowerment and Environmental Management. Some of the main tasks of the committee are to advise the government on policies related to poverty alleviation and environmental management; and the enabling

environment necessary for the business community to participate effectively in economic empowerment and environmental management. The Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA) has formed a committee on natural resources and environment with the main objective of raising the awareness of the business community on environmental issues so as to integrate environmental responsibility in company policies. The government will work with the business community in drafting national procedures for environmental impact assessment; the evolution of national environmental standards; and in the implementation of international conventions, protocols, and other agreements to which Tanzania is a party. A national partnership is required if the goal of sustainable development is to be achieved.

In 1996, the Government of Tanzania launched the Sustainable Industrial Development Policy (SIDP) (1996-2020) with the main mission to contribute towards the achievement of the overall national long-term development goals as enshrined in the overall national vision, and to enhance sustainable development of the industrial sector. The main objectives of the policy are: human development; creation of employment opportunities; sustainable economic growth; environmental sustainability; and equitable development. The SIDP has underscored the role science and technology, and Research and Development (R&D) have played in the attainment of desired goals. There is a very weak link between the few local R&D institutions and the productive sector in the country. Industrialists do not appreciate the role of R&D activities, and much R&D work is perceived as not addressing the actual needs of the productive sector. To address this situation, the following measures will be undertaken: a) strengthening existing scientific and technological institutions by providing them with adequate finances, expertise, infrastructure facilities, and schemes for retention of technical experts; b) rationalization and synchronization of R&D institutions; and c) articulation of areas for collaboration between manufacturers and the local R&D network.

**Programmes and Projects:** In the industry-sector, a number of sustainable development initiatives have been initiated in Tanzania. These include, for example, the development of sustainable industrial development policy; reducing pollutants by adding effluent treatment and scrubbing units to existing processes in the chemical industry; and establishing a Cleaner Production Centre of Tanzania (CPCT). The substitution of deleterious technologies by environmentally friendly technologies involves huge capital investments. Therefore, most operators of industry in Tanzania have opted for add-on technologies and optimising existing processes. The chemical industry in Tanzania has started to identify and reduce pollutants by adding effluent treatment and scrubbing units to existing processes in recognition of the dangers of releasing pollutants into the atmosphere. A few operators have succeeded in optimizing operations in order to reduce fugitive emissions and waste generations. The introduction of membrane separation to replace mercury-based techniques in the calor-alkali industry represents one example. Some firms have been able to substitute dangerous organic chemicals and trichloroethylene with less hazardous alternatives. The Cleaner Production Centre of Tanzania (CPCT), established in October 1995, is part of the world-wide United Nations Environment Programme (UNEP)/United Nations Industrial Development Organization (UNIDO) National Cleaner Production Centres (NCPCs) project. UNIDO and UNEP have joined forces to help promote cleaner production in developing countries where the economy is in transition over a period of five years. The main objective of the CPCT is to facilitate the transfer of technical information, know-how, and cleaner technology from developed and developing countries to industrial enterprises and environmental management agencies in Tanzania, in order to incorporate cleaner production techniques and technologies in industrial pollution reduction programmes. CPCT is a semi-autonomous body within the Tanzania Industry Research and Development Organization (TIRDO) and is managed by experienced national professionals. The Centre, under the Director, is governed by an Advisory Board comprising of members from the Government, industry, academia, R&D institutions, NGOs, and TIRDO. The Advisory Board guides the Centre in the preparation of its strategic and annual work plans, oversees the programme accomplishments and financial expenditures, gives guidance in policy, and provides advisory dialogue with the Government and industry.

**Scientific and Technological Community:** Decision-making: Recognizing the importance of science and its potential impact on sustainable development, the government of Tanzania has put in place a Higher Education Policy to provide the direction and guidance to stakeholders and service providers. The policy has placed emphasis on the teaching of basic sciences and the development of corresponding skills. With regard to environmental sciences, the policy singles out the following subjects for inclusion in the national curriculum: the study and prediction of climatic and global change as a result of human activity on the environment; environmental pollution including water and air pollution with the disposal of toxic and radioactive wastes; disaster management; energy

conservation; environmental conservation and enrichment; the effects of chemicals, drugs, pharmaceutical, fertilizers, etc. on the environment; and biodiversity and genetic engineering.

**Farmers:** No information available.

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## **CHAPTER 33: FINANCIAL RESOURCES AND MECHANISMS**

This issue has been covered under the heading **Financing** in the various chapters of this Profile.

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## **CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT**

**Decision-Making:** Recognizing the importance of science and its potential impact on sustainable development, the government of Tanzania has put in place a Higher Education Policy to provide the direction and guidance to stakeholders and service providers. The policy has placed emphasis on the teaching of basic sciences and the development of corresponding skills. With regard to environmental sciences, the policy singles out the following subjects for inclusion in the national curriculum: the study and prediction of climatic and global change as a result of human activity on the environment; environmental pollution including water and air pollution with the disposal of toxic and radioactive wastes; disaster management; energy conservation; environmental conservation and enrichment; the effects of chemicals, drugs, pharmaceutical, fertilizers, etc. on the environment; and biodiversity and genetic engineering.

**Programmes and Projects:** No information available.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** No information available.

**Financing:** No information available.

**Cooperation:** No information available.

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## **CHAPTER 36: PROMOTING EDUCATION, PUBLIC AWARENESS AND TRAINING**

This issue has been covered under the heading **Capacity-Building, Education, Training and Awareness-Raising** in the various chapters of this Profile.

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**CHAPTER 37: NATIONAL MECHANISMS AND INTERNATIONAL COOPERATION FOR  
CAPACITY-BUILDING IN DEVELOPING COUNTRIES.**

This issue has been covered either under Chapter 2 or under the heading **Cooperation** in the various chapters of this Profile.

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## **CHAPTER 38: INTERNATIONAL INSTITUTIONAL ARRANGEMENTS**

This issue deals mainly with activities undertaken by the UN System.

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## **CHAPTER 39: INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS**

This issue has been covered under **Cooperation** in the various chapters of this Profile.

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## **CHAPTER 40: INFORMATION FOR DECISION-MAKING**

This issue has been covered either under Chapter 8 or under the heading **Decision-Making** in the various chapters of this Profile.

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## CHAPTER: INDUSTRY

**Decision-Making:** In the industry-sector, a number of sustainable development initiatives have been initiated in Tanzania. These include, for example, the development of sustainable industrial development policy; reducing pollutants by adding effluent treatment and scrubbing units to existing processes in the chemical industry; and establishing a Cleaner Production Centre of Tanzania (CPCT). In 1996, the Government of Tanzania launched the Sustainable Industrial Development Policy (SIDP) (1996-2020) with the main mission to contribute towards the achievement of the overall national long-term development goals as enshrined in the overall national vision, and to enhance sustainable development of the industrial sector. The main objectives of the policy are: human development; creation of employment opportunities; sustainable economic growth; environmental sustainability; and equitable development. The SIDP has underscored the role science and technology, and Research and Development (R&D) have played in the attainment of desired goals. The development of the National Energy Policy, with its main objective to establish an efficient energy production, procurement, transportation, distribution, and end-use system in an environmentally sound manner, will affect industry. The strategies for implementing the policy include more efficient use of energy in the transport and industry sectors.

**Programmes and Projects:** The Cleaner Production Centre of Tanzania (CPCT), established in October 1995, is part of the world-wide United Nations Environment Programme (UNEP)/United Nations Industrial Development Organization (UNIDO) National Cleaner Production Centres (NCPCs) project. UNIDO and UNEP have joined forces to help promote cleaner production in developing countries where the economy is in transition over a period of five years. The main objective of the CPCT is to facilitate the transfer of technical information, know-how, and cleaner technology from developed and developing countries to industrial enterprises and environmental management agencies in Tanzania, in order to incorporate cleaner production techniques and technologies in industrial pollution reduction programmes. CPCT is a semi-autonomous body within the Tanzania Industry Research and Development Organization (TIRDO) and is managed by experienced national professionals. The Centre, under the Director, is governed by an Advisory Board comprising of members from the Government, industry, academia, R&D institutions, NGOs, and TIRDO. The Advisory Board guides the Centre in the preparation of its strategic and annual work plans, oversees the programme accomplishments and financial expenditures, gives guidance in policy, and provides advisory dialogue with the Government and industry. CPCT serves a coordinating and catalytic role for cleaner production in the country through four major activities, such as collection and dissemination of information on cleaner production to its stakeholders which include industry, government agencies, NGOs, R&D institutions, and academia, supporting the demonstration of cleaner production techniques and technologies in industry, training industry personnel and government officials on this new area of environmental management, and advising policy makers on the promotion of cleaner production. Taka is a Swahili word for waste and Takagas is therefore gas from waste. The goal of the Takagas project is to reduce emissions of greenhouse gases (GHG) in Tanzania by substituting bioenergy (methane gas and electricity), produced from anaerobic digestion of industrial and municipal waste in the Dar es Salaam area, for fossil fuels. Additional greenhouse gas reduction will be achieved by lowering the uncontrolled release of methane from improperly disposed organic waste. This will produce organic fertilizer. The plant will have the capacity to treat about 57 tonnes of organic waste per day, or about 3% of the daily waste generated in Dar es Salaam. The project combines methane emission reduction for GHG mitigation, with production of electricity, fuel for transport and fertilizer. The installed capacity of the biogas plant will be 1 MW. The project is being funded by the Global Environmental Facility (GEF) and the Danish International Development Agency (DANIDA). This project is a collaborative effort of the Ministry of Energy and Minerals, the Dar es Salaam City Council, and the University of Dar es Salaam.

**Status:** The chemical industry in Tanzania has started to identify and reduce pollutants by adding effluent treatment and scrubbing units to existing processes in recognition of the dangers of releasing pollutants into the atmosphere. A few operators have succeeded in optimizing operations in order to reduce fugitive emissions and waste generations. The introduction of membrane separation to replace mercury-based techniques in the calor-alkali industry represents one example. Some firms have been able to substitute dangerous organic chemicals and

trichloroethylene with less hazardous alternatives. The agro-industries, which include the sugar, sisal, vegetable oil/fat refineries, dairies, breweries, cotton ginneries, distilleries, coffee processing factories, and tanneries, use technologies which can cause environmental problems in the form of pollution. The major export cash crops are cotton and coffee. The manufacturing industry accounts for about 17% of the foreign exchange earnings, while the mining industry accounts for only 5%. Heavy-industries include: Aluminium Africa (ALAF); the Southern Paper Mills (SPM); the Tanzanian and Italian Petroleum Refinery Company (TIPER); and the three cement factories (Dar es Salaam, Tanga, and Mbeya). Except for SPM, all the other industries are located in urban areas. Their environmental effects, therefore, are bound to be even more apparent.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** There is a very weak link between the few local R&D institutions and the productive sector in the country. Industrialists do not appreciate the role of R&D activities, and much R&D work is perceived as not addressing the actual needs of the productive sector. To address this situation, the following measures will be undertaken: a) strengthening existing scientific and technological institutions by providing them with adequate finances, expertise, infrastructure facilities, and schemes for retention of technical experts; b) rationalization and synchronization of R&D institutions; and c) articulation of areas for collaboration between manufacturers and the local R&D network. The substitution of deleterious technologies by environmentally friendly technologies involves huge capital investments. Therefore, most operators in industry in Tanzania have opted for add-on technologies and optimizing existing processes. A survey of 20 selected industries to investigate the relationship between production and electricity costs, and sensitivity of production costs to changes in electricity tariff has been implemented by the Tanzania Industrial Research Organization (TIRDO). Walk-through audits, semi-detailed audits, and full energy audits for 41 industries have also been implemented by TIRDO. These activities have been sponsored by the United Nations Industrial Development Organization (UNIDO), the Tanzania Investment Bank (TIB), and the World Bank.

**Financing:** No information available.

**Cooperation:** No information available.

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## **CHAPTER: SUSTAINABLE TOURISM**

**Decision-Making:** No information available.

**Programmes and Projects:** No information available.

**Status:** No information available.

**Capacity-Building, Education, Training and Awareness-Raising:** No information available.

**Information:** No information available.

**Research and Technologies:** A study to develop a strategy for the conservation of coastal biological diversity of mainland Tanzania has been completed by the Centre for Environmental Engineering and Science Technologies (CEEST) under the auspices of the Tanzania Division of Environment, and funded by the World Bank. The study has identified some implications for specific biodiversity objectives in relation to sectoral programmes including tourism interests in coastal Tanzania.

**Financing:** No information available.

**Cooperation:** No information available.

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