

# JOHANNESBURG SUMMIT 2002

GHANA



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.

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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:** Responsibility is with the Ministries of: Environment, Science and Technology; Lands and Forestry; Local Government and Rural Development; Foods and Agriculture; Roads and Transport; Finance; and National Development Planning Commission.

Ghana's blue print for sustainable socio-economic development is the Vision 2020 document put together by the National Development Planning Commission (NDPC). The document recognizes the fact that the only means by which the country's resources can be used efficiently to achieve rapid economic growth while maintaining the integrity of the environment hinges on the integration of Science and Technology in the various programmes. The NDPC, which is the highest planning authority, is responsible for coordinating the development programmes of all sectors in a manner as to ensure that sector policies and legislation concerning international cooperation for sustainable development are well coordinated and integrated to achieve the national goal.

Ghana's public administration system has been decentralized to the district level thus making it possible for Districts to take responsibilities for their development programmes and resources in line with Ghana's Vision 2020 programme. Cities, towns and communities have established bilateral information relationship with their counterparts in the developed countries for purposes of development. A Ministry responsible for Regional Integration and Cooperation has been established to fast track Ghana's role in ensuring sub-regional and Regional Integration of socio-economic issues. Ghana government recognizes the private sector as the engine for the development of the economy and has accordingly hived off a substantial portion of government's activities to the private sectors. Most state owned enterprises has been divested. While the country is encouraging private sector investment, Ghanaians are not barred from investing in other countries for the promotion of sustainable development.

Ghana has various institutions and bodies that serve on various Inter-Ministerial Policy Advisory Committees which ensure their participation in decision-making and are responsible for advising government on issues relating to international cooperation amongst these are: the National Council on Women and Development (NCWD), which is an advisory body on women's issues. Their activities permeate all sectors of society from the district to the National level. They ensure the promotion of women's rights and participation in all spheres of life. A Ministry to be responsible for Women's Affairs is in the offing to provide policy directions for women's issues; Forum for Africa Women in Education (FAWE) is a local branch of an international NGO ensuring that girls have equal access to school as boys and stay in school; Indigenous people – there is an identifiable group representing indigenous people in decision-making however, the Ministry of Environment, Science and Technology (MEST) which has the responsibilities for policies on issues on environment, science and technology acknowledges the role of knowledge of indigenous people in sustainable development and therefore, advocate for them; etc. The Private Sector is acknowledged as the engine of growth in Ghana and therefore plays a major role in international cooperation activities. Private Enterprise Foundation is a strong umbrella organization for private sector in Ghana. The Government is now mainly involved in creating the enabling environment for the private sector to function.

**Programmes and Projects:** UNDP/GEF is supporting the West Africa Cluster, United Nations University for the implementation of the Project of Collaborative Research in People. Land Management and Environmental Change (PLEC); Project on phase-out of Ozone Depleting Substances and UNDP/GEF, NED and the UNFCCC Secretariat funded the preparation of a national inventory of Ghana's genetic, species and ecosystem biological diversity as well as National Biodiversity Data Management Project to assess Data and information. The World Bank in collaboration with other Development Partners is funding the Natural Resource Management Programme (NRMP) in Ghana. The programme is among other things building capacity of stakeholders involved in the development and management of natural resources to enable them to protect, rehabilitate the sustainably manage national land, forest and wildlife resources and increase the income of rural communities who own the resources. IDA provided funding for a National Biodiversity Strategy and action plan to develop a framework and activities to ensure sustainable biological resource utilization and conservation and the EU supported the establishment and activities

of PACIPE in Ghana. PACIPE is a Regional Technical Assistance Programme and information for the Protection of the Environment.

*Technical Assistance Programmes include:* The Public Financial Management Reform Programme (PUFMARP) and the Medium Term Expenditure Framework (MTEF) focus on the design and implementation of economic policies, public administration and expenditure; The Value Added Tax (VAT) system currently in operation as a new tax system introduced to improve the tax net work; The National Poverty Reduction Strategy and Programmes are Focusing on poverty alleviation and improving rural income through the introduction of innovative income generation activities and empowering the rural community; The various environmental projects/components of the Natural Resources Management Programme and the PLEC project are geared towards environmental research, management and conservation among other things. Trading programmes that have been introduced in Ghana include Trade Liberalization Policy; Free Trade Zone; and ECOWAS.

**Status:** In 1999, Ghana hosted the informal meeting of Ministers of the Environment, this forum brought together Minister from all over the world to deliberate on issues of sustainable development. At the regional level, Ghana has been participating in African Ministers Conference on Environment, which deliberate on sustainable development on the continent. Between a developed and developing country – there are varying levels of commitment from governments, disparities in application of technologies and in availability of resources, institutional and technical capacity. Among developing countries, there are varying levels of commitment among governments, inadequate resources to implement partnership, and inadequate institutional and technical capacities. Programme areas or issues of Agenda 21 that require most immediate attention for bilateral or multilateral cooperation include: social and economic dimensions; and conservation and management and management of resources. Major challenges involve: understanding the scope of sustainable development, and reaching a consensus that satisfies all partners in realizing sustainable development. Structural challenges: achieving Sub-regional and Regional Unity; harmonizing customs and immigration regulations; and developing a single monetary system.

**Capacity-Building, Education, Training and Awareness-Raising:** Ghana has integrated the implementation of all global conventions into national programmes to include the creation of public awareness for the need for closer international cooperation. Members of the media have been adequately trained and sensitized to use the media to create public awareness on sustainable development. Sectors have been sensitized to consider the implications of their policies on sustainable development. Various sectors carry out Human Resource Needs assessment and provide appropriate training needs, which require addressing their issues in international relations either locally or externally or internally. Project Administration and Management – Capacity Building Project Administration and Management is addressed through bilateral multilateral supported programmes.

**Information:** Relevant government sectors make the information available to potential users and stakeholders and as when it becomes available. Information is shared through the mass media, correspondence and forums and Internet for those who have access to Internet.

**Research and Technologies:** Ghana's priorities in development are the use of Science and Technology to rapidly address the country's development to improve the quality of life for all while maintaining the integrity of the environment. Thus, all sectors are being encouraged to use science and technology to address their programme in a sustainable manner. In addition, the Government is creating an enabling environment for the private sector to acquire and use environmentally sound technologies through international cooperation. This is regulatory and enforced.

**Financing:** Funding is provided by World Bank Development Partners and GEF through Credits and Grants.

**Cooperation:** Ghana is a member of the Organization for African Unity (OAU) and encourages the promotion of Regional Integration and Cooperation for Environmental protection and sustainable development. Ghana shares her experience in environmental protection and sustainable development with sister countries on the Continent. The

country has liberalized its economy and practice free market economy. Ghana has signed and ratified all the global conventions related to environment and sustainable development. The implementation of these conventions has been integrated into the country's development programmes.

Ghana participates in fora on the global convention related to sustainable development. Ghana has signed a number of agreements and has received a number of multilateral supports to promote sustainable development e.g. multilateral cooperation was received for the implementation of Ghana Environmental Resource Management Programme (GERMP) and the Natural Resource Management Programme (NRMP). Ghana is signatory to the WTO and is disposed to trade liberalization and globalization. The country receives a lot of financial resources for development but also mobilizes domestic financial resources as well. Also, see under **Programmes and Projects**.

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

**Decision-Making:** The Ministry of Trade and Industry (MOTI) is statutorily responsible for formulation implementation and monitoring of the country's internal and external trade and industry policies. The administration of Import and Export Laws are vested in the Minister of Trade. Other collaborative bodies include: the Ministries of: Agriculture, and Land and Forestry; the Ghana Cocoa Board; the Ghana Customs; Excise and Preventive Service (CEPS); the Ghana Immigration Service; the Bank of Ghana; the Securities Commission; the Registrar General's Department; Ghana Standards Board; Food and Drugs Board; Ghana Investment Promotion Centre; and the Fisheries Commission and the Minerals Commission.

The legal framework governing trade and industry in Ghana is captured in the two-volume Ghana Laws of Trade and Industry published by the MOTI. The legislation and regulations are as follows:

*Foreign Investment:* Aliens Act, 1963 (Act 160) —Aliens (Registration) Regulations 1974 (LI 865) and Aliens Regulations, 1963 (LI 265); Exchange Control Act 1961 (Act 71)—Exchange Control Regulations 1961 (LI 133); Ghana Investment Promotion Centre Act, 1994 (Act 478) —Technology Transfer Regulations, 1992 (LI 1547); Securities Industry Law, 1992 (PNDCL 333); Ghana Free Zone Act 1995 (Act 504); and Free Zone Regulations (LI 1618).

*Companies:* Bodies Corporate (Official Liquidations) Act, 1963 (Act 180); Companies Code 1963 (Act 179); Companies (Prescribed Forms) Instrument 1963 LI 289; Incorporated Private Partnerships Act, (Act 152); Insolvency Act 1963 (Act 153); Registration of Business Names Act, 1962 (Act 151); and Registration of Business Names Regulations 1972 (LI 982).

*Contract and Sale:* Arbitration Act, 1961 (Act 38); Arbitration (Foreign Awards) Instrument, 1963 (LI 261); Bills of Lading Act, 1961 (Act 42); Contracts Act, 1960 (Act 25); Finance Lease Law 1993 (PNDCL 331); Foreign Judgments and Maintenance Orders (Reciprocal Enforcement) Instrument, 1993 (LI 1575); Hire Purchase Decree 1974 (NRCD 292); Limitation Decree 1972 (NRCD 54); and Sale of Goods Act, 1962 (Act 137)

*Intellectual Property:* Copyright Law, 1985 (PNDCL 110); Copyright (Fee) Regulations, 1965 (LI 620); Merchandise Marks Act, 1964 (Act 253); Merchandise Marks (Prohibited Goods) Regulations, 1936 (Vol. X P.425); Patent Law, 1992 (PNDCL332); Protocol on Patents and Industrial Designs within the Framework of the Industrial property Organization for English-Speaking Africa (ESAPRIPO) (Ratification) Law, 1985 (PNDCL 137 Textile Designs (Registration) Decree, 1973 (NCRD 213); Textile Designs (Registration) Regulations, 1966 (LI 512); Trade Marks Act, 1965 (Act 270); Trade Marks Regulations, 1970 (LI 667); and United Kingdom Designs (Protection) Ordinance (CAP 182).

*Weights, Measures and Standards:* Food and Drugs Law, 1992 (PNDCL 305 B); Standards Decree, 1973 (NRCD 173) —Ghana Standards Board (Food, Drugs and other Goods), General Labeling Rules, 1992 (LI 541), Ghana Standards (Certification mark) Rules, 1970 (LI 662); Weights and Measures Decree 1975, (NRCD 326); Prosecution of Offices Under the Weights and Measures; Decree, 1975 (NRCD 326) regulation, 1991 (LI 1513); Weights and Measures (Fees) Regulation, 1992 (LI 1549); and Weights and Measures, (Permissible Errors) Regulation 1992 (LI 1550).

*Export and Import:* Customs and Excise (Petroleum Taxes and Related Levies) Act, 1995 (Act 496); Customs, Excise and Preventive Service (Management) Law, 1993, (PNDCL 330); Customs and Excise (Beer Brewing) Decree 1976 (LI 1061); Customs and Excise Tariff Regulations 1973, (LI 838); Customs and Excise (Tobacco) Regulations 1976 (LI 1074); Customs Regulations, 1976 (LI 1060); Customs (Restricted Imports) Regulations, 1983, (LI 1280); Excise (Spirits) Regulations, 1963 (LI 261); Importation and Exportation of Parrots (Prohibition) Regulations, 1983 (LI 1240); Customs, Excise and Preventive Service (Management), (Rates, Duties and other Taxes) Act, 1994 (Act 476); Export and Import Act, 1995 (Act 503); Exportation of Raw Rattan, Canes and Bamboo (Prohibition) Regulation, 1990 (LI 1494); Imports and Exports (Prohibited Goods) (No. 2) Regulations, 1994 (LI 1586); and Ghana Export Promotion Council Decree, 1969 (NLCD 396).

*Shipping and Transport:* Ghana Civil Aviation Authority Law, 1983 (PNDCL 151); Civil Aviation (Accident) Regulations, 1971 (LI 702); Civil Aviation (Airfield Charges) Regulations, 1968 (LI 605); Civil Aviation

Regulations 1979, (LI 674); Ghana Ports and Harbours Authority Law, 1986 (PNDCL 160); Ghana Railway Corporation Decree, 1977, (SMCD 95); Ghana Railway Corporation (Tariff) Regulations, 1981 (LI 1258); Ghana Shippers Council Decree, 1974 (NRCD 254); Ghana Shippers Council (Cargo Sharing) Regulations 1987 (LI 1347); Maritime Zones (Delimitation) Law, 1986 (PNDCL 159); Merchant Shipping Act, (Act 183); Merchant Shipping (Carriage of Grains) Rules 1974 (LI 949); Merchant Shipping (Dangerous Goods) Rules 1974 (LI 971).

*Agriculture and Agricultural Development:* Animals (Control of Importation) Ordinance, 1952 (No. 36); Cocoa Board Law, 1983 (PNDCL 81); Cocoa Duty Decree, 1974 (NRCD 265); Cocoa Industry and Cocoa Marketing Board (Amendment) Decree 1978 (SMCD 204); Cocoa Industry (Regulation) (Consolidation) Decree, 1968 (NLCD 278); Cocoa Industry Regulations, 1986 (LI 598); Economic Plants Protection Decree, 1979 (AFRCD 47); Economic Plants Rates of (Compensation for Cocoa Trees), Investment, 1979 (LI 1231); Fruit Industry Decree, 1969 (NLCD 356); Fruit Industry (Bananas) Regulations, 1970 (LI 643); Fruit Industry (Coffee) Regulations, 1970 (LI 644); Fruit Industry (Copra) Regulations, 1970 (LI 645); Fruit Industry (Palm Kernel) Regulations, 1970 (LI 646); Grains Development Board Act, 1970 (Act 324); Prevention and Control of Pests and Diseases of Plants Act, 1965 (307); Importation of Plants (Regulations) 1936 (Vol. IX P. 284); Seeds (Certification and Standards) Decree, 1972 (NRCD 100); Seeds (Certification and Standards) Regulations, 1973 (LI 802).

*Forests and Forest Products:* Forest Products Inspection Bureau Law, 1985 (PNCDL 117); Forest Protection Decree, 1974 (NRCD 243); Forest Reserves Regulations, 1927 (Vol. IX P. 284); Forest Reserves Rules, 1925 (Vol. VIII, P. 889); Forest Ordinance (CAP 157); Forest Trees Regulations, 1976 (LI 1089); Timber Export Development Board Law, 1985 (PNDCL 123); Timber Industry and Ghana Timber Marketing Board (Amendment) Decree, 1977 (SMCD 128); Timber Lands (Protected Areas) Regulations 1959 (LI 311); Timber Royalties Regulations, 1965 (LI 495); Trees and Timber Decree, 1974 (NRCD 273); Timber Leases and Licences Regulations, 1962 (LI 229); Trees and Timber (Chain Saw operators) Regulations, 1991 (LI 368); Trees and Timber (Control of Cutting) Regulations, 1958 (LI 368); Trees and Timber (Control of Export Logs) Regulations 1961 (LI 130); Trees and Timber (Control of Measurement) Regulations, 1960 (LI 23); Trees and Timber (Measurement Regulations) 1985 (LI 388).

*Fish and Fisheries:* Fisheries Law, 1991 (PNDCL 256); Fishing Boats (Certificate of Competency as shippers and second hands) Regulations, 1972 (LI 770); Fishing Boats (Certificate of Competency First Class and Second Class Engineers) Regulations, 1974 (LI 988); Wholesale Fish Marketing Act, 1963 (Act 156).

*Minerals and Petroleum:* Diamond Decree 1972, (NRCD 32); Diamond Mining Industry Protection Regulations, 1927 (Vol. IX, P.3); Gold Mining Products Protection Ordinance, 1909, (CAP 149); Transactions in Gold Regulations Order, 1947 (Vol. VIII P. 1103); Mercury Law, 1989 (PNDCL 153); Minerals (Off Shore) Regulations, 1963 (LI 257); Minerals (Oil and Gas) Regulations, 1963 (LI 258); Minerals Regulations, 1962 (LI 231); Minerals Regulations, 1963 (LI 253); Minerals Royalties Regulations, 1987 (LI 1349); Mines and Minerals (Conservation and Development), Regulations, 1967 (LI 554); Petroleum Decree, 1973 (NRCD 187); Civil Mining Regulations 1957 (LI 221); Petroleum Regulations, 1959 (LI 206); Petroleum (Exploration and Production) Law, 1989 (PNDCL 84); Precious Minerals Marketing Corporation Law, 1989 (PNDCL 219); Small-Scale Gold Mining Law, 1989 (PNDCL 218). There are also other Business Law Cover Labour, Taxation, Property, Banking and Bills of Exchange.

Ghana is a Member of the World Trade organization (WTO) and is disposed towards trade liberalization and globalization. Ghana is also a member of the sub-regional Economic Community of West African States (ECOWAS) group, which seeks to integrate the economies of the Member States in a sustainable manner. Ghana's major Trade and Industry Objectives are as follows: to formulate and harmonize policies that will ensure intersectoral collaboration in the implementation of trade and industrial policies both at national and international levels; to improve entrepreneurial skills, technological capabilities and accessibility to credits and markets; to develop programmes and activities for institutional capacity building to meet challenges of the global market; to develop standards and quality systems to meet production requirements of the domestic and international markets; to facilitate the development and promotion of non-traditional export products; to facilitate the development of the production base and expansion of cross-border trade; and to promote timely and accurate information to the business and industrial community.

Major policies being pursued to ensure sustainable development include the following: development of a globally competitive industrial sector with emphasis on local resource-based industries with capacity for export; generation of employment; promotion of spatial and ecological balance in industrial development; negotiation for improved

market access for Ghanaian products; pursuit of efficient and effective import management; maintaining the current liberalized trade and payments regime; provision of relevant information to stakeholders.

The following institutions and bodies collaborate with the Ministry of Trade and Industry in consultative, ad hoc, advisory or participatory capacities to ensure the achievement of sectoral goals, outputs and outcomes: Ministerial Advisory Board; District Assemblies; Exporters, especially those dealing in Non Traditional Exports (NTEs); Manufacturers and Traders; Small, Medium, Micro and Large Industrialists; Foreign and Local Investors; Frontline Agencies – Customs, Excise and Preventive Service (CEPS), Ghana Immigration Service (GIS); Ghana Civil Aviation Authority, Ghana Ports and Harbours Authority, etc; Parliament and other Ministries, Departments and Agencies.

**Programmes and Projects:** The MOTI is promoting a number of programmes and projects to support a more sustainable trade and industrial sector and reduce our dependence on imported inputs. In the industrial sub-sector, the following projects are relevant:

*Composite Cement Project:* This involves the processing of local raw limestone with imported clinker and gypsum to manufacture composite cement. Data on available limestone deposits can be found on the web at [ghgeosur@ghana.com](mailto:ghgeosur@ghana.com)

*Buipe Clinker/Cement Project:* This involves the utilization of the limestone deposits at Buipe for clinker and cement manufacture. Savanna Cement Limited (Savacem) has been set up to promote the project and is currently sourcing for consortium financing for project implementation. *Pulp and Paper Project:* This involves the manufacture of pulp and paper from tropical hardwood at Daboase in the Western Region. *Packaging Industry:* This involves the revamping of the industry to make it more competitive and complement Ghana's non-traditional export development. A packaging cluster has been created as a major component of this transformation. *Textile/Garment Industry:* This involves the rehabilitation of the sector to enhance its contribution to employment and manufacturing value-addition. A revolving fund of US\$ 50,000,000 is being mobilized with the assistance of UNIDO to rehabilitate and modernize the machinery, equipment and facilities in the sector.

*Ghana/UNIDO Integrated Programme:* This is a collaborative effort between the Ministry of Trade and Industry, the private sector and the United Nations Industrial Development Organization (UNIDO) and focuses on the following seven components: Policy Development, Implementation and Monitoring; Capacity Building for Industrial Competitiveness with emphasis on agro-based MSME's; Networking Services for MSME's; Cleaner Production and Environmental Protection; Industrial Energy Efficiency and Renewal Energy Development; Investment Promotion; Sorghum Malt Project (Regional Initiative – Nigeria and Ghana). This Programme spans three years and is estimated to cost US\$7.0 million. So far, the partners have succeeded in mobilizing some \$3.2 million to implement the first four components listed above.

*Salt Industry Development:* Ghana has one of the best coastlines for salt production and the Ministry of Trade and industry is seeking to raise annual production from the current level of 200,000 metric tones, which is only 10% of the Industry's potential. Emphasis is on assistance to rural small and micro entrepreneurs to raise rural incomes, reduce poverty and provide sustainable employment. *Trade Sub-Sector:* The main thrust of policy and implementation is on the identification, production and development of non-traditional exports. A two pronged approach has been adopted that targets value – addition to primary products, particularly agricultural products and expansion of the export base to redress the current over-dependence on a few primary products for the bulk of the nation's foreign exchange earnings.

*Free Zones Programme:* The Programme aims at providing an enabling and attractive location for foreign firms to locate in export processing enclaves in the country and produce for export. *Trade and Investment Gateway Programme:* This programme, which is intersectoral, aims at making Ghana the preferred investment choice in West Africa for investors by systematically reducing the cost of doing business in Ghana. The main strategy is the re-engineering of the following frontline agencies to offer more courteous, friendly and business like services to the investor community devoid of bribery and corruption: Customs, Excise and Preventive (CEPS); Ghana Immigration Service (GIS); Ghana Civil Aviation Authority (GCAA); Ghana Ports and Harbours Authority (GPHA); Ghana Investment Promotion Council (GIPC); Ghana Free Zones Board (GFZB); and Environmental Protection Agency (EPA).

**Status:** Ghana's Vulnerability assessment indicated that industrialists and manufacturers have to be constantly monitored to ensure compliance with environmentally sustainable production regulations and this places a serious strain on resources. Generally however, all investments and manufacturing activities have to obtain environmental clearance from the EPA according to Ghana's business and investment laws.

**Capacity-Building, Education, Training and Awareness Raising: Awareness Raising:** Various Programmes have been initiated to improve capacity for export led poverty reduction and to increase the ability of officials of the Ministry of Trade and Industry to deal with WTO issues and other Trade and Industry related matters. Major capacity-building initiatives include:

*Government of Ghana/ITC/UNIDO/Capacity Building Programme:* This is a joint resource mobilization mission involving the Ministry of Trade and Industry, the Ministry of Finance, the Private Enterprise Foundation (PEF), the Ghana Export Promotion Council (GEPC), ITC and the UNDP that is seeking funds to implement a program of export led activities as a component of the National Poverty Reduction Strategy.

*Joint Integrated Technical Assistance Programme (ITAP):* This Programme was designed by the WTO/UNCTAD/ITC to assist eight African countries, including Ghana to integrate their economies into multilateral trading system and take advantage of the opportunities created as a result of the successful conclusion of the Uruguay Round Agreements. The programme has a "Training of Trainers" component and involved the organization of five sub-regional seminars for public and private sector participants aimed at increasing participant's awareness of the WTO issues and the opportunities available. Five standing sub-committees have been formed to deal with: Market Access; Agriculture; Services; Technical Barrier to Trade and Sanitary and phytosanitary Measures and Trade related intellectual Property Right.

Fifteen Clusters help in the preparation of a matrix of exportable products and markets of interest to Ghana and assist in preparing in detail issues relating to the various Agreements.

**Information:** Ghana has kept abreast with advances in information technology in the planning and monitoring of the country's international trade. In collaboration with UNIDO, Ghana is undertaking an industrial census that will update the industry sub-sector database and bring it at par with the trade import/export sub-system. A trade Information and Documentation Unit (TIDU) at the Ministry of Trade and Industry provides facilities for reading, and referencing commercial, industrial and legislative instruments on trade. Internet facilities are also available.

**Research and Technologies:** The Ministry of Trade and the World Bank are to set up a Trade Policy and WTO Research Centre in the year 2002 to improve service delivery. Another secretariat is being set up to coordinate activities aimed at maximizing the benefits of the Africa Growth and Opportunity Act (AGOA) for Ghana's exporters.

**Financing:** Financing schemes were put in place to address the needs of the Trade and Industry sector including: The Business Assistance Fund (BAF) set up in 1994 to assist distressed but potentially viable enterprises; The Private Enterprise and Export Development Project (PEED) - a joint Government of Ghana/World Bank project - to address the financial constraints facing the non-traditional export sector through a credit of US\$41 million; Export Development Fund (EDF), which is to provide financial support to the public and private sectors for the development and promotion of export trade in Ghana; Promotion of Small and Micro Enterprises Fund (PSME) - a joint Government of Ghana/Government of Germany facility - that grants loans of up to €50 million to small and micro-enterprises in the manufacturing/production sectors and the services sector directly related to industry; and returnees from abroad seeking to establish new enterprises; and The Ghana Investment Fund, which is a venture capital facility that will address the medium to long-term financial needs of industry.

**Cooperation:** Ghana is a member of the following international, regional and sub-regional cooperation bodies: Economic Community of West African States (ECOWAS), which seeks to establish a free trade area across West Africa and develop itself into a full blown economic union; West African Monetary Institute that is currently engaged in the establishment of a second monetary zone in West Africa; Signatory to the Global System of Trade Preference (GSTP) that seeks to increase South-South trade; and Signatory to the ACP-EU Partnership Accord and

member of the World Trade Organization. On the bilateral front, Ghana has a Trade and Investment Framework Agreements (TIFA) with the United State of America and Investment Promotion and Protection Agreements (IPPAs) with a number of developed countries as well as bilateral trade promotion agreements with many countries in Africa, Europe and the Caribbean.

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## CHAPTER 3: COMBATING POVERTY

**Decision-Making:** The two focal institutions with responsibility for ensuring implementation Ghana's Poverty Reduction Strategies (GPPRS) are the Ministry for Economic Planning and Regional Co-operation and the National Development Planning Commission (NDPC). Both institutions are public sector organizations established by acts or parliament. However, there is other various arms of governments, Ministries, Departments, and Agencies (MDAs), District Assemblies, including NGOs and Community Based Organizations nation-wide work in a collaborative way to achieve reduction in poverty. The Ghana Poverty Reduction Strategy (GPRS) is a programme of actions and policy reforms seeking to accelerate growth in a manner that is consistent with poverty reduction. The policies and programmes in the GPRS are integrated in the strategic plans of Ministries, Departments and Agencies through the medium term expenditure framework (MTEF).

The overall objective of Ghana's socio-economic development policy is to improve human welfare and reduce poverty. In pursuit of these, the Government of Ghana has adopted the following strategies for implementation: establishment of an institutional mechanism for poverty reduction; establishment of continuous poverty monitoring systems; formulation of an action programme for poverty reduction; formulation of a new agricultural strategy; new directions for decentralization; and revision of policies for gender and environment. To date most of the strategies have been implemented, e.g. the institutional mechanisms for poverty reduction have been established, continuous poverty monitoring systems have been initiated and the implementation of a new agricultural strategy and decentralization policies are in progress.

The overall target in Ghana's long-term poverty reduction strategy is the virtual eradication of poverty by 2020 as originally set forth in Ghana Vision 2020. The strategy attempts to perform the International Development Targets cast in terms of reduction of extreme poverty, social and human development environmental sustainability and regeneration as well as democratic accountability, protection of human rights and the rule of law. These targets presuppose an attainment of Gross Domestic Product (GDP) growth averaging at least 6 % per annum. The overall objective of the strategy is sustained equitable, human-centred growth. The strategy has three fundamental pillars; two are directed at generating the necessary domestic savings and investment without which Ghana cannot grow and the third is directed at creating a policy environment in which Ghanaians skills, talent and enterprise can thrive in a globally competitive economy. These three pillars require that the state operates within its financial means and concentrates on legitimate public and social functions without crowding out the private sector through excessive participation and involvement in financial labour and product markets. They require that all agents in the private sector assume greater responsibility for their own affairs and bear the consequences of their choices, regardless of out come.

**Programmes and Projects:** As a means to reducing poverty in the country, two national development strategies were prepared in the mid 1990s. These were the Ghana Vision 2020: The First Step (1996-2000) and the Interim Poverty Reduction Strategy Paper; 2000-2002 (1-GRSP). Ghana Vision 2020 aimed to make Ghana a middle-income country by the year 2020, through accelerated, sustainable, and equitable growth. To attain these goals, vision 2020 was phased into five 5-year medium-term development policy documents. The first installment, named "Ghana-Vision 2020: The First Step Policy Framework (1996-2000)" was a comprehensive medium-term development policy document that contained a coordinated programme of economic and social development policies and strategies for the period 1996-2000. The programme also provided broad policy directions and strategies to guide planning agencies at district assemblies as well as the ministries departments, and agencies (MDAs) to prepare district and sector medium term plans. The plans of the districts and MDAs were harmonized into the First Medium-Term Development Plan (1997-2000).

The limited impact of the Ghana Vision 2020: the First Step in laying the foundation for sustained poverty reduction led to attempts to formulate more poverty-focused policy initiatives. This led to the preparation of the Interim Poverty Reduction Strategy for Ghana in June 2000 for the period 2000 to 2002, which was the basis for growth and poverty reduction. The UNDP/Government of Ghana (GOG) National Poverty Reduction Programme is a major government initiative to reduce poverty in Ghana. The goal of the programme is to empower the poor to

reduce their own poverty levels by identifying their needs, defining how the needs can best be addressed and then implementing activities to meet those needs. The National Poverty Reduction (NPR) Programme is being implemented in five (5) selected districts across the ecological zones of Ghana on a pilot basis.

Another poverty-related programme being implemented is the Social Investment Fund (SIF). This is a special fund set aside to provide direct assistance to Ghana's urban and rural impoverished communities to help reduce the poverty situation in the country. SIF is being financed by the Government of Ghana (GoG) the African Development Bank (AfDB) and the United Nations Development Programme (UNDP).

**Status:** Despite the achievements a number of shortcomings still constrain socio-economic well-being and these include: macro-economic instability; gender inequalities; and high population growth and fertility rates.

For the periods 1991/92 and 1998/99, poverty was substantially higher in rural areas than urban areas, thus showing that poverty in Ghana is disproportionately a rural phenomenon. At the national level the incidence of extreme poverty fell from under 36% in 1991/92 to 29% in 1998/99. But the incidence of extreme poverty remained very high in 1998-99, where nearly one third of the Ghanaian population were deemed unable to meet their basic nutritional needs, even if they devoted their entire budget to food. In considering the depth of poverty, it was found that from the period 1991-92 to 1998-99 the incidence of poverty fell, the depth of poverty for those who remain poor increased marginally the depth of poverty was greater at the extreme poverty line than at the standard line. The depth of poverty increased in precisely those localities where the incidence of extreme poverty rose. In relating poverty in the country to economic activity, it was found that in 1998-99, poverty was highest among food crop farmers. At the national level almost 58% of those identified as poor were from households whose main activity was food crop cultivation. In the same period almost 24% of the poor in Ghana were from households engaged primarily in non-farm self employment. Export farmers and wage employees in the private formal sector have experienced the largest reductions in poverty. Poverty felled between both wage employees in the public sector and the non-farm self employed. Among food farmers the incidence of poverty fell by 6.2%.

**Capacity-Building, Education, and Awareness-Raising:** Most of the programmes designed to alleviate poverty concentrate on capacity-building, education, and awareness-raising especially for grass-root participation. For example, the Ghana Interim Poverty Reduction Strategy Paper: 2000-2002 outlined the following to reduce poverty: accelerating economic growth through balanced implementation of sound fiscal, monetary, and macroeconomic policies; strengthening the agricultural sector to make it more productive through the use of more modern farming methods and marketing practices; broaden and deepen the manufacturing and services sector in order to create new business opportunities as well as increase urban and rural employment opportunities; increasing investment in human resources through improving the quality of an access to nutrition, education, health, water and sanitation services; encourage the development of an indigenous entrepreneurial class through improving access to training, financial services, credit and local foreign markets; and reducing the isolation of poor communities through strengthening economic infrastructure such as roads and communication networks.

**Research and Technologies:** Efforts are being made to promote research and appropriate technologies in poverty reduction programmes and these include: the promotion of a wide range of technologies that are both affordable and easy to maintain; the need for government to work as enablers and facilitators of service provision, in close partnership with non-governmental organizations and private community organizations; the wide use of information, education and communication strategies to maximize the benefits of basic services; and the improvement of methods for recovering the cost of service facilities through appropriate revenue generation mechanisms.

**Financing:** It has been asserted that spending on poverty reduction in Ghana has been low, biased towards recurrent (especially personnel) costs and does not appear to be sustainable due to heavy reliance on dwindling donor flows. Regressive elements in spending on health and education have also been identified as constraints to poverty reduction. Government accounted for approximately 60% of total funds for poverty reduction in 1996-1998. External donors have been major contributors of finance for the rural water sector. Social sector spending

has been low as compared to African averages, where spending on health and education were 2.0% and 2.8% of GDP respectively.

Another shortcoming of the social sector expenditure pattern on poverty is that the bulk of government's social sector spending is allocated to recurrent expenditure. One other serious weakness of the Government spending on the social sector is the disproportionate bias of recurrent expenditure toward personnel costs. There is also a concern about the sustainability of spending on poverty reduction, given that government revenue is not catching up with demand for services and support by external donors is on the decline. External donors contribute the largest share of non-wage expenditures. There has been major dissatisfaction with management of poverty reduction programmes in the country. There is the perception that officials divert public funds; also the slow and distorted pace of decentralization is seen as constraining effective and sustainable service delivery. On many livelihood projects, start-up capital and other inputs have been delivered in an untimely manner. Follow-up support and proactive monitoring are often lacking. There is the lack of synergy in many poverty reduction activities. Different management structures with weak links exist for poverty reduction projects in the districts. Well-funded donor projects lack synergy with local government projects.

**Cooperation:** Technical cooperation continues to play significant role in the socio-economic development of the country. Bilateral sources contribute the largest amount in technical cooperation. Currently, the United Nations Development Programme (UNDP) is implementing programmes in Poverty Alleviation and Community/Grassroots Participation in selected pilot communities. The Ghana Capacity 21 is also building capacities in some District Assemblies for the implementation of Agenda 21.

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## CHAPTER 4: CHANGING CONSUMPTION PATTERNS

**Decision-Making:** In its capacity as the Ministry responsible for coordinating national sustainable development activities in the country, the Ministry of Environment, Science and Technology has responsible for activities relating to sustainable consumption and production patterns. The Environmental Protection Agency has the responsibility to promote the implementation of environmental programmes at the local level. Political responsibility to these activities rests with the District Assemblies and their sub-structures.

There is no legislation to promote sustainable consumption and production. However, a number of regulatory mechanisms, which aim at ensuring the financial self-sufficiency of some of the utility companies, indirectly promote sustainable consumption and production. These mechanisms encourage both consumers and producers to promote efficiency and effective use of resources. In addition, the use of the Environmental Impact Assessment as an environmental management tool helps in promoting practices leading to sustainable consumption and production. The only guidelines, which indirectly discourage unsustainable practices and promote sustainable consumption and production, are those on the Environmental Impact Assessment. Standards relating to pollutants into the atmosphere (air, water and land) have also been prepared to ensure that production/consumption activities are sustainable. Though the need for Environmental Impact Assessment is requirement directed legislation (Act 490), the EIA Guidelines have been prepared between the Government (through the Environmental Protection Agency) and the private sector. The Guidelines and standards are mandatory. There are no guidelines specifically intended for consumers.

There is no single national strategy, policy or work programme to address the issues of sustainable consumption and/or production patterns. These issues are addressed on a sector-by-sector basis. The specific strategies and policies relating to specific sectors dealing with consumption and consumption patterns include: Economic instruments which make consumers pay the economic costs for services, while at the same time ensuring that the social effects of these costs are assessed; Production of more efficient systems of production and consumption; and Promotion of renewable energy sources. Specific issues addressed include: increasing every and material efficiency in production processes; reducing waste from production and promoting recycling; promoting use of new and renewable sources of energy; promoting the use of environmentally sound clean; technologies for sustainable consumption; use of economic rates for utilities while taking account of the social costs.

The pricing of utilities such as water and electricity is such that higher rates tend to be paid the higher the rate of consumption. This pricing arrangement is meant to act as a punitive measure for high consumption of these resources and discourage unsustainable consumption practices. Currently, there are no punitive measures for producers who engage in unsustainable production practices while no incentives are also in place to promote sustainable activities. No national targets exist for enhancing energy and material efficiency apart from the quality of life where Ghana's long-term development agenda, Vision 2020. Industry is being encouraged to use The ISO 9000 and 14000 standards to govern their production systems. These approaches are currently being used on a voluntary basis. An activity, which has helped in changing unsustainable consumption and production pattern in the country, relates to the pricing for utilities such as electricity, water, etc. With the removal of subsidies by the Government for these items, market forces essentially govern their prices. To arrive at these prices, the Government established a Public Utilities Review Commission, which reviews the proposals of the Utility Companies. Part of the process involves public fora at which the general public has the opportunity to comment on the desirability or otherwise of the proposals. The utilities essentially have to justify the need for such price increases. One issue that constantly comes up at these public fora is the question of efficiency of operations of the utility companies. Through this means the issue of unsustainable production with the Utility companies is addressed. With increasing prices for the utilities, consumers are also forced to use these services more efficiently in order to reduce their expenditure on these items. Though there has been no scientific assessment of the impact of these arrangements, the readinesses with which the water utility company, for instance, react to complaints on water leakages in currently better. This implies increased efficiency in the operations of the water utility company. The pricing of the utilities generally involved a decision-making process in which all stakeholders are involved. The primary groups contributing to the process include Women, Non-Governmental Organizations (NGOs), Workers Unions, Business

and Industry, Scientific and Technological Community and Farmers. However, the extent of involvement in the decision-making process of these Major Groups depends to a large extent on the issues being discussed.

**Programmes and Projects:** Energy consumption constitutes critical areas of concern to the Government. A number of programmes are thus being promoted. One specific programme relates to the use of more efficient and low-energy consuming bulbs to replace most of the incandescent bulbs being used in the country. Though these new bulbs are more expensive than the traditional ones, a programme of awareness creation has been mounted as a means of drawing attention to the advantages of the bulbs, which are presently being imported by the Government. The private sector is to take on the importation of these energy-efficient bulbs later. There is also an on-going programme of energy audits of industrial enterprises to promote the efficient use of energy. After these audits, the industries are assisted to institute the appropriate measures to address the identified problems. This is being undertaken as partnership with industry. Other national programmes include: Promotion of the use Liquefied Petroleum Gas for cooking to replace the use of fire wood, especially in the rural areas; and Promotion of the use of improved cooking stoves for more efficient burning of charcoal.

**Status:** Specific information is not available on current levels of efficiency for the use of energy, water and material. However, the general trend that has been observed is greater efficiency in the use of these resources by the various consumers. Some of the constraints that have affected the effective implementation of programmes for promoting sustainable production and consumption practice include: lack of integration of efforts to address the issues at all levels and co-ordination to ensure optimal use of resources to achieve a common goal; inadequacy of existing legislation and policies to promote sustainable consumption and production practices; and the absence of strict and vigorous enforcement systems in relation to legislation and policies on the environment and development.

**Capacity-Building, Education, Training and Awareness-Raising:** The Government, in conjunction with the various Utility companies to draw attention to the need for consumers to be more aware of the implications of unsustainable consumption patterns which is associated with the need to pay more for the services provided. Government utility companies and mass media in the country programmes provide public awareness on implications of unsustainable consumption to the country's natural resources. In addition, environmental and development NGOs have been organizing awareness creation programmes to sensitize the public on unsustainable consumption and production practices.

**Information:** The various sectors of the economy have developed databases to help with the process of decision-making, thus the Environmental Protection Agency has compiled data on the emissions from the various industries in the countries as part of the process for formulating standards for the management of industrial activity in the country. Data is also available on the country's need in respect of sectors dealing with forest agricultural productivity, and utilities – energy, water. The Environmental Protection Agency, through the use of the EIA, monitors the activities of all industries to ensure that they perform to the relevant laws, regulations and standards. In addition, the Agency established a Compliance Enforcement Network of relevant law enforcement and other agencies to enforce regulations, standards and laws relating to the environment. Information is only available in hard copy format from offices of the Environmental Protection in all the regions of the country. The information is not available on the Internet. Though Ghana is taking part in the testing programmes for indicators for sustainable development, which is yet to extend this to cover indicators related to consumption and production patterns. It is anticipated that this will be addressed before the testing programme is over.

**Research and Technologies:** Clean and environmentally sound technologies are promoted through activities, which ensure that industries meet national environmental standards and at the same time promote the more efficient use of resources. Under the auspices of the Ministry of Environment, Science and Technology, a Waste Management Stock Exchange is to be established as a means of identifying and making waste available to other consumers who need such waste materials for their production activities. Through this arrangement another company for his production activities, for instance, could identify wastes generated by one company, for use. This should help in reducing the quantities and types of waste generated in the country. The country's steel and paper

industries, and to some extent the plastic industry, are engaged in programmes of recycling wastes generated in the country. A number of small small-scale aluminum fabrication companies have been assisted to improve on their production systems. Though these programmes were initially meant to address the environmental problems associated with their operations, the improved production systems also led to improved efficiency in the use of materials and reduction in the waste from the industries. All programmes for the management of waste relate only to waste generated in the country. The country does not permit the importation of waste processing or disposal.

**Financing:** A special Environment Fund has also been established to promote general environmental activities in the country. The various programmes to promote sustainable production and consumption patterns have been generally financed by the national budget, private sector support and external finance.

**Cooperation:** The national environmental activities, which also address the concerns relating to the promoting of sustainable consumption and production patterns, are undertaken in a partnership arrangement between public sector institutions and private sector, including NGOs. The Ministry is also endeavoring to establish in the country a Clean Production Centre to assist industries, especially the small-scale sector, with more efficient systems for production of their goods and this can be realized with UNDP's support.

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

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

**Programmes and Projects:** See Chapter 4 of this Profile

**Status:** No information available.

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

**Information:** See Chapter 4 of this Profile

**Research and Technologies:** See Chapter 4 of this Profile

**Financing:** No information available.

**Cooperation:** No information available.

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

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

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

**Status:** Despite several efforts at improving transportation, the concept of safe, reliable and affordable mass transportation system remains an illusion. The private still dominates the sector with an ever increasing fleet of low-quality vehicles but still lack the most fundamental government input – i.e. a regulatory framework. Again, several policies have been initiated for promoting cheap, efficient and renewable energy resources but these are yet to be translated into reality. The informal sector is particularly noticeable in the urban economy. However, its productivity is questionable given the fact that formal economy itself has still not been re-structured with the economy still dominated by the agriculture and services sectors. As the structure of the economy gradually shifts to industrial or manufacturing the productivity or significance of the informaleconomy may be felt.

**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:** As part of efforts at meeting population challenges for Ghana's quest to attaining sustainable development, the 1969 Population Policy was revised in 1994 to take care of new and emerging issues including: HIV/AIDS; and gender equity, equality and empowerment of women. Following the revision of the population policy, the Government established the National Population Council (NPC) and a Secretariat to be responsible for the co-ordination of all population programmes in the country. The NPC is also the main advisory body for government on all matters pertaining to population and development. The NPC has regional secretariats in all ten administrative regions of the country. In addition, each region has a Regional Population Advisory Committee (RPAC) as the advisory body on population at the regional level.

With reference to efforts to confront HIV/AIDS in Ghana, Government has established the National AIDS Commission as the highest body to advise Government on all matters and programmes towards the eradication of the HIV/AIDS menace in the country. This Commission is chaired by the Vice President and shows the commitment Government is showing in the fight against the HIV/AIDS pandemic in Ghana.

There has since been the development of a Draft Adolescent Reproductive Health Policy in addition to a Draft HIV/AIDS/STI Policy. Laws have been passed to outlaw harmful traditional practices that affect the reproductive health of females including female genital mutilation (FGM) and trokosi, a traditional practice observed mainly in the Volta Region of Ghana. In addition, legislation has been passed to fix the minimum age of marriage at 18 years. Affirmative Action Guidelines have been developed in order to pursue, gender equity, equality and empowerment of women in the country. In support of these programmes, there is currently a Ministry for Women and Children Affairs while a Minister has been appointed to be in charge of Basic and Girl Child Education to strengthen efforts at increasing girl child education throughout the country.

**Programmes and Projects:** Since the International Conference for Population and Development (ICPD) in 1994, a number of programmes and projects have been undertaken in Ghana with the view of ensuring that population plays a positive role in the country's drive towards the attainment of sustainable development. One major project which, even pre-dated the ICPD, was the revision of the National Population Policy. Another major programme is the Government of Ghana/UNFPA Third Country Programme made up of Population and Development Strategies (PDS), Reproductive Health (RH) and Advocacy, implemented during 1995-2000. Currently, a fourth Country Programme made up of PDS and RH is being implemented. There is finally a decentralized system of political administration in place for population programmes to take advantage of.

**Status:** Some progress has been made over the years in respect of total fertility rate that has seen steady decline from 6.4 in 1988 to 5.5 in 1993 and 4.6 in 1998. The challenges, however, include the effective coordination of population programmes in the country. There is also the challenge of how to continuously sustain the observed fertility decline in the coming years. There are also data constraints as a result of the irregularity of census taking in the country, poorly developed vital registration system and the difficulty of using demographic sample surveys in doing district level analysis. Besides, there is inadequate capacity at the district level to facilitate a process to incorporate population variables into development planning at the District Assembly level. Funding for population programmes has been inadequate.

In order to achieve sustainable development vis-à-vis population dynamics, however, there should be a better integration between conservation and population management efforts. In every sphere of the nation's development efforts, therefore, conscious attempts should be made to build the capacity of the human resources at the district level to facilitate a process to incorporate population variables in the nation's development planning at all levels of administration, especially at the district level.

**Capacity-Building, Education, Training and Awareness-Raising:** Capacity-building has been a part of the whole process of population policy implementation in Ghana. This is done through the organization of sensitization seminars and workshops by Government and NGOs to enhance the capacity of population activities particularly, policy makers, planners and media practitioners to strengthen population advocacy and communication in the

country. Specifically, the USAID through the POLICY Project has supported a comprehensive programme with the aim of strengthening the capacity of RPACs in carrying out policy analysis, research and population advocacy at the regional and district levels throughout the country. Series of advertisements on population, family planning and related activities are also run on television and radio programmes as well as in the print media to sensitize the general population.

**Information:** The process of population data collection and dissemination has been through the civil registration, national population censuses and demographic surveys. There is, however, much dependence on the census data since the vital registration system is not fully developed in Ghana at the moment. While censuses have not been very regular in Ghana, the Demographic and Health Surveys in 1988, 1993 and 1998, which are sample surveys, have not provided opportunities for district level analysis. The NPC, however, has plans to create data banks to facilitate easy access to population data in Ghana. Efforts are underway to incorporate remote sensing and geographical information management systems/techniques analysis (which are in their early stages of development) in population data collection and analysis in Ghana.

**Research and Technologies:** Research has been part of the whole process of population policy implementation in the country. In the light of this, a research project titled “Comparative Studies of Customary and Modern Legislation in the Area of the Family, Inheritance, Marriage and Fertility Rights,” developed by the NPC with funding from the UNEPA and the Danish International Agency (DANIDA) has been executed by the Population Impact Project (PIP) under which, 14 different studies have been undertaken. Research institutions, NPC and individuals are also being encouraged to undertake research on community-specific problems at the district and community levels to assist planning.

**Financing:** Funding for population programmes in Ghana is administered within the same framework as funding of other activities in the country. So far, funding has been provided by the Government of Ghana and other international donor-agencies including USAID, UNFPA, Japanese International Cooperation Agency (JICA), UK Development for International Development (DFID), the World Food Programme (WFP), UNICEF, IPPF, DANIDA, the European Union, GTZ, the World Bank, etc. The NPC and its regional secretariat throughout the country are, for example, financed directly by the Government of Ghana budget. See also under **Capacity-Building, Education, Training and Awareness-Raising and Research and Technologies.**

**Cooperation:** There is cooperation between the Government of Ghana and bilateral as well as multi-lateral agencies (i.e., North/South cooperation) in the implementation of population programmes in Ghana. This is supported by South/South cooperation where Ghana shares experiences with other countries in the African sub-region, especially on HIV/AIDS eradication efforts.

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## CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH

**Decision-Making:** The Ministry of Health is the central government agency on all matters related to health. Its role is to define and monitor health needs, to ensure equitable access to basic health care, to set service standards for all health care providers and to monitor the implementation of essential public health programmes. Within the last decade, the Ministry of Health has implemented a series of related reforms involving sector policy formulation, ministerial restructuring and administrative reorganization aimed at improving the capacity to deliver effective and efficient health service.

The passing of an act of parliament (The Ghana Health Service and Teaching Hospitals Act, 1996) Act 525 completes the restructuring exercise, which began in 1993 and fulfils a constitutional requirement for setting up a Ghana health Services as an executing agency within the health sector. By this provision the Ministry of Health de-links itself from service provision and focuses on sector policy formulation and monitoring. Within the Ministry of health itself, the reorganization has involved a clearer separation and definition of functions thus allowing managers more flexibility in decision-making and the use of resources. The creation of Budget and Management Centers as the smallest management units with defined plans and budgets responsible for their own performance deepens the policy of decentralized decision making within the sector.

**Programmes and Projects:** The impetus for the reform programme in the health sector was primarily derived from the overall national long-term vision for growth and development, which aimed at a middle-income status for the promotion and improvement in health status in the medium term. Key issues addressed in the reform programme are: access to basic health care; inadequate service quality; inadequate funding of health services; inefficient allocation of resources; and poor collaboration.

The reform programme is being articulated through three broad components. Firstly, in line with the country's new decentralized development planning system district planning authorities, under the District Assemblies are responsible for district plans which are made up of submissions from decentralized ministries and departments. Ministries and sector agencies prepare sectoral plans and programmes congruent with national development goals and objectives. Thus for the purpose of planning, the overall framework is determined by national priorities and sector policies and priorities. A second component is the agreement on management arrangements with respect to the implementation of the policies and priorities identified. Although some of these arrangements especially the funding mechanism, constitute a departure from the traditional mode of practice, they aim at targeting efforts and resources on achieving specified outputs. Specifically this component of the reforms centers on common arrangements for disbursement, planning and budgeting, financial control, accounting and audit, procurement and performance monitoring. The third component of the reform programme is the establishment of appropriate linkages with other sectors to improve performance and to have a more effective influence on health status. In more concrete terms the reforms in the health sector provides for an increased effort in advocating for health concerns and promoting integrated planning, implementation, monitoring and evaluation of programmes.

The implementation framework is captured in the Five Year Programme of Work (2002-2007) in which the government is determined to improve access and equity of access to essential health care, and ensure that the health sector plays an essential role in the Ghana Poverty Reduction Strategy. Key components of government policy include: dealing with the HIV/AIDS threat, using the national HIV/AIDS control strategy; shifting from facility-based services by emphasizing community-based care, focusing on placing nurses in communities; reducing financial barriers by abolishing the current mode of implementing the user fee system, thereby ensuring that no one lacking funds at the time of need is denied essential health care; reforming financing arrangements for the entire sector by replacing the requirement to pay at the time of service with prepayment and insurance arrangements; increasing the use of non-government and private health providers, reflecting the government's focus on private sector led development; emphasizing on the control of Malaria, TB, and the elimination of Guinea Worm, and strengthening reproductive, maternal and child health, and EPI services; and improve staff motivation and health worker incentives. See also under **Status**.

**Status:** There have been important health gains over the years. Total fertility rate has declined from 5.5 in 1993 to 4.6 in 1998. Infant mortality rate has dropped from 83.3 in 1988 to 56.7 in 1998. Over the same period under-five (5-year-olds) mortality has also dropped from 147.8 to 107.6 while life expectancy has increased from 54 years to 57 years. However, lessons from the first five years show that there are still inequalities in health outcomes and from a gender perspective. There are also disparities between the poor and rich families/regions.

There is also an existing gap between rural and urban areas. The programme of work is thus based on five principles: health services should respond first to health needs that support households, and provide services that they cannot provide for themselves; community actions to improve health should be given priority; the range of financing mechanisms will be extended to include prepayment schemes and social insurance; comparative advantage should determine the choice of providers for publicly-financed services; and the government will adopt modified roles to fulfill coordinating, regulatory, and purchasing functions, and will provide health services directly only if it is more equitable and efficient to do so. Within these principles, the health sector response to HIV/AIDS will be a vital component of the national response. The Health Sector HIV/AIDS Policy and Strategic Plan 2002–2006 provides the framework for the response.

At the international level Ghana has signed on to a series of key international development targets, including: reduction by two-thirds the rate of infant and child mortality by 2015; cutting the rate of maternal mortality by three-quarters by 2015; attaining universal access to reproductive health services by 2015; reducing HIV infection rates by 25% among 15-24 year-olds globally by 2015; and decreasing TB and malaria mortality 50% by 2010. These targets have been translated into national targets and will be further translated into regional and district level targets to guide and inform local priority setting in a decentralized manner.

*Indicators for monitoring performance:* Sector-Wide Indicators for the health status include: infant mortality rate; under five mortality rate; maternal mortality ratio; percentage of under five years who are malnourished (underweight); access number of outreach services carried out by specialist from tertiary, secondary and district hospital by region; population to doctor and nurse ratio by region; outpatient visit per capita; hospital admission rate; number of community resident nurse per district/region quality percentage of maternal audits to maternal deaths; under five malaria case fatality rate; percentage of tracer drug availability Efficiency HIV seroprevalence (among reproductive age, 15-19, 20-24); tuberculosis cure rate; number of guinea worm cases; AFP non polio rate; percentage of family planning acceptors; percentage of ANC coverage; percentage of PNC coverage; percentage of supervised deliveries (skilled attendants); bed occupancy rate; EPI coverage (DPT3, measles); other MDAs; percentage of GOG budget spent on health; percentage of GOG recurrent budget for health; percentage of earmarked/direct donor funds to total donor funds (per partner); percentage of IGFs coming from pre-payment and community-insurance scheme; percentage of recurrent and capital expenditure by level, by region, and by source; total amount spent on exemptions by exemption category; percentage of recurrent budget from GOG and Health fund used by private sector, NGOs and CSOs.

**Capacity-Building, Education, Training and Awareness-Raising:** The five years programme of work has human resource development as one of its central programmes. This involves efforts to increase output of the training institutions, developing packages to retain skilled workers in country and ensuring an equitable distribution of health workers particularly to underserved areas. In increasing numbers of skilled workers, steps have been taken to increase intake into the nursing training colleges. A postgraduate College of Medicine is being set up and a new Faculty for allied Medicine has been established. An incentive package for help retain staff and to enable staff to be deployed to underserved areas is also under discussion with the development partners.

A series of in-service training programmes have been developed and currently a policy of linking in-service training to staff promotion is being put in place. A new Community Based Health Workers Programme is also being adopted as a key strategy for increasing access to basic health care. To improve health education steps have been taken to involve the media in the dissemination of health policies and research. Specific training has been offered to journalists to enable them report more effectively on health.

**Information:** Performance of the health sector is monitored through a set of agreed Sector-Wide Indicators (see under **Status**). Two annual meetings with partners serve as the focal point for discussing performance based on the set of indicators and the year on year progress made towards meeting the targets set. Such information is

disseminated through annual review reports. The Center for Health Information Management provides support for data management and analysis in this direction. Health sector information is managed through the Policy, Planning, Monitoring and Evaluation Division, which is responsible for defining an information dissemination strategy for health. The focus is to empower consumers to take up health care services and to demand quality health care from providers. Health information is also designed to provide information to the population to make them responsible for their own health by adopting healthier lifestyles. The content of such information is designed by the Health Education Unit. The Ministry of Health is currently constructing a Website as part of the strategies for wider information dissemination.

**Research and Technologies:** A five-year programme on research in the health sector has been developed with a focus on Malaria control, HIV/AIDS, Buruli Ulcer and the integration of herbal medicines into mainstream health care delivery. There are three Health Research Units based in Accra, Navrongo and Kintampo. This is in addition to national institutions for medical research such as the Nogouchi Memorial Institute for Medical Research and the Center for Research into Plant Medicine.

**Financing:** Activities in the health sector are financed from three main sources, namely: Government of Ghana budgetary allocation; donor support; and user contribution. Although Government allocation is by far the largest source of funds for procuring of supplies, the other sources become increasingly important depending on the level of service delivery and the category of items involved. In general budgetary allocation is the main source of fund for salaries, the supply of renewable medical supplies, basic hand equipment and other capital equipment at the national and regional levels. User contribution has since 1993 been the major source of finance for drugs. Common fund arrangement or ‘pooled fund system’ and full integration of plans, budgets, financial flows and accounting systems are in place. This will eventually make donor funds indistinguishable from government budgetary allocation and would form a part of the published estimates and be released through the treasury system. However until this is achieved fully a significant proportion of donor funds are disbursed through earmarked funding.

**Corporation:** Partnership for health is a key strategy in the medium term. Efforts have been made to articulate this through the funding mechanisms and through collaboration in planning and monitoring and evaluation of health activities. A code of conduct has been developed to guide donor contribution to the sector and a Memorandum of Understanding is prepared annually to ensure that both the health sector and the donor community are focused on their activities.

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## CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT

**Decision-Making:** Currently, the agency responsible for overall coordination of development of Human Settlements at the Central Government level is the National Development Planning Commission/Ministry of Finance. At the District level, the coordination and overall responsibility rests with the respective District Assemblies. The Ministry of Local Government handles issues on legislation and specific policies or programmes often of a multi-sectoral nature. Besides these, there are a variety of governmental and non-governmental agencies involved in the decision-making process as far as human settlement development is concerned. Increasingly, the international community through donor-assisted projects is becoming a major partner in decision-making.

**Programmes and Projects:** Within the past decade Government has initiated a number of policies and programmes to tackle the needs of the homeless and the poor in society: ranging from issues on land tenure; non-conventional shelter delivery, rural housing, etc. So far, some success has been achieved with the pilot projects to upgrade seven (7) slum communities in Accra, Kumasi, and Takoradi and to provide access roads to some deprived parts of Accra. More notable success has been recorded in areas of privatization and cost-recoverable measures for provision and maintenance of selected urban services – notably refuse, selected highways, electricity and water. A number of projects that will eventually promote sustainable settlements have been initiated or implemented. Notably: infrastructure upgrading of selected district capitals and institutional capacity building of corresponding District Assemblies; preparation of 5-year development plans by all district Assemblies; preparation of the first medium term national development framework; formulation of a National Rural Housing Strategy; community infrastructure upgrading for selected low-income communities; and construction of waste treatment facilities in over 30 major settlements.

**Status:** Ghana's population increased by nearly 50% between 1984 and 2000, with the rural urban ratio also increasing in line with the global trend of rapid urbanization. The urban population structure is still skewed with Accra the capital city accounting for about 17% of the total population. The potential of our towns and cities to play a leading role in the national economic transformation is yet to be realized mainly because they continue to be plagued with major development challenges such as: about 30% of the urban population still live below the poverty line; over 50% do not have access to potable water, and vast majority live in deplorable housing conditions or worse still some have no access to shelter. There are even more crucial challenges with the level of environmental degradation and unsanitary conditions, which have reflected in increasing health hazards.

Some progress has been made in the endeavour of promoting sustainable human settlements albeit very little: - several significant policies have been put in place in almost all the requisite areas; there has been an emergence of the private sector in medium scale shelter delivery; a few of the Districts and sector agencies have experienced improvements in their human resource as equipment capacities, to name a few. Despite these marginal improvements, the challenges or constraints are still overwhelming:- there are gross imbalances in the distribution of population across the national territory; rural development has still not taken off; the construction industry remains virtually independent and inefficient to the point where the concept of a low-cost building still remains an illusion; there are still flaws in the current institutional arrangements; weaknesses in the enforcement machinery has rendered virtually all legislation ineffective; and there is as yet no settlements that has come to terms with waste management.

**Capacity-Building, Education, Training and Awareness-Raising:** Over the past decade, some little progress has been made as far as capacity-building is concerned – the general picture still remains bleak. The traditional system of human resource development through the tertiary educational sector has rather been on the decline. Improvements worth noting are with regard to the re-introduction of the spatial planning option at the Department of planning KNUST, to replenish the rather depleting stock of physical planners; strengthening of capacities of over 30 District Assemblies through the World Bank Urban infrastructure projects i.e. Urban 3, 4, and 5; capacity upgrading at key sector agencies particularly the roads sub-sector.

**Information:** Information technology in support of human settlements development has seen considerable progress. Notable achievements include updated base maps through aerial surveys covering over 35 major urban centres, completion of the 2000 national population and housing census to name a few.

**Research and Technologies:** A lot has been done surprisingly in the area of research especially local building materials, low-cost housing technologies, secondary-timber species etc. yet there still remains a big gap between research and practice.

**Financing:** Financing mechanisms have still largely remained conventional, with the bulk coming from central Government Revenue or donor agency support. Over the past decade private sector financing has started trickling into the housing supply system through the private real estate developers (GREDA) – but still far too limited. In the area of building materials and construction technologies, not much has been achieved. The country is still heavily dependent on imported finished goods. The few examples of local production worth mentioning are clay bricks and concrete roofing tiles both of which are dominated by inappropriate production technologies.

**Cooperation:** International cooperation in support of human settlements development has in recent times been dominated by multi-lateral support specifically UNDP, World Bank and Africa Development Bank (ADB) with supplementary bilateral programmes namely from Danish International Development Assistance (DANIDA), Department of International Development (DFID), Japan International Cooperation Agency (JICA), Canadian International Development Agency (CIDA), the Spanish Government, the French agency for international cooperation and lately the Dutch Government. There are a number of International non-governmental organizations such as Habitat for Humanity, which has made some notable contributions as well.

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

**Decision-Making:** Ghana adopted the Dual Hierarchy Model of planning administration during the pre-independence era. However, failure of this system in ensuring an integrated approach to planning and decision-making led to the introduction of the new Development Planning System (NDPS). The new system is directed towards the restructuring of the political and administrative machinery for development decision-making at both national and local levels. The key features of the system are the devolution of political, administrative and economic management powers, the identification of local government institutions as the focus decentralized powers and the removal of implementation powers from national to local level, with the regional level institutions playing a monitoring and mediating role. The various arms of governments, Ministries, Departments and Agencies (MDAs) all work in concert to achieve sustainable development. However, the two main institutions with direct responsibility of ensuring sustainable development in Ghana are the National Development Planning Commission (NDPC) and the Environmental Protection Agency (EPA). Both institutions are public sector organizations established by acts or parliament.

The Environmental Protection Agency (EPA) ensures that the implementation of environmental policy and planning are integrated and consistent with the country's desire for effective, long-term maintenance of environmental quality; and provides technical assistance to the District Assemblies to enable them meet their responsibilities for managing the local environment. The National Development Planning Commission provides advice on development planning policy and strategy, and ensures the effective implementation of approved national development plans and strategies. The Commission also coordinates economic and social activities country-wide in a manner that will ensure accelerated and sustainable development. Development, based on natural resource utilization has been taking place in Ghana especially since the last century. Even though government has instituted the necessary institutional and regulatory framework to ensure sustainable development, there is still much to be desired in fully integrating environment and development into the decision-making process.

**Programmes and Projects:** See under **Status**.

**Status:** Much has been achieved since the Rio Conference in 1992 in integrating environment and development into the decision-making process in the country. The achievements made so far are quite remarkable. These achievements have been made possible because of the following government policy interventions, which include: parliamentary democracy and greening of political decisions (e.g. Select Committee on the Environment); district Assemblies and the decentralization process in decision making; establishment of Environmental Desks in sector ministries; formulation of Long-term National Development Policy Framework - GHANA VISION 2020; development of Local Environmental Action Plans FOR District Assemblies; establishment of District and Community Environmental Management to raise environmental awareness, and ensure grass root participation in development and environmental issues; Environmental Impact Assessment is now a mandatory and essential tool in project design and implementation.(L.I. 1652); implementation of the Ghana Environment Assessment Capacity Building Project; and implementation of Poverty Reduction strategies.

The New Planning system provides for civil society participation and consultation in the decision making process. The Local Government Act 462, the New Planning System Act 480 and the Environmental Assessment Regulation L.I. 1652 mandates both the District Planning authorities and Environmental Protection Agency to hold consultations and public hearings of districts and sub-districts or local development plans and development projects. The reports emanating from such public hearings are incorporated into the decision-making process. The NDPC also employs a consultative forum as a means of building consensus in decision-making, in its functional relations with the other planning authorities (sector Ministries, Regional Consultative Councils and district assemblies), professional bodies, local communities and private entities. Even though, much has been achieved in integrating environment and development into the decision-making process by the use of these institutions and planning processes, full integration is yet to be fully realized mainly due to the following constraints: the lack of institutional leadership required to driving and sustaining the development process; the implementation of the decentralization policy is rather slow—there is difficulty especially in the transfer of planning and budgetary



systems to the local and district levels; weak capacity of the MMDAs in the planning and implementation of development projects and programmes; the lack of financial resources, manpower and technical skills of the key players in the decision making process; and poor access to information and communication technologies.

**Capacity-Building, Education, Training and Awareness-Raising:** See under **Status**

**Information:** No information available.

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

**Financing:** No information available.

**Cooperation:** No information available.

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## CHAPTER 9: PROTECTION OF THE ATMOSPHERE

**Decision-Making:** Environment Protection Agency and the Ministry of Environment, Science and Technology are the main coordinating bodies and this is done through regular meetings at the committee level. The lowest level of public authority is at district and town level.

Ghana's regulations and legislation on the environment include: Environment Protection Agency Act (1994) Act 490; Environment Impact Assessment Regulation 1999, LI 1652; and ambient air quality guidelines have been developed. The country is in the process of developing the following plans: A national strategic plan; A national environmental action plan has been developed; National Environment Policy adopted; and Medium Term /development Plan – Vision 2020. The strategy of the Government is to phase out the use of Ozone Depleting Substances (ODS) according to the ODS phase out schedule for Article 5 countries under the Protocol. To ensure this phase-out, the country carries out different projects which include: training of Refrigeration Technicians in code of Good Practice in refrigeration; formulating projects in the foam sector; and awareness creating in all sectors.

Ghana's short-term and long-term goal has been prepared, concerning: reduction of green house gas emissions; conserving and increasing greenhouse sinks; mitigating ozone depletion; and mitigating transboundary air pollution include: implementation of programmes and projects to phase Chlorofluoro Carbons (CFCs) in Ghana by 2010; encourage industry to change over to Ozone friendly initiatives; carry our monitoring programmes; encourage users of Refrigeration units to patronize Ozone friendly equipment; and Ghana's Initial Communication in accordance with UNFCCC.

Major groups include the following: NGOs; local authorities; business and industry; scientific and technological community; and policy makers. Their role has been mainly advisory. Atmospheric pollution and climate change mostly affect farmers and fishermen. In Ghana, there are no compensation schemes available.

**Programmes and Projects:** Planned Activities in Industry – Fuel switching from residual oil to gas in boiler; and Energy Sector Support Programme. On-going programmes include: discouraging slash and burn practices in agriculture; managing degraded lands; combating desertification; afforestation; and agro-forestry.

Involvement in regional network for systematic observation and building capacity for adaptation to climate change are programmes aimed at promoting a better understanding of the processes and consequences of changes in the atmosphere. See also under **Status** and **Cooperation**.

**Status:** The main activities have been in the refrigeration sector, which consumes as much as 98% of the total ODS consumption in Ghana. It is an obligation for developers to consult EPA for a permit prior to embarking on any activity that involves the use of Ozone depleting substances. By so doing, proponents are advised appropriately. Afforestation, Management of degraded land and Agro-forestry is some of the measures being taken by Ghana to increase greenhouse gas sinks.

Ghana's vulnerability assessment indicated the following: Agriculture is very vulnerable to climate change (e.g. decrease of 7% in maize yield by 2020); Coastal is currently experiencing an erosion rate of 8m/year; and Water resource also has a high vulnerability. Ghana is not directly involved in the chemical analysis/measurement of emission of ozone depleting substances. The country has however, seen a reduction in the quantity of ODS imported. Since 1999, its current consumption stands at 43.43 tons as compared to 101.4 tons in 1991. National ambient air quality monitoring results indicate that air quality of Ghana's urban centre is generally good, as most monitoring stations do not capture any disturbing levels of gaseous emissions. The major structural deficiency regarding the minimization of ODS is the lack of legislation for ODS. Terrestrial – Bush fires; Deforestation; and Unfriendly agricultural practices.

**Capacity-Building, Education, Training and Awareness-Raising:** Three policy dialogues have been held. The first is in the southern sector, the second in the middle belt and the third in the northern sector of the country. The media was involved in all activities. General workshops on awareness creation and capacity building have also been carried out. Primary and secondary school education curricula promote an early awareness of the adverse effects of

climate change whereby environment issues are discussed in classroom and normally children would share this information with their peers and parents, thus, information dissemination.

Planned activities include: institutional strengthening; human resource development; incorporation of climate change; related activities into the curriculum of tertiary institutions (Universities); and promote research in the area of climate change.

**Information:** Ghana plans to have country's national reports on climate change placed on the Environmental Protection Agency's website – [www.epa.gov.gh](http://www.epa.gov.gh) and abstracts are already there. Information dissemination is done through the media and by the help of some environmental NGOs. Stakeholders' workshops are also held.

**Research and Technologies:** Metrological Stations, Radiotelephones. There are some early detection systems but not adequate concerning changes and fluctuations in the atmosphere. Technologies are yet to be assessed. Ghana planned to conduct a technology needs assessment under the Phase II (Expiated Financing) of the Enabling Activities.

**Financing:** The government encourages the private sector in the development of viable projects especially projects that can attract private investors under the CDM.

**Cooperation:** Main sources of funding for activities are from: UNDP/GEF; and Netherlands Government. Ghana has enjoyed good cooperation in the building vulnerability and mitigation assessment from these two donors. Ghana ratified the Montreal Protocol in 1998, and has since ratified the various amendments including the Copenhagen. The Montreal and Beijing amendment are yet to be ratified. A significant move is the West African Gas Pipeline Project, which has enjoyed support of our government. This project aims (environmentally to reduce flaring of volatile fractions (methane) in Nigeria. Development of renewable energy sources under the Danish.

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

**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 11: COMBATING DEFORESTATION

**Decision-Making:** The principle decision-maker is the Minister of Lands and Forestry supported by the Forestry Commission and its divisions of Forestry, Wildlife and Timber Industry Development Division.

Partnership is well developed to facilitate holistic decision-making among major stakeholders in the forestry sector including: other government Ministries; the District Assemblies; Timber Industry; forest industry labour; (Timber and Woodworkers Union of the Trade Union Congress of Ghana); local communities and traditional chiefs; local NGOs (e.g. Green Earth Organization); and International NGOs (Friends of the Earth, Conservation International, World Vision etc.). A Forestry Development Master Plan (1996-2020) was launched to guide the implementation of the Forestry and Wildlife Policy. The Forestry Master Plan is being implemented now through a multi-donor assisted programme called the Natural Resources Management Programme (NRMP).

Two legislative instruments for guiding the allocation of timber rights within reserves and outside reserves: - Timber Resources Management Act (Act 547) in 1997, Timber Resources Management Regulations (L.I. 1649) in 1998, Timber Utilization owners are required to submit reforestation plans for the TUC area and re-planting at the rate of 1km<sup>2</sup> for each 10km<sup>2</sup> exploited. The Ghana Forestry Commission under Act 571 in 1999 has been re-established to bring under the Commission the major public agencies in forestry and wildlife. The Ministry of Lands and Forestry in 1997 started the development of a Forest Management Certification System for Ghana and a comprehensive computerized system for log tracking with assistance from EU and the Government of Netherlands. In 2000, pilot testing of Principles Criteria and Indicators was undertaken. The Ghana Standards Board has formulated, field-tested and more or less finalized for adoption the forest standards for SFM and Forest Certification for the country.

**Programmes and Projects:** A National Forest and Wildlife Policy Statement was adopted in 1994 and aims at the management and enhancement of the permanent forest and wildlife estates for preservation of vital soil and water resources, conservation of biodiversity and the environment. It is a three-phased 10 year investment programme launched in September 1999 and has four components: High Forest Resource Management; Savannah Resource Management; Wildlife Resource Management; and Biodiversity Conservation in the high forest zone.

There is an on-going ITTO project in participatory Tropical Forest Development by women in Indigenous communities since 1999.

**Status:** The result to date from the NRMP include: improvement in the policy and regulatory environment for high forest management and timber industry development; enhanced Community Involvement in the management of forest, wildlife and savannah woodland resources and improved benefit flow to communities; and enhancement of conservation of globally significant biodiversity in forest reserves and national parks.

**Capacity-Building, Education, Training and Awareness-Raising:** Education and capacity building is engaging a wide spectrum of local institutions, and sectors, forest industry NGOs, decentralized district assemblies to address the concepts and issues embodied under their new roles as development partners.

Responsibilities are being transferred to local district assemblies, local communities and empowerment of marginalized groups, but capacity at the local level to plan and implement SFM practices is a major concern. Public education is therefore being intensified to sensitize the public on forestry and wildlife issues to increase effective private sector participation in forest and wildlife management including the heritage of coastal wetlands. The Forestry Commission has been restructured to improve its methodologies for monitoring and evaluation of programmes and projects in the forestry sector.

The organizational structure of the Wildlife Division has been revamped into three operational departments; Wildlife-Based Enterprise, Operational Department and Human Resources Department. Up-grading of priority skill competencies for forest industry workers has been commissioned since 1995 at the Wood Industries Training Centre at Akyawkrom, Ashanti. There also exist upgrading skills and human resources development for the sector in kiln-drying and other disciplines to meet the challenges of global competition, and value-addition in the wood processing industry.

**Information:** There is dearth of minimum information/data on forest resources for rational management decision making; most of our forests continue to be managed in the absence of such vital data as the levels of annual allowable cut (AAC) to match yields of all kinds of forest products into the future. Establishment is underway of an electronic data bank at the Forestry Commission, incorporating all other management information systems with three key divisions of the Commission. The two main tasks facing the Forestry Commission are to secure and improve existing natural forests. The second task is to rehabilitate the degraded forest-lands and thereby increase the area under forest plantation. The President of Ghana launched the National Plantation Development Programme in September 2001 and aims at planting 20,00 ha. per year. The new plantings will incorporate Agroforestry to improve food security and also generate rural employment.

**Research and Technologies:** Ghana is part of the Forestry Research networks for Sub-Sahara Africa (FORNESSA) for information exchange and capacity-building. Ghana is also a focal point for on-going Forestry Outlook Study for Africa (FOSA), which is undertaking in-depth assessments of emerging issues, trends and development opportunities in the five sub-regions of Africa, FOSA is a joint initiative led by FAO, and AfDB with support from EU, Sweden, World Bank. There is need for updating mapping and remote sensing to determine condition of forest cover and land-use changes. Other researchable areas include bush-meat surveys and NWFPs survey as a whole.

**Financing:** There is need for committing more resources to strengthen our forestry institutions including training, and research institutions; and complementary support from the international cooperation programmes. Over-reliance on outside loans is not sustainable and thus the need to mobilize domestic resources including: the establishment of a National Plantation Fund/Forest Fund in 2000 in Ghana and should remain the priority option to secure increase funding for forestry development; the establishment of National Plantation Scheme with assistance of AfDB for year 2001; and participating Donors in the Natural Resource Management Project include: IDA (of world bank Group), EU, AfDB, DFID, Technical Cooperation Agency (Germany) (GTZ), Royal Netherlands Embassy, JICA, Dammida, W.F. Programme, GEF.

**Cooperation:** Sub-Regional partnership within ATO is endeavoring to help implement the recommendations of the IFF/IPS on SFM. Sub-regional workshop on Genetic Resources in Dakar in 1998 recognized the high traditional and economic values to African forest diversity and genetic resources, and efforts to effectively conserve and utilize them. The African Forestry and Wildlife Commission (AFWC) is a unique forum for consultations, which has proved to be useful to strengthen cooperation and consensus on common issues in the African Region. Collaborative Forest Management is evolving in Ghana with responsibility for managing the forest being shared between: the public forest service and the local communities groups; and forest fringe communities, but the final responsibility rests with the public agency; the urgency is improved cooperation, coordination and partnership mechanisms to engage forest owners (traditional chiefs), private sector, local forest fringe communities, and ensuring equitable sharing of forest-related benefits in support of SFM.

Cross-sectoral factors which are underlying census of deforestation and forest land degradation include: poverty, population growth, pollution, discriminatory trade practices, and unsustainable policies related to sectors such as Agriculture (slash and burn agric), energy (harvesting of fuelwood), and Mining in forested lands. Effective mitigation of deforestation rests with: improving technologies for food production e.g. use of Agroforestry system which can also assure sustained services and products of trees and forests; and particularly management of savannah woodlands for energy and other sustainable forest products such as plant medicine.

Business-Government-NGO Partnership has improved as they are gradually forging a more trusting relationship.

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

**Decision-Making:** The Ministry of Environment, Science and Technology is the policy co-coordinating Ministry responsible for desertification. The Ministry hosts a National Committee on Desertification whose membership includes major stakeholder groups.

Ghana has legislations and regulations that are important for desertification control. These include: the Timber Resources Management Act of 1997; the Forestry Commission Act of 1993; the Forest Ordinance, the Economic Plants Protection Decree of 1979; the Control and Prevention of Bushfire Law of 1990; the Wild Animals Preservation Act of 1961; and the Wildlife Conservation (Amendment) Regulations Act of 1988.

Above all, the 1992 Constitution of Ghana contains important provisions, which enjoin the state and citizens to protect and safeguard the environment for posterity. Ghana drew up a National Plan of Action to Combat Desertification in 1987, which was partially implemented over the years. Currently, a National Action Programme for desertification control is being developed.

**Programmes and Projects:** Significant programmes and projects include: the community-based Land and Water Conservation component of the Ghana Environmental Resource Management Project (GERMP); the Co-operative Integrated Project on the Savanna Ecosystem of Ghana (CIPSEG); the Natural Resources Management Programme (NRMP); the Ghana Capacity 21 Programme; the Africa 2000 Network; the GEF/Small Grants Programme; and the Renewable Energy Services Project (RESPRO). RESPRO has done solar power installations for schools, homes, clinics, streets and a water pumping system. The Land and Water Management component of GERMP seeks to promote the sustenance of rural livelihoods through the prevention of land degradation in agricultural communities via the introduction of land and water conservation practices.

CIPSEG interventions have included interdisciplinary studies/research, in-situ conservation or natural regeneration of plant species through the containment of bush fires and restricted harvesting of wood and the introduction of agro-forestry, multipurpose woodlots and fodder banks.

The overall goal of the NRMP is to protect, rehabilitate and sustainably manage Ghana's land, forest and wildlife resources and to sustainably increase income for the rural communities who own these resources.

The Africa 2000 Network has a long-term objective of helping to reduce and prevent desertification and other forms of environmental degradation as a means of promoting rural development and increasing food production through the effective management of the environment.

The GEF/Small Grants Programme is another national Programme that works with Non-Governmental Organizations and Community Based Organizations to conserve environmental resources and to improve upon biodiversity.

**Status:** Ghana has a total area of 238,537 square kilometers of which about 30-40% is subject to desertification. The combined efforts of Government and non-governmental organizations, women's groups, private sector organizations and other sectors of society are yielding commendable results in terms of awareness-raising and sensitization and vegetal cover improvements through activities being carried out under various programmes and projects and also innovations in appropriate research and technology.

**Capacity-Building, Education, Training and Awareness-Raising:** The Ghana Capacity 21 Programme seeks to build capacity for sustainable development. The Programme establishes environmental clubs in schools, organizes children's quizzes, supports tree nurseries and tree growing, engages in advocacy and organizes training, awareness and sensitization activities, among others. Human resources available in the country for undertaking desertification control and drought mitigation activities exist in the following main disciplines and professions, among others: Forestry; Geography; Natural Resources Management; Sociology and other Social Sciences; Biological Sciences Soil Science, Zoology, Botany, Community/Social Development, Development Planning, Environmental Science and Management; Population and Family Life Education; Tourism; etc.

Ghana has a wide range of training institutions that run formal courses on various aspects of desertification and drought. These include: the population and family life education programmes run by some Universities; the Geography and Resource Development programmes at the University of Ghana; the Renewable Natural Resources; Environmental and Development Studies Programmes at the University of Science and Technology; and the Ghana School of Forestry courses and the Integrated Development Studies at the University for Development Studies. Awareness-raising on desertification and drought is being undertaken through radio and TV programmes, outreach campaigns in the form of community durbars, seminars and workshops, posters and brochures.

**Information:** Various Government organizations and agencies are engaged in environmental and socio-economic monitoring and observation. The Environmental Protection Agency is establishing baseline data for some important parameters and established water and air monitoring sites in parts of the country. The Water Research Institute is responsible for the management of water resources, water quality studies and monitoring. The Soil Research Institute provides data on land and soil suitability, soil types and soil fertility status and maps. The Meteorological Services Department stores data on agro-meteorology and helps predict weather and drought conditions. With support from the Capacity 21 Programme, selected Districts are establishing Environmental Resources Information systems.

Socio-economic information is being managed by many agencies, principal amongst which are: the Ministry of Finance; the Ghana Statistical Service, the Institute of Statistical; Social and Economic Research; and other public sector and private organizations.

**Research and Technologies:** The Savanna Agricultural Research Institute conducts the research on desertification. The Institute in agro meteorology, crop improvement, soil fertility and management, soil and water conservation and crop-livestock integration has made some advancement on the issue. Under the Capacity 21 Programme, energy-saving local cook stoves are being introduced to many rural communities.

**Financing:** Financing of anti-desertification and drought activities is done from various sources, which include: (national) budgetary allocations to various Ministries; Departments and Agencies; private capital injection; donor support; and local community contributions. Government is also working out the modalities for the establishment of a National Desertification Fund that will provide better focused and targeted funding for desertification control activities particularly at the community level.

**Cooperation:** Cooperation in anti-desertification and drought response activities exists at various levels. For instance, Canada and Ghana are working out 'Chef de fil' arrangements. Ghana cooperates with other countries in the West African sub-Region and further maintains links with other countries at the bilateral level. The country also cooperates with international organizations via the medium of the Conference of Parties to the UN Convention to Combat Desertification.

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

**Decision-Making:** The principle decision-makers are the Ministries of: Lands and Forestry; Food and Agriculture; Environment, Science and Technology; Tourism; and supported by the Forestry Commission, Environmental Protection Agency, local communities and traditional chiefs (land owners), district assemblies and Non-governmental Organizations.

**Programmes and Projects:** Geographic information systems, remote sensing facilities are being developed by: the Forestry Division (Forestry Commission); University of Ghana; Department of Geography and Resource Development (Legon) and the Ghana survey Department. The Soil Research Institute of the Council for Scientific and Industrial Research, and Lego has developed land use and land capability maps. These national institutions are maintaining and establishing systematic observations to generate information and enhance socio-economic impacts of agricultural projects, and also generate data on alternative livelihoods for the affected local communities. The development of ecotourism focuses on Upland water falls, and pristine environments in highland areas such as Aburi, Togo Plateau, Mount Afadjato are attracting tourists. See also under **Status** for additional information.

**Status:** Traditional conservation methods of biodiversity in sacred groves or hill sanctuaries are breaking down due to secularism and loss of belief in local deities which protected hill sanctuaries especially headwaters of settlement areas.

*Relief of Ghana:* The land is generally below 600 meters above sea level. Physiographic regions include: coastal plains; the forest dissected plateau; and high hill tops which are important ecological subsystem in a generally undulating terrain. At the southern and northern margins of the Volta Basin there are two prominent areas of highland – the Kwahu Plateau, and the Gambaga Escarpment. On the eastern margins of the Volta Basin is a relatively narrow zone of high mountains running in a south-west – north-east direction – the Akwapim – Buem – Togo Ranges with the highest point (Mt. Afadjato) in the country.

*Environmental Services of Hilly Ranges:* There was an early recognition of the following: the importance of hilly ranges as predominant and most dependable sources of fresh water; important headwaters/watersheds situated in the hilly masses; and the vital protective functions of extensive forest cover for safe-guarding of hill sanctuaries.

*Highland Forest and Hill Sanctuaries:* The permanent forest estate has been classified in the high forest as: Production Forest Reserves (F.R)—46.6%; Conversion/Convalescent—31.8%; Permanent Protection—21.6% or 352,500 ha.

The forest reserves are named after major rivers, watershed areas, or towns and they include famous reserves such as: Abulia Hills Forest Reserve; Afram Headwaters; Atewa Range; Bandai Hills; Ho Hills; Krokosua Hills; Shai Hills; Kade Bepo (Hill); Bosomtwe Range; Fum Headwaters; Ayum (river) Forest Reserve; and Togo Plateau Forest Reserve, most of these hilly sanctuaries have slopes ranging from 40-90% gradient. About one-fifth of all forest reserves are classified as protection estates dedicated to major watersheds, sacred groves and sanctuaries/cultural sites; these high land habitats are hence reservoir of biological diversity and endemism. Modern Ghanaians have great esteem for the ecological wisdom of early colonial foresters who carved out such strategic sites in the early 1920s to 1950s.

*Threats to Vegetation Cover in Hilly Areas:* In hilly fragile ecosystems the most suitable land use ought to provide a many-layered vegetational cover to the soil. Threats to the mountain ecosystem in Ghana include: intensive cultivation of steep slopes without protective terracing especially on catchment areas of major rivers and streams have degraded the forests; and inappropriate mechanization; overgrazing on fragile soils; indiscriminate logging; and slash and burn agriculture, and bush fires that have degraded most of the hilly/mountain ecosystems in Ghana. The consequences include: the systematic reduction of vegetation cover over once-forested hill sanctuaries which has resulted in loss of habitat for wildlife and loss of biodiversity; accelerated soil erosion; landslides; and drying up of several streams and lowering of water harvested from forested areas within the Volta River Basin for the Akosombo Hydro-Electric Dam.

*Comprehensive Land-Use Plans for Ghana:* The Ministry of Lands and Forestry in conjunction with other relevant ministries shall develop and implement a comprehensive District, Regional and National land Use Plan and Atlas which zones sections of the country to broad land uses according to criteria agreed among public and private land stakeholders. The highlands in Ghana stand to benefit from any guidelines for conservation and sustainable development in these areas.

**Capacity-Building, Education, Training and Awareness-Raising:** The government needs to undertake environmental education for: farmers; local communities; district assemblies; and local chiefs to help the rural population better understand the ecological issues regarding the sustainable development of relatively fragile highland ecosystems.

**Information:** The Department of Geography and Resource Development of the University of Ghana, has developed Land use maps for various ecozones in Ghana, but it will take considerable effort to make them affordable to the general public.

**Research and Technologies:** Government of Ghana needs to seek technical and financial support of relevant international and regional organizations to strengthen its scientific research capability in forest hydrology (forest watersheds), Agroforestry, improving traditional farming and animal husbandry activities in hilly areas. It will take a multidisciplinary/multi-sectoral approach to planning the development and management of land resources in the highland areas to make them more productive, eradicate poverty and avoidance of unsustainable farming which leads to erosion. Land-use technology recommended for arable land in hilly areas includes terracing and will require considerable extension effort, and incentives provided to local farmers and local people to undertake conservation measures and to use environmentally friendly technologies – of low cost, simple and easily adopted by local people.

**Financing:** No information available.

**Cooperation:** The recently formulated land policy launched in June 1999 by the Ministry of Lands and Forestry makes a landmark statement on ensuring sustainable land use of hilly sites in Ghana: “No timber production activities shall be carried out on hill and mountain slopes of at least 30o gradient. Social and economic activities such as agriculture, mining, human settlement and other similar activities may be carried out on hill and mountain slopes provided appropriate technology is employed in each circumstance to mitigate any adverse environmental and ecological consequences.....” These are golden words indeed, but the mountain ecosystems in Ghana are being destroyed by human activities population growth, agricultural expansion and poverty. The policy on sustainable use of hilly ecosystem must be implemented through appropriate legislative instruments. Ghana should link up with the African Mountain Association, International Center for Integrated Mountain and Development for information and experience to back up Ghana’s initial efforts and strategies for highland development.

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## CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

**Decision-Making:** The Ministry of Food and Agriculture (MOFA) is responsible for the management of crop fisheries and livestock, while the Ministries of: Land and Forestry; and Finance are respectively responsible for forestry and cocoa. Through the government's current decentralization policy, some significant responsibilities have been devolved from the central government to the metropolitan, municipal and district assemblies (MMDAs). The MMDAs are therefore responsible for the planning and implementation of their own agricultural development programmes. In addition, the Ministry (MOFA) collaborates with other sector ministries whose activities impact on agricultural performance and these include: the Ministry of Environment, Science and Technology through Council for Scientific and Industrial Research (CSIR); Ghana Atomic Energy Commission (GAEC) and the Ghana Regional Appropriate Technology Industrial Service (GRATIS Foundation); the Ministry of Roads and Transport; and the Ministry of Education which oversees the Universities of Ghana.

The Ministry of Food and Agriculture (MOFA) has developed an Accelerated Agricultural Growth and Development Strategy (AAGDS) aimed at increasing the sector's growth rate from the current 2-3% to 5-6% by 2020 in a sustainable manner. The strategy was developed after broad stakeholder consultations nationwide between 1995 and culminating in 1999. The stakeholders include: farmers; traditional rulers; processors; marketers; NGOs; government officials from relevant government agencies (national and district levels); local and foreign experts; researchers; and development partners. The main elements of the strategy are: promotion of selected products through improved access to markets; development and improved access to technology for sustainable natural resource management; improved access to agricultural financial services; improved rural infrastructure; and enhanced human resource and institutional capacity.

Mindful of the impact of agricultural activities on the environment, the Strategy has been subjected to a vigorous environmental assessment using the Action Impact Matrix (AIM). The likely adverse environmental effects of the policies and strategies have been identified and mitigating measures have been proposed and incorporated throughout the document.

**Programmes and Projects:** In Agricultural Service Sub-sector Investment Project (AgSSIP) is one of the two elements of the AAGDS. AgSSIP comprises of the core elements of support that should be provided effectively by the public sector to the farming community and related business enterprises in order to allow them to make their contribution towards the attainment of the growth targets for the sector.

In addition, the Ministry of Food and Agriculture is preparing a Food and Agriculture Sector Development Programme (FASDEP), which will serve as the overall framework for the development of projects and activities to support the implementation of the AAGDS. The concept is derived from the Sector Investment Programme (SIP) approach where a national integrated programme of a country's expenditure in a given sector (agriculture in this case) is financed by the government and a consortium of donors who are committed and willing to pool their resources together to implement a sector-wide programme.

Other programmes and projects that address the issue of sustainable agriculture include: the Land and Water Management Project; and the Special Programme for Food Security, which emphasizes water conservation. Zero tillage method of farming with emphasis on leguminous cover crop in crop rotation is being undertaken on a pilot scale throughout the country. The development of a National soil fertility management action plan in 1999 further underscores the realization that the restoration and maintenance of the productive capacity of soils is a basic requirement for achieving sustainable and accelerated agricultural growth.

**Status:** The agricultural sector is the dominant sector in the Ghanaian economy in terms of its share of GDP, employment and foreign exchange earnings. In 1997, the sector employed about 70% of the labour force, contributed about 47% to GDP and accounted for over 57% of foreign exchange earnings. In addition, it is an important source of raw materials for manufacturing, and finally the agriculturally dependent rural households (72% of the population in 1995) form the largest potential domestic market for textiles and other manufactured products from agro-industries. Smallholder farmers on family-operated farms using rather rudimentary technology produce about 80% of the total agricultural production. In general, increases in production have been achieved

primarily by farmers using more extensive farming methods and only secondarily by increases in productivity through the application of improved technology.

In spite of the considerable progress made within the agricultural sector in recent years the cumulative effect of the non-integration of agriculture with industry, the inadequate access to appropriate technology, the relatively underdeveloped infrastructure, inadequate financial services, the high cost of capital which has virtually eliminated medium-to-long term investments in agriculture and the absence of effective agricultural laws and regulations is that Ghana's agriculture is estimated to be operating only at 20% of its potential and thus unable to adequately address the issues of poverty reduction and food security. Moreover, in the process of exploiting resources, adequate care has not been taken to guard against the depletion of the country's natural resources leading to problems including deforestation, desertification and soil degradation. The high population growth rate of about 3% per annum and low average growth in agricultural production have put pressure on the natural resource base namely the soil, vegetation cover and watersheds. In 1988 it was estimated that the cost of environmental degradation from agriculture, forestry, industry and mining was 41.7 billion cedis (US\$128.3 million). The percentage of this cost attributed to agriculture alone was 69.0% and to forestry it was 25.8%.

Given the close link between poverty, population growth and environmental degradation, the need for efficient management of Ghana's natural resources is urgent in the face of an ever-increasing population and the growing demand in all the various activities based on these resources. The Government and the rural population have recognized that environmental degradation is caused by unsustainable agricultural practices. The 1995 Participatory Poverty Assessment revealed that rural communities can clearly identify long-term trends in environmental degradation. In this regard, the Accelerated Agricultural Growth and Development Strategy (AAGDS) endorse initiatives that strengthen farmer and community management of natural resources.

In view of the limited scope for crop area expansion, the AAGDS will place more emphasis on intensification of land use rather than on extensive use. Ghana's land use policy contains guidelines for proper documentation (registration of land acquisition, ownership and tenancy); provisions to ensure proper use of leased land, as well as legal protection of the rights of landlords and tenants.

Implementation of the policy requires community level participation, and incentives for adoption of sustainable land improvement practices. District Assemblies will take major responsibility for regulation of land use and undertake massive education campaign to convince the population about sustainable land use, particularly on steep slopes. A concerted effort is required from whole communities, with the District Assemblies taking the leadership role, to protect such common lands.

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

**Information:** See under **Status** .

**Research and Technologies:** Recognizing the relationship between agricultural production, and maintaining the natural resource base, the natural resource component of the sector research programme of the National Agricultural research Strategic Plan focuses on soil fertility, soil and water conservation and agro-forestry, the National Soil Fertility Action Plan would be implemented to address some of the major aspects of agricultural production that impact on the restoration and maintenance of soil fertility. In particular, the plan aims at: promoting sound land management practices necessary for the intensification of agricultural production and increasing agricultural production by smallholder farmers thereby improving their quality of life and alleviating rural poverty.

To limit the likelihood of health hazards and the loss of arable land that may result from a shift from rainfall dependent agriculture to irrigation, the AAGDS emphasizes small scale, relatively low cost irrigation facilities such as bunding, dugout, shallow aquifers etc. The design and site of these facilities should also be consistent with EA guidelines to prevent or minimize the potentially negative environmental effects. Afforestation programmes would be incorporated in the aquaculture projects to arrest the land degradation that usually accompany such projects. Also, draining of pond water will be controlled and where possible, diverted onto farmlands to minimize the pollution of coastal areas and water bodies.

The inadequate levels of post harvest facilities in Ghana pose a major bottleneck to accelerating agricultural growth. It is estimated that losses due to pests and other forms of spoilage average around 30% of total harvest. Therefore under the AAGDS, extension services will be intensified and credit made accessible to prospective farmers to enhance large-scale adoption of efficient but low cost farm and village level storage structures and processes. Incentives will be provided for private sector involvement in solar and thermal drying and provision of warehouse services. Proper handling of chemicals used for storage will be promoted through awareness creation and education. The location and design of agro-processing facilities will be required to follow EPA guidelines to avoid and/or minimize the adverse consequences of these activities on the environment. Recycling of by-product from agro-processing will also be encouraged.

**Financing:** Programme financing in Ghana has traditionally been a collaborative effort among: the Government; Development Partners; District Assemblies; and Beneficiary Communities as appropriate. To strengthen Government's long-term commitment to the provision of adequate financial resources for the implementation of its programmes and projects, a Medium Term Expenditure Framework (MTEF) has been introduced. The MTEF provides a three-year rolling plan of Government's commitment and aligns Government and donor funds with what is affordable over the medium term and annual budget.

**Cooperation:** Ghana's Development Partners include: the World Bank; African Development Bank; Canadian International Development Agency (CIDA); the European Union (EU); International Fund for Agricultural Development (IFAD); Danish International Development Agency (DANIDA); and the UK Department for International Development (DFID); to mention a few, have cooperated with the Government of Ghana in implementing the various agricultural programmes.

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## CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

**Decision-Making:** Since Ghana signed the Convention on Biological Diversity (CBD) in June 1992 and followed it up with its ratification in August 1994, very comprehensive implementation schedules and actions have been followed. The following policy decisions have been made to ensure the smooth scheduling of CBD programmes.

The Ministry of Environment, Science and Technology (MEST) has been identified as the focal point for all programme related to the Convention and it is effectively supported by a Committee, the Ghana National Biodiversity Committee (GNBC). The concept of the protected area system of all wild lands has been promoted. The provision of impact assessment reports has been made as a condition for the start of any development project. Ghana's Environmental Protection Agency (EPA) has been given the authority to regulate this requirement and prosecute offenders;

The issue of the health of the environment as a catalyst for economic growth aimed at poverty reduction and sustainable livelihoods have been paramount in all sectoral activities. Indeed all sectoral programmes have the area of the environment as their primary concern.

**Programmes and Projects:** The following programmes and projects have been undertaken: National Biodiversity Country Study; National Biodiversity Strategy and Action Plan; Development of National Biosafety Guidelines; National Biodiversity Data Management Institutional Survey and Strategy; and Development of bio-prospecting portfolios for the promotion the 3 pillars of the Convention on Biological Diversity.

*National Biodiversity Country Study:* See under **Status**.

*The Ghana National Biodiversity Strategy and Action Plan:* Strategies and Action plans have been proposed based on the kind of gaps that have been identified in the country study report. The strategies and action plans were guided by certain assumption and principles which include the fact that: conservation ethic is deeply rooted in the religious and cultural values of Ghanaians; biological resources are natural capital; benefits arising from the innovative use of traditional and customary knowledge of biological diversity will be equitably shared with those from whom the knowledge had been acquired; decisions relating to the conservation of biodiversity and the sustainable utilization of biological resources will be based on the best applicable knowledge available; the role of local communities and the fund of traditional knowledge in the conservation, management and utilization of biological diversity must be recognized, protected, maintained, promoted and used with the approval and involvement of those who possess the knowledge. The activities that have been developed are multi sectoral to take care of the many cross sectoral environmental issues in a developing economy. Some of the activities and projects include the protection of fragile wetland ecosystems and the rehabilitation of degraded ecosystems.

*Biosafety in Biotechnology:* A draft national biosafety guidelines had been prepared, which is awaiting peer review and adoption at a national stakeholders workshop. Also a legislative framework to enforce the guidelines is being prepared for the attention of Cabinet for formal presentation to parliament for enactment. Meanwhile there is awareness creation on the advances in modern biotechnology and the need to exercise caution, in the absence of any legal structures, in the handling of any genetically modified organisms.

*National Biodiversity Data Management Survey and Strategy:* This survey has been made to assess the various Ghanaian institutions that handle biodiversity information for their capacity and capability to manage the information. This is baseline to the development of a formal clearing house mechanism (CHM) to provide biodiversity data of Ghana.

*Development of Bioprospecting portfolios:* This has taken place to counter the effects of the boom in non-traditional export drive of biological resources (such as fruit crops and medicinal plant collections) on the country's biodiversity. The need to educate the public on the concept of biodiversity has led to the development of a national bioprospecting framework and strategy.

**Status:** The following are some of the summaries made from the National Biodiversity Country Study. There are a variety of vegetation types, namely: Rainforests (including Wet evergreen, Moist Semi-deciduous and Dry Semi-deciduous); Savannas (Guinea, Sudan and coastal) and some special ecological habitats such as mangroves, strand and wetlands; Major land-use categories include agriculture, forestry, mining, tourism, urban development,

transportation, infra-structure, energy harvesting, grazing, fishing; the diversity of bacteria, fungi, viruses and mycoplasma-like organisms, their distribution and economic importance demand the establishment of microbial culture collection centers to ensure proper research attention to the group; records of plant species exist in various forms either in print (floras monographs etc) or in dead dried herbarium materials or in planted living materials (in botanic gardens plantations arboreta) or in preserved living materials (gene banks); species endemism occurs with the highest numbers in the forest areas; economic and social values of plants includes uses for food, fodders, cash crops, timber, essential oils, and edible condiments and spices, latex and coagulants, gums, sweeteners, medicinal, fuel wood and charcoal; the contribution of domestication of food crops (e.g. Rice cassava and yam) and cash crops (e.g. Cocoa) to the health of the people and the economy of the country are substantial; various forms of wildlife conservation practices are in practice involving traditional belief systems and formal government/state machinery; the traditional belief systems provide for protection of particular ecosystems or habitats (e.g. Sacred groves, royal burial grounds) or animal and plant species (e.g. Tabooed and totem animals and plants), or regulated exploitation of natural resources (e.g. Closed seasons for harvesting or hunting); and, the formal stare machinery involves the protected area system of wild lands partly supervised by the Ghana Wildlife Division (for the legally protected lands) and partly by the Ghana Forestry Division (for the wild lands under forest rotation and or felling cycle reservation). See also under **Programmes and Projects**.

**Capacity-Building, Education, Training and Awareness-Raising:** There has been some appreciable level of capacity building in specific areas of biological diversity conservation and sustainable use. Efforts are being made to overcome the paucity of taxonomists and biological economists. Schools curricula from primary to the junior secondary schools levels have aspects of ecosystem functioning in them, which introduce pupils to the web of life, which must be sustained. Awareness creation takes the form of campaigns against bush fire and other destructive environmental activities through drama on radio and television, posters and brochures.

**Information:** Through the Data Management Survey and Strategy, information on Ghanaian biological diversity are known to be in print and in electronic form, and available at specific data entry locations. This project has not fully concluded. The expectations are that this will be a forerunner to a proper Clearing House Mechanism facility for Ghana. See under **Programmes and Projects** for more information.

**Research and Technologies:** The different Agencies within the various ministries, whose activities have direct bearing on the environment, are being encouraged to use environmentally friendly approaches to their activities. A national research coordinating facility has been established within an agency of the Ministry of Environment, Science and Technology, to ensure that there are specific researches and development of appropriate technologies to take care of the health of the environment.

**Financing:** GEF and other developing agencies such as the World Bank finance most of the projects and programmes.

**Cooperation:** There is very cordial relationship between the government of Ghana through the Ministry of Environment, Science and Technology and other UN agencies such as: UNEP; UNIDO; and UNDP. There are also bilateral cooperation between Ghana and some countries such as: USA; United Kingdom (UK); Canada; Denmark; Netherlands; etc. There is a strong regional cooperation within the West African sub-region.

Ghana has ambitious plans to properly internalize the obligations of the Convention of Biological Diversity and the two other environment related conventions such as the UN Convention on Climate Change and the UN Convention to Combat Desertification.

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

### **Decision-Making:**

*Technologies:* See below, under **Biotechnologies**.

*Biotechnologies:* The Ministry of Environment, Science and Technology oversees the environmentally sound management of biotechnology and transfer of environmentally sound technologies. It performs this oversight role through the National Biosafety Committee, a multi-disciplinary, cross-sectoral body, which was inaugurated in 2000. The National Biosafety Committee is authorized to set up sub-committees on: risk assessment and management; risk communication; public information supply; and ethics. The Committee is also empowered to co-opt and review the guidelines as the need arises in line with global developments in biotechnology. The Environmentally Sound Management of Biotechnology is the responsibility of the National Biosafety Committee. It is the overarching executive body on all Biosafety Issues. This multi-disciplinary committee was inaugurated in April 2000. The relevant ministries and agencies include: the Ministries of; Food and Agriculture; Environment and Science, Trade and Industry, Justice and Attorney-General's Department, Health, Education; Environmental Protection Agency; Food and Drugs Board; Council for Scientific and Industrial Research; and Ghana Atomic Energy Commission. Periodic Interagency committees have been used to develop and implement both problem and programme based initiatives in Biotechnology and Biosafety issues. Major groups involved in the management of biotechnology include: Science and Technology Community—Representation from the Research and Development (R&D) institutions and the Universities; Environmental Non-Governmental Organizations (NGOs)—accredited NGOs; Community Based Groups; the Media; and the Private Sector, which, of its existence, has a draft Biosafety guidelines have been developed for the consideration of parliament. The participation of major groups in the decision-making process is consultative and ad-hoc basis.

The National Biosafety Committee has developed a draft Biosafety Guidelines – “Biosafety Guidelines in Genetic Engineering and Biotechnology.” Another relevant legislation includes National Science and Technology Policy, Ministry of Environment, Science and Technology, Government of Ghana, Accra, Ghana. (2002). Biosafety guidelines have been developed for peer review and subsequent legislative processes in parliament. The NBC has the powers within its mandate to set up sub-committees on risk assessment & management, risk communication, public information supply, ethics etc. They have the powers to co-opt, review guidelines and set up other committees when the need arises in line with global developments in Biotechnology.

A number of research institutes are involved in biotechnology research and development, including: the Biotechnology and Nuclear Agriculture Research Institute (BNARI) of the Ghana Atomic Energy Commission. BNARI is the UNEP and the African Association of Biotechnology (AAB) focal pilot; Agricultural Research Institutes of the Council for Scientific and Industrial Research; Noguchi Memorial Institute for Medical Research at the University of Ghana; Research departments of the universities and private sector institutes.

The key implementation agencies include the following R&D and Regulatory institutions, which are consulted on issues relating to Biotechnology and Biosafety: the Biotechnology and Nuclear Agricultural Research Institute (UNEP and AAB Focal points for Biotechnology and Biosafety Issues) – Involve in R&D activities in Agricultural and Industrial Biotechnology, could provide support on risk assessment through its installed human capacity but there is the need for further capacity building; Several institutions of CSIR especially in the agricultural sector, which are involved in Agricultural Biotechnology issues; the Environmental Protection Agency, which provides assistance in environmental management through its representation on the National Biosafety Committee; the Memorial Institute for Medical Research at the University of Ghana involved in R&D activities in vaccine research – It has a Level 3 biosafety laboratory and is focused on Medical biotechnology related projects on malarial and HIV vaccines project at the Noguchi Memorial Institute for Medical Research at the University of Ghana; Private Sector institutions involved in Biotechnology Research and Development activities.

### **Programmes and Projects:**

*Technologies:* No information available.



*Biotechnologies:* A number of programmes and projects mainly in agriculture have involved biotechnology research. Notable among them are: the National Agricultural Research Project (NARP) (1990-1999); Biotechnology Development Programme aimed at enhancing the sustainable development, deployment and management to biotechnology in Ghana, which ended in December 2000; and the Agricultural Services Sub-sector Investment Programme (AgSSIP), the successor of NARP for implementing the strategy for ten-year period (1997–2007), which aims to help reduce poverty and improve food security by supporting technological changes and innovations in agricultural production and agro-processing thereby improving returns to all factors of production. Additionally, there are some sector-specific project-based initiatives on various biotechnology areas in agriculture, health and industry. Noguchi Memorial Institute for Medical Research is in a collaborative research with the World Health Organization.

**Status:**

*Technologies:* No information available.

*Biotechnologies:* From 1995 to 2000 the world negotiated the Cartagena Protocol on Biosafety, which was adopted in January 2000 in Montreal, Canada. Ghana participated fully and was elected as the Vice Chairman of the African Group during the negotiations. Ghana has however not signed the Protocol.

Ghana has National Biosafety Committee, which handles all issues relating to environmentally sound management of Biotechnology. This committee was inaugurated in April 2000. A draft Biosafety guideline has been developed but it is yet to be legalized. Subcommittees to handle various issues under the committee such as risk management; risk communication, Bioethics, Public Information Sharing and others are yet to be operationalized.

There is the need for capacity building to harness the potential of Biotechnology as envisaged in Article 16 of the Conservation of Biotechnology, especially in the areas of risk assessment and management, communication and information sharing.

There is no explicit policy for Biotechnology. There is a felt need for the process which will need donor support. Plans and strategies have been developed through a stakeholder driven process on: National Priority Setting on Biotechnology; and, Technology Assessment of Capacity for Biotechnology Development in Ghana. These process has been undertaken through the DFID funded Biotechnology Development Programme.

There is a need for Ghana to develop: legislation on Biosafety; a funding Mechanism for both national and international support for the development of National Biosafety Framework and capacity building; public communication of the risks and benefits of Biotechnology for Information dissemination on national capacity to address issues relating to Biosafety; and a National Biosafety Framework as required under the Cartagena Protocol, including a set of biosafety regulations, often consisting of a framework law or decree with one or more implementing regulations and guidelines; a system to provide information to stakeholders about the biosafety framework; a mechanism to handle requests for permits for certain activities, such as releases of Living Modified Organisms (LMOs) e.g. risk assessment etc.; and a mechanism for follow up and feed back, including monitoring and inspections for compliance. There is also the need for capacity building to harness the potential of Biotechnology as envisaged in Article 16 of the Conservation of Biotechnology, especially in the areas of risk assessment & management, communication and information sharing.

There is no explicit policy for Biotechnology. There is a felt need for the process which will need donor support. Plans and strategies have been developed through a stakeholder driven process on: National Priority Setting on Biotechnology; and Technology Assessment of Capacity for Biotechnology Development in Ghana.

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

*Technologies:* No information available.

*Biotechnologies:* Capacity building in both Human and Material Resources is critical to the Sound Management of Biotechnology in Ghana. There is some installed capacity in the R&D institutions for Biotechnology Development but there is the need for re-training and re-engineering of available resources for sustainable development. There is the need for graduate degree programmes for biotechnology training. Some universities are currently offering biotechnology under general programmes. Sandwich programmes in Biotechnology are being encouraged through the scholarship secretariat to build on the installed human capacity and use it as avenues for collaboration with institutions in both the North and the South (e.g. The Netherlands Biotechnology Programme). Already existing

scholarships through technical – cooperation and existing agreements could be re-oriented to help build human capacity in Biosafety Issues. A conscious effort will be made through participation in international conferences/workshops. Some R&D institutions in the CSIR and BNARI are using outreach programmes to junior schools and farmer field schools to share information. Professional programmes on Biosafety would be developed. The enabling environment exists for appropriate partnerships and platforms for awareness creation. Development oriented groups have been involved in raising awareness on the environmentally safe management of Biotechnology, notably among them is the Third World Network. There is the need however for a balanced approach on the risks and benefits of modern Biotechnology. Avenues and opportunities will therefore be created for more advocacies on the risks and benefits of biotechnology. A free media environment exists for information sharing in the public domain. However communication on Science related issues and media engagement on Science in general and Biotechnology is low. TV/Radio Programmes need to be developed to address these problems. Most of the R&D institutions have developed posters/brochures as outreach materials on biosafety issues. There is also the Biotechnology Development Programme Newsletter, Biotech. Ghana. It is a medium for communicating biotechnology information to most of the identified key stakeholders. Workshops and Seminars also used to build and create awareness on Biosafety issues.

### **Information:**

*Technologies:* No information available.

*Biotechnologies:* Information on the management of Biotechnology specific to the mandate of R&D institutions and EPA are coordinated by the MES. Other sector specific initiatives on biotechnology are coordinated by the relevant sectors. MES coordinates through Annual reports, Technical and Progress reports on specific projects from R&D institutions. Other programmes like the NARP & AgSSIP are key sources of information on developments. The final report on NARP is a key source of information. The following websites, which either developed or being developed, give information on Biosafety issues: The CSIR has its website [www.csir.org.gh](http://www.csir.org.gh); Ministry of Food and Agriculture's website [www.mofa.gov.gh](http://www.mofa.gov.gh). The Ghana Atomic Energy Commission (GAEC) is still developing its website. A website needs to be developed for Agenda 21 initiatives and specifically for biotechnology/biosafety issues.

### **Research and Technologies:**

*Technologies:* Clean and environmentally sound technologies are promoted through activities, which ensure that industries meet national environmental standards and at the same time promote the more efficient use of resources. R&D activities in Research institutes are performed with due cognizance of the national environmental standards. Both projects and programme based approach has been used.

*Biotechnologies:* NARP, which funded over 400 projects involving 30 participants' institutes, made significant contribution to capacity building in Biotechnology in Ghana. The components of NARP, which were most relevant to Biotechnology development, were in the areas of breeding, pest management and processing. Technologies employed include: fermentation, tissue culture, embryo culture, molecular biology, marker assisted breeding, Recombinant DNA Technology and Genetic Engineering. Further developments will be achieved through AgSSIP.

### **Financing:**

*Technologies:* No information available.

*Biotechnologies:* Fund of the programmes and projects to promote the environmentally sound development and management of Biotechnology comes from the National Budge, some private sector support (very low) and donors. The 10-year National Agricultural Research Programme (NARP) was financed by the International Development Agency of the World Bank. The Biotechnology Development Programme (BDP) was financed by the DFID. The World Bank is funding the Agriculture Services Sector Investment Programme. The Government of Ghana provides support through counterpart funding of the donor initiatives such salaries, other overheads and some programme-based investments on Biotechnology related projects. Sector Specific initiatives have their own lines of funding from their budgets and donor supported initiatives.

### **Cooperation:**

*Technologies:* No information available.

*Biotechnologies:* The environmentally sound management of Biotechnology, which also addresses the concerns relating to the risks and benefits of biotechnology and sustainable development and deployment of Biotechnology, are undertaken in a partnership agreement between public sector institutions and the private sector, including the NGOs, Inter-governmental organizations and the donor community. Cooperative agreements exist for both bilateral and multilateral linkages.

North–South cooperation: World Association of International Technical Food Research Institute and Research Organizations (WAITRO); Denmark (WAITRO – BNARI); and Food Research Institute (FRI) are technical members. The linkage is between the exploited for linkages for joint collaborative projects on Biotechnology and the EU institutions. A notable example is the mutually beneficial linkages between FRI and the Royal Veterinary & Agriculture College in Denmark funded by DANIDA. The BNARI linkages need to be properly exploited.); International Centre for Genetic Engineering and Biotechnology, Trieste, Italy; Strategic Alliance for Biotechnology Research in African Development (SABRAD) – An alliance between African Countries, the 1890 Land grant institutions in the United States of America, Inter-Governmental Organizations and the private sector; University – University – Research Institutions linkages e.g. The Collaborative Research Projects (CSRP) OF USAID (cowpea CSRP) at the University of Ghana.

South-south cooperation: University – University/University – Research/Research – Research Linkages with institutions in the South (Most are institution initiated linkages); African Fermentation Group; Food Fermentation Cyber compress; Ashanti Goldfields Corporation – operates the largest BIOX (bacterial leaching) plant for gold mining through proprietary licensing from South Africa.

Conventions: Convention on Biological Diversity; Cartagena Protocol on Biosafety (yet to be signed and ratified).

Official Development Assistance (ODA): Department for International Development (DFID); Danish International Development Agency (DANIDA); Japanese International Co-operation Agency (JICA); United States Agency for International Development (USAID).

Bilateral/Regional/International Corporation and Agreements include: Ghana-Nigeria Fast Track Initiative; Several Technical Co-operations e.g. Ghana-Cuba, Ghana-Singapore etc.; African Agency for Biotechnology (AAB) – Member of the Agency. BNARI is Ghana’s focal point; International Centre for Genetic Engineering and Biotechnology, Trieste, Italy. The charter has been signed but not yet ratified; International Atomic Energy Agency – Support to BNARI and Universities on Mutation Breeding, tissue culture and Plant Biotechnology.

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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:** The Ministry of Environment, Science and Technology acts as a coordinator for, integrated coastal zone management and sustainable development; marine environmental protection, both from land-based activities and from sea-based activities; and sustainable use and conservation of marine living resources (both of the high seas and under national jurisdiction). In order to facilitate coordination, there are a number of arrangements in place which include: Fisheries Commission of the Ministry of Food and Agriculture; National Committee for the Implementation of Agenda 21 of the Ministry of Environment, Science and Technology; and Steering Committee of the Gulf of Guinea Large Marine Ecosystem Project of the Ministry of Environment, Science and Technology. Legislation that has been passed in the area of integrated coastal zone management and sustainable development includes the following: Beaches Obstruction Ordinance, 1897 (Cap 240); Rivers Ordinance, 1903 (Cap 226); Wild Animals Preservation Act 43, 1961; Oil in Navigable Waters Act, Act 235, 1964; Towns Ordinance, 1892; Volta River Development Act, 1994; Fisheries Law, PNDC256, 1991; and Fisheries (Amended) Regulations, 1977 and 1984. Legislation for marine environmental protection and the sustainable use and conservation of marine living resources is contained in the Biodiversity Strategy and Action Plan (Draft) and the Coastal Wetlands Strategy. For all three issue areas, the following Plans apply to: National Environmental Action Plan; Draft Integrated Coastal Zone Plan; and Coastal Zone Management Indicative Plan. In addition, with specific reference to marine environmental protection, there is a National Oil Spill Contingency Plan. All of these Plans, plus the National Wetlands Strategy seek to provide for the preservation and sustainable use of fragile ecosystems, such as those that include mangroves or coral reefs.

Major groups are involved actively in the decision-making process dealing with oceans and seas. They are also engaged in the various training programmes relating to oceans and seas.

**Programmes and Projects:** Major programmes include: Ghana Environmental Resource Management Project – Coastal Wetlands Management Component; Gulf of Guinea Large Marine Ecosystem Project; Fisheries Sub-sector Capacity Building Project; Establishment of a Protected Wetland Ecosystem on the coast; Development and Implementation of Oil Spill Contingency Plan; Monitoring of fish stock levels and associated oceanographic parameters; Institution of a program of Monitoring, Compliance and Surveillance of the marine environment; Development of industrial pollution standards; Development of a University course on Coastal Zone Management; and Increased public education on sound coastal and marine environment practices.

**Status:** The major current uses of the coastal areas in Ghana are: fishing; human settlements; tourism; industrial development; mining – sand winning; and oil and gas exploration. Fishing contributes about 1.7% to the country's Gross Domestic Product (GDP). The sustainable use and conservation of marine living resources is encouraged through legislation, regulations, education and awareness creation programme as well as the enforcement of existing regulation and legislations. Coastal and marine-based industries tend to pollute coastal areas by the discharge of untreated wastes into the marine environment. Tourism encourages the establishment of human settlements and associated industries which, when not properly planned, lead to the pollution of the coastal environment, and consequently unsustainable coastal development: the primary sources of land-based and sea-coast and discharges of untreated wastes from ships and other vessels and oil from oil tankers. Priority constraints to implementing effective programmes in these areas include: inadequacy of; existing legislation, facilities for monitoring and enforcement of policies and legislation, financial resource for activities in the marine and coastal environment, data on near-shore oceanographic communities, on the interaction between various development actions and the environment, particularly biological resources.

**Capacity-Building, Education, Training and Awareness-Raising:** There are no formalized programmes to educate policy makers on sustainable coastal management, however, the training components of a number of projects include: workshops and seminars dealing with the development of the Integrated Coastal Zone

Management Plan; awareness programmes of the Fisheries Sub-sector Capacity Building Project; and awareness programmes of the Coastal Wetlands Project. The International Year of the Ocean was celebrated in Ghana with special programmes specifically aimed at children to create great awareness in them on issues relating to sustainable development with respect to the oceans and seas.

**Information:** Information on the sustainable management of fishery resources is contained in fish stock survey reports. In the area of marine pollution, there are survey data. With respect of living resources other than fish, there are studies on various living resources such as seashore birds, aquatic plants and some marine animals. Also, information is collected on sea-level rise from climate change and erosion. A Monitoring, Compliance and Surveillance system is being put in place to ensure the implementation of the various programmes in the marine environment. GIS is used in this effort. Information is available only on request. It is not available on the Internet and there is no National World Wide Web address. A national programme on Indicators for Sustainable Development is being developed. This will include indicators related to the oceans and seas.

**Research and Technologies:** The critical factors for determining the choice of technologies include: the appropriateness and ease of application; the existence of capacity to manage the technology or availability of arrangements to make it possible to develop/build the capacity; environmental sustainability; and the cost of technology.

**Financing:** Financing for the activities in the sector are primarily supported from the national budget. However, donor support – bilateral multilateral – has also been obtained for specific programmes, such as the World Bank sponsored Fisheries Sub-sector Capacity Building Project.

**Cooperation:** Ghana is a Party to the following agreements: International Convention for the Prevention of Pollution of the Sea by Oil; Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters; International Convention on Oil Pollution Preparedness, Response and Co-operation; and Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention.) Ghana also participates in the Gulf of Guinea Large Marine Ecosystem Project.

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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:** Until very recently, different institutions have been responsible for various aspects of water resources management and these operate under conflicting and overlapping legal instruments. Over the past decade, therefore, the Government of Ghana has introduced a number of reforms designed to help move the country away from the uncoordinated and unsustainable management of water resources.

Following a review of the results achieved by Ghana at the end of the International Drinking Water Supply and Sanitation Decade (IDWSSD) in 1990, the Rural Water Department (RWD) of the then Ghana Water and Sewerage Corporation (GWSC) was separated and set up as an autonomous Community Water and Sanitation Agency (CWSA). A new policy has been introduced which requires that supply of water to rural communities should be demand driven and community managed. The communities are also required to make a contribution of 5% of the capital cost of providing the facility.

The regulation of tariffs for potable water and other services has been vested in an independent body, the Public Utilities Regulatory Commission (PURC). The Commission ensures protection of consumer interests and also maintains a balance between tariff levels and investment, operation and maintenance costs of the utility services.

Reforms aimed at the protection of water and the general environment is incorporated in the Environmental Action Plan (EAP) adopted by the government in 1991. Further to this, the Environmental Protection Agency (EPA) Act, passed by parliament in 1994, conferred regulatory and enforcement powers on the EPA, which has responded by providing guidelines for developments that affect the environment. The agency has also set standards for emissions and discharges into water bodies. An Environmental Impact Assessment (EIA) procedure that must be followed for development projects has also been adopted.

The above reforms by their sectoral nature and approach will improve and make more efficient the existing water resources sub-sectors but will not in themselves achieve integration of water resources planning, development and management. A Water Resources Management Study (WARM) was therefore carried out between 1996 and 1998 and its objective was, to promote and facilitate cross-sectoral management of water resources and more specifically, develop a water resources management strategy that will inform national policy and investment in the water sector. The findings and recommendations were discussed at the number of forums, involving relevant stakeholders. Further to the Water Resources Management Study and in conformity with the provisions of Article 269 of the Constitution of Ghana, the Water Resources Commission (WRC) was established by an Act of Parliament (Act 522 of 1996). The Act mandates the WRC to regulate and manage the country's water resources and coordinate government policies in relation to them.

**Programmes and Projects:** Reforms in the urban water sector include a Water Sector Rehabilitation Project initiated in 1995, designed to restore the systems to their original capacities. Other reforms in the sector are meant to create favourable conditions for increased private sector participation, improve efficiency in the development and management of the water supply facilities and thus attract more capital investment into the sector.

Government is currently vigorously proceeding with the Private Sector Participation Programme, for which a Secretariat has been established. Under the Programme, private operators are being invited to participate in water supply delivery in two designated areas under a lease agreement. The Ghana Water Company Ltd (GWCL) retains ownership of the operating plant and equipment, which revert to GWCL on the expiry of the lease period. The arrangement is to enable water supply delivery to be sustained by generation of the capital resources required for adequate maintenance and expansion to meet demands.

**Status:** There are 208 urban water supply systems in Ghana based on surface and groundwater sources.

Water resources in Ghana provide a range of opportunities for different uses throughout the country. These include potable water for drinking and sanitation, agriculture, hydropower generation, fisheries and transportation. In spite of its vital role, the relatively abundant water resources endowment of Ghana has experienced widespread misuse due to catchment destruction and invasion by aquatic weeds.

**Capacity-Building, Education, Training and Awareness-Raising:** The Water Resources Commission has undertaken training needs assessment for the staff of its Secretariat and appropriate training institutions have been identified. Some key staff members have been trained in specialized areas in foreign and local institutions. Workshops have been organized for NGOs and District Assemblies in selected river basins. Some tertiary institutions in the country offer programmes in various aspects of water resources management at the post-graduate level.

**Information:** Data and information on the country's water resources is managed by specialized institutions (Water Research Institute, Meteorological Services Department and Hydrological Services Department) and coordinated by the water Resources Commission. See also under **Decision-Making**.

**Research and Technologies:** The universities and the Water Research Institute conduct research into special aspects of water resources management. The Environmental Protection Agency and the Water Resources Commission also commission studies into specific water-related problems.

**Financing:** The Government of Ghana provides funding for all the institutions in the water sector from the national budget. In addition, bilateral and multinational donors also support specific programmes and projects within the water sector.

**Cooperation:** A Memorandum of Understanding (MOU) has been concluded with the authorities of Burkina Faso on the management of the White Volta, shared by the two countries. The water sector institutions also benefit from the cooperation agreements between the Governments of Ghana and Denmark.

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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:** The responsibility for the sound management of chemicals, especially industrial and agro-chemicals currently resides in the Ministry of Environment, Science and Technology. An Integrated Chemicals Management Centre has been established at the Environmental Protection Agency (EPA), which has the mandate to register the importation of such chemicals into the country. The authority to ensure the sound management of toxic chemicals including pesticides is derived principally from the Environmental Protection Agency Act, 1994 (Act 490) and the Pesticides Management and Control Act, 1996 (Act 528).

In the performance of its duties, the EPA has designed guidelines for the importation, clearance from the ports, storage and disposal of chemicals, including toxic chemicals. The Agency collaborates with the public and private sector institutions such as: the Customs; Excise and preventive Service (CEPS); the Ministry of Food and Agriculture and its Plant Protection and Regulatory Services Department; the Ghana Standards Board; the Food and Drugs Board; the Ghana Atomic Energy Commission; the Minerals Commission; and the Association of Ghana Industries (formerly, Ghana Manufacturers Association).

To sustain the control of toxic chemicals and their use, the National Committee for Chemicals and Pesticides Management has been put in place at the EPA. The Committee regulates and monitors the movement of chemicals, into and within the country. The plant Protection and Regulatory Department of the Ministry of Food and Agriculture monitors the use of agro-chemicals used by farmers, while the Ministry of Trade and Industry monitors industrial chemicals. The Customs, Excise and preventive Service assist in inspecting the movement of illegal chemicals at the borders of the country.

In the management and control of these chemicals, importers are required to submit applications for the importation of chemicals either as individuals or corporate entities. The application forms are designed to furnish information on the name of chemical, its CAS registry number, its harmonized code number, country of origin of the consignment, quantity of the chemical and its end use.

The Industrial and Mining Sectors, which constitute the major importers of chemicals, are periodically sensitized through workshops, seminars and factory visits. The Ghana Chamber of Mines and the Association of Ghana Industries have been very supportive of the chemicals management awareness creation programmes.

One area that needs to be strengthened is the effective implementation of the Chemical Weapons Convention. There are plans to enact appropriate legislative instruments to improve efficiency in the sound management of chemicals.

**Programmes and Projects:** A few programmes are being promoted through the EPA under the auspices of the lead ministry, Ministry of Environment and Science. A National Technical Committee comprising representatives of major stakeholders has been formed. This Committee, assisted by sub-committees, regulates pesticides, industrial chemical and pharmaceuticals. The Government in collaboration with UNITAR has received bilateral assistance from the Royal Netherlands Government to implement two projects: “Risk assessment of the Mining Activities” and “Strengthening Capacities for Decision-Making for Pesticides Registration and Chemicals subject to Prior Informed Consent (PIC) procedures under the Rotterdam Convention.”

**Status:** The environmentally sound management of toxic chemicals has received attention by Government. The commitment of Government to environmentally sound management of toxic chemicals is quite appreciable. This is demonstrated through the strong inspection modalities and education programmes in operation, capacity-building and training programmes for personnel directly involved in the management of chemicals, and active participation of Ghana in international (including regional and sub-regional) conference, workshops and seminars. Additionally, inter-sectoral cooperation for efficient management of chemicals has been strengthened over the past ten years. The challenges to the management of chemicals however hinge on inadequate resources to implement planned activities fully.



**Capacity-Building, Education, Training and Awareness-Raising:** A series of fora are held by the various National Committees to disseminate information on the best practices in the management of toxic chemicals and dangerous products from the importation stage to the end-user stage and their disposal. The electronic and print media are very supportive in the awareness creation and information dissemination programmes.

Through its commitment to global conventions and protocols aimed at managing toxic chemicals and dangerous products in an environmentally sound manner, the country has incorporated the implementation of such global mandates into national programmes and the economy has been sensitized; the capacity of stakeholder agencies has been strengthened, awareness of end users to the deleterious effects of chemicals, especially pesticides, has been raised.

Bilateral and multilateral development partners have offered much needed technical and financial assistance such as capacity-building, training and awareness creation.

**Information:** The dissemination of information on environmentally sound management of toxic chemicals is effected through the Ministries of: Environment and Science; Food and Agriculture; and Health plus the Environmental Protection Agency, who also make information available to the mass media. See also under **Capacity-Building, Education, Training and Awareness-Raising**.

**Research and Technologies:** Currently, research on the toxic chemicals, especially pesticides, is carried at the public research institutions at Ghana Standards Board and the universities. The focus of the research is on pesticide residues in food and agricultural products and their impact on human health. Another area of research is the developing and promoting the use of safe herbal formulations to control pests. Significant strides have been made but greater attention and assistance are required to win popular support from end users.

**Financing:** Financing for the management of toxic chemicals and dangerous products has been from the Government with support from multilateral and bilateral agencies including the UNITAR/IMOC and Royal Netherlands Government.

**Cooperation:** Ghana has signed, acceded to or ratified a number of international conventions, which deal with the subject matter. These include the Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal (Basel Convention), Convention on Persistent Organic Pollutants (Stockholm Convention), Convention on Prior Informed Consent (Rotterdam Convention), the Vienna Convention on Protection of the Ozone Layer and the Montreal Protocol to Phase out Ozone Depleting Substances.

Ghana recognizes the inevitable importance that international cooperation – global, regional and sub-regional – plays in the environmentally sound management of toxic chemicals and in the prevention of illegal traffic in toxic and dangerous products. Her membership in various international organizations enables her to request and receive cooperation to engage in activities that contribute to the environmentally sound management of chemicals on the whole. Ghana is a member of World Trade Organization (WTO), all the specialized agencies of the United Nations, and the various Conventions and Protocols, which deal with chemicals management as, mentioned under “Decision-making.”

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

### DECISION-MAKING:

*Hazardous Wastes:* With respect to Hazardous Waste Management, there are currently no clearly distinguishable methods for the disposal of hazardous waste. However, the Environmental Protection Agency (EPA) is responsible for the management of such wastes. See also below, under *Solid Wastes*.

*Solid Wastes:* General Waste Management in Ghana is the responsibility of the Ministry of Local Government and Rural Development, which oversees the functions of the decentralized Metropolitan, Municipal and District Assemblies (MMDAs). However, the regulatory authority is vested in the EPA under the auspices of the Ministry of Environment, Science and Technology. The metropolitan, municipal and district assemblies are responsible for the collection and final disposal of solid waste through their Waste Management Departments (WMDs). The policy framework guiding the management of hazardous, solid and radioactive waste include the local Government Act, 1994 (Act 462), Environmental Protection Agency Act, 1994 (Act 490), Pesticides Control and Management Act, 1996 (Act 528), Environmental Assessment Regulations, 1999 (LI 1652), Environmental Sanitation Policy of Ghana (1999), Draft Guidelines for the Development and Management of Landfills in Ghana, and the Draft Guidelines for Bio-medical Waste (2000). All these acts and regulations emanate from the National Environmental Action Plan.

*Radioactive Wastes:* The Government of Ghana through the Ghana Atomic Energy Commission recognizing the need to establish the basic requirement for the protection of people against undue radiation exposure from practices established the Radiation Protection Board (RPB) in 1993 by the amendment of the Atomic Energy Act 204 of 1963 by the Provisional National Defence Council Law 308. This Law was strengthened by the enactment of regulations, Legislative Instrument, LI 1559 of 1993. The Radiation Protection Board as the sole regulatory authority was mandated to establish an inventory of radiation sources in the country and evolve protection and safety strategies for the control of the radiation sources and safe disposal of radioactive waste. No person, body or an institute shall generate or manage waste without a valid license from the Radiation Protection Board. RPB has the power to suspend, revoke any license for waste management if the licensee does not satisfy the terms and conditions for the authorization. Radioactive waste is managed by the Radioactive Protection Board, an institute of the Ghana Atomic Energy Commission. Radiation and Waste Safety Infrastructure has been developed with the assistance of International Atomic Energy Agency (IAEA) for the safe use and management of radioactive waste arising from all practices in Ghana. Ghana is a member of the International Atomic Energy Agency (IAEA) since 1963. The Parliament of Ghana has approved the ratification of the IAEA Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Since radioactive waste management is an integral part of a safety regime for the utilization of nuclear and nuclear-related applications the Radioactive Waste Management Regulations were drafted and a National Seminar on “Understanding and Implementation of Regulations on Radioactive Waste Management in Ghana was held from 9-11 October 1996 to receive feedback and responses from stakeholders. The final draft was presented to government for promulgation in 1997 after review by RPB and Attorney General’s Department of the Ministry of Justice. One of the key components of the regulation is the establishment of a National Radioactive Waste Management Centre (NRWMC) in 1995 by the Ghana Atomic Energy Commission even though the regulations had not been enacted. The NRWMC serves as a location for collection, segregation, treatment and storage of waste from generators.

### Programmes and Projects:

*Hazardous Wastes:* In response to the global mandate for environmentally sound management of hazardous solid and radioactive waste in Ghana, the country has, among other things, embarked on a life cycle approach to address chemicals and other hazardous wastes management in an integrated manner. This involves a broad range stakeholder institutions and organizations including non-governmental organizations. In 1997, a comprehensive National Chemicals Management Profile was prepared by the EPA with the assistance of United National Institute of Training and Research (UNITAR) and the Inter-organization Programme for Sound Management of Chemicals

(IOMC). Other programmes, which are being undertaken, include the framework for Integrated Coastal Zone Management.

*Solid Waste*: See above, under *Hazardous Wastes*.

*Radioactive Wastes*: The IAEA assisted projects relevant to radioactive waste management include: the development of Radiation Protection Services, GHA/1/007, GHA/9/004 RAF/9/005 (1980-1994); Model Project on Upgrading Radiation Protection Infrastructure in Africa RAF/9/024 (1995-2000); Model Project on Upgrading Waste Management Infrastructure. INT/9/144 (and Africa Regional Co-operative Agreement (AFRA) project 1992-1995); and Model Project on Developing the Technical Capability for Sustainable Radiation and Waste Safety Infrastructure, RAF/9/029 (2001-2002). Management and technical capabilities and infrastructure for protection from ionizing radiation and safety of radiation sources have been established. Manpower available has been adequately trained under programmed training courses, workshops, seminars and fellowships offered by IAEA.

Under the Model project INT/9/144 waste management infrastructure has been established including the following: establishing the first phase of the NRWMS with an interim storage facility for the treatment, conditioning and storage of radioactive waste. Second phase of the development of the NRWMS will include the development of a central waste repository for the final disposal of radioactive waste. See also above, under *Hazardous Wastes* and under **Status** and **Capacity-Building, Education, Training and Awareness-Raising**.

### **Status:**

*Hazardous Wastes*: The sound management of hazardous, solid and radioactive waste has received serious attention by the Government, human settlement planners, real estate developers, environmentalists and many non-governmental organizations. Bio-medical and other hazardous waste are managed using a mix of incineration and subsequent land filling.

*Solid Wastes*: Solid waste is collected and disposed of at designated landfill sites by public and private waste management firms. The issue of landfill site location is a matter of strenuous negotiations as population pressure continues to impact on waste generation and its management. The largest landfill under construction to serve the Accra metropolis with a population nearing tree million is being funded by the Government of the United Kingdom grant under the Department for International Development (DFID). See also above, under *Hazardous Wastes*.

*Radioactive Wastes*: Ghana since the early 1950's has engaged in activities, which make use of ionizing radiation, radiation sources and radioactive materials in medicine, industry, agriculture, research and teaching. The major challenges that face Ghana is the management of spent sources, orphan sources, and radioactive wastes generated from practices and radiation sources within practices. From the inception of the 2MW-Research Reactor project in 1963, which could not be completed, facilities for safe management of radioactive waste and spent fuel were started. The waste management system is consisted of: a decontaminated unit intended for low and intermediate level waste storage; and concrete wells for interim storage of spent fuel. The suitability of these facilities has been assessed for waste storage and processing. The decontamination unit and wells have been found to be in good condition for refurbishment for use as waste processing and storage facility. The rehabilitation work began in the latter part of 1998 and is to be completed by 2002. A new storage facility with a capacity of 100 100L drums has been constructed to complement the existing structure. The new facility is consistent with current trends in waste management technological development and IAEA standards.

It is expected that this NRWMC when fully completed and adequately resourced can manage waste generated from medical, industrial, research and teaching applications in Ghana. Under existing regulations high activity sources introduced after the promulgation of the legislation and regulations shall be returned to the suppliers after the end of their useful lives. See also above, under *Hazardous Wastes*.

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

*Hazardous Wastes*: Brochures on "Safe Handling of Chemicals" and "Storage and Disposal of Chemicals" were also developed for public education and awareness raising purposes. It is expected that these brochures would be translated into the major Ghanaian languages and be used to improve current practices of farmers and consumers. See also under **Decision-Making**.

*Solid Wastes*: No information available.

*Radioactive Wastes:* Plans are afoot for the recruitment and training of scientists and technologists to augment the staff of the Radioactive Waste Management Centre.

**Information:**

*Hazardous Wastes:* See under **Capacity-Building, Education, Training and Awareness-Raising.**

*Solid Wastes:* No information available.

*Radioactive Wastes:* From the Regulatory Authority Information System, the inventory sources of radioactive wastes include: spent sealed sources used in industry and medicine; spent/unsealed sources used in medicine; 110mg Ra-226 needles used for brachytherapy; waste and spent sources used for research and teaching; waste management associated with the operation of the 30kW Research Reactor; management of spent Co-60 and Cs-137 sources associated with the operation of radiotherapy centers in Ghana; management of spent Co-60 sources associated with the operation of the Gamma Irradiator; and waste to be generated from future nuclear installations, plants, and other practices for the socio-economic development of Ghana.

The inventory of radioactive waste in storage are: encapsulated and conditioned 110mg of Ra-226 decommissioned from the Radium Therapy Centre, Komfo Anokye Teaching Hospital; conditioned sealed spent Sr-90 sources used in the tobacco industry; low activity spent sealed sources used for laboratory work, in industry and the Universities in Ghana; and low-level liquid radioactive wastes from nuclear medicine practices and veterinary research.

**Research and Technologies:**

*Hazardous Wastes:* The issue of waste management has become a subject of research for many studies. The management of plastics waste is receiving much attention; some technologies have been developed to assist recycling of waste. A number of small-scale plastics waste recycling plants have been set up in the Accra metropolis. There are plans to set up similar ones in other metropolitan, municipal and urban areas of the country.

The management of other solid and hazardous waste is also being researched at the Ghana Atomic Energy Commission, the Council for Scientific and Industrial Research (CSIR). Exogenous technologies are also being studied for their appropriate adoption and transfer for local use.

*Solid Wastes:* See above, under *Hazardous Wastes.*

*Radioactive Wastes:* No information available.

**Financing:**

*Hazardous Wastes:* The financing of hazardous, solid and radioactive management has been shared between the Government of Ghana and its Development Partners, namely, the World Bank, International Development Agencies, Beneficiary Communities and the District and Metropolitan Assemblies.

*Solid Wastes:* See above, under *Hazardous Wastes.*

*Radioactive Wastes:* With the provisions by Atomic Energy Act 588 of 2000 to commercialize, the NRWMS will now charge appropriate fees for management of radioactive waste to support its programmes. See also above, under *Hazardous Wastes.*

**Cooperation:**

*Hazardous Wastes:* Through its ratification of international conventions and protocols, Ghana is obliged to implement decisions of these conventions. The Conventions it acceded to include: the Basel Convention on the Control and Transboundary Movements of Hazardous Wastes and the Disposal; the Rotterdam Convention on Prior Informed consent (PIC) procedure for Certain Pesticides and Chemicals in International Trade; the Stockholm Convention on Persistent Organic Pollutants and the Bamako Convention. Assistance to implement the provision of the Convention and protocols is coordinated through cooperation with development partners.

*Solid Wastes:* No information available.

*Radioactive Wastes:* No information available.

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

**Women: Decision-Making:** Ghana adopted the Beijing platform for action, which is an agenda for women's empowerment. This they did through the implementation of programmes and projects that promotes the full and active participation of women in all spheres of public and private life including equal share in economics, social, cultural and political decision making. A review of laws and regulations of Ghana shows that there is no law that bars women from participating in political, administrative, social or economic life of the country. Out of this, a comprehensive training package was developed to mainstream gender in to all sectors of national development including policies and programmes. Ever since, governments, MDAs, NGOs and donor organizations in Ghana have committed themselves to mainstreaming gender equality in all aspects of their work in accordance with evolving Ghanaian national policy and international agreements. Some of the implementation measures include the establishment of Women's Desks and units in key ministries in the country. For example the ministry of Agriculture has a section known as Women in Agricultural Development (WIAD) and the ministry of education also has a Girls Education Unit, right from the head office through the regions down to the district levels. An affirmative action bill began in 1998 with the introduction of a quota for women in the appointments of District Assembly members (councillors). Almost all governing boards and councils now have women serving on them, although the number at times in terms of equity is still very small. **Programmes and Projects:** As part of the integration and participation of national development strategy, Ghana made various policies, plans, programmes and projects to tackle the following developmental issues: human; social; economic; governance environmental and science and technology to address key issues affecting sustainable development such as: poverty reduction; good governance; decentralization; degradation/management to mention but a few. In the development and implementation of all these policies, plans and programmes, women have not been left out. In some cases, specific programmes were developed for the women to bridge the gender gap that existed in such specific area. For example, the governments quest to promote the ability of women, to play a greater role in sustainable development, particularly in ecosystem management and control of environmental degradation, the UNDP/Ghana Capacity 21 programme had specific capacity building project for: women of the government machinery; and NGO's working for the advancement of women in the environment all over the country and this is in the form of training of trainers. The Africa 2000 programme also has series of special projects for women in the rural communities, where the women form groups and grow trees, to protect the environment and at the same time reduce their workload by walking miles in search of fuel wood. Other encouraging trends to support women in sustainable developments are outside the government sector by NGOs, Women's groups and association and civil society. Religious organizations have also expanded not only to include income- generation support for women but are venturing in to advocacy for change. Instances of this re-orientation are evident in the programs of women's groups and fellowship of various religious groups. See also under **Capacity-Building, Education, Training and Awareness-Raising**.

**Status:** Women in Ghana have had a long history of organizing but, due to the checkered political history since independence, there has been slow progress in the improvements in the situation of women. The 1992 constitution provides a framework for a comprehensive approach to the problems of women. The statistical picture for women's participation at high levels of decision-making remained bleak. It is not surprising that women play an insignificant role in the national decision-making process. According to Tsikata, 2001 quoting from a research conducted by NCWD in 1995, only 6.4% of members of boards and councils were women. Women held only 8% of senior civil service posts. Representation of women at all levels of political power and decision-making showed gender imbalances with low representation of women in parliament (18%), or cabinet ministers or as national executives of political parties. Nonetheless, Ghana has seen a tremendous increase in the representation and participation of women in national issues. Although the integrated approach had successes, there are obstacles and the discrimination against women still exists. Almost 90% of data found in Ghana is not disaggregated hence programmes, actions and projects that are designed based on such data is also normally silent on women. There are policies that are unsatisfactorily implemented due to the large number of multi-stake holder representation, there are inadequate coordination in terms of information, funding, logistics to mention but a few and above all, there are institutional conflicts. There are lots of ideas but the implementations of these ideas are in some cases ineffective.

There are lots of duplications and waste of resources in terms of the NGO's due to poor co-ordination and communications. The government's budget is not well engendered. It is recommended that there should be a policy review in all sectors to enable gender concerns to be incorporated. The NGO policies also need to be reviewed to facilitate the co-ordination of NGO's in the country. Committees especially those in charge of decision making should be prune down to relevant stakeholders. All budgetary allocations should be engendered. Capacity-Building, Education, Training and Awareness-Raising: Support from donors has enabled a number of women's association to organize training programmes to give women relevant skills in business management, record keeping and exposure to formal credit procedures. The women have also been equipped with legal literacy programmes, an agenda item in the process of empowering to take their rightful place in society, to help them become participants in the development process, making meaningful contributions in their own rights. The human resources available in Ghana to take up the issues of women in sustainable development are enormous. Issues such as the provision of a comprehensive health care including pre-natal care and opportunity to breastfeed, information on dual aspect of reproductive health care, the inclusion of women in the control of environmental degradation and natural resource management, provision of nurseries and kindergartens, the provision of credit for women in the informal sector and many others are being tackled vigorously although there are constraints. The government recently created a development fund for women in the informal sector to access credit. The Ministry Of Women and Children's Affairs (MOWAC) the Ministry of Finance (MOF), Ministry Of Food and Agriculture (MOFA), Ministry Of Trade and the development partners are to determine the criteria for beneficiaries. In terms of education, Ghana has achieved some success.

Some of the activities that the Ghana Education Service has undertaken to bring changes in to the system include: the Free Compulsory Universal Basic Education (FCUBE); the creation of the girl child education unit within the system to improve girls participation in education, thus ensuing equal access to education for all; the encouragement of girls to take up science and math-related subjects through the organization of science and mathematic clinics for girls each year all over the country; there has been major changes in the textbooks, which hither to, had sexual stereotyped ideas and images to make them more gender sensitive. These and many other changes were made to improve girls' participation in education when it was realized that in both absolute and relative terms, female environment has lagged behind that of males at all levels of educational ladder. With enrolment rate of 42.6% for girls at primary school as against 53.8% for boys in 1995, these gender disparities increased as they climb further and peak at tertiary level .Not only are females represented at the tertiary level, but they also tend to congregate in certain disciplines often identified as feminine. However there is evidence that measures that have been undertaken are yielding result and have some positive impact.

The awareness-creation strategy adopted by Ghana government is broad based and multi-sectoral. The partnership includes: Governmental institutions; NGOs (Non-Governmental organizations); civil society and development partners are deeply involved in raising awareness on the critical areas of concern in the Beijing Platform for Action, amongst which are: Poverty and Women; Education and Women; Healthcare and Women; Violence Against Women; Women and Armed Conflict; Women and the Economy; Women and the Environment; etc.

The Ghanaian populace is kept informed about these issues through radio and television programmes, -such as "Mmaa Nkomo" meaning Women's talk, Gender forum, advertisement, posters, brochures, seminars, workshops, and community outreach programmes. The putting in place some mechanisms to protect women such as the Women and Juvenile Unit (WAJU) of the Ghana Police Service is another powerful means of raising awareness.

Research and Technologies: Lots of researches have been carried out and some are still on going. The University of Ghana and the NCWD are currently undertaking a research on the economic evaluation of unpaid work (domestic) of women and the possibilities to count this value when measuring the state of the economy. Another research with title 'women and natural resources management' is currently being conducted nation wide. Others on women and health have also been carried out. Financing: Sources of funding include: GOG annual budgetary allocation for gender; District Assembly funding; private sector funding; and, donor funding, with the major ones being the UN agencies such as the UNDP, UNFPA, UNIFEM, and the World Bank, DANIDA, JICA and DIFID. Cooperation: Ghana has been an active member of the General Assembly of the UN, which adopted a number of conversions geared towards the promotion of the advancement of women by their participation in development. Ghana participates fully in all regional and sub regional agreements and conversions.

**Children and Youth: Decision-Making:** International Conventions and the 1992 Constitution of Ghana, which define a child as a person less than 18 years of age. A youth is also defined by the Ghana Living Standards Survey (GLSS-4) as a young adult within the age bracket of 18 and 35. Recognizing the distinction between a child and a youth, and for the purpose of this paper it is necessary to draw the line between the roles of both groups in the national development process. In compliance with this ‘Resolution’ the Government of Ghana, in May 1977 set up an ‘Ad-hoc Committee’ on the “International Year of the Child” with the aim of taking stock of government policies and performances which benefited children at that time, to consider measures necessary to extend and strengthen the services in succeeding years, and also to prepare suitable programmes for the celebration of the ‘International Year of the Child.’ The terms of reference naturally involved the creation of a committee for bringing the special needs of children to the attention for the problem at large, and also the need to integrated programmes of children as essential component of development plans in their medium and long-term implications. The then Head of State then agreed to become the patron of the “International Year of the Child” in Ghana, thus giving it the same level of prestige as other countries round the world. The Ad-hoc Committee completed its work by recommending the setting up of a permanent Commission on Children in Ghana. The recommendation was implemented by government and accordingly, the Ghana National Commission on Children (GNCC) was established in August 1979 with a ten-member Board of Governors. The main objectives of the Commission, which took over the work of the Ad-hoc Committee, include the following: the advancement of the general welfare and development of children, and the cooperation of essential services for children, which will promote the United Nations Rights of the Child; to coordinate the activities of, and collaborate with agencies responsible for implementing policies and programs for children; encourage and assist in establishing and regulating facilities for children such as Creches, Day Care Centres and homes for children and disabled children when necessary as well as children’s playgrounds; encourage the establishment of centers, which will offer diagnostic and welfare services to children in all the Regions of Ghana, and to coordinate the activities to ensure effective use of Research Data; to encourage the establishment of facilities for the gifted Child; to get individuals and organizations involved in the advancement of the above objectives; and to be solely responsible for making proposals to the government on the enactment or renewal of legislation in the area of children’s Rights and benefits in Ghana.

Other relevant ministries and agencies include: the Department of Social Welfare, the Commission on Human rights and Administrative Justice (CHRAJ), the Ministry of Health, and, MCH Department. These agencies collaborate to influence Policy decision and ensure the effective implementation of child related programmes and projects. The diverse spread of NGO’s and agencies and the variety of Government bodies through collaboration provide a very solid effective implementation of policy objectives on the well being of children. While some of the agencies have been sources of the much needed financial and material support for programmes and projects, others have played the equally important roles as educators, facilitating mobilizes, and organizers of programmes. The year 2000 marked the end of a decade during which Ghana made efforts to fulfill its obligations to children under International Conventions and Agreements including Agenda 21. In February 1990, Ghana ratified the United Nations Convention on the Rights of the Child (CRC). This ratification and the World Summit for Children (WSC) are events that challenged Ghana to initiate more programmes aimed at addressing fundamental problems that affect the well being of children. Various sectors of the public, both governmental and private became involved in the wider process of commitment in planning to achieve various goals, particularly the goals of the WSC as well as the principles enshrined in the CRC. The 1990s also saw a remarkable commitment by government, civil society and politicians to identify, pursue and place on the national agenda issues that affect children.

Some of these key achievements are: the 1992 Constitution of Ghana, which guarantees the rights of Children to health, education and protection; the Criminal Code Amendment Act, 1998 (Act 554)—the revised sections relating to children for instance raised the age of criminal responsibility from 7 to 12 years and the age of sexual consent from 14 to 16 years; the Children’s Act, 1998 (Act 560), which revised, amended and consolidated all Child related laws; free antenatal care services and care for under-five year olds attending public health facilities; free immunization against the six childhood killer diseases; adolescent health policy; free Compulsory Universal Basic Education Policy; increased involvement of NGOs in Child welfare and rights activities; research into areas, which were previously ignored, e.g. Vitamin A deficiency in children, practice of Female Genital Mutilation (FGM), Street Children and Adolescent Reproductive Health; involvement of the media in creating awareness on the CRC and bringing the issues of child abuse to the public domain. In pursuance of its mandate to make recommendations

to government from time to time on the enactment or review of legislation in respect of children's right and privileges, a Child Law Advisory Committee was set up in 1995.

The Committee was to review the status and the law on children in Ghana and make proposals to Parliament for the enactment of a comprehensive law on children taking into consideration Article 28 of the 1992 Constitution of Ghana, the UN Convention on the Rights of the Child, as well as other internationally agreed regulations and standards on the treatment of children. The Act codified all the laws affecting children while amendments were proposed to the Criminal Code in respect of other issues, such as sexual abuses, age of criminal responsibility, and juvenile justice. Achievements of the law reform process included the enactment of the Criminal Code (Amendment) Act, 1998 (Act 554). This law increased the age of criminal responsibility of a child from 7 years to 12 years. It also increased the age of sexual responsibility from 14 to 16 years and increased penalties for rape of children under 16. The law made sexual offences gender neutral and provided new offences of indecent assault and customary servitude. The pinnacle of achievement of the law reform process was the enactment of the Children's Act, 1998 (Act 560). This Act deals with every aspect of the development and social well being of a child. It is a comprehensive law, which ensures reference for the prompt and effective administration of justice for children. The Act's consequential amendments included amendments to laws in force, which were not consolidated. It covers topics such as the rights of the child, maintenance and adoption, child labor and day-care centers. Innovative provisions include fosterage, apprenticeship in the informal sector and residential homes.

The final legislation emanated from the process in the Criminal Procedure Code (Amendment) Act, which is being considered by Parliament at the moment. This Act seeks to focus on the prevention of delinquency, proposes constructive and humane sanctions for juvenile offenders and provides for juvenile justice generally. Novel provisions are included on the privacy of the juvenile. The Act provides alternative to the deprivation of liberty by discouraging institutionalization and encouraging the retention of the juvenile in an appropriate home setting.

Programmes and Projects: Ghana prepared the National Programme of Action (NPA) in 1992, with set goals, strategies and activities for implementation to achieve the best for the Ghanaian Child. This multi-sectoral programme of Action had a significant impact on many organizations, ministries, and serves as a guide and focus for work concerning children. It also outlines programmes and policies to be undertaken as a means of strengthening the survival, development and protection of children. It also outlined programmes for the total development of the child and identified sector responsibilities to achieve them. The goals, strategies and programmes were also incorporated in the Human Development strategy for Ghana and the Vision 2020; National Development Policy Framework (NDPF) prepared by the NDPC. These National Programmes aimed at pursuing and implementing Ghana's NPA goals by integrating many of the programmes of Action included in the NPA. These actions have served to integrate the NPA programmes for children into National Plans and Policies reflecting government's commitment to policies that will enhance child survival, development and protection.

The seven major Goals selected to improve the survival, development and protection of the Child included: reduction of infant and under five-mortality rate by 35% from 77 to 50 per 1000 live births and 155 to 200 births respectively; reduction of maternal mortality rate by a third; reduction of severe and moderate malnutrition among Children under 15 years of age by 50%; universal access to basic education and completion of primary education by at least 80% of children in the relevant age group (6-11 years); reduction of female illiteracy rate among those from 15 years and above by 50%; increase in the coverage of facilities for sanitary disposal of excreta; increase in the coverage of safe water supply to 90%; reduction in the proportion of children in especially difficult situations (Street Children, Orphans, Teenage motherhood, Disabled, etc); and, widespread acceptance of the observation of the CRC. A series of planned activities, policy supervision, monitoring and assessment of the progress of the NPA was instituted. This included information dissemination, discussions at grassroots level, mid year and annual meetings, monitoring of child related development activities, public fora and debates.

With regard to the assessment of the impact of the NPA objectives a national survey for every five years (1996-1997 and 2001-2001) was also structured. The indicators were selected to provide information for the evaluation of the progress of the NPA. The GNCC and each of the relevant sectoral agencies that were responsible for the core of the NPA goals provided data and information on areas relevant to the sector. NGOs, Civil Society, organizations, and individuals also made contributions to particular sections of the review and a number of survey reports that were used for the review. The rationale behind the drawing up the NPA Goals, was not only to fulfill Ghana's pledge



to the UN General Assembly, but to come out with plans and strategies to strengthen the role of the child by providing the necessary needs for the survival, development and protection of the child. Other relevant programmes and projects include Child Nutrition, Primary Health Care, and Immunization Programmes, which are administered by the Ministry of Health and MCH Department. See also under **Capacity-Building, Education, Training and Awareness-Raising**. Status: At the end of 2000, an end decade review of the NPA was conducted by GNCC to assess the impact of the NPA. The achievements and constraints that affected the attainment of set targets came into focus. They include several constraints/challenges. The first constraints are related to health, as there are the problem of accessibility to facilities, high cost of medical care, inadequate number of qualified personnel/equipment, and supplies, frequent shortage of drugs, lack of emergency services, cultural beliefs, low level of education, and an ineffective home management of illness. Emerging issues of HIV/AIDS, lack of knowledge on how the virus is transmitted especially from mother to child, infant mortality due to preventable diseases such as malaria and diarrhea were some of the numerous constraints that affected the attainment of the set goals.

The second is related to education. The 1992 Constitution provides that basic education should be free, compulsory and available to all, which led to the launching of the Free Compulsory Basic Education (FCUBE) Programme in 1996; aimed at quality, efficiency, and access to education, and providing good basic education for all school going children. Despite these provisions, the Net Primary School Attendance Rate and enrolment ratios showed a comparatively low intake. Although more primary and JSS schools have been established particularly in rural, remote areas during the decade, distance to schools, inadequate number of schools, lack of instructional inputs, poor conditions, and distribution of schools facilities, science laboratories and insufficient schools placement for eligible children especially, in rural areas militated against the attainment of educational goals.

The third is the access to safe drinking water, as the provision of safe water supply has been constrained by a number of factors including low installed plant capacity, inadequate collaboration in the water sector and between various stakeholders, lack of funding and the inability of some communities to contribute to capital costs. In addition, constraints in rural areas include low borehole yield, poor quality of ground water, and low level of training of local maintenance staff and problems in establishing spare parts outlets.

The fourth are the constraints relating to sanitation, faced with the lack of funding, education, water, proper planning, unwillingness of rural communities to incur cost, children being denied access to facilities, lack of funds to pay for use system, led to continued spread of water borne diseases, such as bilhazia, schistomoniasis, guinea worm, yaws and high incidence of diarrhea that affected children. The fifth, relating to the access to social services, is the lack of community centers, playgrounds, park, libraries, social centers for play activities, poverty, also contributed to social vices and increase in teenage motherhood and street children. The sixth, related to cultural status, the lack of knowledge of laws, harmful traditional practices, including trokosi, female genital mutilation (FGM), early betrothals and marriages, abuse of the girl child, rape, sexual defilement by relations, denial of education and a family environment, and food taboos are the major constraints in the cultural context.

The seventh is relating to Juvenile Justice Administration, as children are exploited, abused, and undergo inhuman degrading treatment as punishment, children living in rural communities rely on adults to seek justice for them and lack of knowledge for the juvenile justice system by the police including Children's Act. Juveniles are treated as adults and prosecuted as such, are sent to adult prisons. There are limited resources for DSW and Police Service, inadequate collaboration between the two institutions, low capacity to disseminate legislation especially at district and community levels. Inadequate facilities for temporary shelter of juvenile offenders, inadequate facilities and inappropriate staffing at Borstal Institutes for female offenders, stigma placed on victims reporting abuse cases to police.

The eighth concerns the children in difficult circumstances; children in the street consisting of children with or without families make their homes on the street, live in sub standard shelters, and engage in economic activities. Poverty, rural – urban migration, dysfunctional families, increased fosterage within families, increased divorce rates, peer influences, child abuse, ethnic violence, customary practices associated with marriage, discriminatory inheritance patterns, and widow inheritance are key factors contributing to the increasing number of children in the streets. And finally, there are constraints relating to the disabled, as there are negative attitudes towards the disabled and stigma associated with disability. Parents often do not see the health; education and social needs of disabled children as deserving and other factors leading to low esteem amongst the disabled child were the major

constraints. The Commission has been able to achieve a lot within the past decade. A great deal of awareness has been created on the problems that affect children's well being. In spite of the obvious gains, the great majority of children continue to live in situations of deprivation in the homes, schools and communities. In spite of legislation, children still suffer from the perpetration of harmful customary and traditional practices such as female genital mutilation and trokosi. The situation calls for intensive public education, especially at the grassroots level to change attitudes and behaviors, which militate against all efforts to improve the well being of children. There is the need to fully empower the GNCC and other government agencies responsible for advocating the cause of children to enable them reach out to the masses of the people. It is the expectation of the GNCC that with the Children's Act finally becoming the Legal framework, it would be granted the needed budgetary and logistical support to enable it disseminate it and carry out all the planned activities to ensure that respect for children's rights will go a long way to inculcate respect for human rights of children, and thereby promote tolerance, the spirit of understanding, and respect for democracy for the progress of the nation. There is also the need for strong analytical and planning that are integrated into the policymaking process and administration. There are institutions that have been established to deal with the welfare of the child including the Ghana National Commission on Children.

Capacity-Building, Education, Training and Awareness-Raising: GNCC as an advocate for children's rights has worked to disseminate the CRC through seminars, Workshops, translations, print and electronic media, to the general public. It has also sensitized the Police, the Prisons, and government agencies, NGOs on child issues. Through law reforms, the laws of Ghana have been reviewed to conform to UN statutes. The Children's Act, 1998 (Act 540), Criminal Code Amendment Act, 1998 (Act 554), etc, supported the setting up of the Women and Juvenile Unit the Police Service, (WAJU). Early Childhood Care Development Policy supported the Breast Feeding Code, Weaning Food Programme, the Park Library Complex Programme, Child Literacy Project, the Annual Situation Report on Ghana's Children, the Ministry of Education, with structures including Girl Child Education, Curriculum research Units, Community Library Projects. The Department of Social Welfare assists juvenile justice administration, children in conflict with the law, and also provides Social Services for maintenance adoption, and apprenticeship training for children.

Information: One of the assigned roles of the GNCC in the NPA is that of monitoring, education and advocacy. The GNCC is required to produce biennial reports on the situation of children in the country, which will provide a medium for continuous monitoring of the status of children's rights so as to bring cases of abuse and neglect to the attention of policy makers and the public. The report is also intended to provide a counterweight to the economic orientation of policy analysis and prescription. The first nationwide research on the implementation of the NPA was carried out in 1997 with the sponsorship of the Save the Children Fund. The research was carried out in selected districts of the regions. The findings were published in the book entitled "Ghana's Children-1997" and 2000. The reports are discussed at Regional Workshops involving District Chief Executives (DCEs), Regional Heads of government departments (Ministries of Health, Education and Social Welfare) and NGO's. The objective was to draw attention of the participants to the research findings and look for ways for improving the situation of children within the framework of the District Assembly machinery. Cooperation: The Convention on the Rights of the Child is a compulsory subject for every state. It was passed through resolution 44/25 or the UN General Assembly in September 1989. It considers childhood as a distinctive stage in life and it elaborates the right of all children to survival and life, to physical, moral and intellectual development, to be protected against harmful influences and to actively participate in social and cultural life. The CRC also gives prominence to the family as the fundamental group of society and the natural environment for the growth and well being of the members, particularly children to be afforded the necessary protection and assistance so that they can fully assume their responsibility within the community. These same sentiments expressed in the CRC, are also expressed in the African Charter on the Rights and Welfare of the Child. It also outlines the right to specific support, including Education, Health, Shelter, Guidance, Nutrition, Juvenile Justice, Maintenance and Protection from abuse. Both documents list series of rights to be recognized for children, and prescribe minimum Standards for addressing the needs of children. The UN adopted the Convention on the Elimination of all forms of Discrimination Against Women in 1979 and this convention stipulates the Rights of all girls and Women, and the elimination of discrimination against them in political, economic, social, cultural, civil, and other fields. Ghana ratified CEDAW in 1986, the CRC in 1990, and fully participated in the World Summit on Children. Our development partners UNICEF, Save the Children UK, DANIDA and Plan International have been very supportive in the achievement of our Major Goals and Services for

the Ghanaian Child, in the pursuance of our objectives of Agenda 21, for sustainable development of the Ghanaian child.

**Indigenous People: Decision-Making:** A National Commission on Culture (NCC) exists in Ghana to maintain the unique cultural identity and value for the promotion of integrated culture as well as contributing to the overall economic development of the nation. NCC is a policy-making institution and under it are various governmental implementing agencies that encourage and support public and private participation in national development programmes. Ghana's Chieftaincy Act (1971) constitutionally establishes a successful partnership between central governments and traditional chiefs to demonstrate the wisdom of governance through strengthening the roles of the indigenous peoples. In the context of national development, the government should recognize a community's identity, culture, and interests and encourage them to take an effective part in achieving self-sustaining development. In practice, this means: involvement of indigenes in the planning, implementation and evaluation of projects affecting their living conditions and culture through meetings and consultations with relevant indigenous organizations; making the indigenes knowledgeable in the laws which protect the rights of indigenous peoples/tribes/ethnic groups, enshrined in the ILO Convention No. 169 (1989) which promotes consultation between governments and their component ethnic groups with particular reference to collective and individual rights of ownership of land and natural resources in the areas traditionally inhabited by these people; that the indigenes should have the right to keep and develop their distinct cultural and ethnic identity, use their own languages, own and do what they like with their traditional lands and territories, receive compensation for confiscated land, be consulted about development projects affecting them, be autonomous in their internal and local affairs and take part in the political, economic, social and cultural life of Ghana.

**Status:** There are many indigenous peoples, defined as the natives or the original inhabitants of a particular area, region or country, in both urban and rural Ghana today e.g. Akan, Dagbani, Ewe, Ga, Hausa/Moshie as well as Affutu, Brossa, Nkonya and the like. In fact all these major or minor ethnic groups are considered indigenous or autochthonous to their present geographical locations. They stand apart by virtue of language, culture and geographical situation. Some are fishermen, farmers or herdsman; some live in towns and fully involved in the culture of Ghana, but they all have a strong feeling of belonging to a distinct culture of the land and of the country. Since independence some indigenous groups or traditional areas have indeed fallen victim to industrial development, modernization and urbanization. The most destructive side of these developments has been projects to build dams, irrigating systems and roads, mining and other ecological damaging operations. In Ghana, we are yet to see the fullest benefit of the concept of the Chieftaincy Act. However, other societies have successfully modernized without renouncing local customs, culture or traditional values. Examples are the economic achievements of some countries like Japan, the Republic of Korea and Taiwan where advanced technology operates side by side their unique traditional traits.

Attempts to strengthen indigenous systems are on going in Ghana but it will come to naught if a properly constituted body is not put in place to deal with indigenous paradigms nation-wide for modernization. A major characteristic of most Ghanaian traditional festivals is the reconciliatory activity on the eve of the day of the climax of the celebrations. On this occasion all estranged family members are reconciled. Showing respect to some indigenous systems, therefore, is the first step towards illuminating the souls of the peoples and enhances understanding between tradition and modernity. It is worth noting that there are a number of cultural traits in each traditional area that impede national development, which need to be changed. The essential thing is to be able to reconcile ancestral traditions with modernization, to be able to develop without destroying a people's culture, which is the basis of the people's existence. Traditions die hard just as culture is dynamic. To balance the equation for purposeful development, a national consensus of outmoded traditional practices could be documented, legislated on and be discarded en bloc. Traditional theory is an unused theoretical resource that could be of practical importance in negotiating for strengthening the role of indigenous peoples. It is a theory of social accountability; a theory about how people who are organized in diverse ways try to hold one another accountable. In traditional theory is the solution that clusters around the concepts of governance, participation and accumulation of wealth by indigenous arrangements, which stand test of time. Traditional theory, therefore, requires incentives to allow it to be cultivated into maturity. Tradition and modernity should co-exist with indigenous systems forming the roots for development. Whereas traditional theory may seek unanimity in a case and engage in seemingly interminable

discussions, the idea is to establish broad area of consent to maintain harmony and understanding. Certainly, this is the opposite of the spirit of the book law. To reconcile tradition and modernity the problem lies in a way of finding tolerable levels to communicate. It is worth noting that there are a number of cultural traits in each traditional area that impede national development, which need to be changed. The essential thing is to be able to reconcile ancestral traditions with modernization, to be able to develop without destroying a people's culture, which is the basis of the people's existence. The *Ga* people being natives of Accra where the capital of Ghana is sited have conflicts stemming from land use, religious practices, marginalization of their traditional beliefs etc. with governments and social groups. Too much is said about negative features of traditional societies that lend themselves to change slowly. In Accra the various other ethnic groups of Ghana easily flout *Ga* traditional laws similar to traditional laws in their native lands that are revered and equally hamper development. Yet the urge to develop Accra into a cosmopolitan city blinds the views of decision-makers/developers to take into account genuine concerns of the indigenes. Proponents of religious, social and economic issues in this matter blatantly ignore the traditional variables of the land whilst similar variables in their own ethnic cleavages are left out of any abrogation equation for the sake of development.

**Non-governmental Organizations: Decision-Making:** The Companies Code (Act 179 of 1963) and chapters 5 and 6 of the 1992 constitution of the Republic of Ghana provide the legal framework for the registration of NGOs in Ghana. This is done at the Registrar General's Department of the Ministry of Justice, who issue a certificate to that effect. This gives recognition to the NGO as a legal entity. For it to be recognized as a Not for Profit group, the Department of Social Welfare of the Ministry of Employment and Manpower Development has to issue it a certificate of recognition. In addition, registered NGOs may choose to associate with the Ghana Association of Private Voluntary Organizations in Development (GAPVOD), the government recognized body of NGOs with a membership of over 300 or choose not to belong to any group. In addition to recognition by the aforementioned bodies, various Ministries, Departments and Agencies maintain rosters of NGOs they collaborate with. For instance, NGOs serve on some committees of various ministries, departments and agencies, and even international bodies. There has been harmonious coexistence between Government and NGOs, without any acrimony until government decided to enact a bill, NGO Bill (1993), which sought to bring NGOs virtually under governmental control. NGOs resisted this move through a series of advocacy activities, which led to a withdrawal of the Bill in 1995. As it is, each individual NGO exists largely as an autonomous body, with policies and decisions being taken by their Management Boards.

**Programmes and Projects:** Many NGOs have projects/programmes in the area of natural resources management, both in ground projects and in advocacy and education. NGOs, which stand out tall here are the Green Earth Organization and Friends of the Earth (Ghana). In the area of protecting freshwater, PRONET has distinguished itself with the drilling of boreholes, protecting watersheds and promoting sustainable use of water especially in rural communities PRONET has consistently been networking other NGOs, which also engage in water provision. Energy Foundation also comes out for mention when it comes to energy issues in the country. It is in the forefront of a programme to ensure wise use of energy resources, technologies and education.

**Status:** The independence of NGOs from governmental control is their distinctive feature. Their outspokenness and advocacy programmes have helped considerably to shape government policies especially in situations where the plight and interests of the poor and minority come into focus. There are over 600 NGOs registered with the Department of Social Welfare of the Ministry of Employment and Manpower Development. It is the sector agency responsible for the activities of NGOs in Ghana. However there exist several hundreds of others, which exist and operate as Community Based Organizations (CBOs). NGOs in Ghana are basically classified into three levels: local NGOs; national NGOs; and International NGOs. Local NGOs are basically those ones whose activities are restricted to a particular locality or district. National NGOs are those with the nation as their constituency. International NGOs are those foreign originated groups having local affiliates or offices. Quite a number of NGOs can be found in other areas of endeavor geared towards the alleviation of the plight of the poor, destitute and underprivileged. The greatest challenge facing NGOs is inadequate financing. Since they do not receive any form of support from government, they struggle to get funding from other sources for their projects. Inadequate expertise and skilled manpower is another constraint. Most NGOs have management problems and this affects their general output. Even though they may have good programmes, bad management makes nonsense of many

good initiatives. Some NGOs also work on ad-hoc basis, from project to project and in the absence of any project for a long time, they wind up.

**Capacity-Building, Education, Training and Awareness-Raising:** NGOs believe in developing the skills and capacities of their staff. They believe in training their staff to prepare them acquire the desired skills for their tasks. In this direction, they have been organizing events such as: workshops; seminars; conferences; roundtable discussions; and publishing journals as a way of influencing policy decisions, advocating for equity and equality, sustainable and rational use of natural resources, as well as educating and informing the public. The media is used extensively in their initiatives, appearing on TV/radio talk shows and particularly in the distribution of campaign bills: posters; brochures; stickers; handbills; etc. Some of the NGOs also extend their campaign activities to youth clubs and students in schools. **Research and Technologies:** NGOs in Ghana undertake research activities as a basis for project activities. It is normally during this period that they are able to identify the needs, draw project plans as well as management. This is very essential and NGOs are careful as this forms the launching pad of the project. Besides this, some NGOs undertake research into areas, which do not form the basis of a project activity. They research into issues like: Impact of Mining on the Lives of People; Impact of Deforestation on the Lives People. Some also research into the impact of certain government policies and legislations on the lives of the people. Research themes relate to water, agriculture, environment, health, sanitation, women, and HIV/AIDS, among others. No complex technologies are applied in view of the many constraints of NGOs. General research methodologies and techniques employed in social research are being developed. **Financing:** What often happens is that a form of partnership might be reached by an NGO, which has a track record to implement a component of a bigger project of the government and that of a donor agency. A greater proportion of NGO finances come from donor agencies from abroad. Some of the donor agencies have local offices, which oversee the projects being funded. Quite a smaller amount of funding is obtained from the private sector. Another source of financing NGO activities is Embassy grants, but these are usually not much. The U.N. agencies also provide significant assistance. Mention can be made of the U.N.D.P., Global Environment Facility, UNICEF, UNFPA, UNAIDS, AFRICA 2000. The World Bank and other international NGOs also provide some kind of assistance. International NGOs, which provide financial support include: Technoserve; Conservation International; IBIS; Frederich Ebert Foundation; and Frederich Naumann Foundation among others. All these donors are contributing to the realization of the tenets of AGENDA 21 through their support for natural resources management programmes, advocacy, awareness-raising, capacity building, training programmes, women and gender issues.

**Cooperation:** There is a lot of collaboration among NGOs and between NGOs and development partners. As indicated earlier most of the financial support for NGOs comes from overseas. In this light, there is a lot of collaboration between NGOs in Ghana and counterparts in the North as well as with NGOs in the south. There is also a lot of collaboration between bilateral multilateral institutions, regional bodies, organizations as well as international institutions. Some NGOs are local affiliates of international ones, for example, Friends of the Earth Ghana. Some have in relations with various U.N. agencies as affiliates or in consultative status with the ECOSOC. Some U.N. Agencies are in active collaboration with NGOs in Ghana. These include: UNCCD; GEF; UNFCCC; and IFF. A few are on the roster of the World Bank.

**Local Authorities: Decision-Making:** Since 1988, local authorities assumed considerable responsibility for sustainable development issues in perspective and size because of a vigorous decentralization programme, which has been introduced. The number of Districts was increased to one hundred and ten (110) from sixty-five (65); Three (3) Metropolitan Assemblies, four (4) municipalities and one hundred and three (103) District Assemblies (DAs). There is a 3-tier local government system in Ghana, with the Ministry of Local Government and Rural Development (MLG&RD) at the apex, ten (10) Regional Coordinating Councils (RCCs) and the one hundred and ten (110) DAs. Sub-district structures, though not fully established in some cases constitute the operational level of local administration in Ghana spreading out to as many as 16,000 Unit Committees at the Community level to facilitate decision making. Currently, DAs are headed by functional appointees of the President. DAs have absolute power to decide their development priorities, in planning, budgeting, implementing projects, making of bye-laws, imposition of fees and licenses on businesses, the power to acquire landed and other property, the power to borrow and lend. Members enjoy immunities, like members of Parliament, in the execution of their assignment. D.As being composed of 70% of elected members and only 30% of the President's nominees, ensure participation and

reaching consensus on development issues otherwise there are serious negotiations and sometimes trade-offs based on ethnic, geographical, religious, gender, political and other social considerations. The 1992 constitution, the enactment of the local Government Law, Act 462 of 1993 and other subsidiary legislation such as those creating the zonal, urban areas and Town Councils, the Unit Committees laid the foundation for the activities of local authorities. Further enhancements have been manifested in: the National Development Planning Act of 1994; the District Assemblies Common Fund Act, Act 455, 1993; the Civil Service Law 1993 (PNDC Law 327); the District Tender Boards Law etc.

Programmes and Projects: Most programmes and projects targeted at enhancing the role of local authorities have been initiated at the national level through the MLG&RD other relevant Ministries, Departments and Agencies. D.As play a crucial role in the provision of services and social and economic infrastructure including feeder roads, education, health, waste management, governance, poverty alleviation, gender equity, environmental management etc but are largely supported from the top or by Non-governmental organizations (NGOs). Major Programmes have been in fiscal decentralization, planning and financing the Medium Term Expenditure Framework (MTEF), social-economic and infrastructural development, including agriculture and markets, to improve their revenue base, and improve the income levels of the individuals. Specific Programmes and policies include the following: the District Capital Improvement Programme; the District Capital Electrification Programme; District capital telecommunication programme; the World Bank-supported Urban Projects (Urban I–V Projects) in Municipalities and other larger urban centres to manage solid and liquid waste and other important infrastructure; a policy to ensure that pupils do not walk distances exceeding 8 km to and from school; A similar policy to access health delivery (every District now has either a hospital or a health centre); A policy to transfer competence to the District level. D.As have as their bureaucratic heads (Directors of Administration), a very high position in the Ghanaian Civil Service; Good governance programmes initiated by MLG&RD with donor support; Gender Sensitization and equity programmes by Government and supported by NGOs such as Action Aid, Isodec etc.; 5% Housing Improvement facility has been on-going at D.As in the past 5 years; Areas of sector projects have been in Education, Health, Community Development and aided by NGO/Donor funds.

Status: There has been a tremendous improvement in the general standard of living and lifestyles especially since 1994 when the District Assemblies Common Fund (DACF) was introduced. Generally life expectancy rose from 55 years in 1990 to 59 by 1999. Infant mortality per 1000 live births dropped from 85 to 57 in the same period. Some other indicators of human development have been increased school enrolment, access to improved sanitation, potable water, and electricity especially in the rural areas. There have been praiseworthy progress in many other spheres of life of Ghanaians owing generally to economic reforms and a stable political climate, efforts at poverty reduction, world globalization trends, liberalized trade especially with sister ECOWAS countries. The political, social and economic awareness that has been created in every nook and cranny of the country are the hallmark of the accomplishments in Ghana since 1992. Some major challenges and constraints to the development efforts of Local Authorities in Ghana can be grouped under institutional, human, technological, political and social and general policy arrangement concerns. Some of these challenges are: high level of poverty; the threat of HIV/AIDS; low levels of technology use; slow integration of District Budgets into national plans; low revenue mobilization; poor environmental and human settlement planning; unfavorable cultural practices and discrimination women, and the slow pace of decentralization.

Capacity-Building, Education, Training and Awareness-Raising: There has been an appreciable transfer of competence to the districts since 1988 including, the legal, manpower, financial and other logistics and processes and Members of Parliament feed local level policy issues to the national level. *Legal:* the 1992 constitution further enhances this; the Local Government Act 462 & and other subsidiary legislation on sub-district bodies: the National Development planning systems Act; and the District Tender Boards Act etc. *Manpower:* Heads of decentralized departments are highly trained professionals, who advise the DCEs. Capacities are now strengthened in data gathering and analysis, management information systems being developed, capacity-building programmes encouraged etc. *Financial:* District Assemblies Common Fund (DACF)—there is suggestion to raise this to 7% from 5%; Ceded Revenue, taxes collected by the Internal Revenue; Service and the Transport Union which are paid back to the D.As.; Central government continues to pick up the salary and other remuneration bills of civil and public servants at the D.As.; There is donor injection into Districts especially from the NGO front. *Logistics:* these include waste disposal vehicles and equipment, office equipment and facilities,

which are bought and transferred to the Districts by Government through the MLG&RD. Education and Training are further enhanced through the establishment of the Institute of Local Government Studies in Accra and with a subsidiary in Tamale. There has been a local government training school since 1960s to train revenue collectors and local government inspectors. Awareness-raising is mainly carried out by the decentralized departments and the sub-committees of the D.A. For instance, the District Environmental Management Committees have assisted to form Community Environmental Management Committees in different communities to manage and protect the environment. These efforts are strengthened by programmes such as the UNDP/Capacity 21 Programme under the Ministry of Environment and Science. Targets of awareness raising initiatives are traditional rulers, women and youth groups etc.

**Information:** All meetings of the District Assemblies and the sub-district bodies are open to public participation, although members of the public have no vote. D.A members are equally members of the sub-district bodies where they inform members of major D.A. decisions. They also revert to the aspirations of communities to the Assemblies. The creation of the National Commission for Civic Education (NCCE) and the Commission for Human Rights and Administrative Justice has been an important avenue for transmitting information to the local operational level especially on citizens' rights, the constitution and governance etc. The liberalized Frequency Modulation (F.M.) radios, which reach every part of the country inform every community of major District Assemblies' programmes and other policy issues. **Research and Technologies:** The Universities, GIMPA, NALAG ILGS, (Research and Consultancy Department), the Research, Statistics and Information Management Units of MDAs especially MLG&RD ensure that research is carried out on local authorities and the findings and recommendations filter down to D.As. The introduction of the Intermediate Technology Transfer Units (ITTU) in the 10 regions has aided to improve agribusiness as well as many other micro-enterprises springing up in the Districts. **Financing:** The Poverty Alleviation Fund (PAF), which every D.A is now under obligation to operationalize under the DACF, is the key to local government financing. Many international organizations, NGOs and the DAs themselves are operating micro- credit schemes through various rural banks, cooperatives, credit unions etc. Some of these organizations are the World Bank, DANIDA, and E.U. DFID, FAO, UNICEF, GTZ, UNDP, JICA, CIDA etc. NGOs include: the Hunger Project, Freedom from Hunger, Management Aid and many others. D.As have now embraced the budgetary process, which is adequately informed by meaningful planning called the Medium Term Expenditure Framework (MTEF). **Cooperation:** D.As enjoy significant cooperation and partnership with national government, the embassies through their development agencies e.g. British High Commission, Spanish, French, Japanese embassies and the UN specialized agencies. At both the national and operational levels, religious bodies, some of them by country representation are key partners to development cooperation. These include the Catholic Church, ADRA, and the Ahmadiya Mission etc. Lately, efforts are being made to foster public private partnerships in many districts. There are also twinning programmes that link some DAs with other cities abroad.

**Workers and Trade Unions:** **Decision-Making:** As a democratic organization, Trade Unions are structured in a way that there is constant interaction between the top leaders at the National level and the grass root officials at the Regional and District levels. The measures taken by Trade Union Movement (TUM) are being guided by TUC's policy decision in the areas of Education, Research, Organization, Human Resource Development, and HIV/AIDS among others. See also under **Status**. **Programmes and Projects:** See under **Capacity-Building, Education, Training, and Awareness-Raising**. **Status:** Trade Unions have over the years in diverse ways contributed significantly towards National development effort. They have done this through their active participation in Policy process and dialogue and through their influence over public policy in the interest of the populace. At the enterprise level itself, workers contribute immensely to the production of goods and services for the benefit of the society. In spite of their determination to continue to work for the good of society, the trade union movement is faced with problems such as the decline in their membership. Apart from problem of dwindling membership, unions are also confronted with a host of other challenges that constantly impact on their influence and ability to perform as expected. These challenges include: legislation; employer's attitude; technological change; productivity; and competition and new personnel management techniques. Trade Unions, in their efforts and determination to continue to work for the good of society, are facing a time of profound change. One of the principal factors that have generated recent concern regarding the state of unions is the decline in their membership. This is as a result of

reduced public sector employment, stiff economic competition with a fall in the share of enterprises in total employment. Union density is only one indication of the influence and the general state of union but is no doubt an important factor.

Decreasing membership level jeopardizes the strength and influence of unions, and calls into question their representative nature. Membership decline strikes at union credibility and reduces income available through membership subscription. When funds are reduced, the level of services unions can provide also diminishes. The driving force behind these challenges is globalization. Globalization has brought in its wake new lease of life for capital and its agents with its overridden motive of profit making; the respect for internationally accepted labour standards in world of work is gradually diminishing. As a result, workers rights are increasingly receiving less attention. This trend poses a difficult challenge to the Trade Union Movement. The need for trade unions to adapt to the new changes, increase capacity and remain relevant to respond to these new challenges cannot be over emphasized. The new dynamics in the economic spheres demand that trade unions acquire new skills to be able to have full appreciation of the imperatives that shape the processes of economic development. Without this situation trade unions cannot meaningfully participate in the policy and decision making process. Notwithstanding the difficulties that confront Trade Unions, a number of initiatives have been taken through their collaborative effort to influence decision through bipartite and tripartite consultations. Besides, a number of interventions have also been made in policy formulation in general to ensure that the concerns of the masses are taken account of for policy decision. In particular, the Labour Movement in conjunction with other civil society organizations called the attention of the government to deficiencies in the Ghana Poverty Reduction Strategy Paper (GPRSP) and demanded that they should be addressed. As a result, growing number of trade unionists are being equipped with appropriate skills for more effective trade union work. As a further measure, specific workshops have been organized for the leadership of the TUC to make appropriate interventions. Another area worthy of note is the issue of water privatization, which the Trade Union Movement and other civil society organizations have presented stiff opposition to attempts made by government to privatize water in Ghana. In spite of these bold and far reaching measures taken by TUC to appropriately face up to the challenges, a lot more is required to further strengthen the capacity of Trade Unions in order to successfully overcome the many daunting challenges it has come to terms with. Indeed, if trade unions are to be viable and active social partners and work as expected, then it is imperative to assist them to develop capacity for fruitful and mutual benefit.

Capacity-Building, Education, Training, and Awareness-Raising: In the area of national economic management, the Trade Unions have begun a process of self-education to be able to understand fully and participate effectively in the budget process. The motive of this initiative is to ensure the proper allocation of resources for sound economic management for the benefit of all. The TUC has developed a programme to upgrade its middle and top-level personnel. In particular, the TUC in collaboration with the University of Cape Coast has instituted a programme in Labour Studies at Diploma and Certificate levels. As a result, growing number of trade unionists are being equipped with appropriate skills for more effective trade union work. As a further measure, specific workshops have been organized for the leadership of the TUC to make appropriate interventions. In today's world, information technology and knowledge have become essential pre-requisites for development. In this connection, the TUC has developed a programme to upgrade the competences of its middle and top-level personnel. In particular, the TUC in collaboration with the University of Cape Coast have instituted a programme in Labour Studies at Diploma and Certificate levels. Ever since it was established, the programme has enjoyed increasing patronage. As a result, growing number of trade unionists are being equipped with appropriate skills for more effective trade union work. Apart from this, issue specific workshops are being organized for the leadership of the TUC to make appropriate interventions in national policy process. In the area of awareness creation for good governance, the TUC in collaboration with other civil society organizations undertook voter education before the 1996 and 2000 Presidential and Parliamentary elections. The aim of these exercises was to create the awareness of the members for their maximum and meaningful participation in the elections.

Information: Information generation, easy access to and sharing are vital for a sustainable development. Therefore, it beholds the government to establish a solid national information system through the creation of websites, databases to make information easily accessible to whoever requires it. Research and Technologies: Recognizing the significance of research, TUC has stepped up efforts to strengthen its research unit through retraining of its staff and provision of appropriate equipment. It is also intended to upgrade the Research Unit into a full fledged



Research Centre in the near future. It is also important to note that TUC's research unit is a member of an African Trade Unions Research Network. The purpose of the network is to achieve a well-coordinated and functional research system for African Trade Unions. Research results will be shared by using the electronic and print media.

**Financing:** Trade Unions have been financing these activities from their meager resources and at times with active support of some international organizations. Apart from the support required for further training of trade union leaders in the various areas of concern, it is important that government assists them with equipment such as computers and vehicle. These forms of assistance to Trade Unions are not resources down the drain; rather they must be seen as good investment whose returns accrue not only to trade unions but to the society as a whole.

**Cooperation:** There has been cooperation both locally and internationally. For instance, the European Union (EU) is assisting the TUC to put up a building complex to house the TUC's Vocational Training School in Takoradi, Ghana.

**Business and Industry: Decision-Making:** The Ministry of Trade and Industry (MOTI) is responsible for policy formulation, programming, coordination and monitoring in the area of industrial production and trade. The main thrust of Ghana's trade policy is to expand the production and trade of non-traditional exports as well as strengthen its linkages with the agricultural and industrial sectors within a liberalized market economy. In arriving at an appropriate policy framework, the Ministry is supported by the following organizations: National Board for Small-Scale Industries (NBSSI); Ghana Export Promotion Council (GEPC); Ghana Standards Board (GSB); and Ghana Free Zones Board (GFZB). It would be inferred from the Organizations under the Ministry each has a unique role to play in order to enhance the competitiveness of products made in Ghana for the Global market. The NBSSI is responsible for the Small Medium Scale Enterprises (SMEs) for implementing programmes and action plans in support of small business and collaborating with Government and non-governmental organizations. The GEPC was set up by NLC Decree 396 to become the focal point for export promotion of Ghanaian non-traditional products. The Ghana Standards Board on its part was set up in 1967 to promote standardization in Industry and Commerce. A few of its functions include the development of appropriate national measurement schemes to support activities in science, industry, and commerce. The Ghana Free Zones Board (GFZB) was recently under the Free Zones Act, 1995 (Act 504). It is responsible for the promotion of processing and manufacturing of goods through the establishment of export processing zones and encouragement of provision of commercial and service activities at sea and airport areas. There are other non-profit Association, foundations and Non-Governmental organizations, which collaborate, study, support or even oppose the legislative measure affecting adversely industry. These organizations present views and suggestions of industry to Government. Notably among them are: Association of Ghana Industries (AGI); Association of Small Scale Industries (ASSI); Private Enterprises Foundation (PEF); Ghana National Chamber of Commerce & Industry (GNCCI); Federation of Association of Ghanaian Exporters (FAGE). **Programmes and Projects:** A large number of state owned enterprises (SOEs), characterized by poor financial performance and low productivity, had previously operated in the manufacturing and agricultural sectors. Consequently the divestiture programme was launched by the Government in response to the need to make the enterprises more efficient and reduce their dependence on the public sector. While the Divestiture of SOEs was going on, the Ministry found it necessary to introduce the Gateway Project which seeks to implement measure designed to attract a critical mass of export – oriented firms and facilitate trade to accelerate growth through: the development of off-site infrastructure for privately-financed export processing zone, and improvement of quality and standards of services delivered by institutions and agencies responsible for trade and investment. The manufacturing sector on the other hand, was supposed to benefit from several initiatives taken under SAP to produce mainly for export. One of such programmes is the Trade and Investment Programme (TIP). Under TIP constraints inhibiting public and private sector activities in technical and institutional matters were to be addressed to create enabling environment for expansion.

**Status:** To reverse the poor performance of the industrial sector, the Government through the Ministry of Trade and Industry approached UNIDO in 1998 for support. After due consultation and the fielding of missions an Integrated Industrial Development Programme was formulated and adopted in 1999. The Integrated Programme seeks to building capacity for the development of growth – oriented and competitive Micro, Small and Medium Enterprises (MSMEs) by addressing a number of structural weaknesses and imbalances in the industrial sector including: over concentration of industrial activities in few locations (Accra/Tema, Kumasi, Sekondi/Takoradi); the absence of

effective linkage between large firms and MSME segment; the “missing middle” as an integrating and dynamic force of industrial development; and very little integration of rural areas and rural population into industrial activity. The UNIDO Integrated Programme outlined for the Ministry indicated critical issues, which need to be tackled in earnest and they include: putting the private sector and private entrepreneurs in the driving seat for industrial development; Ghana’s industrial development strategy is about enterprise competitiveness strategy; and healthy, private public partnership needed to ensure industrial development.

The Integrated programme also identified major constraints impeding business/industrial development and some action to address those constraints and these include: a) weak policy coordination to establish private public partnership (PPP) for industrial development and Competitiveness embracing all key stakeholders to jointly own the policy and ensure its implementation; b) the lack of cost competitiveness infrastructure that would integrate Ghana and ECOWAS utilities as part of privatization/deregulation actions to ensure an attractively large market for potential investors or suppliers and develop specific policies for private public partnership for development of infrastructure; c) the limited market size—there is a need to increase market size through strengthening ECOWAS and to exploit market access opportunities under Lome Convention, AGOA, WTO etc.; d) Macro Economic instability—there is a need to manage the real exchange rate to remain at a competitive level once achieved, reduce government’s “crowding out” effect in the domestic credit market, and simplify tax remittance procedures. Capacity Building, Education, Training and Awareness Raising: The core programmes include: entrepreneurship training; management training; customized training for work force capacity building; business advice; diagnosis and health checks; business plan and business profile preparation; facilitation of local sub-contracting; export product development; credit sourcing ; and loan monitoring. In order to achieve the objectives of the Integrated Programmes it has been realized that there is low level of skills development and there is therefore a need for Government and private sector to initiate and develop a manpower needs plan to strengthen the relationship between higher education institutions and the private sector.

Information: The dissemination of information on business and Industry is done through the Ministry of Trade and Industry, AGI, EMPRETEC and NBSSI who also make information available to their members through the mass media. A Website is now being created by the Ministry, which would be operationalized soon.

Research and Technologies: It has been realized that there is inadequate Research and Technology in Industry and as a result there is a need to strengthen the relationship between the private sector and Research Institutions and there is going to be a national support for Industrial Research and Development through the commercialization of R&D opportunities. Financing: Financing of the Integrated Programme has been from Government with support from UNIDO. It has been established that industrial/finance institutions to develop sustainable and financially viable industrial activities is necessary. To this end Export Development and Investment Fund (EDIF) has been established to assist exporters and Ghana Investment Fund (GIF) is also before Parliament to help all manner of industries to access long term funding. Cooperation: Ghana is aware of the inevitable importance of international cooperation – global, regional and sub-regional cooperation – play in industrial management. To This end, the country makes request to multilateral and bilateral donors for assistance for its industries. Ghana is a member of UNIDO, ACP-EU, WTO and specialized Agencies of the United Nations.

**Scientific and Technological Community:** Decision-Making: In 1958, soon after independence, the Government of Ghana established the National Research Council (NRC) with the President as Chairman to replace existing inter-territorial research organizations such as West Africa Cocoa Research Institute (WACRI). The NRC is the forerunner of the present day Council for Scientific and Industrial Research (CSIR). Over the years, the Government has established specific institutions for the development of scientific and technological capabilities, research and development (R&D), and the provision of essential services. Apart from thirteen (13) research institutes of the CSIR and the Universities of Ghana, there are other nine (9) Science and Technology (S&T) independent and semi autonomous bodies and projects in the country viz. Ghana Atomic Energy Commission, Cocoa Research Institute, Centre for Scientific Research into Plant Medicine, Noguchi Memorial Institute for Medical Research (attached to the University of Ghana, Legon), Environmental Protection Agency (EPA), Fisheries Research & Utilization Unit of Ministry of Food and Agriculture, Ghana Standards Board (GSB), Ghana Regional Appropriate Technology and Industrial Service (GRATIS) with Intermediate Technology Transfer Units

(ITTUs) in all the regions of the country and Development and Application of Intermediate Technology Project (DAPIT).

The Universities, Fisheries Research & Utilization Unit and Cocoa Research Institute are under the jurisdiction of Ministries of Education, Food and Agriculture and Cocoa Affairs respectively. The other S&T institutions fall under the responsibility of the Ministry of Environment, Science and Technology as far as setting of regulations, formulation of policies, plans and programmes of the institutions are concerned. This year's work plan for the management of S&T in Ghana are as follows: reproduce and circulate copies to stakeholder institutions and eminent scholars – Jan. 31, 2002; organize and hold a National Stakeholders Workshop on the Action Plan – Feb 28, 2001; package document and submit to Cabinet – March 15, 2002; and, draw implementation strategies – April 15, 2002. Programmes and Projects: In Agenda 21 document, two major programme areas have been identified for the implementation of national governments. These are: improving communication and cooperation among the scientific and technological community and decision makers and the public; and, promoting codes of practice and guidelines related to science and technology. As far as the scientific and technological community in Ghana is concerned with the implementation of Agenda 21, the National Science and Technology Policy document that has passed through the scrutiny of Parliament since 1999 has set the stage for activities of government to satisfy the expectations from the scientific and technological community to implement Agenda 21. The S&T policy has guidelines that reflect Ghana's Vision 2020 as the national development strategy.

The Science and Technology Policy Statement affirmed that government will take a number of actions to ensure that the nation derives maximum benefits from the application of science and technology. It is stated in the document that government will: create the enabling environment and advocacy for the promotion of science and technology as a key factor in Ghana's development process; promote the development and utilization of science and technology capabilities, including entrepreneurial skills development; promote science and technology capacity building; encourage the improvement of the quality of research and development (R&D) activities, especially within the private sector institutions; strengthen national engineering design capacity activities; strengthen the protection of intellectual and innovative property rights; ensure environmental sustainability; promote the participation of women in science and technology; safeguard the generation, use and application of science and technology; promote international and local cooperation and linkages; promote a science and technology culture; establish mechanisms for the finance, management and evaluation of the performance of science and technology; and create a mechanism at the highest level of government to give direction to science and technology.

Specific programmes and projects undertaken by the government in this regard include:

- the initiation of programmes to upgrade science culture and popularize S&T by creating computer awareness and computer literacy in the second cycle institutions by establishment of Science Resource Centres in several districts;
- the Government has entered into bilateral and multilateral agreements with external donors for the implementation of projects such as National Agricultural Research Project (NARP), Capacity Development and Utilization Project (CDUP) and Private Sector Development Project (PSDP) to improve the S&T capabilities of both the agricultural and industrial sectors;
- the gap between government, researchers and the private sector is being bridged through the establishment of a closely linked working relationship;
- the creation of Sectoral Coordinating Committees within the CSIR to facilitate the integration of S&T services into plans, programmes and budgets of each sector of the economy;
- the initiation of Kakum and Daka Watershed Management Project by Government to seek the intervention of all stakeholders, including research institutions, NGOs, District and Municipal Assemblies etc. to find a permanent solution to acute water shortage problems confronting Cape Coast township and its environs and some districts in the Northern Region;
- the Ghana Environmental Resource Management Project (GERMP) designed to support the implementation the National Environmental Action Plan (NEAP);
- the Rural Enterprise Project (REP) has been designed to provide appropriate technology and sound business practices to improve rural agriculture and industry;
- the Capacity 21 has since 1997 been testing Ghana's Capacity 21 Programme in eight pilot districts in the country;

- Ghana established an Ozone Office and implemented various projects to phase out Ozone Depletion Substances (ODS) from Ghana by 2010; and
- The government is implementing the Desertification Control Project.

A National Committee on Desertification has been constituted and a National Action Plan on Desertification drawn. Status: The establishment of Science Resource Centres in selected districts in the country that emphasized the use of computers is a step in the right direction. It has offered students in remote and deprived areas the opportunity to have access to science education and acculturation especially computer technology that is pervasive and certainly the technology of the future. With respect to the agricultural sector, the National Agricultural Research Project (NARP) has enabled the Council for Scientific and Industrial Research and Ghana Atomic Energy Commission's Agricultural Research Institute, the Faculties of Agriculture of the country's Universities and other institutions within the National Agricultural Research System (NARS) to overcome research constraints through the: rehabilitation of research facilities; funding of prioritized research programmes; human resource development; improvement of library and information systems; and research management development.

The National Science and Technology Policy document clearly highlights the support needed for research and development activities by both government and the private sector, with the attendant continuous training of scientific and technological staff. Another challenge for the country is the support and recognition for endogenous technological effort by patronizing these technologies as well as rewarding those who generate them. There are a number of uncompleted components of the Private Sector Development Project (PSDP). Amongst these are: the need for Government and or CSIR to seek funds from donor agencies to complete tasks such as the development of management information systems for the CSIR; training for management responsibilities for commercialization of CSIR's activities and training in biomedical instrumentation maintenance and the establishment of biomedical instrumentation training centre in the country.

Although there have been a number of initiatives such as participation in seminars, workshops, conferences etc. of policy makers, researchers, private sector, industry and others, there is still lack of effective communication.

In addition, the absence of partnership and integrated approach to the application of scientific and technological findings for national development has led to lack of fuller appreciation of the interdependence that should exist among industry, science and technology institutions and policy makers.

The established Sectoral Research Coordinating Committees are not effective because of inadequate funding and some of the committees such as environment and health sectoral research coordinating committees are yet to be established. The Kakum and Daka Watershed Management Projects are in a balance due to lack of funds. A team of experts from the CSIR assessed the current environmental situation and identified factors responsible for the dwindling water quality and quantity as well as the poor management of rivers within the two river basins. Based on the findings of the CSIR team, the two projects were formulated for the two river basins. The CSIR is seeking funds for the projects. There are number of constraints to the effectiveness of the smooth and sustained development of S&T for socio-economic development. Some critical factors that go against the desired impacts of S&T in Ghana include:

- the inadequacy of funding of S&T has resulted in the deteriorating infrastructure (including essential laboratory facilities) and in the quality and quantity of manpower in critical areas;
- premature termination of national development plans in the past tended to frustrate the proper execution, monitoring and evaluation of planned science and technology programmes;
- inadequate policy direction and incentives for studying, upgrading and adapting local and foreign technologies to reduce over-dependence on imported technology which stifles endogenous development of technology and entrepreneurship;
- lack of satisfactory working conditions and remuneration needed to attract, retain and motivate science and technology personnel, resulting in the exodus of trained manpower; and
- Ghana plus many other African countries have a very low science culture.

Africans constantly appeal to religion and superstition to explain many phenomena. Generally the African society is not scientifically oriented and therefore does not seek to apply science and technology to explain or solve everyday problems or seek innovation and novelty. Capacity-Building, Education, Training and Awareness-Raising: The Ghana Education Service runs a programme "Science, Technology and Mathematics Clinic for Girls" with the aim of creating awareness and generating the interest of girls in offering science, technology and mathematics in school,

and building a career in the sciences. Annually, the scientific and technological community in the country organizes seminars, produce radio programmes, publish feature articles in the newspapers on benefits of S&T and mounts exhibition for the public to create the awareness about S&T and research and development (R&D) activities in the country to commemorate the Day of Scientific Renaissance of Africa. Awareness-raising on the use and usefulness of S&T in our daily lives and sustainable development by the government through its departments and agencies had been rather unimpressive. The weekly television programme “Technology for Livelihood” produced by Council for Scientific and Industrial Research informs the public about the use of S&T findings for sustainable development. Accurate data on the number of S&T human resources in the country is not available. The CSIR-Science and Technology Policy Research Institute (STEPRI) is currently working on this.

There are four hundred (400) scientists working within the CSIR system. A conservative estimate is that Ghana has less than 4,000 scientists per million of the population. The existing S&T manpower in the country is woefully low as compared to the 12,000 scientists per million of population in developing countries of Asia and Latin America. The irony is that the low levels of S&T human resources in the country are not resourced and challenged to apply S&T knowledge and skills to provide solutions to the socio-economic problems for development. It is pathetic to request scientists in the country to improve on traditional technologies when incentives and resources provided are inadequate. One of the agencies of the Ministry of Environment Science and Technology, Environmental Protection Agency prepared the Environmental Education Strategy programme that includes the introduction of environmental issues, problems and the use of S&T to address issues and provide solutions to the problem into both the formal and non-formal education curricula of the country. While the arts or social science graduate output from the first generation Universities stand at over 40% from 1996 to 2000 none of the science and technology related has gone beyond 14% over the same period (Table 1). It is shown in the table below that the country’s educational system has not produced adequate professionals to meet the challenging demands for effective sustainable development based on S&T applications.

Table 1: Composition of Graduate Output from the First Generation Universities

	1966	1997	1998	1999	2000
<b>Total Output</b>	2781	3007	4034	4472	5046
<b>Arts/Social Sciences</b>	1176(42.3%)	1412(47.0%)	1915(47.5%)	1937(43.3%)	2085(41.3%)
<b>Agriculture</b>	210(7.6%)	138(4.6%)	241(5.4%)	196(3.9%)	153(3.0%)
<b>Medical Science</b>	29(1.0%)	107(3.6%)	111(2.8%)	144(3.2%)	249(5.0%)
<b>Science</b>	490(17.6%)	532(17.7%)	343(9.0%)	527(11.8%)	625(12.4%)
<b>Engineering</b>	207(7.4%)	129(4.3%)	185(4.6%)	208(4.7%)	261(5.2%)
<b>Pharmacy</b>	75(3.7%)	46(1.5%)	55(1.4%)	77(1.7%)	93(1.8%)
<b>Architecture</b>	92(3.3%)	62(2.1%)	59(1.5%)	110(3.5%)	153(3.0%)

Source: *University of Ghana (2001), Basic Statistics – 2001*

**Information:** The University of Ghana, Legon established a Remote Sensing Application and Geographical Information Systems Unit and an Ecological Laboratory in the Department of Geography and Resource Management, which generates collects and store considerable data in retrieval forms that can be assessed by the public at a fee. Science and technology data in the country is kept by the various institutions, departments, agencies and bodies that generate the data without any form of networking to allow sharing of information among S&T bodies. **Research and Technologies:** Despite the financing and other menacing problems, the scientific and technological community has developed a number of technologies for socio economic development of the country. A number of technologies especially in agriculture have been transferred to end users such as farmers and small-scale industrialists. Significant among them are: CSIR- Animal Research Institute has developed and introduced New Castle Disease Vaccination programme for poultry.

It has also developed the AFBOSBEK breeds of chicken; traditional herbal preparation for combating parasitic intestinal worms in livestock and for the control of ticks was researched into and produced by Animal Research Institute of the CSIR; the Water Research Institute of the CSIR has developed and transferred to end-users (farmers) the technologies of all-male tilapia fingerlings production and hatchery production of catfish (Mudfish); the Water Research Institute also formulated fish feed from local agricultural by-products for increased fish production in ponds as well as the production of hydrogeological maps of the various regions to facilitate the optimum utilization of water; the Building and Road Research Institute (BRRI) of the CSIR constructed a laminated timber bridge on River Subin at Kaase, Kumasi from local timber species that are considered as not having any immediate export value; the Building and Roads Research Institute also developed small and medium scale brick factories which use hand moulding techniques and wood-fired or oil-fired kilns; the Building and Roads Research Institute of the CSIR also prepared the Ghana Building Code that is adopted by the country and extensively used in the country; the Institute of Industrial Research of the CSIR has developed a cassava processing machine for the production and packaging of gari.

Other simple machinery designed and fabricated by the institute include cassava slicer, groundnut dehuller and grinder; the biogas technology was developed for the production of fuel for domestic cooking as well as residential and street lighting. The technology's byproduct serves as manure for gardening. The CSIR designed and developed biogas plants at Appolonia village, Pokuase and the Bank of Ghana Cattle Ranch at Shai Hills; the Institute of Industrial Research researched into and developed the production of liquid soap from agricultural and industrial wastes; many technologies have been developed and disseminated in the field of food processing. These technologies have also ensured improved packaging to preserve nutritional value and prevent microbial contamination and food poisoning while ensuring product quality; the CSIR – Oil Palm Research Institute produces germinated oil palm seeds. Over 100,000 hectares of land under oil palm cultivation obtained their seeds from this institute; the research efforts of the CSIR – Plant Genetic Resources Centre has ensured the cultivation of nutmeg and black pepper in the country for local and export markets; and, the Plant Genetic Resources Centre of the CSIR is currently engaged in the collection and preservation of germplasm of various crop species from all over the country. In monetary terms several of the technologies generated by the CSIR have contributed a great deal to the country's Gross National Product (GNP). The contributions of researches and technologies developed by the CSIR

have resulted in 84% to 250% increases in the production of some food crops as evidenced by 1990 and 1998 production figures in Table 2.

Table 2: Increases in Yield of Food Crops (1990-1998) due to Improved Technologies

<b>Technology</b>	<b>1990 Production</b>	<b>1998 Production</b>
<b>Improved maize varieties</b>	553,000 metric tons	1,015,000 metric tons
<b>Improved cowpea varieties</b>	<40,000 metric tons	90,000 metric tons
<b>Pre-germinated oil palm seeds</b>	1,500,000 seeds p. a.	1,500,000 metric tons
<b>Cassava</b>	2,717,000 metric tons	1,171,500 metric tons
<b>Rice</b>	81,000 metric tons	28,100 metric tons
<b>Millet</b>	75,000 metric tons	162,300 metric tons
<b>Sorghum</b>	136,000 metric tons	355,400 metric tons
<b>Plantain</b>	799,000 metric tons	1,912,000 metric tons

Source: PPMED, Ministry of Food and Agriculture, Accra (1998)

**Financing:** The inclusion of science and technology in national development has been rather unsatisfactory with the result that benefits to be derived by the citizenry are not realized. The country can boast of an impressive S&T infrastructure but unfortunately the government is unable to maintain, effectively equip and upgrade the infrastructure due largely to budgetary constraints. The country's investment in S&T development is well below the 1% threshold recommended by African Heads of State of the Organization of African Unity (OAU) in 1980, under the Lagos Plan of Action. In fact, the funding for science and technology is currently estimated to be fluctuating between 0.3% and 0.5% of the country's Gross Domestic Product (GDP). Science and technology innovations enhance local capacity for developing environmentally-sound technologies for: selecting; acquiring; adapting; and absorbing imported technologies appropriate to national needs, priorities and resources. The inadequate funding has adversely affected technological innovation and socio-economic advancement and also undermined the proper formulation, monitoring and evaluation of science and technology programmes. Science and technology activities in the country are fragmented without any suitable arrangements for ensuring coordination and integration. This has meant that the country has been unable to derive the optimum benefits from the current resources that have been expended towards the development and promotion of science and technology. Admittedly, the country is to some extent being assisted in the development of S&T by donors and multilateral agencies.

However the financial assistance from these donors and multilateral agencies has a minimal effect on S&T for socio-economic development of the country. The inadequate working conditions and low level of remuneration which if not improved would not attract, retain or motivate science and technology creativity and entrepreneurship. The National Science and Technology Policy document section 5.12.1 states that "to ensure the availability of funds at all times to meet the demands of innovation for the benefit of society, Government will: take stock of all existing funding lines established to support development in science and technology an industry with the aim of streamlining them to achieve economies in their operations; strengthen and modify the National Science and Technology Foundation to incorporate support for innovation in its sphere of operations; encourage the private sector to support the funding for research and development (R&D) activities, especially to cater for the needs of the small, micro, and medium enterprises (SMMEs) which can be nurtured to become the cutting edge for the commercialization of novel products or processes (that is, products of innovation).

Typically, the SMMEs have limited resources both for financing internal R&D and for transferring technology to or from national and international technology vendors; accelerate the allocation of a minimum of 1-2% of the Gross Domestic Product (GDP) or 10% of the national budget to support the science and technology sector; institute an attractive tax incentive mechanism for contributors to the instituted funds or directly to R&D activities, but in such a way as not erode the national tax base; encourage the formation of a venture capital (high risk) fund administering authority for the commercialization of new technologies from the scientific and technological institutions; and encourage public procurement of products and services from S&T institutions as means of facilitating their promotion. In all these funding mechanisms, Government will solicit the effective participation and contribution of the private sector as an indispensable partner in the management of science and technology for the socio-economic development of the country. **Cooperation:** The government has been supporting its environmental activities

through legislation and the ratification of various environmental conventions, especially those agreed to at Rio. Ghana has not only been an active participant at the international level in the negotiation of various treaties on the environment, but has become a party to a number of Conventions on the environment. Ghana has ratified a number of Conventions including: the 1992 Convention on Biodiversity; the 1988 Convention on Wetlands (Ramsar Convention); the 1992 UN Framework Convention on Climate Change; the Convention to Combat Drought and Desertification; the 1985 Vienna Convention on Protection of the Ozone Layer as well as a party to the 1987 Montreal Protocol. Ghana also ratified the 1992 London Amendments to the Vienna Convention. Several international agencies and bodies support programmes of the government in S&T. Notable among them are: International Atomic Energy Agency (IAEA), United Nations Development Programme (UNDP), Food and Agriculture (FAO), International Institute of Tropical Agriculture (IITA), International Centre for Theoretical Physics and Argonne National Laboratory.

**Farmers: Decision-Making:** In recent times, the Government through the Ministry of Food and Agriculture (MOFA) has the responsibility to assist farmers through various policy interventions to organize themselves for more rewarding production. The MOFA has established six statutory departments whose functions are calculated to assist farmers, both large scale and subsistence, in their activities, ranging from land preparation to marketing of their produce. Some of the policies which have been put in place to strengthen the activities of farmers include: Removal of Subsidies on agricultural inputs (1990); establishment of a unified agricultural extension system (1997); and institution of Rural Credit (2002) and decentralization of effective planning to the district level (1997). Other policies also have been put in place to guide activities in the livestock and fisheries sector. The MOFA helps provide an enabling environment for the efficient production of food and agricultural raw materials at world competitive prices by encouraging the production, processing and marketing of those commodities in which Ghana has both comparative and competitive advantage. Ghana's agricultural sector strategy therefore seeks to: promote increased smallholder, medium and largeholder productivity; provide all Ghanaians with adequate and nutritionally balanced diets at reasonable prices both now and in the future; ensure that agriculture contributes effectively to the country's balance of payments position through export diversification; establish effective linkages between agriculture and industry so that agro-processing becomes the driving force in Ghana's Accelerated Growth Strategy; and exploit Ghana's considerable agricultural resources in environmentally friendly and sustainable manner by moving away from shifting cultivation to sedentary medium to large scale farming.

Sub-sector policies include:

- a) Livestock Sub-Sector Policies and Strategies aimed at: privatizing the improvement and dissemination of breeding stock, and enhancing watering facilities for community use; providing technical support for pasture development and institutional capacity building in the areas of planning, implementation, monitoring and evaluation of development programmes; safeguarding health of national livestock and to minimize livestock mortalities due to diseases. The policy instruments include contracting out of vaccination and meat inspection services in areas where veterinarians have established private practices; intensifying disease control activities of Veterinary Services Directorate (V.S.D) through institutional capacity strengthening (including units for tsetsefly and trypanosomiasis control); enhancing the role of the Ghana Veterinary Council; and enhancing disease surveillance; and
- b) Fisheries Sub-Sector Policies and Strategies aiming at: removing trawlers fleet from the 30 metre ocean depth line to protect canoe fisheries; strengthening of institutional capacity of the Directorate of Fisheries; integrating fishing activities in the farming system through the promotion of aquaculture. (The aquaculture policy will involve the promotion of appropriate husbandry and farmer education using the Unified Extension System.); the policy reforms of the sub-sector prohibit the use of flash lights, explosives and undersized nets for fishing; and educating fishermen against the use of DDT, explosives, poisonous chemicals and undersized nets that trap immature fish.

Other policies include: subsidies on agricultural inputs were removed in 1990; unified agricultural extension system put in place in 1997; institution of Rural Finance Project to service farmers with credit needs through the rural banks begins in 2002; the MOFA has been decentralized to the district level where top level management personnel have been appointed to plan the district's activities and take major decisions on behalf of the ministry since October 1997. Programmes and Projects: In the past decade, a number of projects and programmes have been proposed and



implemented to assist farmers in various ways. The programmes and projects have involved the end-users (farmers) in their preparation of land operationalization. The programmes and projects that Ghana is implementing during 1996-2004 are summarized in the table below:

<b>Project Title</b>	<b>Objectives</b>	<b>Original Amount ('m)</b>	<b>Duration</b>
1. Food Crop Development Project (FCDP)	To enhance food security at household level and improve income and standard of living of resource-poor farmers through increased production and village-level processing of cereals and legumes	US\$15.69 (Loan)	1999-2003
2. Root & Tuber Improvement Programme (RTIP)	To enhance food security and incomes of resource-poor farmers on a sustainable basis by facilitating access to new but proven locally adopted technologies of root and tuber crops	US\$10.11 (Loan)	1998-2003
3. Village Infrastructure Project (VIP)	To enhance the quality of life of Ghana's rural poor through increased transfer of financial and technical resources	US\$60 (Loan)	1998-2003
4. Land Conservation and Smallholder Rehabilitation Project (LACOSREP II)	To promote sustainable improvement in the living conditions of the rural poor through raising incomes and improving household food security	US\$11.89 (Loan)	1999-2003
5. Upper West Agricultural Development Project (UWADEP)	To assist the resource-poor rural farmers to improve upon their general living standards through increasing food production, improving access of some rural farming communities to market centres and incomes	SDR6.750 (Loan)	1996-2002
6. Agricultural Services Sub-Sector Investment Programme (AgSSIP)	To increase the growth of agricultural productivity and incomes as the driving force for reducing rural poverty, improving food security and providing the basis for accelerated growth of the overall economy in environmentally sustainable manner	US\$123.73 (Loan)	2001-2003
7. Coconut Project	To establish and maintain disease trial plots, coconut seed gardens and production of resistant coconut seedlings	FF33.8 (Grant)	1998-2003
8. Land & Water Management Project (Soil Conservation Project) Phase II	The sustenance of rural livelihoods through the prevention of land degradation in agricultural communities, achieved by the introduction of improved land and water conservation practices	DKK11.7 (Grant)	2000-2003
9. Special Programme for Food Security	To increase productivity of smallholders and improve household food security at selected sites representing the different farming/irrigation	UA0.87 (Grant)	2000-2002
10. Northern Region Lowland Rice Development Project (NRLRDP)	To alleviate poverty through an integrated approach, the main constraints to the development of inland valley rice and to promote an improved production system attractive to farmers and economically sustainable	FF17.5 (Loan)	1999-2004
11. Fisheries Sub-Sector Capacity Building Project	To establish the long term sustainability of the fisheries resource and thereby maximize its contribution to the economy	US\$10.5 (Loan)	1996-2001
12. Kpong Irrigation Project	To develop irrigation facilities to increase crop production for food and increase income for farmers	UA25.32	1990-2001
13. Small Scale Irrigation Development Project	To increase crop productivity by having 6000 smallholder farmers cultivating an area of 2590 ha under irrigation or improved water management	UA22.46	2000-2004

Status: All the projects are on-going except Fisheries Sub-Sector Capacity Building Project and Kpong Irrigation Project, which ended December 2001. Challenges/Constraints are as follows: donor withdrawal making projects non-sustainable; the lack of local community financial capacity to procure recommended inputs; low motivation of MOFA staff due to poor service conditions leading to poor commitment to projects and high trained personnel turnover. Traditionally, subsistence farming has been the main farming method practiced by Ghanaian farmers. In the past each farmer operated on their own with regards to the production and the marketing of their produce. The staff position in the MOFA is as follows:

<b>CATEGORY OF STAFF</b>	<b>AS AT JUNE 2001</b>
Directors	5
Ag Directors + Deputy Directors	51
Assistant Directors	114
Senior Agricultural Officers	167
Agricultural Officers	180
Assistant Agricultural Officers	120
Chief Production Officers	10
Assistant Chief Production Officers	33
Principal Production Officers	98
Senior Production Officers	200
Production Officers	192
Chief Technical Officers	20
Assistant Chief Technical Officers	59
Principal Technical Officers	257
Senior Technical Officers	397
Technical Officer I	907
Technical Officer II	1,110
Executive	139
Secretarial	249
Others (clerks, drivers, watchmen etc)	2,127
<b>Total</b>	<b>6,435</b>

Capacity-Building, Education, Training and Awareness-Raising: Various workshops, seminars, fairs and training programmes have been organized annually with the view to building the capacities of farmers in health, production and marketing of their produce. The Government has instituted the Farmers' Day as statutory holiday and awards are given to best farmers and runners-up at the national, regional and district levels. Environmentally best practice methods of farming such as organic farming, agro-forestry, mixed cropping and use of bio-pesticides. Training for Agricultural Officers at local and overseas levels is also pursued. The country on an annual basis produces a number of trainees in different categories: regular overseas training (annual rate)-30 persons; local training (annual rate)-288 persons. Information: A new directorate for Statistics, Research and Information (SRID) was established two years ago. Relevant information on the Ministry of Food and Agriculture and its activities are on the website ([www.mofa.gov.gh](http://www.mofa.gov.gh)), created by the SRID. Wide area Network, (WAN) Local Area Network (LAN), print and electronic media, and radio are used in information dissemination programmes which are on-going. Research and Technologies: A number of research programmes have been put in place to assist the farmer, including: Farming Systems Research for Sedentary Farming, Improved Small Ruminant Breeding Programme, Cereal, Root and Tuber Storage Systems Research, Hybrid Seed Research, Integrated Pest Management Research and Research in processing of agricultural produce. Financing: About 85% of the \$40 million per year the MOFA fund come from donors and the Government bears the rest. The Government of Ghana is assisted by its Development Partners in financing the various agricultural projects. There has been a decline in government funding of the sector, from 6% in 1990 to 1% of government expenditure by 2000. Cooperation: The following agencies cooperate to promote Ghanaian agriculture: Department for International Development (DFID); Canadian International Development Agency (CIDA); German Technical Cooperation (GTZ); Japan International Cooperation Agency (JICA);

European Union (EU); World Bank; African Development Bank; The French Development Agency; Saudi Fund; and, World Trade Organization.

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

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

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## CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT

**Decision-Making:** The Ministry of Environment, Science and Technology (MEST) is the main body which has the responsibility for all issues relating to the use of science and technology (S&T) for sustainable development. These issues include policies and regulations, as well as coordination and advice to the executive arm of government. MEST exercises direct supervision over six departments, agencies and projects which assist the Ministry in carrying out its mandate, but there is a wider group of stakeholders, including educational institutions, standards and regulatory institutions, financial agencies, and professional bodies, whose activities must be coordinated by MEST if it is to carry out the decision-making function effectively.

Over the 10-year assessment period, it has become evident that the task of coordinating these diverse portfolios for efficient decision-making has been rendered difficult by the fact that MEST does not control the budget line for science and technology nationally, and other sectors do not readily submit to the supervisory role of MEST in conducting their S&T activities. For the same reason, monitoring and evaluation of the development import and social consequences of S&T activities have not been as effective as desired. All the same, the establishment of the Ministry of Environment, Science and Technology, being in the same year (1992) as the adoption of Agenda 21, has helped in providing a focal point for some decision-making in the utilization of S&T for sustainable development.

**Programmes and Projects:** See under **Research and Technologies**.

**Status:** In spite of the great strides that research has made in contributing to sustainable development, there is the need to address the problems of: better resource allocation for research and development activities; further reorientation and refocusing of research activities to make them more targeted to urgent development needs, especially relating to poverty reduction; there must be a standing arrangement for the S&T institutions to periodically review the technological needs of their clients in order to enhance transfer and marketing of their technologies; access to credit for technology acquisition is another constraining factor, which should be addressed with financial incentive schemes for small scale enterprises; social sciences aspects of research and technology development deserve to be given a higher priority attention in order to enhance the developmental relevance of research, and address the social concerns in technology development.

**Capacity-Building, Education, Training and Awareness-Raising:** Capacity that has been built for forestry research has helped developed technology for the sustainable development, conservation and efficient utilization of Ghana's forest resources. Significant achievements include the production of improved planting materials through vegetative methods and seed orchards. Lesser used wood species have been thoroughly studied and actively promoted to increase options in wood utilization. More sustainable forest management techniques have been developed, including the extraction of forest products such as glue and tannins, and the processing of wood waste into building materials. Capacity for road safety research is nationally acknowledged with the training of police personnel in road accident prevention and management.

**Information:** No information available.

**Research and Technologies:** Technology generation and development through research is the principal mandate of the Council for Scientific and Industrial Research (CSIR, Ghana), which is one of the principal agencies under MEST and manages institutions carrying out research in agriculture, forestry, industry, natural resource management, and social sciences. There are other research institutions, which conduct research on issues of public health and plant medicine, and the peaceful uses of atomic energy. Since 1992, sustained progress has been made in research in crop and animal Agriculture, forestry and natural resource conservation, food processing, construction, and institutional building for assessing the social impact of developed technologies.

In crop agriculture, several improved varieties of cash and food crops including many staples, have been released to farmers. Examples are: maize, legumes, soybean, rice, cassava, plantain, yam, sweet potato and oil palm. The use

of these improved varieties had significantly increased yields per hectare, and thus has had a positive effect on the sustainable use of land as well as improving access to food. Agronomic practices for sustainable agriculture such as rotational practices and fallow management have been developed.

In animal agriculture, new methods of disease control have been developed including herbal preparations for combating parasites, and the control of ticks. The technology is yet to be packaged for transfer. The male sterilization of tsetse flies has helped control disease infestation from that vector. Advances have also been made in the formation of livestock feed for better nutrition. Improved grass and forage legume species have been developed for transfer.

Research for better natural resource management are also carried out on soil and water resources, as well as plant genetic resources, which involves the collection and conservation of germplasm from various sources. Research on soil resources has been extensive with the key aim of addressing the negative nutrient balance in many soil types. Soil fertility research is therefore of crucial importance to promoting the sustainable use of this key natural resource. Similarly, research into surface water and groundwater resources has been undertaken in the key areas of: limnochemistry; hydrobiology; entomology; parasitology; and fisheries. Sustainable use and conservation of wetlands have also been given substantial attention, as well as research on bacterial pathogens for the control of the vectors of malaria and bilharzias. These are yet to be adopted for widespread use. Inland, coastal and marine waters are constantly monitored to assess the level of pollution and to develop appropriate methods for its management.

Research into food processing and post-harvest management has assumed increasing importance with realization of its importance in enhancing food security. Technologies have been developed for the processing and preservation of cereals, legumes, roots and tubers, fruits and vegetables, fats and oils, and fish. An interesting dimension to these development activities is the use of solar energy application to enhance sustainability.

The development of adaptive technology for use in the industrial sector has also been pursued. These research activities have focused on process technology, agro-industrial machinery development, studies on industrial materials, and the production of science laboratory equipment, such as glassware and meter bridges. Biosanitation systems have also been developed which enable the production of biogas as a source of renewable energy.

Research on aspects of construction, comprising buildings and roads, including road safety, has also progressed steadily. Durable building materials have been developed using local raw materials including the use of bauxite waste and clay for the manufacture of pozzolana cement. Research on cost-saving building techniques has also enabled the development of building elements that substantially saves construction cost.

**Financing:** Financing of S&T activities during the 10-year assessment period has been grossly inadequate. Funding levels have been consistently below the UN target of 1% of GNP for developing countries, and the 1% of GDP set by the Organization of African Unity (now African Union) for its member countries in 1980. The level of funding in Ghana presently is only 0.3% of GDP. Other disturbing aspect of financing is that only 15% to 23% of Government approved funds are released for research activities, and the timeliness of such releases is very poor. Moreover, most of the released funds are for personnel emoluments, leaving very little for research activities. As a result of the foregoing, donor funds tend to dominate operational funding, sometimes with negative consequences. There is the need to develop innovative schemes that would serve as an incentive for the private sector to support research activities, through the offering of substantial contracts. Present government funding also needs to be restructured and enhanced to cater for better levels of operational funding.

**Cooperation:** The government of Ghana and the Science and Technology institutions in Ghana work in collaboration with a number of international institutions and agencies. These include: the Commonwealth Science Council; Third World Academy of Sciences; UNCTAD; UNESCO; UNIDO; Danish International Development Assistance (DANIDA); Department for International Development (DFID-UK); IAEA; Norwegian Agency for Development Cooperation (NORAD); Technical Cooperation Agency (GTZ) Germany; Japan International Cooperation Agency (JICA); and the Government of India.

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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. However, you will find below information on Ghana's international institutional arrangements.

Ghana has been attending all the sessions of the Commission on Sustainable Development (CSD) since its inception. Through the mechanism of the CSD, therefore, Ghana has joined other nations in taking critical decisions for the proper functioning of the Commission in support of sustainable development. Ghana has been involved in the following arrangements:

*NACIA 21:* The National Advisory Committee for the Implementation of Agenda 21 (NACIA 21) is a (national) microcosm of the CSD. The NACIA 21 draws its membership not only from national organizations, but also from international organizations like the UNDP. The functions of NACIA 21 include the working out of modalities for implementing Agenda 21 and organizing and carrying out systematic education, information and monitoring of activities geared towards successful achievement of sustainable development in Ghana, West Africa and Africa as a Region.

*Capacity-Building for Sustainable Development:* The role of the UNDP in capacity building in support of sustainable development was established by the organization's Governing Council in its decision 92/16 of 26<sup>th</sup> May, 1992, in which the Council requested the Organization to increase support in the areas of national capacity building and technical assistance in the area of environment and sustainable development to Governments of developing countries. Reinforcing this mandate, UNCED also gave UNDP a significant role in following and in supporting the implementation of Agenda 21. The UNCED arrangements call on UNDP to take a lead role in helping developing countries to build their capacities in support of sustainable development and implement Agenda 21. It is in this connection that UNDP/Capacity 21 supported Ghana in the formulation and implementation of the Ghana Capacity 21 Programme. The Programme has contributed to the improvement of coordination between Local Authorities, decentralized government agencies, traditional authorities and community members as they collaborate to manage their natural resources and promote economic activities such as eco-tourism, to leverage greater national impact.

*The World Summit on Sustainable Development:* Capacity 21 has co-financed, with the Africa Regional Programme, and DFID, the national assessment of the implementation of Agenda 21 for the World Summit on Sustainable Development (WSSD) and will be involved in promoting the development and implementation of the Ghana Poverty Reduction Strategy (GPRS) as the national strategy for sustainable development. Preparations towards the WSSD in Ghana are being coordinated by a National Preparatory Committee. Members of the Committee are drawn from both national and international organizations like UNDP and DFID of the United Kingdom.

*The International Forum on National Sustainable Development Strategies:* In line with the ongoing preparations for the WSSD, the International Forum on National Sustainable Development Strategies was held in Accra in early November, 2001. The Forum was convened by the UN Department for Economic and Social Affairs (DESA) in collaboration with the Government of Ghana, DFID of the United Kingdom, the Danish Government and UNDP/Capacity 21. The Forum reviewed experiences to date in national sustainable development strategy development and implementation, shared lessons learnt and best practices and recommended approaches to integrate the principles of sustainable development into the policies and progress of both developed and developing countries.

*The Comprehensive Development Framework (CDF) and The United Nations Development Assistance Framework (UNDAF):* The UN family has worked in Ghana in an effort to make international institutional development initiatives work for the benefit of the nation. The collaboration started in earnest in 1997 with the preparation of the first UNDAF, which sought to realize the Secretary-General's vision of greater efficiency and consistency among UN agencies. The first UNDAF for Ghana was prepared collectively by the Ghana UN Country Team, and was signed by the representatives of FAO, IMP, UNFPA, UNHCR, UNIC, UNICEF, UNU, WFP, WHO, UNDP and the World Bank. It set out the key themes of importance to the UN family, and the coordinated programmes to be put in place to support them. In early 1999, the World Bank introduced the CDF concept to the UN Country Team. The CDF sought to apply the same principles as the UNDAF to all partners in development. Since then, the World

Bank and the UNDP in particular worked closely to create the family of partner groups that government now uses to coordinate sector strategy and programme formulation implementation.

*The Consultative Group Process and the Country Cooperation Framework for Sustainable Human Development:* The unique features that characterize development cooperation in Ghana depend largely on the role of UNDP and its programme processes. UNDP is seen as a key player in assisting the Government in organizing its aid co-ordination arrangements. An important step towards the indigenization of the aid coordination process was taken when the Consultative Group (CG) meeting was moved from Paris, the traditional venue, to Accra in 1999.

Within the CG framework, and also within the framework of the UN Resident Coordinator system, UNDP has established a special relationship with the World Bank, in assisting Government in aid co-ordination and broader development cooperation tasks. In the context of the UNDP Country Cooperation Framework, three programme areas are being supported and these include: poverty reduction; governance; and energy and environment. Three projects, conceptually linked to these programmes – micro finance, gender and private sector development – are also being implemented. The environment cluster of projects it has been recognized that they lead to a wide range of promising activities such as: capacity building at the District level in environmental management issues; implementation of an experimental renewable energy project for rural households and communities, undertaking measures to reduce ozone depletion substances and carrying out small-scale environmentally sustainable development activities to conserve endangered medicinal plants; preserving biodiversity and fuel-efficient technologies. The table below illustrates Ghana's Partners' Groups:

**Table of the Partners' Groups**

SECTOR		LEAD NATIONAL AGENCY	INTERNATIONAL FOCAL SUPPORT
1.	Poverty Reduction	National Development Planning Commission & the Ministry of Economic Planning & Regional Co-operation	UNDP
2.	Good Governance	National Institutional Renewal Programme/Office of the Speaker of Parliament	UNDP
3.	Health	Ministry of Health	Danida/DFID
4.	Roads	Ministry of Roads and Transport	EU
5.	Education	Ministry of Education	UNICEF
6.	Agriculture/Food Security	Ministry of Food and Agriculture	FAO
7.	Public Finance	Ministry of Finance	DFID
8.	Decentralization	Min. of Local Govt. & Rural Devt.	CIDA
9.	Energy	Min. of Mines and Energy	AFD/Danida
10.	Private Sector & Industrial Development	Private Enterprise Foundation/Min. of Trade & Industry	USAID/UNIDO
11.	Urban Development	Min. of Local Govt. & Rural Devt.	WB
12.	Water	Min. of Works & Housing	CIDA
13.	Natural Resources and Environment	Min. of Lands & Forestry/Min. of Environment, Science & Tech.	WB/UNU/IMO
14.	Financial Sector	Bank of Ghana/Min. of Finance	IMF/USAID

Source: United Nations Development Assistance Framework (UNDAF), Ghana 2001-2005, p.22.

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

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

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## CHAPTER 40: INFORMATION FOR DECISION-MAKING

**Decision Making:** The Ministry of Communication has overall responsibility for formulating legislation and policies to guide the flow and management of information, and does so in collaboration with various sectors that have the responsibility for application of the information. The Statistical Service Department is responsible for collection, analysis, management and dissemination of information and data related to sustainable development and general economic and social development trend of the country. However, various sector ministries notably the ministries of: Environment, Science and Technology; Food and Agriculture; Health; Works and Housing; Universities and District Assemblies have units that collect, analyze, manage and disseminate information on various aspects of sustainable development relating to the sector. Every aspect of the public administration including information management has been decentralized to the District level. Therefore, information management is both a top-down as well as bottom-up approach.

The groups listed below collect, assess, manage and disseminate information and data for decision-making on sustainable development covered by programmes/projects and they include: Research, Statistics and Information Management of the sector ministries; Research Institutions, Universities; NGOs and CBOs; Media; and District Assemblies. Private Radio Stations and private print media have been very involved in disseminating information at the local level. The private sector is however, very involved in providing information for decision-making on socio-economic issues especially on the state of the economy and trade. The Ministry of Environment, Science and Technology host the National Committee for developing and managing the Indicators for Sustainable Development programmes. This Committee, which is an advisory body comprises of stakeholders from the government, research institutions, universities, the private sector and NGOs. The lesson learnt is that, while every institution is using indicators for planning and assessing their performance, this process is not coordinated and harmonized among the various institutions. Thus, one of the responsibilities of the National Committee is to coordinate the process with all the groups involved.

For regulations and legislations, Ghana has put in place the following: Statistical Service Law 1985 (PNDC 135); the 4<sup>th</sup> Republic Constitution of Ghana (1992) guarantees the freedom and independence of the media (Article 162). The constitution further guarantees the establishment of the National Media Commission as an independent body to promote and ensure the freedom and independence of the media for mass communication. These have freed the print press and electronic media culminating in the establishment of numerous newspapers, FM radio stations, and new television stations as well as Internet cafes.

A draft National Communication Policy has been formulated to address policy issues relating to the convergence of the various sub-sectors with emphasis on the need to attract more private investment. A National Communication Authority has also been established as an independent regulatory body for the telecommunications sub-sector. Also, a National Clearing House Project was established as a linkage between the electronic systems operating within different institutions of government to facilitate improved access to sharing of information.

**Programmes and Projects:** The Environment Management Component of the Natural Resource Management Programme is to coordinate the establishment of: the High Forest Management Information System (FMIS); the Savannah Management Information System (SMIS); the Wildlife Management Information System (WMIS); the development of Regional and District Environmental Information System on soil, land cover, land use, meteorological data, road network and climate; the update of land use mapping; and the mapping of census information in GIS.

A programme on the use of indicators has been developed and is being implemented. The implementation and achievement of Ghana's Medium Term Development Programme is based on collaboration between various sectors of the economy. The sectoral goals have been designed to achieve the national goal and there are indicators to measure the extent of achievement of the sectoral goals including: Indicators of sustainable development are being used by all sectors to measure the status of attainment of sustainable development; some of the national indicators are in harmony with international indicators; Information exists at Sectional Levels, efforts are being made to create a comprehensive national information network; Traditional and indigenous knowledge have been very useful in the

management and preservation of the country's natural resources. Thus, preservation and capacity building of information related to traditional and indigenous knowledge is a national priority. See also under **Status**.

**Status:** The structure of the information network related to sustainable development is yet to be developed. There is adequate information available to meet the requirements of commercial, private, and public sector needs. This information is generated by the private and public sector and can be accessed through the print media and general media and to some extent, via electronic network.

Sustainable development indicators are used in planning, assessing the status of attaining Sustainable Development and benchmarks. There is a need to improve the capacity for gathering of national data for Development Planning and coordinating, harmonizing, standardizing national data. The District Assemblies, Government Departments, and Private Sector have the greatest need for improved access to information in Ghana. Major challenges are institutional, technical and financial capacity to develop a national information network for Sustainable development.

The National Framework for Geo-spatial Information Management (NAFGIM) is in the process of developing an electronic network of institutions that produces and distributes data. The data will be standardized to meet international requirements. In addition, the Statistical Service Department collects socio-economic data on a regular basis from the following areas: Ghana Living Standard Survey (GLSS); Ghana Demographic and Health Survey; Core Welfare Indicators Questionnaire (CWIQ) Survey; and Situation Analysis. Under NAFGIM, a website would be developed to integrate national information on environment and development. The database being created by NAFGIM would be standardized to meet the national and global requirements. Donors under various programmes to improve access to information at the local level have strengthened the capacity of various NGOs and CBOs. Regional and District libraries exist where information can be accessed and local FM Radio stations have been established to disseminate information.

**Capacity-Building, Education, Training and Awareness-Raising:** Policy planning under the Vision 2020 programme requires all sectors to use indicators for planning, assessment and benchmarks. The Natural Resources Management Programmes as well as various donors assisted programmes, have component for training of staff to improve the collection, assessment, management and dissemination of information.

**Research and Technologies:** A website would be available when NAGIM concludes the creation of a national meta-database. Optical mark reader and optical recognition technologies for data capture and GIS, Remote Sensing, Geographic Information System are being used to develop a system for continuous and accurate data storage and management in the area of natural resource management.

**Financing:** See under **Status**.

**Cooperation:** Increased cooperation with development partners. Ghana is one of the 2 countries that participated in the testing of the CSD's indicators for sustainable development programme. By, this, Ghana shared information on sustainable development with other countries that took part in the testing of these indicators. Ghana is signatory to the 3 global environmental conventions and has been participating in Sub-regional, Regional and International fora to discuss issues on sustainable development. This country's is in the process of establishing a national information system. The experience gained in the process would be shared with other countries needing assistance.

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## CHAPTER: INDUSTRY

**Decision-Making:** The Ministry of Trade and Industry (MOTI) is the coordinating government body responsible for this issue. The Ministry's main function centers on policy formulation, planning, programming, monitoring, and evaluation of industrial promotion and trading activities. Following the implementation of the Economic Recovery Programme of 1982 the private sector became the engine for economic growth and private sector associations such as the Association of Ghana Industries, Private Enterprise Foundation, Ghana National Chamber of Commerce and Industry Federation of Association of Ghanaian Exporters etc, became partners in the Ministry's performance of its functions. Some decisions such as the appointment of Chief Executives and government representatives on Boards of organizations with government shares are however referred to Cabinet. Decisions involving waiver of duties, taxes and other financial outlays are referred to the Ministry of Finance, while decisions affecting other sectors of the economy are also taken in consultation with relevant sector ministries. Some decisions go to the Parliamentary sub committee on Industry and Trade and eventually to Parliament and the Head of State.

The implementing agencies under the MOTI include: the National Board For Small Scale Industries (NBSSI); Ghana Standards Board (GSB); Ghana Export Promotion Council (GEPC); Ghana Free Zones Board (GFZB); and Export Development and Investment Fund.

**Programmes and Projects:** Programmes and projects under the MOTI include: Business Assistance Fund (BAF); Ghana's Poverty Reduction Strategy; Integrated Industrial Programme; Divestiture Implementation Programme; Trade and Investment Programme; The Gateway Project; Free Zone's Board; and Destination Inspection Secretariat. The MOFA also facilitated the participation of the Metal Engineering sub sector in showcasing improved agro-processing machinery and equipment at Indutech 2001. Notable among them were: Cassava Slicing Machine; Hammer Mill; and Plastic Grain Storage Bin.

Other efforts by MOTI towards industrial development include: the establishment of a Textiles/Garments Laboratory at the Accra Technical Training Center (ATTC) by the government of Ghana in collaboration with the UNIDO to help improve efficiency and productivity in the sub sector with the view of enhancing the industries access to the US Market under AGOA; the establishment of a planning committee on AGOA to draw up a strategic plan for the mobilization of financial, technical marketing and distribution assistance to enable Ghana access the opportunity under AGOA; the promotion of investment in the areas of: Alumina Processing, Bamboo Processing, Pulp and Paper Mill establishment, and Fish Processing among others.

**Status:** The Industrial Sector of Ghana comprises of manufacturing, quarrying, utility industries (electricity, water and gas) and construction. Prior to the economic recovery programme, Ghana's industries depended heavily on import substitution strategies with the State taking the lead in the establishment of many State Owned Industries (SOES). These SOES were heavily dependent on imported machinery, raw materials and spare parts leading to a heavy drain on Ghana's scarce foreign exchange reserves to such an extent that by 1977 the sector had started experiencing difficulties in getting adequate supplies of imported raw materials, equipment for rehabilitation as well as spare parts. Ghana was therefore compelled to undergo an economic recovery programme (ERP) in 1982 to rehabilitate these industries and revive the economy in general. At that time, there was serious under utilization of installed plant capacity, low labor productivity, low capital, low production cost, low level of investment from both local and foreign sources, inefficient management and low levels of quality production ameliorated during the various structural adjustment programmes Average annual growth rate hit 11.2 for industry and 12.7 for manufacturing. The ERP was accompanied by various structural adjustment programmes, which brought along a deeper involvement of the private sector in the economic development of Ghana.

The removal of controls and bottlenecks including the abolition of import licensing and price controls, the introduction of flexible currency exchange rates, improved supply of foreign exchange and a general liberalization of trade, led to a marked improvement in economic development. However, the trade liberalization left in its wake stiff competition for local industries, which were for the first time exposed to such competition. The average annual growth rate of the industrial sector is currently about 4%. The sector still faces problems of lack of credit, high

interest rates, high cost of utilities, stiff competition from imported similar products, high duties, and frequent labour problems etc., which impede the sector's further development. The industries affected advocated for protection and support, which led to numerous studies and the introduction of the Business Assistance Fund to assist distressed but potentially viable industries. Although a number of industries benefited from this fund the payback rate was not encouraging enough to warrant its replication.

**Capacity-Building, Education, Training and Awareness-Raising:** The MOTI has an ongoing programme for building the capacity of its staff. Most staff members are required to take seminars, workshops and other short courses to enable them stay abreast with modern developments in their areas of specialization.

The Association of Ghana Industries collaborates with local tertiary educational institutions ensure that students from such institutions fit into the manufacturing sector. As such an entrepreneurship development-training programme has been introduced into the curricula of some tertiary education institutes. The private sector organizations, which collaborate with MOTI, also undertake training programmes for their members.

**Information:** Information gathering and dissemination has been an ongoing process involving all MOTI staff especially those in the Research Division. The existing industrial enterprises register is being updated to assist in an industrial census in collaboration with the Ghana Statistical Service. Some three thousand manufacturing enterprises employing ten persons and above have already been identified. Periodic meetings are held with the press for the MOTI to explain its policies and programmes to the Ghanaian Public, and the Ministry also partakes in radio and television programmes pertaining to its functions.

**Research and Technologies:** The MOTI under its research and information department has been carrying out a survey of the manufacturing industries in the country in collaboration with UNIDO and PEF. Scientific research for the sector is carried out by the Institute for scientific and Industrial Research and the Ghana Standards Board which recently attained the status of ISO 9000 certification, thus making goods they certify internationally competitive.

**Financing:** The MOTI does not directly provide funds for industries though it handled the Business Assistance Fund secretariat in conjunction with the Social Security Bank. It however supports the applications of industries that are potentially viable for grants from countries such as Japan and China. The Export Development and Investment Fund have been established under the MOTI to provide funds for companies in the export sector. Meanwhile the Ghana Investment Fund, which will cater for local industries, is also in the offing.

**Cooperation:** The MOTI cooperates mainly with the United Nations Industrial Development Organization (UNIDO) in Ghana. In addition, the country receives support from various donor agencies and other benevolent organizations. Other cooperation of the Ministry include the following: Serving on the Industrial Development Board of UNIDO; Cooperation with ECOWAS and other sub-regional bodies to accelerate economic development in the sub-region; Investment promotion and protection agreements with Germany and Bilateral Trade Agreements with Malaysia, Czech Republic of Turkey, Egypt, Cuba, Cote D' Ivoire and South Africa.

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## CHAPTER: SUSTAINABLE TOURISM

**Decision-Making:** The Ministry of Tourism (MOT) is the main organ responsible for decisions on matters relating to Sustainable Tourism in the country. The Ministry does this through its implementing agency, Ghana Tourist Board by virtue of SMC Decree 80. The MOT has also put in place the Inter-Ministerial Consultative Committee, which aids the Ministry in formulating policies and decisions on tourism and its relations with other sectors such as Environment, Roads, Communications, etc.

The Private sector interests on matters concerned with major decisions affecting sustainable tourism are taken care of by the MOT in consultation with the various individual Trade Associations in the sector and their umbrella body, the Ghana Tourism Federation (GHATOF). It is hoped that eventually when the concept becomes more understood, the Local/District/Regional Levels will take more responsibilities with regards to decision-making.

See also under **Status**.

**Programmes and Projects:** For sustainable tourism to be successful, the local communities at Tourism attraction sites and people directly related to events must be involved in the programmes and projects that come up. Some of the current Community-Based Sustainable Tourism Projects going on in the country include the following: *Savannah Circuit:* Tano Boase Sacred Grove, Brong Ahafo Region; Boabeng-Fiema Monkey Sanctuary, Brong Ahafo Region; Paga Crocodile Pond, Upper East Region; Tongo Village and Tenzuk Shrine, Upper East Region. *Volta Circuit:* Wli and Liati Wote Waterfalls, Volta Region; Tafi Atome Monkey Sanctuary, Volta Region; Amezofe, Volta Region; and, Adaklu Trail, Volta Region; and, *Forest Circuit:* Bobiri Butterfly Sanctuary, Ashanti Region; Bonwire Kente Village, Ashanti Region; Nsuta-Mampong Escarpment, Ashanti Region; and Bonsu Arboretum, Eastern Region.

There are other Sustainable Tourism programmes earmarked for implementation in the 15-year National Tourism Development Plan which was prepared with UNDP/World Tourism Organization funding and expertise for the period 1996-2010 and they include: Public Awareness Programme; and Poverty Alleviation Programme. A special Ecofest programme to promote Ghana as an Eco-Tourism destination was held in October 2001. This was the first of a planned annual feature programme, which will create a niche market for Ghana on the global market and was initiated from the private sector. The Slave Route Project started in December 1999 is on course with plans to prepare a Slave Route Map as and also undertake serious excavation research works in the course of 2002.

**Status:** Tourism in Ghana is based on historic resources such as the forts and castles, cultural events such as festivals, art and crafts, traditional life art styles, and natural and environmental attractions like national parks and reserves with their flora and fauna, beaches, lakes, rivers, waterfalls and mountains. Significantly, most of the types of resources for tourism in Ghana are ones that are not necessarily depleted through use. These resources therefore need to be properly maintained and improved-upon through the application of conservation measures and development of appropriate visitor facilities and services. This approach is essential if tourism development is to bring benefits to the country on sustainable basis. Again, to achieve sustainability, tourist attractions, facilities, services and infrastructure must be planned, located, designed and managed in an environmentally and culturally sensitive manner so that they will not congest, pollute or degrade the environment or create social problems. Visitor use of available resources must be so controlled that there will be no excessive use or misuse of these resources by visitors leading to environmental or social problems. This calls for the establishment and strict observance of carrying capacity standards in order to achieve sustainable tourism.

How successful sustainable tourism has been in Ghana is not easy to measure as the concept is a fairly recent one. However, if the few areas where definite attempts have been made to sell this concept are anything to go by, then the concept will receive much positive response and support in the country. For local communities like Kakum at the Kakum National Park near Cape Coast, sustainable tourism has been embraced whole-heartedly now. Various activities at this part include the following: locals are showcased to visitors and handicrafts as souvenirs are being made by the locals for the benefit of tourists; poaching of elephants and other rampaging wildlife in the Parks has reduced considerably over time. In the area of physical conservation, one can make reference to the rehabilitation and restoration works undertaken about 5 years ago on the Cape Coast and Elmina Castles with financial support

from the UN, USAID and several other American Institutions. The Awareness Creation Programmes are currently going on with a lot of success. The Global Code of Ethics adopted by the World Tourism Organization General Meeting of 1999 in Santiago-de-Chile forms the basis of various deliberated attempts to protect and sustain local cultural value systems.

In the area of official support in the form of national legislation, one can make reference to a very recent statement made by the Minister of Justice and Attorney-General. Speaking at a luncheon organized by the Ghana Chamber of Mines in Accra on Friday 30<sup>th</sup> November 2001, the Hon. Minister made the point that this Ministry will soon be creating an Environment Desk to closely monitor and apply the necessary reforms to Ghana's environmental laws.

**Capacity-Building, Education, Training and Awareness-Raising:** The human resources available in the country for undertaking tourism activities can be found mainly in the private sector (in the hotel, catering and tour operating business). The private sector is very actively supported by personnel in the sector institutions like the Ministry of Tourism and the Ghana Tourist Board. The Hotel Catering and Tourism Training Institute (HOTCATT), which was set up in 1991 is the Ministry of Tourism's agency responsible for these training functions. The policy of Government is that HOTCATT will eventually become a permanent diploma level institution. There is however, a great need for training both new employees in the sector and upgrading the skills of those already on the jobs. At the degree level, the University of Cape Coast offers a course on Geography and Tourism, which is helping to improve upon the human resource base for the industry.

**Information:** Information is very crucial for the success of any Sustainable Tourism activity be it in the area of the behaviour of the Visitor, the comportment of the operators, the formulation of policies, or the design of marketing and promotional programmes.

The MOT has just created a website for the sector with the following address: [www.ghanatourism.gov.gh](http://www.ghanatourism.gov.gh) in the area of brochures, posters, video clips etc. and other marketing and advertising materials. A commitment was made in 2001 to prepare quality, informative and presentable packages to be sent to fairs and exhibitions and more importantly to the major Ghana Embassies all over the world. The Ministry has also initiated moves to formalize the creation of Tourism Information Desks at selected Ghana Embassy in Washington DC, London, Amsterdam, Berlin and Tokyo.

**Research and Technologies:** The Ghana Tourist Board carried out a research survey on Customer Reaction during the 2001 Panafest/Emancipation Celebration. Another survey was undertaken recently at the exit points of the country to get a feedback from departing visitors to know to what extent their expectations were satisfied during their stay.

There is the need to pay much attention to this area of our marketing management efforts; the MOT can liaise more on this with tertiary institutions offering courses as well as other relevant international bodies.

The MOT has made contact with the Ashanti Information Technology and Telecom Division of Ashanti Goldfields Company to help in the setting up of a website as previously mentioned. This is expected to facilitate in making the general public see better the economic, social and environmental dimensions of the Sustainable Tourism concept.

**Financing:** The main source of financing the sustainable tourism activities has been from Government budgetary sources. NGOs, donors and the wider private sector have also been making modest financial contributions in support of the industry.

**Cooperation:** The MOT has been an active participant on the global tourism scene. Ghana is an active member of the World Tourism Organization and its Regional Commission for Africa. Ghana also belongs to both the OAU and ECOWAS Tourism Offices. Other NGOs include: Friends of the Earth; Conservation International; Peace Corps Volunteers (USA) SNV (Dutch); and the African Travel Association (ATA) based in USA.

There are protocols that have been signed between Ghana and the neighbouring countries (as well as others like, Cuba, Barbados) under various joint Commissions of Cooperation and Tourism Features prominently in all these accords.

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