

**DRAFT OBJECTIVES AND STRATEGIES FOR
NIGERIA'S AGENDA 21**

**FEDERAL ENVIRONMENTAL PROTECTION AGENCY (FEPA)
THE PRESIDENCY
INDEPENDENCE WAY SOUTH
CENTRAL AREA
GARKI - ABUJA**

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SUBMITTED TO:

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PREPARED BY:

1. Prof. O. S. Adegoke
2. Prof. A. M. A. Imevbore
3. Prof. Ukah Ezenwe
4. O. O. Awogbade, Esq
5. Dr. Dogara Bashir.

UNDER THE AUSPICES OF:

**UNDP SUPPORT ENVIRONMENT AND NATURAL RESOURCES
MANAGEMENT PROGRAMME FOR NIGERIA (NIR\C3)**

OBJECTIVES AND STRATEGIES FOR NIGERIA'S AGENDA 21

1. Preamble

With an area of 923,770 sq. km, Nigeria is the largest country in tropical West Africa. It extends between Latitudes 4° 16' N and 13° 52' N and between Longitude 2° 49' E and 14° 37' E and is bounded by Cameroon and Chad Republic to the East, Niger Republic to the North and Benin Republic to the West. The southern coastline is dominated by the delta of the River Niger. Although only the twelfth largest country in Africa, Nigeria contains a quarter of the continent's people and a greater population than any other African country. The nation features a great diversity of ecosystems - from the rainforest through dry savannah to drylands and flat coastal zones to plateaus and highlands.

Experience has shown in recent years that improvement in caring for the environment is essential and overdue in a range of institutions. The environment is indeed at risk due to a number of interdependent issues, which include soil degradation, water contamination, deforestation, soil erosion, biodiversity losses, air pollution and water hyacinth menace. Aggregating all the sources of environmental degradation, the ultimate long term issue has been estimated to be as high as US \$5 billion per annum (World Bank 1990).

As a result, sustainable development practices and policies have become integral parts of the planning of the Federal Government of Nigeria, while redressing the backlog of environmental problems remains a central concern of both the people and the different levels of government. The premise of the nation's effort will be as enumerated by the Earth Summit in 1992:

“without improving environmental management, development will be undermined and without accelerated development the environment will continue to degrade”.

Nigeria's Agenda 21 programme will thus seek to:

- i. integrate environment into development planning at all levels of government and the private sector;
- ii. commence a transition to sustainable development;
- iii. address sectoral priorities, plans, policies and strategies for the major sectors of the economy; and
- iv. simultaneously foster regional and global partnership.

2. REDRESSING THE MAJOR EXISTING ENVIRONMENTAL PROBLEMS

Justification

Nigeria is confronted by major environmental problems among which are: deforestation, drought and desertification, soil and coastal erosion, water pollution, oil pollution, water hyacinth, loss of biodiversity, flooding, urban decay and industrial pollution.

Studies have indicated that the country would suffer large ecological and economic losses if these priority environmental problems continue unchecked.

Initial estimate indicates that the costs of unsustainable development for our country are around US \$5.1 billion per year. Corrective action and new investment programmes are needed now to reduce and eventually avoid these losses.

Measures to redress the major environmental issues in Nigeria are examined below with relevant mission statements and strategies.

2.1 Poverty Alleviation

Mission Statement

To enable all people achieve sustainable livelihoods through the aggressive pursuit of policies and strategies that simultaneously address issues of development, sustainable resource management and poverty eradication.

Activities related to Goal

providing all persons with the opportunity to earn a sustainable livelihood, including:

1. re-introducing free and compulsory primary education and expansion of adult education and mass literacy schemes;

strengthening rural electrification, industrialization, banking, urban and rural water supply schemes;

providing increased credit facilities to small-scale enterprises and promoting the existing entrepreneurship development programmes;

improving primary health care schemes through eradication of guinea worm, yellow fever and other infectious diseases.

2. implementing policies and strategies that promote sustainable and adequate levels of funding and focus on integrated human development programmes, including income generation, increased local control of resources, local institution strengthening and capacity-building and greater involvement of community based non-governmental organizations and lower tiers of government as delivery mechanisms through:
providing agricultural support and extension services to farmers, including accelerated crops production schemes, building strategic grains reserves and subsidizing environmentally friendly agricultural inputs;
organizing short-term courses on environmental concerns for the staff of local and state governments as well as the NGO's and CBOs to improve their capacity as delivery mechanisms;

enabling rural populations and their leadership to maintain a sustained dialogue on environmentally sustainable self-help activities;

- d. initiating practical training programmes for graduates of tertiary

institutions to prepare them for labour market requirements and creation of sustainable livelihoods.

3. developing for all poverty-stricken areas integrated strategies and programmes that ensure sound and sustainable management of the environment, resource mobilization, poverty eradication and alleviation, employment and income generation which will include:

providing rural-based industrialization schemes, industrial parks, incubating centres, industrial estates and layouts for depressed regions;

creating special ecologically appropriate livestock, fishing and poultry production;

rehabilitating degraded resources, as far as possible, to promote sustainable use of resources by impoverished areas and groups;

developing/strengthening the legal framework for removing the barriers faced by women, girls and minority groups in gaining access to socio-economic resources.

4. creating a focus in national development plans and budgets on investment in human capital, with special policies and programmes directed at rural areas, the urban poor, women and children, including:

rehabilitating collapsing educational infrastructure and facilities through adequate provisions in the annual budgets of all the three- tiers of government and in the national rolling plan;

subsidising educational materials, at least, at the primary and secondary school levels pending the take-off of free primary and secondary education;

increasing and ensuring honest and efficient utilization of the education tax paid by the private sector firms;

prioritising female education at all levels including continuing education opportunities and literacy programmes.

5. establishing appropriate infrastructure and support system to facilitate the alleviation of poverty by implementing projects, programmes, enterprises and life styles sustainable at grass roots level, namely;

putting in place an integrated system of water, electricity, sanitation, drainage and solid waste management;

promoting efficient and affordable transportation within urban and rural areas;

raising awareness on environmental issues needed for full participation in implementing environmental programmes;

promoting easy access to land by all including to the grass roots.

Requiring the private sector to provide socio-economic amenities to their immediate areas of operation

Programmes

There are on-going government activities that have regularly featured on the National Rolling Plan beginning with the 1990-1992 Plan. They include programmes such as:

- * establishment of the People's Bank, aimed at extending small credits to people in the informal sector of the economy with the aim of strengthening informal economic activities in cities, towns and villages;
- * Economic programmes for the Empowerment of Women have featured consistently in the Rolling Plans;
- * Establishment of the National Economic Recovery Fund (NERFUND) which provides easy access to credit by small and medium scale enterprises;
- * Establishment of National Directorate of Employment (NDE), a self employment promotion programme which has largely promoted waste to wealth employment activities;
- * Education of itinerant communities such as the Fulani normals, Ijaws, etc.
- * Primary Health Care (PHC) programme, whose purpose is to bring health care, particularly preventive health care to the grass roots of the Nigerian Society;
- * Establishment of Agricultural Development Programme (ADP) in all States of Federation;
- * Establishment of the River Basin Development Authorities; and provision of rural access roads;
- * Establishment of the National Agricultural Land Development Authority (NALDA) aimed at promoting integrated rural development;

There are also specific environmental improvement programmes that have been integrated with poverty alleviation programmes. Examples are:

- * the Sokoto Desertification Control Programme, integrated environmental protection programme jointly funded by the Federal Government of Nigeria and the European Economic Community (EEC).
- * the Katsina Arid Zone Development Programme, and the North East Arid Zone Development Programme, an integrated programme funded by FGN/EEC.
- * upgrading and mechanisation of traditional methods of processing of Nigeria's food resources, a project promoted by the Federal Ministry of Science and Technology.

Besides the Family Economic Advancement Programme (FEAP), the Ministry of Agriculture has designed and produced the following equipment/plants, among others, for nationwide demonstration and adaptation:

- (i) Groundnut processing technology consisting of groundnut sheller, a dehuller and roaster;
- (ii) Hydraulic machine for the production of bricks from local materials;
- (iii) Tiles-production machine for producing roofing tiles from local fibre, cement and sand;
- (iv) Lime kiln for the production of lime for leather processing and school chalk manufacture;
- (v) Soap making process for cottage/small scale production of both traditional and modern production of soap.
- (vi) Mushroom production technology;
- (vii) Fat liquor production- a developed process for fat liquor, an essential product required in the leather tanning industry.
- (viii) pottery/ceramic machine, designed and fabricated for the production of pottery and ceramic wares from local clays.
- (ix) Essential Oils Distillation plant for the production of essential oils from local plants such as eucalyptus and lemon grass. Essential oils are inputs in the food, confectionery and pharmaceutical industries.
- (x) Briquetting Technology for sawdust and agricultural wastes suitable for production of alternate sources to fuel and wood.

Coordinating Agency

National Planning Commission

Other Participating Agencies/Ministries

Federal Environmental Protection Agency
Federal Ministries of
Agriculture;
Aviation;
Finance;
Health;
Industry;
Labour and Productivity;
Solid Mineral Development;
Petroleum Resources;
Science and Technology;
Transport;
Water Resources and Rural Development;
Works and Housing; and
Energy Commission of Nigeria.

The Governing Council will draw up a priority programme for implementation with the assistance of experts consisting of local and foreign consultants from a list of project proposals including those submitted by the line ministries, state

governments, NGOs and other stake holders. The first batch of executable projects for implementation should reflect areas of the most urgent need. The FEPA Governing Council shall constitute the National Agenda 21 Committee and sub-committees.

To ensure the widest possible participation and commitment of all the stakeholders to achieving Nigeria's Agenda 21, consensus building is very important, hence state, local governments, and the private sector (NGO's, the Manufacturers' Association of Nigeria (MAN), NACCIMA, the Oil Producers Trade Sector (OPTS), Clean Nigeria Associates (CNA), Forestry Association of Nigeria (FAN), Nigerian Conservation Foundation (NCF), Nigerian Environmental Society (NES) and others should be involved.

2.2 Afforestation

Mission Statement

Increase forest reserve from the present 10% to 25% of the total land area by the Year 2010.

Activities related to Goal

1. Ban the export of log wood until the 25% reserve forest cover is achieved.
2. Provide a policy and institutional environment favourable for private investment in trees and forest resource management.
3. Increase community participation in forest management and utilization.
4. Encourage afforestation with species which provide other forest produce such as fruits, gum, etc. as an incentive to community participation in afforestation programme.
5. Undertake scientific management of the 10 million ha. of existing forest, including the existing 37,800 ha. of plantations and rehabilitation of existing 590 ha woodlot.
6. Establish a total of 15 million hectares of plantation comprising plantings for various purposes such as shelterbelt, watershed conservation, rehabilitation of degraded sites, forest fruit trees, Gum Arabic etc.
7. Promote agro-forestry with multi-purpose tree species to diversify farm produce and improve the soil environment.
8. Encourage private sector industrial plantation establishment especially in already degraded forest estate.
9. Adopt protection forestry development strategies which include

shelterbelt establishment, afforestation of eroded sites, stabilization of sand dunes etc.

10. Promote community woodlot which could include forest fruit trees, fuel wood plantation etc.
11. Improve efficiency of use of fuel wood.
12. Manufacture affordable bio-mass stoves.
13. Develop other alternative sources of energy such as solar energy.
14. Support research into conservation and improvement of soil, genetic resources, silviculture, utilization of forest products, agro-forestry, wildlife, afforestation of difficult sites.
15. Encourage inter-sectoral collaboration between forestry and related productive sectors.
16. Strengthen planning, monitoring and evaluation.
17. Support human resources development.

Programmes

In order to address the problem of deforestation, several on-going programmes and projects on reforestation and afforestation were initiated. Some of the projects which are line projects, are directly financed by the Federal Government of Nigeria (FGN) while others are being jointly executed by the FGN and State Governments. African Development Bank (ADB) and the World Bank are the main funding agencies. The ADB assisted Forestry Project started in 1987 and is still on-going with a loan of US \$100 million. Before Forestry II Programme of 1987, a World Bank Forestry I Programme was earlier concluded in 1986.

The following have been achieved:

- i) about 445 forest estates located in different ecological zones of the country covering a total of about 9,652,000 ha have been legally constituted;
- (ii) establishment and maintenance of over 7,194 ha of tree plantations;
- (iii) installation of 2 No new sawmills with capacity to efficiently convert small diameter logs into large ones;
- (iv) various studies were concluded on rural sociology, agro-forestry and markets for Gmelina which is a short-fibre pulp species;
- (v) provision of raw materials for pulp and paper for the next 20 years.

Tropical Forestry Action Programme (TFAP)

This programme was initiated in 1985 by the FAO, the World Resources Institute (WRI) and the United Nations Development Programme (UNDP) as a framework for halting deforestation and the associated destructive impact in tropical countries. The TFAP is a veritable instrument in the successful implementation of Agenda 21.

National Forestry Action Plan

Nigeria launched the TFAP in 1990 and started implementing the National Forestry Action Plan (NFAP) with the assistance of the FAO and a grant of US \$690,000 from the UNDP. In order to ensure the greatest commitment at the highest and all levels of Government, the National Advisory Council to be assisted by a National Technical Committee was inaugurated in 1994. The project was concluded in 1995 and the final NFAP report has been submitted. The next stage is to use the report to shop for international funding from donors to implement the plans of action.

The Forestry Component of Environmental Management Project (EMP) has the following objectives:

- (i) updating the Land Use and Vegetation Maps (LUV) of the country;
- (ii) establishing the mechanism for environmental monitoring;
- (iii) creating environmental awareness; and
- (iv) strengthening institutional and manpower capacities;

It is being financed by the Federal Government and the World Bank. The loan value is US \$3.5 million. Most of the objectives have been achieved.

National Forest Resources Study

As a result of the serious dearth of data and very weak resource planning base, the National Forest Resources project was embarked upon in 1996. The objectives of the study are:

- i) data collection and analysis on the country's forest resources in order to overcome problems of irrational planning arising from serious dearth of reliable and up-to-date data.
- (ii) preparation of Management plans for sustainable development, management and utilization of the forest resources
- (iii) institutional and man-power capacities building.

This project commenced in 1995 with a grant of US \$4.0 million from the African Development Bank and contributions from the Federal and State Governments. This project is on course and it is a veritable instrument for the realization of the ideals and goals of Agenda 21.

Forestry Extension and Advisory Services

This was actively pursued through enlightenment programmes and activities to break down the general serious public apathy towards environmental conservation ethics

and practices, thus ensuring wider receptivity and pursuit of sustainable development principles by all and sundry including the grass roots. Towards this end, the inclusion of environment and forestry conservation issues in secondary schools curricula was actively encouraged. In the pursuit of the principle of catching them young, Young Foresters Clubs were established and promoted through the provision of inputs, incentives and technical support. On a more grandiose scale, the measures received the required boost and inputs through FGN Annual Tree Planting Campaigns which are personally launched at the Federal Government level by the Head of State and Commander-in-Chief and by the Military Administrators and Local Government Chairmen at the State and Local Government levels to ensure grass root participation. National Tree Planting Campaign has also been admitted as regular line projects into the Federal Government and State Government Annual Capital Budgets.

In view of the fact that most of the State Forestry and Wildlife Laws are obsolete, a National Forestry and Wildlife Law is to be formulated. The World Bank has already granted a loan (1996) in this regard and the FAO has also shown interest to be involved in the development. The project is in advanced preparatory stage and will be completed within 6 months of take off.

Manpower Development

As a result of the serious dearth of manpower in quantitative and qualitative terms, some training facilities, institutions and programmes have been put in place for formal training which could either be at the professional, technical or vocational level.

In-Service Training

In order to upgrade the skills of serving officers and enhance their efficiency, some other in-service short training courses are introduced. This programme, in particular, has enhanced the executive capacity of serving officers. In this category alone, the World Bank loan aided Forestry II Project under capacity building provided training between 1990 - 1996 to 219 staff internationally, and to 116 staff locally. In addition, about 35,000 individuals and farmers benefitted from in-house courses.

Professional Manpower Training

Forestry training at the professional level was initially available in one of the Universities up till the late 1970s. The number of Universities offering single honours and post graduate Degree programmes including those offering forestry electives have continued to increase.

Technical Manpower Training

At the Technical level, the number of Colleges of Forestry offering Diplomas has increased from one to three. Other Colleges of Agriculture also offer electives in forestry and forestry related courses.

Vocational Training

The number of vocational training institutions has also continued to increase for sub-technical manpower development.

Furthermore, the Energy Programme of the Federal Ministry of Science and Technology is aimed at providing of cheaper and smaller units of energy to rural and remote areas of the country thereby, providing alternative energy sources to the use of forest resources, thus combating deforestation, desert encroachment and soil erosion. Energy supply to rural areas will lead to increased economic and industrial activities in the rural areas and hence rural development.

Lead Coordinating Agency

Federal Ministry of Agriculture and Natural Resources

Other Participating Agencies/Departments

Federal Environmental Protection Agency
State Ministry of Agriculture and Natural Resources
State Environmental Protection Agencies

2.3 Erosion Control

Mission Statement

Arrest all major active erosional gullies and sites nation-wide through appropriate scientific and engineering actions and enforce management practices aimed at preventing/controlling activities which provoke the incidence of erosion and gullyng.

Objectives related to Goal

Inventorize and categorize the incidence of erosion nation-wide, determine their extent and recommend appropriate amelioration programmes and projects;

Quantify the losses sustained especially with respect to:

- soil nutrient losses;
- agricultural land losses;
- impact on surface and groundwater
- losses to human settlements and other infrastructures;

Strengthen capacity building in erosion control programmes through the establishment of Environmental Management Support Systems (EMSS), Remote Sensing and Geographical Information Systems (GIS);

Prepare comprehensive national and regional Master Plans for the management of soil erosion and floods;

Initiate scientific research on soil texture, erodibility and other physicochemical

characteristics of soils and use the findings as input in the engineering design of appropriate control measures;

Codify and enforce sustainable land-use, agricultural, mining and construction practices that least provoke erosion;

Execute community-based model erosion-control projects such as terraced farming on hill slopes, tree planting, afforestation and re-forestation and slope stabilization projects aimed at inculcating good house-keeping practices in the citizenry;

Establish contingency plans for tackling the socio-economic and health problems resulting from coastal and other erosional disasters;

Encourage the adoption of an integrated approach to problem solving through the involvement of soil scientists, geoscientists and engineers in the containment of erosion and proffering solutions to erosional problems.

Soil Survey and Land Evaluation Programme

The Department has already completed the Phase one of this project, which includes reconnaissance survey at a scale of 1:650,000 and 1:1m in 1990. In view of the objective of the World Food Summit, Phase Two of the project, is focussing on semi-detailed and detailed surveys at scales of 1:50,000 and 1:10,000 respectively. The more detailed surveys will provide more reliable characterization, classification and detailed information necessary for the prioritization of farming operations and utilization of lands for what they are best suited and optimum conservation of land resources. All the data collected will be stored at a National Soil Museum under the National Soil Reference Information Centre (NSRIC) and used as a reference base for students, researchers, farmers and all land users desiring information on the nation's soils and environmental studies.

Soil Conservation Programme

Apart from the special problems of soil acidity mentioned above, there is a need to conserve these soils from being degraded, either by soil and wind erosion or the intensive activities of man in the area of uncontrolled deforestation. One of the technologies being used to monitor this problem is sheet erosion control trials, which are aimed at monitoring the occurrence, intensity and mode of control of sheet erosion on farmlands. Trials of this nature have successfully been completed in some parts of the Eastern States, while similar trials are being initiated in the North-western part of the country.

Lead Coordinating Agency

Federal Ministry of Water Resources and Rural Development.

Other Participating Agencies/Departments

Federal Environmental Protection Agency
Federal Department of Forestry – Federal Ministry Agriculture and Natural Resources
River Basin and Rural Development Authorities
Agricultural Development Programmes (ADB)
Geological Survey Department of the Federal Min. of. Solid Mineral Development.
Tertiary Institutions with programmes in geology, agriculture and soil science
Department of Petroleum Resources (DPR)
State Environmental Protection Agencies
Women Groups
NGOs
Federal Ministry of Works and Housing

2.4 Municipal Solid Waste Management

Mission Statement

Achieve considerable reduction in the volume of waste generated and introduce environmentally sound management of municipal solid wastes in the large urban and industrial cities.

Activities related Goal

1. Promote education and awareness of the need for waste minimisation, recycling and re-use;
2. Initiate integrated management of municipal solid wastes and encourage the development of markets/outlets for recovered waste products;
3. Promote the adoption of appropriate technologies including proven indigenous technologies for the conversion of organic municipal wastes to compost and their use as soil conditioners;
4. Review and strengthen existing laws and regulations for the environmentally sound management of municipal solid wastes;
5. Provide, upgrade and maintain infrastructures needed for the environmentally sound collection, transportation and disposal of municipal wastes;
6. Encourage private sector participation in the commercialization of the management of municipal solid wastes;
7. Establish and register sanitary landfill sites;
8. Encourage the use of bio-degradable and other environmentally-friendly

packaging materials;

9. Foster co-operation among all tiers of government, the private sector and NGOs in the efficient management of municipal solid wastes.

Lead Coordinating Agency

Federal Environmental Protection Agency

Other Participating Agencies/Departments

State Environmental Protection Agencies

Local Governments

NGO's

Private sector

2.5 Combating Desertification and Mitigating effects of Drought

Mission Statement

To arrest desert conditions, protect desert-prone areas rehabilitate affected areas and institutionalize drought amelioration measures.

Objectives

- a. To slow down and reverse desertification processes by increasing the vegetative cover and support the management of biotic resources in areas affected or prone to desertification;
- b. To develop and implement appropriate and complementary economic development programmes that promote poverty alleviation and alternative livelihood systems in areas prone to desertification;
- c. To establish, strengthen and coordinate institutional frameworks, at various levels of the society, towards protection, development and sustainable management of natural resources in dryland areas and integrate them into national development and environmental action plans;
- d. To develop comprehensive drought preparedness and management plans that will mitigate the negative impacts of drought;
- e. To promote regional and global cooperation in the generation and exchange of relevant information with a view to understanding the dynamics of desertification and drought processes.

Activities Related to Goal

To rehabilitate and protect the fragile ecosystems in the desertified and desert prone areas, it is imperative to increase and sustain vegetative cover. This would curtail land degradation, restore and stabilise the hydrologic balance, maintain land quality and productivity and enhance the maintenance of biotic resources. To this end, mechanisms would be put in place to:

- a. carry out comprehensive survey of and inventorise desertified and desert prone areas;
- b. ensure sustained and viable afforestation and reforestation programmes with emphasis on tested drought-resistant and fast-growing tree species;
- c. encourage investment in forestry development in drylands including community based agro-forestry;
- d. emphasise the protection and rational utilisation of forest and grazing reserves in the affected areas;
- e. identify, rehabilitate and preserve special ecological areas for combating desertification and protection of biodiversity;
- f. adopt and support programmes promoting participatory management of natural resources, including rangelands, based on local initiatives and indigenous knowledge;
- g. ensure appropriate land use policies and practices that help to maintain land productivity;
- h. promote environmentally sound and economically feasible agricultural and pastoral practices and sustainable soil and water resources management;
- i. encourage and sponsor research to develop new and appropriate technologies that will optimise land use, evolve effective water-saving techniques, promote sustainable irrigation schemes and establish agro-silvo-pastoral practices.

2. To establish and implement suitable economic development programmes in the desert prone areas, Government, with the support of all the other stakeholders, shall institutionalise management mechanisms and policies that will:

- a. adopt an integrated approach in addressing physical, biological and socio-economic aspects of desertification and drought;
- b. encourage and strengthen community-based cooperative organisations focused on economic activities that

emphasize women groups and pastoralists;

c. establish rural banking schemes that emphasize savings and provision of credit to rural entrepreneurs to facilitate the establishment of cottage industries;

d. develop rural infrastructure to facilitate promotion of sustainable alternative livelihood activities and alleviate poverty;

e. introduce and support the use of appropriate and environment-friendly technologies including efficient wood burning stoves, biogas generation and use, and other renewable energy resources.

3. Combating desertification and its impacts requires well articulated, comprehensive and coordinated programmes set in coherent and complementary policy frameworks. For the programmes to be effectively implemented, the national policy shall specify and coordinate the roles of the various tiers of Government, the private sector, the affected communities and the NGOs. Furthermore, to ensure successful implementation, the programmes should be integrated into the National Development Plans. Accordingly, Government, with the support and cooperation of all parties concerned, should:

a. Develop National Action Programmes (NAPs) in accordance with the spirit and aspirations of the Convention to Combat Desertification (CDD);

b) integrate desertification control projects in the national development plans and formulate, publicise and implement preferential policies for rational utilisation of natural resources in desert prone areas;

c) increase political and financial commitments towards desertification and drought control programmes;

d. establish a multi-sectoral National Coordinating Committee for Desertification Control (NCCDC) at the federal level and Desertification Control Management Offices (DCMOs) at the state and local levels;

e. strengthen institutions involved in desertification and drought control programmes at Federal, State and Local Government levels;

f. enhance the capacity of national institutions to adequately collect and analyse environmental data for effective monitoring and evaluation of ecological changes and continuous supply of environmental information;

g. support research, extension and human resource development in desertification control and impact assessment;

- h. promote and support the involvement of NGOs, CBOs and general community members in the design, implementation, and management of natural resources conservation programmes congruous to combating desertification with emphasis on education and public awareness.
4. In the sub-Saharan African countries, drought is a recurring event, the frequency and severity of which differs from place to place depending largely on proximity or otherwise to the sea. To minimise its impact on the environment in general and on the people in particular, it is necessary to evolve a very effective system of drought forecasting and integrated drought preparedness schemes. To effectively mitigate the impacts of drought, coordinated efforts, led by the Government are required to, among other things:
- a. institute budgetary and logistical support mechanisms for quick provision of the required resources for drought relief;
 - b. develop, strengthen and coordinate drought preparedness and management schemes at the community, state and national levels;
 - c. establish and strengthen drought early-warning systems giving due emphasis to risk-mapping, remote sensing and food supply/demand analysis;
 - d. enhance the capacity of relevant national institutions for effective collection storage, analysis and dissemination of climatological, meteorological and hydrological data;
 - e. support research in agroclimatology, agronomy and farming systems to screen and select drought tolerant crop varieties, appropriate farming practices and develop comprehensive cropping patterns suitable to drought-prone areas;
 - f. promote the training of decision makers and land users in the effective utilisation of information from early-warning systems.
5. It is generally accepted that most of the causes and effects of drought and desertification transcend national boundaries. Consequently, international cooperation is necessary for joint action to combat desertification and mitigate the effects of drought. Regional cooperation is essential for the success of national action plans. It is, therefore, imperative that the Government, with the support of the relevant regional and international organisations working on the issue of desertification and drought, should:
- a. encourage international cooperation and partnership arrangements in the areas of training, research, development and transfer of

appropriate and environment-friendly technology and provision of new and additional technical and financial resources;

- b. cooperate with relevant Inter- and Non-Governmental Organisations in combating desertification and mitigating the effects of drought;
- c. ensure cooperation and networking between an enhanced national environmental information system and existing environmental information and monitoring systems at regional and global levels;
- d. support and strengthen regional programmes, international cooperation, relevant United Nations agencies, and coordinate and harmonise their various programmes and activities in Nigeria;
- e. promote the establishment and development of representative organisational structures to foster and sustain inter-organisational cooperation.

Reforestation: Shelterbelt Establishment

The programmes are either directly financed through the regular funding of line projects by government or implemented jointly by the FGN and State governments in collaboration with bilateral or multilateral aid organizations. In this regards, the FGN has enjoyed the support of the European Economic Community (EEC) and the World Bank. The EEC grant-aided project was implemented in Katsina State between 1987 - 1995 under the Lome II Agreement. The value of the grant was 90 million. The World Bank granted a loan of US \$71 million to both the Federal and State Governments to implement the Forestry II programme through the Federal Department of Fore. The Forestry II Programme included the Environmental Forestry and Forest Management components.

In all, the following were achieved:

- (i) establishment of over 201 nursery units,
- (ii) establishment of over 3515 community nurseries,
- (iii) establishment of over 891 institutional and 936 private nurseries,
- (iv) production and distribution of over 75 million tree seedlings,
- (v) establishment of over 2,298 km of shelter belts and 600 ha of woodlot,
- (vi) over 320,000 farm families benefitted from the programme.

Ecological Disaster Relief Programme

The objective of this programme is to assist disaster prone areas in ameliorating various forms of ecological problems ranging from soil erosion, flooding, desertification, oil spillage and general pollution. This programme is being financed by the National Ecological Fund instituted in 1989. The Fund is administered by the National Committee on Ecological Problems under the Presidency.

FEPA-University of Maiduguri Linkage Programme

The objective of this programme is to generate credible data and train manpower in environmental management and natural resources conservation and, in particular, to develop practical measures for combating desertification and mitigating the effects of drought in the semi arid and arid areas of the country. Specifically, the Linkage Centre undertakes research and training in:

- * vegetation and land use management
- * arid land human ecology
- * management of range land
- * arid land soil/water management.

Coordinating Agencies

Federal Environmental Protection Agency
National Coordinating Committee for Desertification Control (NCCDC)

Participating Agencies/Departments

States Desertification Control Management Committes. (SDCMC)
National Council on Environment (NCE)
Federal Environmental Protection Agency (FEPA)
State Environmental Protection Agencies (SEPA's)
Federal /State Ministries of Agriculture and Natural Resources
Federal/State Ministries of Water Resources and Rural Development
River Basin Development Authorities (RBDAs)
Geographic Information System Centres
Relevant Universities & Polytechnics
National Agricultural Research Institutes
International Agricultural Research Centres
NGOs
and other International Organisations, IUCN (Nig.), DCN, NEST, African
Environmental Network

2.6 Rational Use of Oil & Gas Resources

Mission Statement

Produce the nation's oil and gas in an environmentally responsible and socially non-disruptive way, ensuring long-term optimum returns from its exploitation and to invest the proceeds in the development of sustainable societal objectives and projects.

Activities related to Goal

1. Develop a comprehensive set of measures aimed at preventing and

mitigating the negative impact of oil and gas exploitation;

2. Ensure strict compliance with Environmental Impact Assessment laws for all major oil and gas development projects;
3. Introduce and enforce Health, Safety and Environmental Management Systems and effective Quality Assurance Management Systems for the Oil and Gas Sectors;
4. Implement and continually update the Oil Spill Contingency Plans/Programmes;
5. Enforce environmental risk assessments and appropriate mitigation and proactive measures aimed at predicting, preventing and abating accidents;
6. Review and continuously update procedures for timely response to emergencies and accidental spillages and adequately address the problems of damage to the third parties;
7. Encourage all operators and the public to promptly report emergency incidents and operational accidents to appropriate regulatory bodies;
8. Ensure the existence of both internal and external markets for gas;
9. Stop gas flaring;
10. Ensure full compliance with legislation, regulations and prescribed Standards set by the Federal Environmental Protection Agency, the Department of Petroleum Resources and other regulatory agencies and monitor compliances;
11. Prepare long-term rational exploitation plans for the oil and gas sector and develop rational investment strategies.

Lead Coordinating Agencies

Federal Environmental Protection Agency (FEPA)
Department of Petroleum Resources (DPR)

Other Participating Agencies/Departments

State Environmental Protection Agencies
Nigerian National Petroleum Corporation
Ministry of Petroleum Resources
Environmental and occupational Health Dept., Federal Min. of Health

2.7 Protecting and Managing Water Resources

Mission Statement

To ensure optimal development of water resources on an environmentally sound and sustainable basis for food production, water supply, hydro-power generation, transportation and recreational uses.

Objectives

- a. To develop a comprehensive programme for the continuous determination and assessment of the various sources of water, their quantity, dependability, quality, distribution and the activities that impact them;
- b. To institutionalise multi-sectoral and integrated water resources management approaches that promote rational utilisation and conservation based on community needs and priorities and protection of the ecosystem;
- c. To establish guidelines and ensure compliance with regulations for protection of water resources that will prevent and control water pollution, and minimise over exploitation;
- d. To develop, support and promote water supply and sanitation projects that will ensure the rights of citizens to have access to water adequate in quantity and quality to satisfy their basic needs;

To foster bilateral and multilateral cooperation to facilitate sharing and exchange of information and appropriate technologies, and create conducive atmosphere for effective exploitation and management of trans-boundary water resources.

Activities related to Goal

1. Establishment and maintenance of comprehensive databases is vital to sustainable water resources assessment and development, and mitigating the effects of floods, droughts and pollution. Accordingly, Government should:
 - a. strengthen institutional capabilities for enhanced and sustained collection and storage of hydrologic data;
 - b. establish, strengthen and adequately support a National Water Resources Databank Centre that will coordinate and ensure interagency cooperation for collection, storage, analysis and dissemination of hydrologic data;

- c. strengthen research and development programmes for water resources assessment at various levels of society;
 - d. develop water quality inventories and map;
 - e. encourage training in remote sensing and promote the use of Geographical Information Systems;
 - f. support research to study water related processes resulting in loss of vegetation, land degradation and restoration;
 - g. provide forecasts and warnings on flood and drought to the general public and civil defence;
 - h. upgrade and adequately support existing institutions for enhanced training of the various categories of staff in water resources sector;
 - i. enhance the conditions of service of staff of national and local water agencies.
2. Presently, water resources development and utilisation is the responsibility of various sectoral agencies, each carrying out its activities with minimal coordination. This is one of the major obstacles to integrated water management. To ensure sustainable water resources development and management, effective implementation and coordination mechanisms are required to:
- a) establish an inter-ministerial committee on watershed and water quality management;
 - b. integrate water resources planning and management into the national development plans including environmental action plans;
 - c. integrate water resources management with health, agriculture, transportation and environmental protection;
 - d. integrate city development planning with the availability and sustainability of water resources;
 - e. implement allocation decisions through demand management, pricing mechanisms and regulatory measures taking due cognisance of the public's ability to pay;
 - f. promote water conservation through improved water use efficiency and wastage minimisation schemes for all users;
 - g. plan and develop multi-purpose hydroelectric power schemes

- taking into account environmental concerns;
 - h. develop and encourage multiple use of water supplies through promotion of integrated agro-livestock-fishery systems;
 - i. establish criteria for and support private and public investment strategies on water resources development;
 - j. strengthen and enhance the human resource capabilities of State and Local Governments in water resources management;
 - k. encourage participatory approach involving users, planners and policy makers at all levels.
3. Various human activities have the tendency to negatively impact water resources. This results in problems such as salt water intrusion due to unnecessary aquifer depletion, pollution of water sources arising from agriculture, industries and municipal wastes, siltation due to deforestation and erosion, destruction of aquatic ecosystems due to water resources development projects, etc. To avoid such problems and/or minimise their effects Government, with the cooperation of various stakeholders, should:
- a. prepare National Plans for water resources protection and conservation;
 - b. mandate environmental impact assessment of all major water resources development projects;
 - c. establish protection zones in groundwater recharge and abstraction areas;
 - d. establish biological, health, physical, chemical and health quality criteria for the various water sources and ensure strict implementation;
 - e. apply “polluter pays” principle to all sources including on-site and off-site sanitation;
 - f. establish standards for the discharge of effluents and for the receiving waters;
 - g. enforce compliance with regulations and standards for industrial and solid waste landfills and infrastructure development;
 - h. regulate and ensure rational use of fadama and other wetlands to conserve and protect the ecology and habitat important to their unique biodiversity;

- i. monitor use of chemicals in agriculture that may have adverse effects on water sources;
 - j. promote farming systems that are compatible to ecosystem requirements of arid and semi-arid regions;
 - k. undertake continuous monitoring and evaluation of performance of irrigation projects to ensure optimum resource utilisation and maintenance;
 - l. promote the development of small and medium scale irrigation schemes to minimise destruction of downstream watershed;
 - m. increase the quantity of water sources available to livestock particularly those in extensive grazing and prevent contamination of the water sources with animal excrement to prevent spread of diseases;
 - n. develop sustainable management of inland fisheries as part of national water resources planning;
 - o. promote appropriate use of waste waters in agriculture, aquaculture and industry;
 - p. control accidental and/or deliberate oil spills in national and trans-boundary waters;
 - q. encourage and support rational land use to prevent land degradation, erosion and siltation of water bodies;
 - r. study and develop traditional and indigenous methods of water pollution control;
 - s. undertake and support research to develop solutions to water resources related problems in the various river basins;
 - t. institute periodic training at all levels within the organisations responsible for water resources management.
4. Attainment of sustainable development is dependent on availability of adequate and good quality water supplies and environmental sanitation. This is essential for ensuring public health, poverty alleviation and environmental protection. Concerted efforts, led and coordinated by Federal Government, are required to:
- a. strengthen institutions, management, and financing of water

- supply schemes and sanitation;
- b. ensure that all communities (especially rural) have access to safe water to meet health needs and maintain local environments;
 - c. encourage participation of local communities, especially women, in all phases of water management;
 - d. integrate community management of water resources within the context of overall national planning;
 - e. develop and promote the use of appropriate and low-cost technologies for water supply and sanitation services;
 - f. plan and ensure implementation of urban stormwater run-off and drainage programmes, and promote development of effective rain water harvesting techniques;
 - g. intensify awareness campaign on public health, personal hygiene, and control water-related diseases and vectors;
 - h. encourage autonomy and financial viability of water and solid waste and sewerage utilities, and promote private investment in the projects;
 - i. periodically review and improve on policies and regulations to ensure sustainable utilisation and management of water resources;
 - j. enhance the development of training institutions for capacity building in water supply and sanitation;
5. Many of the nation's water resources and factors and activities threatening their optimum utilisation and management are transboundary in nature. To achieve sustainable development of our water resources, there is the need to foster bilateral and multilateral cooperation. This will promote sharing of experiences, exchange of ideas, transfer of environment friendly technologies and concerted regional and global actions adaptable to local needs. Government, with the cooperation of national and international interest groups, should:
- a. promote bilateral and multilateral cooperation in the assessment, utilisation and management of all transboundary water resources;
 - b. facilitate and ensure implementation of all ratified international agreements and conventions dealing with water resources and related issues;
 - c. encourage cooperation agreements between national institutions

- and multilateral agencies and organisations to enhance collaborative and interdisciplinary research, transfer and development of appropriate technologies, training and capacity building in water resources and related areas;
- d. participate actively, where appropriate, in international water quality monitoring and management programmes;
 - e. strengthen local technical and scientific institutions, with assistance from United Nations Agencies and other relevant international organisations, to develop curricula in fields critical to water and sanitation;
 - f. promote and actively participate in the establishment and management of regional programmes monitoring hydrologic regimes and study of the impacts of climate change on areas prone to drought and floods;
 - g. cooperate in regional and global efforts in the assessment of social, economic and environmental impacts of climate change and promote the development of effective early warning systems.

Integrated Water Resources Development and Management

In this programme area, the Ministry of Water Resources and Rural Development has carried out two activities. These are:

- (i) Preparation of the National Water Resources Master Plan for the period 1995 - 2020
This was done with technical assistance of the Japanese Government through the Japanese International Cooperation Agency (JICA). Preparation of the Master Plan started in 1992 and was concluded in 1995.
- (ii) Water Resources Decree 101 of 1993
This Decree gives the legal framework for the development of the water resources of the country. It places ultimate responsibility for the proper development of the nation's water resources on the Ministry of Water Resources and Rural Development.

Water Resources Assessment

In this programme area, the following activities have been carried out:

- (i) Inventory of Water Resources Facilities
This was done as the initial take off activity for the preparation of the National Water Resources Masterplan in 1992/93.

- (ii) Hydrogeological Mapping of the Country
This programme seeks to produce the hydrogeological maps of the country in 100 sheets. Between 1992 and 1995, 11 of the 100 sheets were mapped. It is intended to complete the remaining 89 sheets in the next 3 years. The Petroleum Trust Fund (PTF) is being approached for funding to complete the project.
- (iii) Hydrological Network Programme
Based on the WMO standard for the establishment of primary hydrological network stations, Nigeria is to have 482 stations. Of this, 163 have been installed with 53 of them presently functional. The constraints towards early completion of the installation of the outstanding stations and the maintenance of the existing stations have been lack of funds. To ameliorate this, the National Council on Water Resources and Rural Development in October 1996, decided that each state of the Federation should, for the next three years, spend 1% of its annual budgetary allocation for water resources on data gathering and processing, while the Federal Government should similarly spend 3% of its annual budgetary allocation to the water resources sector in the first three years. In the subsequent years both the state and the Federal governments should commit 1% of their respective annual budgets on water resource to data collection and processing.
- (iv) The JICA assisted Hydrogeological Mapping of old Sokoto State.
This project was conceived to investigate the groundwater potentials of the old Sokoto State, which comprises the present Sokoto, Kebbi and Zamfara States, with a view to providing water supply to villages in this semi-arid area. The project started in 1988 and the hydrogeological aspect was completed in 1993, with the production of the hydrogeological map of the old Sokoto State and the provision of water for 13 villages. Eight villages are outstanding. JICA funding was stopped in 1993 because of the political situation of the country.
- (v) Borehole Inventory Survey
This project was carried out to document all boreholes in the country. It involved a record of their design, construction methods, operations and maintenance. The work, handled by a consultant, started in 1991 and was concluded in 1996.

Protection of Water Resources, Water Quality and Aquatic Ecosystem

In this programme area the Ministry has carried out five activities. These are:

- (i) Nigeria Register of Dams
Faced with the dangers of dam breaks as was epitomized by the failure of the Bagauda Dam in 1988 and the attendant destruction of lives, property and downstream ecology, the Government decided to complete the inventory and register of dams. The objective of the project was to verify

the location and distribution and the vital statistics of dams. The project was successfully completed in 1995 with the production of the maiden edition of the Nigeria Register of Dams.

- (ii) Programme for Rehabilitation of Dams
During the preparation of the Register of Dams and inspections, it became clear that a number of dams were under distress and rehabilitation works were required to restore them to safety. The Ministry has since 1993 requested for funds to rehabilitate the dams under its River Basin and Rural Development Authorities, while also persuading other dam owners to keep funds aside for the maintenance of their dams, and the rehabilitation of those under distress. Rehabilitation works on the most critical dams will commence this year.
- (iii) Rehabilitation of Soil Erosion Sites
The heavy monsoon rainfall and the fragile nature of soils in a number of places in the country, particularly in the eastern parts of the country, causes hundreds of gully erosion sites to develop annually. The Ministry has a programme for arresting the massive ecological problems of the rural areas and restoring the land as much as possible. This is an on-going programme which draws its funds from the 2 percent Ecological Fund.
- (iv) Flood Control Programme:
The low-lying, flood-prone areas near rivers and streams and in inland areas also receive attention from the Ministry. The twin problems of Soil Erosion and Flood Control are addressed through the Department of Soil Erosion and Flood Control created in 1991 to oversee the mitigation of these problems and the restoration of devastated lands. The Federal Ministry of Water Resources and Rural Development handles inland erosion and flooding, while the Federal Ministry of Works and Housing handles marine flood control and erosion.
- (v) Water Quality Laboratories Project:
In order to ensure that water supplied to the Nigerian populace is wholesome, the Ministry in 1986 established the Regional Water Quality Laboratories and some Reference Laboratories, to serve as Centres of Excellence and training of water quality personnel. In 1991 ADB funding was sought for equipment purchase and expert training for the Regional Laboratories and two Reference Laboratories located at Dadin Kowa, Minna, Akure, Enugu, Lagos and Kaduna, respectively. The ADB loan was approved and signed in July 1994, but could not be drawn down because of a Presidential directive to source the funds internally. Budgetary provisions have been very meagre and have only enabled the Ministry to construct three of the buildings to completion, while a 4th one is 30% completed. The construction of the outstanding two have not yet been commenced. The laboratory equipment are yet to be procured due to funds constraints. The PTF has been approached for assistance.

Drinking Water Supply and Sanitation

In this programme area, the Ministry has made significant impact through five local and two international activities. These activities are:

(i) Production of the National Rural Water Supply and Sanitation Sector Strategy and Action Plan:

The Rural Water Supply and Sanitation sub-sector was totally uncoordinated. Various methods and equipment were used with little or no thought given to the sustainability of the systems nor the ability of the benefitting communities to operate and maintain them. This document prescribed standards for the methods and equipment to be used. The document was finalized in 1992 and formed the basis for the next three programmes/projects.

(ii) Nation-wide Rural Water Supply Programme:

In order to assist the States to attain at least 50% national coverage for rural water supply by the year 2000, the Ministry provided funds to States that have set up their Rural Water Supply and Sanitation Agencies, as the sole agencies for coordinating rural water and sanitation projects. The Agencies are expected to have functional drilling outfits to rehabilitate 20 broken down handpump schemes and construct 4 mini water supply schemes. The programme started in 1995 and will go on to the year 2000. So far, 16 states have benefitted. Others are to come on stream as soon as they meet the criteria for participation.

(iii) Handpump Development Programme:

Due to the maintenance problems presented by the proliferation of assorted hand pumps in the country, the Ministry in 1987 commissioned a handpump study programme in Missau LGA then of Bauchi State. The study recommended the standardization and use within the country of two handpump makes, the India Mark III and the Afridev as Village Level Operated and Maintained (VLOM) pumps. Both have been modified to improve their efficiency and durability and are now produced locally, through a deliberate programme of technical assistance to local manufacturers.

(iv) The FGN-UNICEF Joint Rural Water Supply and Sanitation Programme

This programme uses the provisions of the National Rural Water Supply and Sanitation Sector Strategy and Action Plan to fashion out rapid intervention in water supply and sanitation in the rural areas with the States, Local Governments and the Communities contributing financially to the capital cost of the systems provided. The Communities are involved in the planning and execution of their projects and are adequately trained to sustain

the systems. They also collect revenue to be able to fund the operation and maintain the systems. The programme came into effect in 1995 and has already provided 3,583 boreholes and 25,349 sanplats latrines to various communities in 18 states within the last 2 years.

(v) The National Water Supply Policy

This policy was completed and approved at the National Council on Water Resources and Rural Development meeting held in November 1995 in Kaduna. It provides the guidelines for water supply development up to the year 2015.

(vi) International Ministerial Conference on Drinking Water and Environmental Sanitation

Nigeria participated actively in both the Steering Committee and the Ministerial Conference on Drinking water held in Noordwijk, Holland in March 1994 under the auspices of the Royal Netherlands Government. The Conference was a direct follow-up on Agenda 21. The Ministry of Water Resources was also active in the subsequent meeting on “Forward Looking Assessment on the Implementation of the Action Programme on Drinking Water and Sanitation” meeting held in the Hague under the auspices of the Royal Netherlands Government.

(vii) UN Water Supply and Sanitation Collaborative Council:

The Ministry took active part in the work of this Council and actively participated in the Working Groups that produced the Country Level Collaboration, and the Information, Education and Communication documents that were presented and accepted at the Council’s 2nd biennial meeting held in Rabbat, Morocco in 1993. Presently a staff member of the Ministry is the Chairperson of the Working Group on the Water Supply and Sanitation Development in Africa set up to focus on the water supply and sanitation problems in Africa and to set the stage for donors sensitization on the needs of Africa.

Water and Sustainable Urban Development

In this programme area, the Ministry has been involved in basically two activities. These are:

(i) National Water Rehabilitation Project:

This project came about from the realization that most of the operating water systems hardly produce up to 40 percent of their installed capacity. With the assistance of the World Bank, the rehabilitation of some selected systems in the then 21 states of the Federation and Abuja were scheduled at total project cost of US \$256.00 million. The project implementation started in 1991 and is scheduled to be completed by next

year, at the end of which over 250 systems would have been rehabilitated.

- (ii) Peri-Urban Water Supply and Sanitation Programme:
This programme is to provide drinking water and sanitation facilities to the marginalised inhabitants of urban areas. The project which is to be assisted by UNICEF was to carry out pilot schemes in Calabar, Maraba (near FCT) and Kaduna. The preliminary study at Maraba has been carried out but funding has been a constraint as the UNICEF appears to have had problems with classification of the project vis-a-vis their global mandate. It is still a very important programme that would help alleviate the suffering of the urban poor and also help in poverty alleviation and improvement of health in the poor urban settlements.

Impacts of Climate Change on Water Resources

Approval is being awaited for the study of the Impact of Climate Change on Water Resources with Particular reference to Flood Susceptible and Drought Prone Areas submitted to the UNESCO.

Global Environmental monitoring Systems(GEMS)/Water Nigeria

GEMS/Water Nigeria is a component of the Global Environmental Monitoring Systems whose overall goal is to monitor the quality of freshwater supply throughout the country. The programme is sponsored by the United Nations Environment Programme (UNEP) and World Health Organisation(WHO). It involves monitoring of several water parameters and providing information on the suitability of water for human consumption, agricultural, commercial and industrial uses.

Some of the activities under the programme focus on:

- i. strengthening of national water quality monitoring networks in Nigeria
- ii. improving analytical capabilities and data quality assurance
- iii. addressing critical freshwater quality issues in order to propose policy options and control measures
- iv. assisting participating laboratories through the provision of technical advice, analytical reference samples and training opportunities.

The Federal Environmental Protection Agency (FEPA) is coordinating the programme within the country. Participating Agencies include the National Institute for Freshwater Fisheries Research (NIFFR), New Busa and the National Water Resources Institute (NWRI), Kaduna.

A network of stations on rivers, lakes and reservoirs has been established and instrumented for the purpose of collecting samples for analyses.

Lead Coordinating Agency

Federal Ministry of Water Resources and Rural Development

Participating Agencies/Departments

- a. Collection & Dissemination of Information
National Water Resources Databank Centre (NWRDC)
National Water Resources Institute (NWRI)
Federal Environmental Protection Agency
Geographical Information System Centres
River Basin Development Authorities
Relevant Universities & Polytechnics
State Environmental Protection Agencies

- b. Integrated Water Resources Management & Protection
Federal Ministry of Water Resources and Rural Development
Federal Environmental Protection Agency
National Water Resources Institute
River Basin Development Authorities
Federal Ministry of Agriculture and Rural Development
Federal Ministry of Health
Federal Ministry of Transport
State Ministries of Water Resources
State Water Boards
Federal University of Tech. Minna
Nigerian Institute for Fresh Fish Research
IUCN Nigeria
State Environmental Protection Agencies

2.8 Industrial pollution Management

Mission Statement

Until the 1980s, industry in Nigeria developed with no enforceable legislation on industrial pollution control. As a result, the diversification of industry has created uncontrolled pollution which renders surface waters unsafe for human, agricultural and recreational use, destroys biotic life, poisons natural systems and causes severe threats to human life. Air pollution and solid waste menace are equally serious problems. The nation needs incentives and regulations to sustain industry and to ensure that negative impacts from industry will be systematically addressed.

Activities related to Goal

Review existing guidelines and standards to include emission from vehicles, aircraft and generating sets;

intensify public enlightenment campaign on the benefit of adequate maintenance, retrofitting, adapting effective technology, ensuring efficient energy use and increased cost-benefit;

maintain an effective database on industries and compliance status;

maintain a register of technologies, vehicles, aircraft, generating sets for approval for manufacturing and importation purposes;

eliminate Ozone Depleting Substances consuming processes;

enforce laws relating to siting of new industries and install a minimum of primary treatment on all new industries;

build secondary central treatment facilities in all major industrial estates in cities such as Lagos, Kano, Kaduna, Port Harcourt, Warri, Ibadan and Enugu by 2005;

implement the “polluter pays” principle immediately;

enforce maximum waste segregation, recycling and re-use by 2010;

promote research in Best Available Technology Effective for Local Adoption (BATELA);

make Eco-labelling of industrial products compulsory by year 2000;

promote commercialization of landfills, incineration and bioremediation as appropriate;

encourage citizen involvement in pollution control;

introduce green technologies and promote Environmental Management System (EMS) in all industrial facilities;

create an Environmental Fund to provide soft loans, economic incentives for environment related activities in industries;

promote tax rebates for industries installing and maintaining effective pollution abatement facilities.

Lead Coordinating Agency

Federal Environmental Protection Agency

Other Participating Agencies/Departments

Federal Ministry of Petroleum Resources
Federal Ministry of Commerce
Federal Ministry of Science and Technology
Nigerian Standards Organization
Manufacturers Association of Nigeria

State Ministries of Industries/Commerce
National Agency for Food and Drug Administration and Control
Raw Materials Research and Development Council
Federal Ministry of Industries
Federal Ministry of Health
Federal Ministry of Transport
Federal Ministry of Aviation

2.9 Biodiversity Conservation

Mission Statement

To prepare and implement a National Biodiversity strategy; Action Plan Programme in response to the Convention on Biodiversity (CB).

Activities related to Goals

1. Identify and inventorise the diversity of species of flora and fauna in all Nigerian ecosystem
2. increase the network of protected areas to include all ecosystem types in consonance with internationally accepted categorization;
3. promote and enhance measures for both *in-situ* and *ex-situ* conservation through identification, inventories, evaluation, monitoring, research, education, public awareness and training;
4. increase the nation's biodiversity management capability (human infrastructural, institutional and technological) and strengthen national centres for exchange of data and information relevant to the conservation of biodiversity;
5. develop economically and culturally sound strategies to combat biodiversity loss;
6. protect and promote policy guidance for bioprospecting and indigenous knowledge (intellectual property right);
7. ratify the Ramsar Convention and co-operate with neighbouring countries in the West African region in the implementation of the National Plan and the International Convention on Biodiversity.

Country Study on Biological Diversity

A Country Study on Biological Diversity in Nigeria was carried out from 1991 - 1992. It produced a Report titled: Biological Diversity in Nigeria. The study addressed a full range of biological diversity conservation problems. Most of the recommendations made are currently being implemented by the Government.

The Federal Environmental Protection Agency also established a link with the University of Agriculture, Abeokuta under the FEPA-University Linkage programme to undertake further training and research activities on biodiversity conservation.

Nigerian Biodiversity Strategy and Action Plan (NBSAP)

This programme reviews the status of biodiversity conservation in Nigeria in an attempt to fill the gaps identified in the country study programme and develop strategies and action plans to bridge the gaps in the conservation effort. The first Draft Report to be discussed by stakeholders in the identified four eco-regions has been produced and circulated among stakeholders for their inputs. The inputs from the planned stakeholders workshop would be incorporated into the Second Draft Report to be discussed at a National Workshop pending the presentation of the final report to the Government for approval.

Protected Area Programme

This programme is to identify areas and sites of conservation interest and to classify the areas identified using IOCW criteria. Only 4 states (Delta, Edo, Kogi and Kwara) have been visited so far.

Botanical survey (Flora of Nigeria)

The outcome of this survey is the production of the checklist of Nigeria's flora. Survey of Biodiversity hotspots to identify new species has also been carried out..

Zoological survey (Fauna of Nigeria)

The objective of this survey is to produce a list of Nigeria's fauna. As at now only the aquatic fauna has been documented.

Establishment of Gene Bank

The Government has established a gene-bank for the collection and preservation of Nigeria's plant species with the following objectives:

- establishment of a database on national bioresources;
- development and adoption of comprehensive biodiversity and conservation strategy;
- the training of personnel as the essential catalysts for better understanding of environmental issues and commitment to sustainable use of resources.

Resulting from the Government's effort in biodiversity conservation, the following achievements have been made:

- i) there are in place 32 game reserves/sanctuaries and 6 no National Parks covering a total of about 4,293,800 ha scattered in different areas of the country;
- (ii) there are 12 strict Nature Reserves;
- (iii) there are 13 proposed Game Reserves/National Parks covering about 372,000 ha located across the country.

Lead Coordinating Agency

Federal Environmental Protection Agency

Participating Agencies/Departments

Federal Environmental Protection Agency
 Federal Ministry of Water Resources and Rural Development
 National Conservation Foundation (NCF)
 Universities of Ibadan, OAU, Maiduguri, Sokoto, Lagos, UNAAB
 National Parks Service Board
 Federal Ministry of Agriculture and Natural Resources
 NACGRAB, Ibadan
 IITA, FRIN, NIFIF, NIOMR, CRIN, NCR, NTO Council, NIPRD, Abuja,
 BDC, Program.

2.10 Sustainable Human Settlements

Mission Statement

To achieve a state of environmentally sound human settlements free from slum conditions and in which all have access to adequate and affordable shelter, efficient infrastructure and services which will foster sustainable economic growth, improved standard of living for the well-being of all Nigerians.

Activities related to Goals

provide an integrated infrastructural system of water, electricity, sanitation, drainage, liquid and solid waste management;

implement and monitor master plans for major towns where they exist and prepare and implement new ones where they are non-existent or out of date;

raise awareness on environmental issues needed for sustainable human settlements through mass education and enlightenment campaigns;

implement the National Plan of Action for sustainable human settlements development in Nigeria;

improve rural economics through the development of cottage and agro-based industries to create jobs and to stem the rural-urban drift;

effectively implement and enforce all existing relevant sectoral laws, standards and regulations that make for sustainable human settlements;

strengthen existing institutions with a view to making them more responsive and accountable;

encourage private sector and community participation in urban renewal activities, housing and infra-structural provision;

replicate the Sustainable Cities Programmes (SCP) in major urban centres in Nigeria;

develop and implement guidelines and put in place appropriate institutional arrangement for effective land and water resources management;

establish a National Human Settlement Data Bank (NHSDB) to provide baseline information that can be used to plan for sustainable human settlements;

upgrade all existing slum areas and prevent conditions that may lead to the development of new ones;

strengthen the development of parks and gardens and ensure retention of adequate natural green areas within human areas settlements to maintain ecological balance;

promote efficient and affordable transportation within urban and rural areas;

promote easy access to land, especially for low income families;

identify and protect holy places and places of cultural and historical importance;

remove barriers and eradicate discrimination in the provision of shelter for all Nigerians;

encourage research and studies to promote and develop indigenous planning and design techniques, norms and standards compatible with the actual needs of local communities;

improve the revenue base for human settlement management.

The activities of the Government through the Federal Ministry of Works and

Housing are highlighted under the relevant programme areas as:

- * Providing adequate shelter for all;
- * Improving human settlement management;
- * Promoting sustainable land use planning and management;
- * Promoting the integrated provision of environmental infrastructure such as water, sanitation, drainage and solid waste management
- * Promoting human settlement planning and management in disaster prone areas;
- * Promoting sustainable construction industry activities;
- * Promoting human resource development and capacity building for human settlement development;

The Government's decision to implement these programmes is predicated on the resolution adopted at the 1st United Nations Conference on Human Settlement (Habitat) held in Vancouver, Canada in 1976. The achievements in the Human Settlement Sector are as follows:

Providing Adequate Shelter for all.

The National Housing Policy was formulated and launched in 1991. The document outlines policies and strategies to provide decent housing for all by the year 2000 or in the shortest possible time. A fall-out of the policy is the establishment of the Housing Policy Council to monitor activities in the housing sector and evaluate policy impact on the sector. The council collects data and publishes information on the state of the housing sector regularly.

The National Housing Fund was established in 1992 to solve the problem of finance for housing development. All workers (both public and private sector) earning ₦3,000 and above per annum contribute 2.5% of their income to the fund. The fund is to be disbursed as mortgage loans through primary mortgage institutions to the subscribers to the fund.

Federal Government, through the Federal Housing Authority (FHA) started the National Housing Programme in 1994. The objective is to produce 121,000 housing units for low, medium and high income earners. So far only about 5% of the target has been achieved.

Further efforts on direct construction of houses continue to be made through the National Prototype Housing Programme aimed at demonstrating the feasibility of constructing functional, cost effective and affordable housing units. So far 600 housing units in various stages of completion are being constructed in Lagos, Kaduna, Port-Harcourt, Jos, Kano and Lafia.

Urban renewal programme aimed at improving existing neighbourhoods in core areas have been carried out in 18 cities across the nation. A total of about N20 million had been spent on the programme since 1992.

The Federal Government has provided through the National Sites and Services Programme over 15,000 plots at subsidized rate to the public. Over 250m has been committed to the programme in the last six years.

Improving Human Settlements Management

To address the goal of strengthening urban data systems, a National Index of Building Starts (NIBS) was established in 1994 to collect data on building starts and other housing indicators. The project is being undertaken by the Nigerian Institute for Social and Economic Research (NISER) in collaboration with the Federal Ministry of Works and Housing, Regional Workshops have been held on the use and implementation of NIBS.

Several policies have been adopted by government to improve Urban Management. These include:

- (i) The National Urban Development Policy formulated in 1992 to provide guidelines for urban development and management. Some of the dictates of the policy that have been achieved are:
 - * establishment of the Urban Development Bank
 - * promulgation of the enabling law for the establishment of physical planning units at all levels of government.

- (ii) Infrastructure Development Fund
Through a U.S. \$180 million financial assistance from the World Bank, the Infrastructure Development Fund financed urban development projects in 15 States of the federation. The loan from the World Bank was matched with 25% Counterpart fund sourced locally. The projects cover storm drainage, sanitation, urban roads rehabilitation, water and solid waste management, market development, water rehabilitation, motor parks development, river draining/channelization, street lighting.

- (iii) Sustainable City Programme
Further to the achievement of the goal of improving urban management, the country is participating in the sustainable cities programme under the UNCHS (Habitat) and World Bank/UNDP urban management programme (UMP). Under the programme, sustainable Ibadan Project (SIP) is being implemented. Through the initiative, Local Governments, NGOs, CBOs, private individuals are encouraged to participate and contribute to urban improvement and management programme. The process of replicating the sustainable city programme has already begun. Two other cities, Kano and Enugu have commenced their projects. The sustainable Kano Project has already prepared the Kano Environment profile study forming the basis for consultative actions on the management of Metropolitan Kano.

- (iv) Capacity Building
Towards enhancing the management capacity of agencies responsible for

urban development, technical assistance for human resource development have been received. Under the World Bank infrastructure Development Fund Programme officers of State and Federal agencies were trained in various aspects of urban management and computer literacy. Supply and installation of computer hard ware and software were also sponsored. Other international agencies that have offered training assistance include the UNDP, UNEP, UNCHS and UNICEF.

Promoting Sustainable Land use Planning and Management.

The following have been put in place to promote sustainable land use, planning and management.

Land Use Act

Efforts have been made to provide land requirements for human settlement development through environmentally sound physical planning and land use. A major action in this direction is the on-going review of the 1978 Land Use Act. The review is geared towards making land resources more readily accessible for sustainable human settlement development. A new statute will be put in place after the review.

Federal Land Registry

To facilitate the registration of all titles to Federal Government land throughout the country the Federal Land Registry has been established. The Registry is to be computerised.

Urban and Regional Planning Decree

The Nigerian Urban and Regional Planning law was promulgated in 1992 to regulate and guide spatial planning at all levels of government. The statute has been adopted and is being implemented nationwide at the Federal Level as a model for other levels of government.

Promoting the Integrated provision of environmental infrastructure, water, sanitation, drainage and solid waste management.

In addition to efforts of government toward the achievement of the objectives and goals of programmes under the Infrastructure Development Fund programme, the Urban Basic Services programme (UBS) is being undertaken in the country. The project involves the identification of core areas in some Nigerian cities and the packaging of improvement programmes targeted at women and children. This project is being financed with a \$3 million grant from UNICEF with matching grant from the Federal Government. Target communities to benefit from the programme have been identified in the cities of Lagos and Ibadan.

Promoting Human Settlement Planning and Management in disaster-prone areas.

As a measure towards mitigating the negative impact of natural and man made disasters, the Federal Government has adopted a pre-disaster planning line of action. In this regard the replenishment and reclamation of beaches in high wave areas is being undertaken.

Specifically the Federal Government has so far spent N200m on the replenishment of the sand along the Victoria Beach in Lagos. Proposal for a permanent solution to beach erosion through the construction of break waters has been accepted by the Federal Government. A total of 4 billion is being source for the project.

Coastal erosion control measures have been executed in many locations along the coast line of the Bight of Benin, and in the eastern part of the country where gully erosion is prevalent.

Promoting Sustainable Construction Industry Activities.

To enable the construction sector to meet human settlement development goals while avoiding harmful side effects on human health, the Federal Government of Nigeria has established and commenced the enforcement of the National Building Codes and Standards. Besides, a National Construction Policy was promulgated in 1994 to ensure and enhance the following:

- * the use of indigenous building materials and industries;
- * adoption of standards and regulatory measures for increased use of energy-efficient designs; and
- * use of labour intensive construction and maintenance technologies for the generation of employment.

The Nigerian Government has, over the years also, invested in raw materials resources development through the activities of the Nigerian Building Materials and Road Research Institute (NBRRI). As a result, several local building material options which reduce construction cost considerably have been developed. Sources of funds for these researches include government subventions and corporate donations.

Promoting Human Resource Development.

Under the various programmes for the promotion of human resource development, Government in collaboration with such agencies as the World Bank, UNDP, UNEP, ILO UNICEF, and UNCHS have sponsored foreign and local training programmes to acquaint operators of this sector with contemporary ideas, strategies and tools for human resources development.

The Family Support Programme (FSP) Shelter.

Nigeria's efforts towards sustainable development since 1986 are marked by

policy formulation and the establishment of agencies for the implementation. One of such efforts is the establishment of the Family Support Programme initiated by the former First Lady of the Federal Republic of Nigeria, Her Excellency, Mrs. Maryam Sani Abacha. The Family Support Programme recognizes shelter as one of the most important needs for the survival of any family. To promote a healthy family living, the provision of a decent and affordable housing is paramount, as most low income families in the cities do not own houses because they cannot afford them.

The Family Support Programme also recognizes the fact that women are handicapped in their access to land and property on which hinge the performance of their roles since they need a secure place to live in, carry out their subsistence farming and generate income. The widows and single women are worse off as they are denied rights to inheritance of landed property.

It is in this regard that the FSP set out among others the following objectives to ensure adequate housing for the less privileged in the society.

- That the on-going Federal Housing Schemes should make provision for all government workers in Nigeria so that on retirement their families will have a place to live in;
- That the peculiarities of the disabled in our society should be taken into consideration when designing public buildings and houses to be occupied by them;
- that women be encouraged to form neighbourhood based associations which can serve as link agencies for partnership on any voluntary scheme in housing finance.

In all the States of the federation including the Federal Capital Territory, Abuja, the FSP has encouraged women to embark on subsistence and large scale farming of crops, vegetables and livestock. The Family Support Programme has procured and distributed agricultural inputs such as fertilisers, farm implements and improved seedlings to women farmers.

Other facilities for survival provided by the FSP are at the States level and include:

- Rehabilitation Centres
- Widowhood Centres
- Home for the handicapped/disabled, abandoned and motherless children.
- Psychiatric Asylums.
- Resettlement Homes for the Aged, Disabled and Destitute
- Leprosy Patients Homes
- Fish Farms
- Youth amusement and recreational Centres and Parks
- Medical and Health Centres.
- Women and Children Multipurpose Development Centres
- Rural Water Schemes and deep well pumps

- Low cost housing schemes
- Agro-Processing and packaging centres.

Constraints to the Promotions of Sustainable Human Settlement Development.

In its various efforts at attaining sustainable human settlement development several constraints to planning and implementation of physical development have been experienced. Though efforts are targeted at resolving these constraints it suffices to mention them:

- Rapid rate of urbanisation;
- Declining socio-economic standard;
- Funds limitation;
- Human resources deficiency;
- Fluctuating political will;
- Unintegrated policy focus;
- Dearth of base maps;
- Inadequate data base for planning and monitoring, and
- Insufficient foreign technical assistance.

Future Programmes to Promote Sustainable Human Settlement Development

The Nigerian Government is currently working on some programmes aimed at improving the human settlement development and management sector. These include:

- * Poverty alleviation programmes in collaboration with the World Bank and UNDP;
- A programme support document for Governance in collaboration with UNDP;
- A National strategy for the replication of the Sustainable City Programme in other Nigerian cities;
- Replication of Urban Basic Service (UBS) programme in collaboration with UNICEF.

Government intends to concentrate efforts in the near future in the following areas:

- * Capacity building for improved management,
- * Institutional/policy reforms,
- * Social re-orientation,
- * Increased participation of NGOs and private sector
- * Promoting appropriate technologies.

Lead Coordinating Agency

Federal Ministry of Works and Housing

Other Participating Agencies/Departments

Federal Environmental Protection Agency
Federal Ministry of Agriculture;
Federal Ministry of Aviation;
Federal Ministry of Finance;
Federal Ministry of Health;
Federal Ministry of Industry;
Federal Ministry of Labour and Productivity;
Federal Ministry of Solid Mineral Development;
Federal Ministry of Petroleum Resources;
Federal Ministry of Science and Technology;
Federal Ministry of Transport;
Federal Ministry of Water Resources and Rural Development;
Energy Commission of Nigeria and;
Federal Ministry of Works and Housing.

2.11 Managing Mining Sites and Restoring Mining Wastelands

Mission Statement

Prevent mining-related pollution and environmental degradation, redress, reclaim and restore all identified degraded mining wastelands.

Activities related to Goal

Inventorize all existing, closed and abandoned mining sites;

Enforce the Mining Wasteland Reclamation Act for all identified closed mines;

Provide financial and other incentives to encourage operators to reclaim abandoned mining sites;

Encourage public and stakeholder participation in environmental aspects of different phases of the mining sector;

Adopt environmentally sound mining technologies;

Strengthen capacity in the environmental management of the mining industry.

Lead Coordinating Agencies

Federal Ministry of Solid Minerals Development.

Other Participating Agencies/Departments

Federal Environmental Protection Agency
State Environmental Protection Agencies (SEPAs)
Nigeria Coal Corporation

Nigerian Mining Corporation
Nigerian Iron Ore Mining Corporation
Raw Materials Research and Development Council

2.12 Managing Chemicals, Hazardous Toxic and Radio-Active Wastes

Mission Statement

To attain full compliance with international regulations, standards and guidelines on the management of chemicals, hazardous toxic and radioactive wastes; to adopt and adapt those standards with a view to achieving an optimum toxic/hazardous/chemical management situation.

Activities related to Goal

require and assist industries to change to cleaner production methods and adopt preventive and waste minimization technologies;

encourage the phasing out of processes that generate high risk hazardous wastes;

carry out environmental audits of existing industries to improve hazardous and toxic waste management;

make producers responsible for the environmentally sound disposal of the hazardous wastes they generate;

establish public awareness and training programmes for industries and government workers on hazardous waste issues, especially waste minimization;

build treatment centres for hazardous wastes either at national or state level;

compel Industries to treat, recycle, re-use and dispose of wastes at or close to the site where they are generated;

create alert systems to detect illegal traffic in hazardous wastes;

control chemical hazards through pollution prevention, emission inventories, product labelling and, use limitation procedures for safe handling and exposure regulations;

phase out/ban high risk chemicals that are toxic, persistent and bio-accumulative and whose use cannot be adequately controlled or monitored;

develop policies in support of the producer/polluter pays principle;

emphasize the use of biological control for pest-management;

provide information on chemical hazard in local languages;

establish emergency response centres including poison-control centres;

control the importation of banned or restricted chemicals/pesticides;

adopt community right-to-know programmes that provide information on accidental releases and routine emissions of toxic chemicals;

promote ways to minimise and limit the generation of radioactive wastes;

develop/acquire technology for safe handling of radioactive waste;

develop policy which make it mandatory for by-products of radioactive materials to be returned to suppliers;

prohibit unauthorised storage or disposal of radioactive wastes.

Under this programme, Federal Environmental Protection Agency (FEPA), officials operating at the sea ports in the country can take samples of any suspicious consignment camouflaged as industrial materials for analysis in the Reference Laboratory of the Agency. Besides, FEPA has embarked on chemical tracking by monitoring warehouses and outlets for the safe handling, storage and disposal of imported chemicals. The effort has succeeded in intercepting a host of banned and expired chemicals as well as toxic wastes camouflaged as raw materials and products.

In line with the provisions of the Basel Convention, the Federal Government approved a FEPA-University of Ibadan based Centre of Excellence to carry out training and research in the areas of:

- * industrial, domestic and hazardous wastes management;
- * development or adaption of cleaner production technology for Nigeria;
- * reduction of gaseous emissions; and
- * incorporation of “waste to wealth” strategy into waste management practices.

In a similar development, the Ministry of Science and Technology has initiated a programme for the:

- identification of major pollutants,
- monitoring and controlling the effect of pollutants on the environment,
- developing process technologies for combating industrial pollutants,
- establishing model treatment plants for demonstration and skill acquisition,
- converting solid wastes into energy and other useful purposes.

It is envisaged that by the year 2010, the programme would have achieved:

- the provision of a clean and healthy environment,
- a reduction in the extent of natural ecological damage.

Lead Coordinating Agencies

Federal Environmental Protection Agency

National Agency for Food and Drug Administration Control (NAFDAC)

Other Participating Agencies/Departments

Federal Ministry of Health.
Department of Petroleum Resources.
Customs and Excise Department.
State government agencies with cognate expertise.
Federal Ministry of External Affairs.
University based Energy Research Centres
Federal Radiation Protection Services, Ibadan
Manufacturers' Association of Nigeria

2.13 Disaster Preparedness and Management

Mission Statement

To establish capacity for the mitigation of the impact of man-made and natural disasters on human settlements, the national economy and the environment.

Activities related to Goal

1. Compile comprehensive hazard maps and vulnerability analysis for the country using:

historical data of disaster occurrence;

analysis of meteorological, seismological, agricultural and environmental records;

satellite imagery and the G.I.S system to produce hazard maps.

Establish effective early warning systems for meteorological, geological, biological, social and industrial hazards by:

enhancing meteorological services;

monitoring of pests and disease epidemics;

resuscitation of seismographic status and existing seismological centres;

development of reliable biological indicators;

building of a viable network for early warning information dissemination.

1. Develop and maintain a prompt emergency response mechanism backed by contingency plans by:

inventorising all existing resources for emergency response with a view to articulating a marshalling plan during times of disaster;

co-ordinate the resource use to reduce duplication and enhance rapidity of response;

formulate a national emergency policy and an emergency response plan.

2. Mount a sustainable public awareness campaign and educate the populace on hazard alertness utilising the instrumentation of:

military and para military forces in conjunction with voluntary organisations in drills and exercises relating to emergency response including search and rescue operations;

integrating emergency preparedness into school curriculum.

Lead Coordinating Agencies

Federal Environmental Protection Agency
National Emergency Relief Agency (NERA)

Other Participating Agencies/Departments

Federal Environmental Protection Agency
Defence and National Intelligence Corps.
Federal and State Ministries of Information, Education, Health, Works, Agriculture,
National Planning Commission,
Department of Meteorological Services.
State Environmental Protection Agencies
The Red Cross
The St. John's Ambulance,
The Green Crescent,
Jamatul Nasil Islam,
Nigeria Security and Civil Defence Corps,
Federal / State Fire Service.

2.14 Flood Management

Mission Statement

Achieve effective management of urban, river and coastal flooding.

Activities related to Goal

1. Enforce compliance with town/urban planning laws and edicts;
2. Build embankments and levees along rivers and coastlines that are prone to frequent and intensive flooding;
3. Establish, furnish and maintain weather stations, river and tidal gauges;

4. Ensure appropriate management and monitoring of dams;
5. Ensure the maintenance of major drainage channels;
6. Minimize the generation of particulate sediments in and around household tenements and public buildings;
7. Enforce environmental sanitation laws in towns and cities.
8. Improve the level of flood disaster prevention and preparedness through effective public enlightenment programmes.

Lead Coordinating Agencies

Federal Ministry of Water Resources and Rural Development.
 Federal Meteorological Services Department of the Fed. Min. of Aviation
 Nigerian Institute of Oceanography and Marine Research.

Other Participating Agencies/Departments

Federal Environmental Protection Agency
 Federal Ministry of Works and Housing
 River Basin and Rural Development Authorities
 OMPADEC
 Niger Delta Environmental Studies (NDES)
 State Environmental Protections Agencies (SEPA's)

2.15 Control of Water Hyacinth and other Invasive infestations

Mission Statement

To control water hyacinth and other invasive infestations in Nigerian waters by the year 2005.

Activities related to Goal

1. Inventorise the spread of invasive weeds in all river systems especially in the coastal states;
2. Develop an infestation index map to determine control options;
3. Adopt an appropriate control option to ensure that the weeds are no longer a menace using integrated control methods (that is mechanical, biological and chemical) as would be appropriate for various sites;

Lead Coordinating Agency

Federal Environmental Protection Agency

Other Participating Agencies/Departments

Federal Ministry of Science and Technology
Obafemi Awolowo University
Institute of Oceanography
Universities of Benin, Calabar and Lagos
Nigerian Institute for Oceanography and Marine Research (NIOMR)
Nigerian Institute for Freshwater Fisheries Research (NIFFR)
Federal Ministry of Transport
Nigeria Navy
NCF, NIFOR

2.16 Human Health and Sanitation

Mission Statement

To meet the primary health care needs of the nation particularly those of the rural population by the year 2010.

Activities related to Goal

Control communicable diseases;

reduce health risks from environmental pollution and hazards;

meet the challenges of urban development through the provision of clean water and set health and hygiene standards;

protect vulnerable groups especially women and children against malnutrition, unsafe birth control methods and communicable diseases;

carry out nation-wide surveillance of communicable diseases including HIV/AIDS;

develop and improve strategies for drinking water supply and waste management including excreta;

set and maintain targets of Rural Water Supply and maintain Rural Sanitation Programmes to reduce and control water and sanitation related diseases;

train, environmental health officers, health assistants, village health workers and (Traditional Birth Attendant (TBAs)

ensure the formation and functionaries of State, Local Government, district and Village Health Committees.

Lead Coordinating Agency

Federal Ministry of Health

Participating Agencies/Departments

Federal Environmental Protection Agency
State Ministries of Health
University Teaching Hospitals
Nigeria Medical Association (NMA)
National Primary Health Care Agency
NAFDAC

3.17 2.17 Sustainable Agriculture and Rural Development

Mission Statement

Attain self sufficiency in food production and supply, sustainable development of the rural economy and steady increase in the production of agricultural raw materials to substantially meet the requirements of the industrial sector and for export.

Activities related to Goal

1. To ensure sustainable agricultural productivity, there is the need to develop and implement comprehensive policies and programmes to reclaim degraded lands, improve the planning, management and utilisation of land resources and maintain soil fertility. Government will put in place appropriate machinery to:
 - a. undertake continuous inventory and assessment of land resources for accurate land capability classification and optimum land-use practices, and to monitor changes in the agricultural potential of arable lands;
 - b. strengthen and expand the scope of the existing Zonal Soil Analytical Laboratories for enhanced analyses of soil, plant and fertilizer samples from land users across the country;
 - c. develop and promote the use of 'Soil Test Kits' and 'Soil Fertility Management Packages' suitable to the different ecological zones of the country;
 - d. establish and adequately support a Geographic Information System (GIS) Center that will store, process and disseminate land resource data base and/or information to the various stakeholders;
 - e. ensure the production of accurate soil survey maps detailed enough for various purposes;
 - f. study and develop indigenous conservation and rehabilitation practices and farming systems;

- g. develop and ensure implementation of programmes for the rehabilitation of degraded lands for enhanced productivity;
 - h. support and guide local communities to plan, carry out and maintain their own conservation and rehabilitation programmes;
2. Low level of technology is among the major problems confronting agricultural sector in Nigeria. Policy instruments guiding research in and development of appropriate technologies are critical to sustainable agricultural development. Of equal importance is strengthening and coordination of the agricultural extension service systems to ensure effective adaptation of the developed technologies by the end users and also serve as a feed-back mechanism to the research centres on the effectiveness of the developed technologies. Government will coordinate efforts to:
- a. strengthen the Agricultural Research Council of Nigeria to effectively coordinate the activities of the National Agricultural Research Institutes and the International Agricultural Research Centres operating in Nigeria;
 - b. develop farming systems that promote rational use of resources and integrated production of trees, crops, livestock and/or fisheries;
 - c. develop improved and high yielding crop varieties adapted to different farming systems suitable to the various ecological zones with emphasis on resistance to diseases and pests and tolerance to heat;
 - d. develop and implement efficient and sustainable integrated pest and disease management programmes;
 - e. promote and emphasise the development of efficient small and medium scale irrigation schemes that fully involve the benefitting communities at all stages;
 - f. adopt and ensure efficient management systems for the production, distribution and utilisation of fertilizer while simultaneously encouraging increased use of farm manure;
 - g. promote animal traction through development of appropriate and affordable implements;
 - h. promote and support the development of efficient processing, storage and marketing of agricultural produce with emphasis on private initiatives;
 - i. encourage research to improve the productivity of local livestock breeds through intensive selection and cross breeding;
 - j. enhance and ensure sustainable utilisation and development of rangelands by encouraging a more settled livestock production system;
 - k. enhance and facilitate the production and application of vaccines and

other drugs to reduce the incidence of livestock diseases and parasites, and promote research for the development of new vaccines and diagnostic techniques;

- l. regulate, coordinate and monitor all fishing activities to prevent over-exploitation, and support the adoption of improved production and processing technologies;
 - m. promote the development and local production of essential fishing inputs such as boats, nets, outboard motors, accessories, etc.;
 - n. intensify public and private sector research on renewable sources of energy for agriculture;
 - o. develop and strengthen integrated agricultural extension services and facilities;
 - p. support community-based approaches to public education and enlightenment through culturally relevant social groups, organisation of agricultural shows and collaboration with media and entertainment industry to enhance public awareness;
 - q. intensify human resource development and capacity building with emphasis on training of subject matter specialists;
 - r. cooperate and work with NGOs to promote dissemination of information, generate discussions on policies and encourage formation and development of community based organisations;
3. To ensure sustainable development of the agricultural sector, the activities of the various governments and their agencies, private sector, multi-lateral agencies, communities and individuals will need to be effectively coordinated. To this end, Government will endeavour to:
- a. clearly specify responsibilities among the tiers of Government and their agencies, traditional institutions, community organisations and individuals and ensure coordination of their activities;
 - b. cooperate with NGOs and UN agencies to promote dialogue and encourage applied research, human resource development and formation of management groups on agricultural and related activities;
 - c. enhance the awareness and understanding of administrators and civil servants to the benefits of popular participation in policy formulation, development and execution;
 - d. provide effective linkages between research institutes, policy makers and farmers with emphasis on group contact;

- e. review, harmonise and coordinate implementation of policies dealing with extension, training, pricing, input distribution and access to credit to ensure necessary incentives and equitable access to production-support services;
 - f. encourage and support fora and networks for scientists, technicians, entrepreneurs and technocrats to exchange experiences, develop joint programmes and disseminate useful information on improved techniques;
 - g. strengthen and appropriately fund the National Agricultural Data Bank Programme for efficient and continuous data collection, analysis, storage and dissemination;
 - h. institute, strengthen and ensure effective project monitoring and evaluation programmes involving of the various stakeholders.
4. Majority of the actors in the agricultural sector live and carry out their activities in the rural areas. Consequently, sustainable agricultural productivity in Nigeria is dependent upon enhanced rural development efforts. In this regard, appropriate policy guidelines will be put in place to:
- a. provide essential rural infrastructures to facilitate access to agricultural inputs, services and markets;
 - b. delegate more responsibilities to local levels for decision making, revenue generation and expenditure;
 - c. establish an agricultural produce marketing system that will enhance and sustain the viability of the agricultural industry and meet national needs;
 - d. promote establishment of cooperatives and support their initiatives in the development of non-farm employment opportunities in the rural areas;
 - e. enhance the capacities of the cooperatives and encourage participation of local communities in planning, implementing, monitoring and evaluating rural development projects;
 - f. strengthen cooperative training institutes for enhanced formal and non-formal educational and vocational training in rural areas;
 - g. strengthen rural banking scheme that stresses the inculcation of savings culture and provides timely and affordable credit facilities to private entrepreneurs, CBOs and Cooperatives towards the establishment of viable agricultural activities and cottage industries;
 - h. identify and support programmes and income generating activities attractive to youths especially those that graduate from secondary and tertiary institutions.

Nationwide River Basins Irrigation Planning Study

The study is to enable the improvement of the efficiency and effectiveness of investments in irrigation development in the country. The required data have been collected and are now being subjected to analysis. The study is expected to be completed in 1998.

Surface and Groundwater Monitoring Under the National Fatima Development Programme

The main objective of the programme is to monitor and study the effect of groundwater exploitation in flood plains in the semi-arid areas of the country for irrigation in order to design effective and sustainable exploitation regimes for the various aquifers encountered. Work started in 5 pilot states in 1995 and is scheduled to be completed by September, 1997. For 1997/98, the Ministry, with the assistance of the International Atomic Energy Agency (IAEA), is to use isotope hydrology to study the recharge situation in a pilot Fatima area in Wurno, Sokoto State. The study will also seek to ascertain the pollution potentials of the saturated groundwater zone due to the irrigation activities in the project area. The study, which will ultimately assist in the design of the groundwater exploitation plan for the project area is expected to be completed by the end of 1998.

Survey and Inventory of Irrigation Projects in Nigeria

The aim of the project is to have up to date information on irrigation development in Nigeria. It involves the collection, collation, compilation and classification of irrigation projects in the country. The first study was completed in 1985, updated in 1992 and the 2nd update is billed for execution in 1997.

Applied Research into Identified Problems in Existing Irrigation Projects

This research programme came into being to address the peculiar problems encountered, such as waterlogging, salinity, aquatic weeds etc. thrown up in the operations of the irrigation projects. The programme will start this year with 2 pilot studies on the Kano River Irrigation Project and the Lower-Anambra Irrigation Project. As funds become available, other projects and their problems will be tackled.

Formulation of Irrigation Policy for Nigeria

Formal irrigation started in Nigeria 21 years ago. However, a national policy on irrigation has not yet been produced. This situation is being corrected by the preparation of an irrigation policy for the country. Data have been collected and are presently being analysed with the hope of completing the project this year. However funds have been a serious constraint to the speedy completion of the policy document.

In its effort to create the enabling environment for food self-sufficiency, Government, through the Ministry of Agriculture and Natural Resources has embarked on a number of

programmes geared towards promotion of sustainable agriculture and rural development. The programmes and their associated activities are:

Agricultural Land Resource Programme Objective

The objective of this programme is to ensure the choice of suitable lands for production of specific crops through soil survey and land evaluation; monitor and improve their quality through soil fertility management and ensure the conservation of the fertility of agricultural lands through rehabilitation of the degraded lands.

Soil survey of the country at a reconnaissance survey of 1.650,000 has been completed. However, this gives information only of a generalized nature. A more detailed survey which would yield information necessary for intensive agriculture has been planned since 1994 and could not take off due to financial and personnel constraint.

Monitoring of the fertility status of the country's soil as well as the establishment practices for special problem areas have equally not progressed due to inadequate fund release. Similarly, effective soil conservation practices and rehabilitation of degraded lands suffered for lack of adequate capital and necessary field equipment.

Although the execution of the project has been constrained for some time, the Environmental Management World Bank Assisted Project (EMP) which commenced in 1995 helped in establishing the machinery for monitoring land degradation in the country. Through this project, resource personnel are receiving training while equipment, Computers, G.I.S etc. have been received for enhanced data acquisition and processing. Project vehicles have also been received to increase efficiency of field operation.

National Seed Service (NSS) Programme

The objective of this programme is to produce high quality seeds for Nigerian farmers within a commercial environment of sound certification and quality control and to sell high quality seeds and seedlings of selected arable tree crops, namely oil palm, rubber, cotton, groundnut, soybeans, gum arabic etc.

- * Over 2,460 kg of foundation seeds has been produced by the project to the Research Institutes and out growers respectively.
- * The Seed Certification and Quality Control Programme of NSS tested a total of 2,425 seed samples in 1996.
- * Rehabilitation of seed testing laboratories and seed processing plants at NSS Jos, Ibadan, Zaria and Umudike has been completed.
- * Under the Community Seed Development Programme, demonstration plots were set up to create awareness of modern varieties of Maize, Cowpea, Sorghum, Rice and Soyabean and to offer easy access to good seeds produced by the contract grower.

There are, however, constraints of low uptake of Foundation Seed by ADP and Private Seed Companies; inadequate mobility for officers to carry out seed industry development activities in the states and ultimately release of counterpart funds.

Establishment of Federal Agricultural Coordinating Unit (FACU)

Further effort by the Nigerian Government to promote sustainable agricultural and rural development has led to the establishment of Federal Agricultural Coordinating Unit (FACU). This Unit is primarily responsible for the provision of planning and implementation support to the activities of the Agricultural Development Projects (ADP) in the country. The following activities were undertaken in 1996:

- * The mid-term review of National Agricultural Technology Support Project (NATSP) for five States implementation agencies for Kano, Jigawa, Bauchi, Sokoto and Kebbi.
- * Implementation support to ADP through joint bank/FACU supervising missions to various ADP covering all programme: supervision mission on the activities of the National Accelerated Industrial Crops production programme (NAICPP) in 11 ADP States; participation in the National Artisanal Fisheries Statistical data base, survey covering FCT, Kwara, Kogi, Benue, Niger, Taraba and Plateau; assistance in the strengthening of agro-forestry and land management activities of ADP; assistance in the rehabilitation of existing ADPs; assistance in the rehabilitation of existing Animal Traction Centres in the 5 NATSP States: supported the video documentation programmes in agriculture to widen understanding in this area; organized workshop and training on fisheries promotion programme, Maize production and rural Institution Development,
- * Review of External Assisted Projects including pipeline programme and on going loans.
- * The unit continued with production of its regular publications while the library received many publications from many sources. The major drawback are due to poor funding and support by both the Federal and State Governments; inadequate staff in key areas and shortage of vehicles and major office equipment.

Agricultural Finance Programmes

This is another programme whose objectives to provide loans and credits to small scale farmers with or without collateral. This is done through some agricultural oriented financial institutions such as Nigerian Agricultural Co-operative Bank (NACB), Agricultural Credit Guarantee Scheme (ACGS) and Farmers' Credit Scheme (FCS). Farmers have been supported financially through this programme for the purpose of increasing crop production.

The National Agricultural Research Project (NARP)

The National Agricultural Research Project was set up to strengthen the country's agricultural research system and ensure availability of food through adequate domestic production.

Within the network of Agricultural Research Institutions, five of them handle food crops; three for livestock; one of them (NSPRI) researches on storage of agricultural and food products while three handle mechanization research including designing, fabrication, and servicing of food processing machines.

The impact of the NARP in boosting food production has not been sufficiently felt

perhaps due to lack of adequate support and ineffective programme co-ordination. With recent reorganization and assured funding, NARP is expected to increase food production during the next decade.

The Strategic Reserve Scheme

The objective of the Strategic Grains Reserve Scheme at its second inception is to undertake the storage of excess grains in the market during the harvest and to release some when prices are high in the market thus stabilising the price and making grains available all the year round.

Of the thirty-three (33) medium and large scale silos commissioned for construction, seven (7) have been completed. At present, there is gross under-utilization of these silos due to lack of available grains for storage. Only 3 of the silos contain grains. Measures have been taken to restore the storage efficiency of the silos in the 1997 season. Steps are also being taken to ensure high production of grains and minimize illegal export and smuggling across the border. Direct purchase for farmers is expected to bring about increase in the quantity of grains reaching the silos.

Establishment of National Agricultural Land Development Authority (NALDA)

Government's main objective of establishing NALDA is to transform rural peasantry by mobilizing human resources and other support services to open up new lands for increased food production. The Authority has embarked on some activities such as bush clearing, land preparation, farm infrastructural facilities soil conservation and environmental issues, soil survey, evaluation, soil testing and capacity to provide base line data for agricultural related activities and advisory services to agricultural land users.

The NALDA 1997 work-plan envisaged opening up more enclave farming communities during the operating season and will focus on land development in co-operation with Agricultural Land Resource, Forestry, Department of Agriculture and Agricultural Co-operative.

Lead Coordinating Agency

Federal Ministry of Agriculture and Rural Development

Participating Agencies/Departments

- a. Land Use Classification and Soil Conservation
 - National Agricultural Land Development Authority (NALDA)
 - Federal and State Ministries of Agriculture and Natural Resources
 - Federal Soil Conservation Schools
 - Zonal Soil Analytical Laboratories
 - Federal Environmental Protection Agency (FEPA)
 - Geographical Information System Centre
 - National Agricultural Research Institutes (NARI)
 - Federal Ministry of Water Resources and Rural Development
 - Relevant Universities and Polytechnics
 - National Fertilizer Companies

- b. Technology Development and Agricultural Research
 Agricultural Research Council of Nigeria (ARCN)
 Federal Ministry of Agriculture and Natural Resources
 Agricultural Development Programmes (ADPs)
 National Fertilizer Companies
 National Agricultural Research Institutes
 International Agricultural Research Centres
 Relevant Universities & Polytechnics
 Federal Environmental Protection Agency
 NGOs and International Organisations
- c. Rural Development
 Federal Ministry of Water Resources and Rural Development
 Federal Agricultural Coordinating Unit (FACU)
 Federal Ministry of Agriculture and Natural Resources
 Federal/State Ministries of Women Affairs
 Agricultural Development Programmes
 Agricultural Projects Monitoring & Evaluation Unit (APMEU)
 Family Support Programme (FSP)
 Nigerian Agricultural and Cooperative Bank (NACB)
 Peoples' Bank of Nigeria (PBN)
- Commercial Banks
 - Family Economic Advancement Programme
 - Nigerian Agricultural Insurance Cooperation
 - National Directorate of Employment (NDE)
 - National Emergency Relief Agency (NERA)

2.18 Protecting Marine and Coastal Resources

Mission Statement

To effectively protect the marine and coastal areas from point and non-point sources of pollution, promptly remediate any accidental spillages and regulate the exploitation of the contained natural and mineral resources sustainably.

Objectives

1. Diagnose and highlight the vulnerable components of the marine and coastal ecosystems taking into consideration the limited stocks of living and non-living exploitable resources;
2. Identify and map critical and sensitive habitats (Environmental Sensitivity Index maps) for the use of project planners and developers and incorporate measures to minimize damage and disturbance of breeding, nesting and feeding areas of estuarine and coastal species;
3. Sustain ecological diversity and productivity;

4. Prepare controls for land-use, coastal and marine-based activities to minimize pollution and protect coastal and marine resources;
5. Establish restoration, rehabilitation, mitigation and/or compensation programmes for loss of marine and coastal resources;
6. Monitor the rate of coastline progradation or recession and establish coastal protection measures with a view to timely intervention aimed at arresting irreversible negative changes;
7. Provide and enforce operational standards for project planning and implementation, especially for dredging, mining, oil drilling and production and marketing.
8. Enforce compliance with existing regulations for the control of commercial/mechanical fishing within the Exclusive Economic Zone.
9. Prepare Ecological Master Plans for the management and control of coastal and nearshore marine industrial and social development activities.

Gulf of Guinea Large Marine Ecosystem.

The project was formulated on the realisation of the need to control water pollution and conserve biodiversity in the Gulf of Guinea. The project is regional in outlook for it cuts across countries like Cameroon, Cote de'Ivoire, Ghana, Benin, Togo, Guinea and Nigeria. Participating Agencies in Nigeria include the Federal Environmental Protection Agency (FEPA) and the Nigerian Institute for Oceanography and Marine Research (NIOMR). The project is being funded by Global Environment Facility (GEF) with UNIDO as the executing Agency.

Several activities have been carried out since the commencement of the project. These include:

- (a) Reconnaissance survey of coastal areas in Lagos and Port Harcourt by a team comprising of GEF, UNIDO, FEPA, NIOMR and the Rivers State Government representatives.
- (b) Training of officers of the participating Agencies through workshops and seminars as provided for in the project.
- (c) Creating awareness among the communities and non-governmental organisations through environmental enlightenment campaigns
- (d) Studies on pollution and natural resources conservation by various Universities in the country on the area of:
 - i. Plankton survey
 - ii. Mangrove study
 - iii. Coastal pollution
 - iv. Industrial pollution
 - v. Standards and legislation
 - vi. Socio-economics

Increased participation by the stakeholders has boosted the success of its implementation in Nigeria especially since 1996.

Marine Observatories

The Department of Meteorological Services operates two marine stations at the Institute of Oceanography, Victoria Island in Lagos and at Eket in Akwa Ibom State. Regular measurements of Sea Surface Temperature (SST), Wave Height, Sea Level Rise and other conventional meteorological elements are being undertaken. Data obtained from such systematic observations are expected to complement the existing oceanographic database of the country.

Niger Delta Action Plan

Niger Delta is one of the largest deltas in the world and is the third largest in Africa. This large expanse of wetlands covering about 20,000 square kilometres and located in southeastern Nigeria houses most valuable renewable and non-renewable natural resources. Unsustainable exploitation and environmental degradation are increasingly impairing the natural resource base on which the rural communities depend. In recognition of the fact that sustainable development will require a balance between accelerated economic growth and environmental protection to ensure that the people of the Niger Delta benefit as much as possible from exploitation of the resources in the area, Government and other stakeholders developed a long-term Integrated Environmental Action Plan “the Niger Delta Action Plan” that will address priority environmental issues in the area.

Studies have been commissioned to assess the extent of land and renewable resource degradation and environmental pollution and to proffer adequate mitigating measures. Relevant workshops/seminars, drawing participants from the local communities, have been held to discuss views expressed by the scientists in their various submissions on various aspects of the Niger Delta ecosystem.

The Federal Government, through the Ministry of Transport, has initiated the ratification of the Oil Spill Convention. This is expected to provide legal framework for Nigeria as a Maritime Nation to effectively police its waters against pollution and other environmentally unfriendly activities in the coastal areas. Apart from this, the Ministry has developed pollution prevention officer’s course and curriculum for the training of Maritime Surveyors of Nautical Machinery and Hull Specialisation to enhance capacity for oil spill management.

Lead Coordinating Agency

Nigerian Institute of Oceanography and Marine Research

Other Participating Agencies/Departments

Federal Environmental Protection Agency
State Environmental Protection Agencies

Federal Ministry of Works and Housing.
The Nigerian Navy
National Maritime Authority/Maritime Inspectorate Division.
National Inland Waterways Authority

3.19 Human Health and Sanitation

Mission Statement

Secure for all Nigerians a quality of environment adequate for good health and well being.

Activities related to Goal

to sensitise the Nigerian community on the need to promote, protect and maintain the highest level of Health of Individuals and communities.

to create the necessary awareness to individuals and communities on the need to consider health as a valued asset.

to train the necessary manpower required in health, medical and paramedical sectors for achieving Public Health Care objectives by the year 2010.
to inculcate the necessary attitude, knowledge and behaviour that promotes healthy environment.

to liaise with relevant agencies and organisations for smooth intersectional collaboration in achieving health for all by the year 2010.

To sustain the nations lead immunity through eradication of the communicable Diseases and risks through pollution and poor sanitation.

3. INTEGRATING ENVIRONMENT INTO DEVELOPMENT PLANNING AND DECISION MAKING

Mission Statement

To integrate environment into economic development planning, sectoral policies and decision-making process.

3.1 Harmonizing Federal and State responsibilities for environmental management

1. Federal Responsibilities and functions should include:
 - establishing environmental quality standards and regulatory guidelines and procedures for implementing, enforcing and evaluating them;
 - establishing guidelines and procedures for project and policy environmental assessment screening and environmental impact assessment as well as the necessary capacity to initiate and review them;
 - establishing a Federal Environmental Action Plan for execution by Federal Institutions;
 - establishing consistent guidelines for state environmental management plans and action programmes and the coordination of national and inter-state programmes, projects and exchanges of information on environment;
 - review of Federal policies which might have significant adverse impacts on the environment or natural resource base;
 - allocate and evaluate the use of Federal funds for special projects and programmes;
 - develop special training programmes for upgrading knowledge and skills in the various disciplines required for environmental management.
2. State and Local Government responsibilities including the following:
 - monitor and enforce environmental quality standards and regulations as may be designated by FEPA to States;
 - assessment of environment conditions and trends in rural areas and identification of programmes and actions needed to reduce or avoid further environmental degradation and pollution;
 - application of national environmental assessment guidelines and procedures for all development policies and projects likely to have adverse environmental impacts within the State;
 - develop contingency plans and capabilities to respond quickly and effectively environmental emergencies such as natural disasters.

prepare periodic reports on the State of the environment in the States or communities for submission to the National Council on the Environment.

collect, analyze and distribute data relevant to environmental impact assessments, policy analysis and environmental monitoring within the State and local governments.

3.2 Internalizing Environmental Costs through the use of economic instruments in the management of natural resources

incorporate environmental costs in the decisions of producers and consumers so that prices will reflect the true and total value of resources;

employ monetary, fiscal and credit instruments to maintain sustainable development;

incorporate environmental values in growth-promoting activities;

achieve full compliance of the “Polluter Pays Principle” by 2010.

Introducing market based extraction charges as well as emission and effluent charges.

3.3 Trade, Tourism and Environment

3.3.1 Trade

Mission Statement

To reconcile the operation of a liberal trade regime with policies and strategies that are environmentally sustainable.

Activities/Strategies related to Goal

adopt the use of recyclable, re-usable and returnable materials in packaging;

establish the machinery for “eco-label” awards for products meeting prescribed environmental standards;

provide relevant environmental information and advice to importers and exporters with respect to the requirement of the International Organization of Standardization (IOS);

organize in-house awareness seminars involving all the stakeholders on the effects of environmental standards abroad on Nigerian imports and exports;

require industries to use chemicals with minimal toxic or polluting components in their production processes (e.g. tanneries to use butane instead of

PCP);

ensure that all new export projects conform with EIA procedures;

require agro-chemical industries to adhere to environmental standards with respect to storage, handling, packaging and disposal of its products;

encourage (in special circumstances) the acquisition of foreign certification from importers to ensure acceptable standards, e.g. the United States certification of foreign slaughterhouses to ensure the quality of imported meats;

input the costs of negative environmental externalities in the prices of goods;

advise judicious use of trade measures as a way of uplifting environmental standards;

support the harmonization of product standards, including environmental product standards among ECOWAS member countries not only for the purpose of increasing trade among themselves but also with the rest of the world;

ensure that environment and trade policies are mutually supportive with a view to achieving sustainable development;

encourage exporters to adopt new practices that generate less pollution in line with international environmental standards;

provide assistance to exporters on environmentally friendly product development and financing.

Attract foreign investments for environmentally sound projects

Lead Coordinating Agency

Ministry of Commerce and Tourism

Other Participating Agencies/Departments

National Planning Commission
Federal Environmental Protection Agency
Federal Ministry of Industries
Nigeria Export Promotion Council
Nigeria Export Promotion Zone Authority
Nigeria Export Import Bank
Standard Organisation of Nigeria
Manufacturers Association of Nigeria
Nigerian Association of Commerce, Industries, Mines and Agriculture
Federal Ministry of Finance
Federal Ministry of Foreign Affairs

3.3.2 Tourism

Mission Statement

To achieve eco-tourism within compromising indigenous cultural values and systems.

Activities related to Goal

reconstruct, rehabilitate and modernize the country's infrastructural facilities, especially road, bridges, air transport, water, electricity supply and communication systems with due concern for the environment;

guarantee security of life and property;

strengthen the capacity of the Nigerian Tourism Development Corporation (NTDC) to effectively manage and develop eco-tourism;

identify, designate and develop environmentally friendly centres of attraction for tourism development;

establish effective organs for the planning, development, promotion and marketing of tourism within and outside Nigeria, including well-defined roles for the three tiers of government;

ensure that the nation as a whole and the local populations on the fringe areas in particular truly benefit from eco-tourism development projects;

regulate large scale and consumption-oriented types of tourism with the objective of limiting the flow of tourists to environmentally sensitive areas;

establish norms for the use of restricted natural areas for eco-tourism;

evaluate the environmental effects and cultural impacts of major tourism development projects on local populations.

Lead Coordinating Agency

Nigerian Tourism Development Corporation

Other Participating Agencies/Departments

Federal Environmental Protection Agency
Federal Ministry of Commerce and Tourism

Federal Ministry of Works and Housing
Federal Ministry of Water Resources and Rural Development
Federal Department of Forestry
NPMB
National Commission for Museum and Monuments
Tourism Practitioners of Nigeria
National Association of Road Transport Owners
National Conservation Foundation
National Planning Commission

4. STRENGTHENING THE LEGAL BASIS FOR SUSTAINABLE DEVELOPMENT

Mission Statement

To streamline all legislation and regulations and empower institutions responsible for the environment by enhancing their capacity to prescribe and enforce environment friendly practices and rules.

Activities related to Goal

1. Evolve legislation as instruments of environmental policy and management using environmentally sound practices as a basis;
2. Legislate the inclusion of the principles of sustainable development in the Constitution;
3. Enact into national legislation relevant provisions of international conventions and treaties to which Nigeria is a party;
4. Empower fiscal and monetary policy authorities, citizens and commercial interest groups, self regulatory bodies and other relevant institutions through adequate legal instruments to contribute to the achievement of sustainable development;
5. Create a conflict/dispute resolution mechanisms

Lead Coordinating Agency

Federal Environmental Protection Agency

Other Participating Agencies/Departments

Federal and State Ministries of Justice
The Legislatures; Federal, State and Local Government Levels
Federal Ministry of Foreign Affairs.
All other relevant Federal, State and Local Government Institutions;
NGOs,
CBOs,
Self Regulatory Authorities.

5. STRENGTHENING, IMPROVING AND COORDINATING THE IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT STRATEGIES

Mission Statement

To build on the gains so far achieved in environmental protection efforts and ensure that environmental protection programmes are anchored on solid foundation.

Activities/Strategies related to Goal

1. Integrate environment into development planning and decision-making;
2. Strengthen the legal basis for sustainable development;
3. Create and improve capacity for Sustainable Development;
4. Harmonize Federal, States and Local Governments' responsibilities for environmental management;
5. Adopt and promote the use of proven environmentally friendly technologies;
6. Promote Research and Development of environmentally-sound technologies;
7. Forge viable partnerships among various stakeholders and interest groups both at National and International levels;
8. Manage Environmental Information and education to generate adequate public awareness for decision making;
9. Internalize environmental costs through the use of Economic Instruments in the management of Natural Resources;
10. Improve the funding for Sustainable Development.

6. CREATING AND IMPROVING CAPACITY FOR SUSTAINABLE DEVELOPMENT

6.1 Capacity Building

Mission Statement

To strengthen public and private capacity for effective environmental management.

Activities related to Goal

Build and strengthen human and institutional capacity for integrated environmental management;

Harmonise Federal, State and Local Governments' responsibilities for environmental and resources management;

Promote research and development of environmentally sound technologies;

Forge viable partnerships among stakeholders and interest groups both at national and International levels.

Lead Agency

National Planning Commission

Other Participating Agencies/Departments

All public and private sector institutions
All stakeholders

7. IMPLEMENTING AGENDA 21

Mission Statement

To attain sustainable development in Nigeria

Activities related to Goal

Set targets and indicators for measuring implementation of projects under Agenda 21.

Integrate environment with development planning and decision making;

Promote integrated approach to the conservation and management of resources for development;

Involve the key stakeholders through a participatory approach which will be adopted and will emphasize the broad base of knowledge, understanding and commitment from the group involved;

Improve institutional performance, assigning clear institutional responsibilities and developing consistent legislation and procedures;

Mobilize financial resources - providing sufficient financial resources through national and international funding mechanisms for approved projects as well as supporting public accountability;

Monitoring and evaluation - the focus will be on revising the environmental problems. Therefore project performance, target attainment and indicator for monitoring progress will be set;

9. IMPLEMENTATION STRATEGY

8.1 Forging viable partnership among various stakeholders/interest groups at national and international levels.

Mission Statement

Even though government is fully committed to the objectives, policies and mechanisms for achieving sustainable development, it will take the commitment and genuine involvement of all groups in society to make the attainment of this goal a reality. It also requires the forging of a partnership of all stakeholders, in environmental issues. Broad public participation in policy development combined with greater accountability is essential to achieving sustainable development. Individuals, groups and organizations need to know about the environment and participate in development decisions, particularly those which affect their communities. Fostering bilateral and multilateral cooperation, to facilitate exchange of ideas and the transfer of sound environmental technologies and concerted global action affordable and adaptable to local needs is also essential.

Activities related to Goal

1. Mount very effective machinery to enhance environmental awareness through public enlightenment and environmental education at all levels of the society;
2. Establish environmental data banks and information networks;
3. Create fora for building consensus and for exchange of information and ideas among all stakeholders and interest groups on sustainable development decisions.
4. Strengthen/establish mutually beneficial relationship with bilateral and multilateral environmental bodies including regional and international NGOs.

8.2 Managing Environmental Information for sustainable development

Mission Statement

A wealth of information that could be used for the management of sustainable development is available with various organizations and individuals in Nigeria. However, many people, including decision makers have difficulties in finding the information they need, when they need it and in formats that are useful to them. The existing environmental information is yet to be adequately managed due to shortages of needed technology and trained specialists, lack of awareness of the value and availability of such information and the narrow demands of data collecting by individuals and organizations.

There is also a need to diversify the types of information collected. Commonly used indicators such as GNP and measurements of individual resource or pollution flows do not provide enough information about sustainability.

Activities related to Goal

1. Establish by end of 1998 a functional data management and Environmental Information System capable of supporting environmental management efforts over time;
2. Develop a baseline environmental database on the state of urban air, freshwater, forests and rangelands, desertification, soil degradation, biodiversity, industrial pollution, and oil pollution by the year 2000;
3. Monitoring the state of the Nigerian environment on a continuous basis and publishing regular bulletins to guide policy formulation and decision-making processes;
4. Acquire and/or seek necessary assistance for direct access to global Environmental Information Systems such as data from satellites;
5. Encourage networking and greater harmonization among different environmental data gathering organizations;
6. Develop inter-sectoral cooperation backed by appropriate infrastructure for the sharing of data, expertise and resources on environmental information;
7. Promote standardization of data formats and minimize and/or eliminate duplication of efforts in environmental information gathering and management;
8. Develop an information access and use policy, including copy-right issues for environmental information;
9. Develop a core of indigenous professionals for the efficient management of Geographical Information Systems and other spatial information technologies.

8.3 Financing environmental protection and natural resources conservation through national and international funding mechanisms

Mission Statement

Though huge financial investments are needed to implement the various programmes and activities for Environmental Protection and Natural Resources Conservation, the cost of inaction far outweighs the financial implication of ensuring a safe and healthy

environment for the present and future generations. A World Bank Report in 1990 estimated the cost of ameliorating only six out of the numerous environmental problems in Nigeria at about US \$5 billion annually, the equivalent of the National budget. At today's cost, this estimate has more than doubled. With the increasing pressure on the environment and natural resources, the cost of inaction would continue to rise exponentially and manifest in the expansion of desertified areas, loss of agricultural and natural resources, declining agricultural productivity, impaired health of the citizenry, polluted surface and underground waters, coastal erosion accompanied by loss of property, agricultural and recreational/touristic lands, etc.

While appreciating government, non-governmental, international and individual efforts at providing current financial requirements for environmental protection and natural resources conservation, there is the need to streamline the current funding mechanism to make them more reliable, efficient and responsive to the core objective of environmental protection and natural resources conservation. Besides, in view of the magnitude of environmental problems and the rising cost of amelioration, there is need to provide new and additional financial sources that are both adequate and predictable to halt and reverse the on-going environment and natural resources degradation.

The 2% Ecological Fund is a welcome development, though it is not adequate. The Fund should be promptly disbursed for the amelioration of ecological problems beginning this fiscal year (1998).

Activities related to Goal

1. Ensure adequate annual budgetary provision for the implementation of programmes and projects defined within the context of the National Policy on the Environment;
2. Provide specific grants for the amelioration of identified key environmental problems nationwide;
3. Create a Contingency Fund for FEPA to administer for the rapid response to industrial and other operational accidents with significant adverse environmental impacts;
4. Provide specific and adequate funds to alleviate critical ecological problems in oil and mineral producing areas;
5. Take full advantage of bilateral and multilateral technical and financial assistance in environmental protection and ensure derivation of maximum benefits from financial provisions that are often associated with International Conventions and Protocols that are ratified by Nigeria.

9. ENVIRONMENTAL EDUCATION, INFORMATION AND PUBLIC AWARENESS

9.1 Environmental Education and Awareness

Mission Statement

To acquire appropriate knowledge and skills in environmental management. To attain a high level of public awareness in environmental matters.

Activities related to Goal

For the country to develop more sustainably depends on the capacity of its citizens and institutions to understand the complex environment and development issues so that they can make the right development choices. Citizens need to have the expertise to understand the potential and the limits of the environment. This will require scientific, technological, organizational, institutional and other skills and also the need to increase the environmental awareness of the populace. These can be achieved through:

- a) Developing a blueprint for environmental education and public awareness;
- b) Ensuring that environmental education is a core ingredient of the educational system at the primary, secondary and tertiary levels of education.
- c) Involving school children in local studies on environmental health, and the environmental and economic impacts of resource use.
- d) Encouraging all sectors of society, including industries, universities, government, non-governmental organisations, and community organisations to train people in environmental management.
- e) Working with the media, theatre groups, entertainment and advertising industries to promote a more active public debate on the environment.
- f) Training decision-makers on the basic tenets of environment and sustainable programmes for different strata of the environment on a continuing basis.
- g) Encouraging the citizens to participate in community activities aimed at developing environmental awareness as the local level.
- h) Strengthening NGOs to organise awareness programme on environmental conservation/protection.

