

**UNITED STATES AGENCY  
FOR  
INTERNATIONAL DEVELOPMENT**

**COMPREHENSIVE ASSESSMENT OF ENVIRONMENTAL  
PROBLEMS AND OPPORTUNITIES FOR USAID  
INTERVENTION IN NAMIBIA**

**REVIEW OF THE LEGAL AND  
INSTITUTIONAL FRAMEWORK  
RELEVANT TO THE MANAGEMENT OF  
NAMIBIA'S NATURAL RESOURCES**

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**NAMIBIA RESOURCE CONSULTANTS**

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### *Abbreviations Used*

ATLAS	Africa Training for Leadership and Advanced Skills
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe
CBNRM	Community Based Natural Resources Management
CBO	Community Based Organisation
CIM	Centrum für Internationale Migration
DANCED	Danish Cooperation for Environment and Development
DANIDA	Danish International Development Agency
DAPP	Development Assistance from People to People
DARD	Department of Agriculture and Rural Development
DEA	Directorate Environmental Affairs
DED	Deutscher Entwicklungs Dienst
DEG	Deutsche Entwicklungs Gesellschaft
DoF	Directorate of Forestry
DRFN	Desert Research Foundation of Namibia
DRM	Directorate Resource Management
DWA	Department of Women Affairs
DWA	Department of Water Affairs
EAP	Environmental Assessment Policy
EEZ	Exclusive Economic Zone
EFA	External Funding Agency
EIB	European Investment Bank
EMU	Emergency Management Unit
EWFIS	Early Warning and Food Information System
FAO	Food and Agricultural Organisation
FSD	Farming Systems Development
FSRE	Farming Systems Research and Extension
FSSP	Forestry Sector Strategic Plan
GDP	Gross Domestic Product
GIS	Geographical Information System
GRN	Government of the Republic of Namibia
GSN	Geological Survey of Namibia
GTZ	Gesellschaft für Technische Zusammenarbeit
HRD	Human Resources Development
IA	Implementing Agency
ICRAF	International Centre for Research in Agro-Forestry
IFAD	International Fund for Agricultural Development
IFSDP	Integrated Farming Systems Development Programme
IMSCLUP	Inter-Ministerial Standing Committee on Land-Use Planning
IRDNC	Integrated Rural Development and Nature Conservation
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
LIFE	Living in a Finite Environment
LUEB	Land-Use and Environmental Board
MAWRD	Ministry of Agriculture, Water and Rural Development
MEC	Ministry of Education and Culture
MET	Ministry of Environment and Tourism
MFA	Ministry of Foreign Affairs
MFMR	Ministry of Fisheries and Marine Resources
MHA	Ministry of Home Affairs
MHSS	Ministry of Health and Social Services
MIB	Ministry of Information and Broadcasting
MLHRD	Ministry of Labour and Human Resources Development
MLRR	Ministry of Lands, Resettlement and Rehabilitation
MMAJ	Metal Mining Agency of Japan
MME	Ministry of Mines and Energy
MoJ	Ministry of Justice

MRLGH	Ministry of Regional and Local Government and Housing
MTE	Ministry of Tertiary Education, Vocational Training, Science and Technology
MTI	Ministry of Trade and Industry
MWTC	Ministry of Works, Transport and Communication
NANGOF	Namibia Non-Governmental Organisation Forum
NANGOS	Namibia Non-Governmental Organisations
NAPCOD	Namibian Programme to Combat Desertification
NCA's	Northern Communal Areas
NDP1	First National Development Plan
NEEN	Namibian Environmental Education Network
NEMC	National Emergency Management Committee
NEPRU	Namibia Economic Policy Research Unit
NGO	Non-Governmental Organisation
NIP	National Indicative Programme
NNF	Namibia Nature Foundation
NOLIDEP	Northern Communal Area Livestock Development Programme
NPC	National Planning Commission
NR	Natural Resources
NRDCC	National Rural Development Coordination Council
NRI	Natural Resources Institute
ODA	Overseas Development Administration (UK)
ODA	Official Development Assistance (OECD)
OECD	Organisation for Economic Cooperation and Development
OECP	Overseas Economic Cooperation Fund (of Japan)
OFCF	Overseas Fisheries Cooperation Fund (of Japan)
PAM	Personnel Administration Measures
PSIP	Public Sector Investment Programme
RPAC	Regional Planning Advisory Committee
SACU	Southern African Customs Union
SADC	Southern African Development Community
SARDEP	Sustainable Animal and Range Development Programme
SIDA	Swedish International Development Agency
TAC	Total Allowable Catch
UK	United Kingdom
UNAM	University of Namibia
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNV	United Nations Volunteers
USAID	United States Agency for International Development
WASP	Water and Sanitation Policy
WFP	World Food Programme
WHO	World Health Organisation
WWF	World Wide Fund for Nature

*Executive Summary*

Extensive use has been made in the following text of extracts from the Namibia First National Development Plan (NDP1) and the Namibia Agricultural Policy (NAP). These have Cabinet and Parliamentary approval and all relevant bodies are required to comply with these policies and any diversion would require Cabinet approval. Therefore it is considered prudent to include this information as presented.

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## 1. BACKGROUND

In assessing the institutional and legal framework relevant to natural resource management and the environment, one has to consider the network of relevant actors, their specialised divisions and functions, and the legislation that governs their respective mandate and actions. The implementing institutions as well as their applicable functions and legal bases are of necessity vertically structured, i.e. Ministries are comprised of discrete departments, each of which is responsible for a specific function. However, in order to address national concerns and to achieve national objectives, be they developmental or environmental in nature, governments need to establish cross-sectoral organisations, policies, legislation and programmes.

In this Chapter, an analysis will be made of the relevant sectoral implementing agencies, the coordinating and policy-making institutions, and the sectoral and cooperative mechanisms to achieve the common objective of the sustainable management and utilisation of Namibia's natural resources.

### 1.1 The Implementing Agencies within the Renewable Natural Resources and Environmental Sectors

The principal implementing agencies (IA) within the natural resource and environmental sectors of Namibia include the following:

(NGOs, Training and Research Institutions are listed as Annexure 1)

- Ministry of Environment and Tourism (MET)  
(responsible for flora and fauna, game and National Parks, tourism and resorts, forestry, environmental policies);
- Ministry of Agriculture, Water and Rural Development (MAWRD)  
(responsible for agriculture, water development [provision and quality], state herbarium, rural development, veterinary services);
- Ministry of Lands, Resettlement and Rehabilitation (MLRR);  
(responsible for land-use planning and resettlement programmes)
- Ministry of Mines and Energy (MME)  
(responsible for prospecting, mining, rehabilitation, energy development);
- Ministry of Fisheries and Marine Resources (MFMR)  
(responsible for the marine sector, fisheries, resource management and conservation, marine pollution, fresh water fishes).

Other important and related actors are the

- Ministry of Health and Social Services (MHSS)  
(also responsible for atmospheric pollution and radiation);
- Ministry of Basic Education and Culture (MEC);  
(also responsible for environmental awareness building and dissemination of knowledge, national monuments);
- Ministry of Tertiary Education, Vocational Training, Science and Technology (MTE);  
(also responsible for environmental awareness building and dissemination of knowledge);
- Ministry of Regional and Local Government and Housing (MRLGH)  
(also responsible for urban issues such as municipal waste, regional coordination);

- Ministry of Trade and Industry (MTI)  
(also responsible for importation of chemicals, production of hazardous substances, industrial pollution);
- Ministry of Labour and Human Resources Development (MLHRD)  
(also responsible for environmental conditions at the workplace)
- Ministry of Works, Transport and Communication (MWTC)  
(also responsible for road construction and maintenance, harbours, airports, aspects of marine pollution);
- Ministry of Justice (MoJ), Office of the Attorney-General (AG) and the Ministry of Home Affairs (MHA)  
(responsible for the drafting and revision of environmental legislation, custodian of the Constitution, law enforcement).

#### 1.2 The Coordinating and Policy Making Institutions relevant to the Sustainable Management of Natural Resources

- National Planning Commission (NPC) and its Secretariat  
(responsible for macro-economic, sectoral and inter-sectoral planning, coordination of external assistance and NGOs, statistics, Environmental Commissioner); and the
- Directorate of Environmental Affairs (DEA) within the Ministry of Environment and Tourism  
(responsible for cross sectoral environmental policy drafting and implementation, such as environmental assessments, promotion of sustainable development).

## **2. PRESENT INSTITUTIONAL STRUCTURES FOR ENVIRONMENTAL MANAGEMENT**

### **2.1 The Principal Institutions of the Ministry of Agriculture, Water and Rural Development**

#### **2.1.1 The Department of Agriculture and Rural Development**

The main GRN agency responsible for implementing the provisions of the National Agricultural Policy is the Department of Agriculture and Rural Development (DARD) of the Ministry of Agriculture, Water and Rural Development (MAWRD). To this end the Department is mandated to develop, adopt and execute appropriate strategies and a comprehensive range of programmes and projects. The following section summarises the core missions, policies, strategies and immediate institutional reforms envisaged for the Department's five Directorates.

##### **(1) The Directorate of Extension and Engineering Services**

The Directorate consists of four Divisions of Extension, the Division of Agriculture Engineering Services and the Sub-division of Law Enforcement and Supportive Services.

##### **(1.1) The Divisions of Extension**

The mission of the Divisions is to provide agricultural extension services in the form of advisory, information communications and training services aimed at empowering farmers and at encouraging the adoption of improved agricultural and related income generating technologies and practices.

This will be realised by implementing participatory and gender-sensitive Farming Systems Research Extension approaches involving situation determination and problem diagnosis, the development of improved technologies and practices, the dissemination of information on improved technologies and practices, and the coordination and facilitation of farmer support services.

Extension field staff will work with groups of farmers and will foster the development of community organisations. Special extension attention will be provided to needy groups, particularly women farmers, youth, retrenched farm labourers and geographically and socially isolated groups. Farmer and farm worker training will be provided through on-farm and centre-based practical and demonstration methods and residential short courses for more complex topics in collaboration with the MAWRD Division of Agricultural Training. Appropriate methods of mass communications will be used to disseminate agricultural information.

Specialised advisory services will be provided for the emerging commercial farmers within the communal areas, particularly those who are newly established.

The Divisions provide the Department's front line personnel responsible for day to day contact with farmers and other important stakeholders in the agricultural sector. Its main roles are to identify local needs, and, considering issues of comparative advantage, economic viability and environmental sustainability, to drive participatory programme design and implementation efforts at the regional and local levels. In terms of programme implementation, its roles are to facilitate local participation through various extension and training strategies, including the development of local community structures to manage common resources, to provide essential technical and managerial information, to ensure local coordination of inputs and services and to monitor programme development.

The extension service will facilitate the realisation of policy objectives related to the provision of drought relief, rural finance, marketing, and animal health services, and the promotion of cooperative development in close cooperation with the relevant specialised GRN and private sector services.

To implement the above approaches, the extension service will be divested of its direct responsibility for providing non-extension farmer support services. This service which provides land preparation and input requirements will be privatised. The service aims to reach a position which will allow 70 percent of staff time to be spent on information communications, advisory and training services. An effective and decentralised extension services management system will be implemented and extension staff job descriptions will be reviewed. Additional generalist field and subject matter specialist technical staff will be employed, particularly in the north central regions and their quality will be developed by providing them with continuous in-service training and enabling them to improve their professional qualifications. In the short-term, international recruitment may reinforce existing staff capacity. Extension service delivery will be coordinated with private sector agencies, which may be contracted to render specific services where they can do so more efficiently.

New units are proposed to meet existing needs for extension planning, coordination, monitoring and evaluation; subject matter specialist coordination; agricultural information and communications (formerly carried out by the Rural Extension Materials Unit); in-service training; and non-formal farmer and farm-worker training.

#### (1.2) The Division of Agricultural Engineering Services

The Division provides specialist planning and management services and technical extension services in relation to sustainable, broad-based and cost-effective irrigation development, farm mechanisation, and post-harvest schemes and other civil engineering activities.

The Division is responsible for the establishment of an efficient institutional structure to manage irrigation on a national basis and for the implementation of irrigation projects where they are economically viable and environmentally sustainable. This is done by legally establishing irrigation boards and management agreements covering all irrigation schemes. The Division aims to expand the area of land under irrigation, subsequent to positive technical assessments, financial and economical cost-benefit analyses and environmental impact assessments.

Post-harvest processing technologies, particularly those which develop vertically integrated and cross-sectional linkages, are promoted through encouraging and reporting on private sector organisations who develop processing facilities and markets for irrigation scheme produce export and agro-industrial development, including vertically integrated industries such as tomato paste, cotton ginning, and fruit juices, preserves and condiments production.

There is need for the Division to develop the capacity to coordinate the Department's disparate efforts to deal with farm mechanisation, including draught animal power technologies which are currently taking place under the auspices of the Directorate of Agricultural Research and Training, the Divisions of Extension and the Rural Development Centre in Ongwediva (a project of the Directorate of Extension) as well as the Division of Agricultural Engineering Services itself. In addition, capacity is needed to address the need for low cost and small-scale irrigation technology, including low cost rainwater harvesting, better management of water from Oshanas, rivers, small dams and boreholes. The possibility of merging engineering services with a complementary functional section of the Department of Water Affairs to form a new

Directorate is being explored in view of the high priority currently being accorded to irrigation development for drought mitigation that will enable the production of high value agricultural cash crops for local consumption.

**(1.3) Sub-division of Law Enforcement and Supportive Services**

The Sub-division of Law Enforcement and Supportive Services is responsible for reviewing, updating and enforcing most agriculture related legislation and regulations in Namibia. Existing legislation will be reviewed, repealed or amended and new legislation enacted according to the provisions of the National Agricultural Policy and international agreements.

Effective plant and animal quarantine systems, commodity export and import standards control systems, soil conservation and natural resources management control and plant protection systems will be developed and implemented. The Sub-division will liaise closely with all agencies involved in regulating dangerous agriculture substances, including quality control laboratories and border control officials.

**(2) The Directorate of Agricultural Research and Training**

Having been created at the end of 1993 by the merger of the then Directorate of Agricultural Training and two Divisions of Agricultural Research, following the last public service rationalisation exercise, the Directorate has in practice continued to operate along two separate functional lines, as previously. These are described below.

**(2.1) The Division of Livestock and Plant Production Research**

The Division conducts agricultural research in order to promote optimal agricultural production and the sustainable utilisation of natural resources.

Priorities will be reoriented towards demand driven, multi-disciplinary and holistic research approaches to ensure efficiency and equity in agricultural development. Research programmes, based on participatory farming systems approaches, will be implemented in representative communal area communities. Other research will aim to improve and diversify agricultural production in market-oriented farming systems. Having identified, tested and approved new agricultural technologies, the Directorate will ensure that this information is passed on, in an appropriate form, to farmers and others involved in agricultural development, in particular extension services, NGOs, farmers and farm workers' unions, and agribusiness concerns.

Appropriate coordinating structures, including a National Agricultural Research Board to evaluate on-going research efforts and to prioritise and plan future research, will be established. Research programmes serving the needs of communal agriculture will receive 40 percent of budgetary and staff resources, while commercial agriculture will receive 40 percent and national research, serving both sectors, will receive 20 percent. This new focus on communal agriculture will mean a change of emphasis from livestock and range research to food grain and crop diversification, and the introduction of social-economic and marketing research capacity.

More effective research result dissemination methods will be applied, and GRN's agriculture research, extension and training services will be closely coordinated. The number of research stations will be reduced to thirteen in addition to the National Botanical Research Institute and the Windhoek Laboratory.

To strengthen research capacity, the qualifications and technical abilities of existing staff will be improved through in-service training, and contract research and joint venture activities with the private sector and NGOs will be undertaken. The Directorate will also strengthen cooperation with regional and international institutions involved in agricultural research, particularly in areas where local capacity is limited such as dryland farming technology, farming systems research and veterinary science.

The need has been identified for the Directorate to be restructured so that existing support service units are consolidated into a single Operational Supportive Services Unit responsible for the management of Experimental Farms and Research Stations. A new Division of Scientific Supportive Services including a Farming Systems Research Unit, and Information Management Unit, Monitoring and Evaluation Unit, and a Statistical Services or Biometry Unit will be created.

## (2.2) The Division of Agricultural Training

The Division of Agricultural Training aims to foster the development of the human resources required for the agricultural sector through coordinating provision for, and providing, formal, non-formal and in-service training. The Division must ensure that formal agricultural training at the primary, secondary and tertiary levels provides the critical mass of skilled human resources required for the development of a healthy sectoral environment in the most efficient and timely manner.

A multi-level and multi-disciplinary system of agricultural education and training will be designed and implemented in cooperation with partners including the Ministry of Basic Education and Culture, the Ministry of Higher Education, Vocational Training, Science and Technology, and the University of Namibia. The Division will participate in curriculum development efforts at all levels with emphases on basic education, the National Agriculture Diploma and teacher training.

All agricultural development programmes and projects implemented by other Directorates include support to both specific and general human resources development objectives. The Division has an important role to play in directing and coordinating these activities. It will provide training at residential centres, i.e. at the existing and former agricultural colleges, and through outreach programmes to communal farmers, prospective and newly established commercial farmers and farm workers, in cooperation with the Directorate of Extension Services. It will coordinate the provision of scholarships and donor funded training to all Departmental staff.

In-service and on-the-job training will be provided to all extension staff and possibly in the future to other Directorates, including short course formal training, management training and post-graduate training. A national accreditation system for in-service training courses will be developed in cooperation with the Ministry of Higher Education, Vocational Training, Science and Technology. It will organise specialised degree studies in agriculture at universities outside Namibia, and itself offer a National Agricultural Diploma at its Agricultural Colleges, and facilitate the provision of general agricultural degree training at the University of Namibia. Training programmes will be developed jointly with the private sector to promote non-agricultural activities, particularly those using agricultural products as raw materials.

The Division's planned activities will in future be based on the findings of National Sectoral Human Resources Development Needs Assessments which shall lead to the formulation of a Sectoral Human Resources Development Plan. GRN's resource allocation to agricultural training will be apportioned as follows: farmers' training: 30 percent; in-service training of Departmental staff: 30 percent; formal training at primary, secondary and tertiary levels: 40 percent.

The Division's headquarters staff capacity will be increased by the addition of new posts. GRN owned tertiary level agricultural education and training institutions will be rationalised in terms of numbers, functions and specialisations. The possibility of commercialising training institutes will be explored, and other mechanisms to promote and encourage the private sector's participation and involvement in non-formal and vocational agricultural education and training will be developed.

Efforts to upgrade and improve staff performance will continue through improving remuneration levels and the provision of in-service training opportunities. Affirmative action policies towards women will be implemented with regard to training staff recruitment, selection for agricultural training opportunities and awarding of bursaries and scholarships.

(3) **Directorate of Veterinary Services**

The Directorate of Veterinary Services aims to maintain and improve the health of the Nation's livestock in order to ensure safe and orderly access of Namibian livestock and livestock products to local and foreign markets.

(4) **Directorate of Planning and Rural Development**

The Directorate will provide GRN decision-makers with information on past and future agricultural production, as well as providing economic analysis and advice on the efficiency and consequences of alternative policies, programmes and activities relating to agricultural development. Current responsibilities for Rural Development Planning and Cooperative Development Services are under review.

The Directorate will provide policy and economic analyses to management and prepare new investment projects itself as well as appraise projects prepared by others. The impact of existing and potential input and output price and credit subsidies, and duty and tax interventions will be analysed considering socio-economic policy objectives, and input and output price distortions, and recommendations made accordingly pertaining to changing existing legislation and/or institutional arrangements. Likewise, the impact of the macro-economic environment on development objectives, programmes and policy objectives will be analysed.

Up-to-date information will be provided to decision makers on agricultural production trends and prospects. A database containing farm level input-output data and aggregate agricultural production trends will be developed in collaboration with the Central Statistics Office. The food commodity surveillance and reporting systems implemented by the Namibia Early Warning and Food Information Unit will be strengthened. A marketing information system will be developed to provide accurate information to farmers and traders on prices and the availability of the principal agricultural commodities.

An appropriate system to monitor and evaluate the activities of, and expenditure incurred on, DARD's portfolio of development projects will be maintained, and DARD's technical Directorates will be assisted in establishing systems to monitor their own activities. The resource allocation and investment prioritisation of the Department and the Directorates will be reviewed in the light of the National Agricultural Policy and improved budgeting procedures recommended accordingly.

The Directorate will also focus on stimulating international and domestic agricultural trade and on facilitating agricultural financing and investment. Marketing structures, legislation and regulations, and the statutory marketing organisations for agricultural produce will be monitored and recommendations made to reduce cost and increase

demand and overall efficiency. Support will be provided in identifying, and supplying agricultural commodities to new markets (both local and external) and in expanding existing market outlets.

The establishment of an export quality control/certification system by concerned bodies will be facilitated by the Directorate. By developing a market information collection and dissemination system, the private sector will be encouraged to ensure that marketing opportunities are fully exploited. The Directorate will continue to participate in SACU and other bi- and multi-lateral trade negotiations. The views of the private sector on trade issues will be canvassed periodically.

To implement the above mentioned objectives the Directorate will be streamlined and reorganised. The following new Divisions will be created:

- Policy and Planning, encompassing Sub-divisions responsible for Policy and Economic Analyses, and Project Development;
- Statistics and Information Systems, encompassing Sub-divisions responsible for Food and Drought Information Systems, Statistics and Data Bases, Monitoring and Evaluation and Management Information Systems; and
- Agribusiness, encompassing Sub-divisions responsible for International Trade, Domestic Marketing and Financing and investment facilitation.

The capabilities of the Directorate will be strengthened by the provision of specialised in-service staff training.

#### **(4.1) The Division of Co-operatives Development**

The Division is responsible for registering all types of co-operatives and creating awareness of the new co-operatives Act which aims to create a supportive legal and conducive economic environment for all types of co-operatives, including the ending of current practices such as subsidised GRN ventures (e.g. tractor hire) competing directly with co-operative enterprises. It also assists in the formation of co-operatives, and in developing the awareness of the benefits of co-operatives, entrepreneurial, organisational and managerial resources of the co-operative movement.

The Division provides training and training materials to all agents in the field of co-operative organisation, management, accounting and audit (both GRN and NGOs). Limited support services (including promotion, training and monitoring) are also provided directly to all types of co-operatives. Through the efforts of the Division it is hoped that co-operatives membership will increase by 6,000 by the year 2000.

#### **(4.2) The Division of Rural Development Planning**

The Division aims to facilitate the sustainable improvement in the living conditions of the rural population, with special emphasis on the participation of the poor by coordinating the formulation of cross-sectoral national and regional development policies involving the participation of all line Ministries, NGO and interested private sector parties. The Division will promote the creation of, and act as the secretariat to, an effective steering mechanism for rural development planning through the establishment of a National Rural Development Council, supported by sub-committees responsible for the implementation of critical strategic components such as: food security and nutrition, natural resources and land use, drought and disaster management, poverty alleviation and employment creation, rural research and information which will plan, co-ordinate and monitor the rural development efforts of all key players.

The Division is also responsible for overseeing the implementation of the national Food and Nutrition Policy and the Food Security and Nutrition Action Plan, by acting as the Secretariat to the Food Security and Nutrition Council and Technical Committee, and by implementing regional pilot projects. The Division supports the strengthening of the GRN's drought preparedness and management capacity and the mobilisation of peoples' participation and self-help initiatives through the provision of resources for the Food-for-Work Programme.

The Division promotes strategies for the development of rural industries, micro-enterprises and off-farm employment and income-generating activities by implementing pilot projects and providing operating funding, start-up capital, access to agricultural development and production services and entrepreneurial training through reputable NGOs and the private sector. The Division also undertakes research to identify the varied support needs of the rural poor and the ways in which they are changing over time.

The Division is currently located in the MAWRD's Directorate of Planning. As such, its operations are limited because of the latter's non-operational and single line function orientation. As an institution dealing with cross-sectoral issues and requiring an operational wing to carry out research and pilot new approaches, the possibility of the Division in the future being elevated to the status of a Directorate or Department, or being relocated to the Office of the Prime Minister in order to rationalise GRN's overall cross-sectoral efforts aimed at poverty alleviation, is being considered.

**(5) The Directorate of General Services**

The Directorate of General Services aims to provide support services to the Ministry's technical services with the aim of enabling them to execute their respective line functions.

At the start of the 1996/97 financial year, the two Directorates of General Services of the Department of Water Affairs and of Agriculture and Rural Development merged. New capacity to deal with computerised information systems, media liaison, and internal audit have all been inherited from the Department of Water Affairs. New institutional reforms are expected in the future to foster the need to decentralise General Services functions to the Regions and to privatise services where appropriate.

**(5.1) Division of Personnel Administration**

A Division of Personnel Administration is responsible for ensuring that establishment posts are properly and promptly filled, that staff performance is assessed and that sound labour relations are practised. The Division is responsible for Ministerial training in administrative and management matters.

**(5.2) Division of Finance**

The Division of Finance coordinates the preparation of annual capital and recurrent budgets according to a timetable set by the Ministry of Finance. It also monitors expenditure, trains and advises other Directorates on financial procedures, and informs them of budget expenditures.

**(5.3) Division of Auxiliary Services**

A Division of Auxiliary Services is responsible for, amongst other duties, procurement, stock control, fleet management and office services. One of the major tasks which the Directorate is expected to coordinate is the administration of provisions of the Report

of the Wages and Salaries Commission of 1995, including a five year programme of 2 percent reduction in personnel costs from a 1995/6 baseline, with half the costs of an annual pay increase to be found from within the reduced baseline.

#### **2.1.2 The Department of Water Affairs**

##### **(1) The Directorate Rural Water Supply**

As part of giving greater emphasis to the development of rural water supplies, responsibility for rural water supply was transferred to the Department of Water Affairs in 1993 (from the DARD). Since this time major effort has been directed to attempting to build institutional capacity within the Directorate Rural Water Supply. It is now apparent that the building of this capacity to an acceptable level will require several years. The Directorate is currently about 60% staffed, but few of the personnel are appropriately trained. Formulating and presenting courses and identifying suitable external courses for the training of personnel, are areas of major concern and input by the Directorate at present.

##### **(2) The Directorate Bulk Water Supply**

During 1994 an investigation into the possibility of commercialising some of the functions of the Department of Water Affairs was conducted. Cabinet has approved the creation of a State owned company with responsibility for bulk water supply. It is provisionally envisaged that this company — to be known as the Namibia Water Corporation Limited — will take over responsibility for bulk water supply in 1996.

#### **2.2 The Principal Institutions of the Ministry of Environment and Tourism**

The Ministry of Environment and Tourism's (MET) Mission Statement pronounces "to maintain and rehabilitate essential ecological processes and life support systems, to conserve biological diversity and to ensure that the utilisation of natural renewable resources is sustainable for the benefit of all Namibians, both present and future, as well as for the international community".

The Ministry's organisational structure can be summarised as follows:

##### **2.2.1 The Directorate of Tourism and Resorts**

**Division Tourism, Accommodation Establishments, Gambling, General Services and Personnel**

**Division Resorts**

##### **2.2.2 Directorate Resource Management**

**Division Resource Management - North**

**Division Resource Management - Central South**

**Division Specialist Support Services**

##### **2.2.3 Directorate Environmental Affairs**

**Division Planning and Development**

## **Division Resource Management**

### **2.2.4 Directorate Forestry**

Organised forestry in Namibia started only recently with the GRN's decision to establish a Directorate of Forestry in 1990 under the Ministry of Agriculture, Water and Rural Development (moved to the Ministry of Environment and Tourism in 1994).

**Division Forest Management and Extension - South and Support Services**

**Division Forest Management and Extension - North and Central**

**Division Forest Research**

## **2.3 The Principal Institutions of the Ministry of Fisheries and Marine Resources**

Having recognised the importance of the fisheries sector, the GRN upgraded the Department of Sea Fisheries (of the former Ministry of Agriculture, Fisheries, Water and Rural Development) to a full Ministry (MFMR) in 1991. The initial major task of the Ministry was to draft the fisheries sectoral policy, published in 1991 as a White Paper under the title, *Towards Responsible Development of the Fisheries Sector*. The translation of the policy into a legal framework followed in 1992.

In addition to its national tasks, the MFMR has established a SADC Sector Coordinating Unit after Namibia has been assigned the role of Sector Coordinator for Marine Fisheries and Resources.

The Ministry's responsibilities include the following :

- conservation of living marine resources within the EEZ and encouragement of their efficient exploitation;
- protection of Namibia's sovereign rights over the 200 nautical miles EEZ;
- establishment of a legal and administrative framework necessary for regulating fisheries activities;
- continuous assessment of the environmental, economic and social impact on resource exploitation; and the
- establishment of the institutional framework for the training of the human resources needed by both the fishing industry and the administration.

### **2.3.1 The Directorate of Resource Management**

The Directorate undertakes research on marine and fresh water fish to provide advice on the optimal utilisation of fish resources. The Directorate advises the Minister and the Sea Fisheries Advisory Council on

- the status of stocks and on the TAC; and on
- necessary measures for protecting resources.

### 2.3.2 The Directorate of Operations

The Directorate is in charge of the practical management, registration and control of the exploitation of both marine fish species and freshwater fish. It is responsible for the application and enforcement of all fisheries legislation, and the specific management measures and conditions applicable to fishing rights. In addition to providing administrative services to the MFMR, the Directorate manages the administrative process of aquatic resource utilisation (i.e. the application of rights of exploitation and fishing quotas, issuance of licences, collection of quota fees, etc.). The Directorate is also responsible for inspection services and compliance control.

(Report of Activities and State of the Fisheries Sector, 1993-94, MFMR, Nov.1995)

## 2.4 The Principal Institutions of the Ministry of Lands, Resettlement and Rehabilitation

The MLRR was created after Independence to deal with issues related to land reform and the acquisition of land; the resettlement of ex-servicemen, displaced people, returnees and the landless; and to assist the integration of disabled people into the mainstream of economic activity. The Ministry consists of two technical Directorates. The Directorate of Lands advises on the planning and administration of land on an inter-sectoral basis. The planning and administration of resettlement and rehabilitation are handled by the Directorate of Resettlement and Rehabilitation. The two Directorates are in turn divided into five Divisions, of Land Reform, Survey and Mapping, Deeds (all within the Directorate of Lands), Resettlement and Rehabilitation.

The Commercial Land Reform Act provided for the creation of the Land Reform Advisory Commission consisting of 16 members from the public and private sectors. The Commission advises MLRR on all issues pertaining to the Act.

### 2.4.1 The Directorate of Lands

The Directorate of Lands advises on the planning of land as well as its administration on a broad inter-sectoral level. This includes advice to the Directorate of Resettlement and Rehabilitation which deals specifically with the planning and implementation of resettlement schemes, which at the moment are mainly directed towards agricultural land uses.

The Division of Survey and Mapping provides a wide range of services which ultimately are all related to support proper planning and administration of land. Although the Division provides basic information for the planning exercises of the Directorate of Lands, this is only a minor part of their duties and responsibilities which include the provision of services to many other GRN and private institutions as well as the general public. The services provided by this Division are to a substantial degree directed to support the planning and administration of land in urban areas, which are not included in the land-use planning exercises.

### 2.4.2 The Directorate of Resettlement

### 2.4.3 The Directorate of Rehabilitation

## 2.5 The Principal Institutions of the Ministry of Mines and Energy

The Ministry of Mines and Energy (MME), established after Independence, brought together the minerals and energy sector whose functions were previously performed by various departments. MME is structured into four Directorates: Mining, Energy, Geological Survey and Administration/Finance.

The basic responsibility of MME is to formulate and implement national mineral and energy policies effectively in order to serve both the State and mineral investors. MME administers mineral regulation, the licensing of mineral rights, collection of exploration data and mineral analysis. In addition, MME enforces health, safety and environmental regulations in the mineral sector.

Managerial skills and technical capacity need to be addressed in MME. The Mineral-Economics Division of the Mining Directorate have only limited information and little or no computer hard/soft-ware for feasibility studies and evaluation of mineral projects, to capture and evaluate mineral production returns, to evaluate annual reports of the producing mines and to manage mineral titles. Administrative efficiency is low as a result of MME being housed at various localities in Windhoek, an inadequate level of management expertise in MME, lack of computer-based administrative systems, technical information processing and management systems.

One of the main ways to attract private investors is by making available data on the country's mineral reserves. A strong GSN is imperative if new data is to be acquired and available and exploration programmes are to be monitored.

More generally, the necessary technical skills (including mining and related fields) and training are in short supply in Namibia. This is partly because some mining companies often overlooked manpower training in various areas of the industry such as mineral exploration, processing and marketing as well as in managerial and technical fields.

#### 2.5.1 The Directorate of Mines

The Directorate of Mines does not actively participate in mineral exploration or mining. It only facilitates and promotes mineral exploration, mining and mineral processing which is carried out by the private sector. The staff of the Mining Directorate have a sound knowledge of mineral rights issues and maintain regular contacts with the mining industry in order to monitor significant developments. Despite staff shortages the Directorate continues to provide services to both potential investors and the mining industry. The Directorate allocates mineral exploration and mining rights and resolves conflicts between parties exercising their rights.

#### 2.5.2 The Geological Survey of Namibia

The Geological Survey of Namibia (GSN) provides mineral resource data for dissemination to potential investors. Recent rationalisation of the Public Service in Namibia has afforded the GSN the opportunity to restructure itself according to a dynamic, market-oriented role. Restructuring is reflected by the streamlining of the organisation into three professional divisions of Regional Geoscience, Applied Geoscience and Geotechnology in which university- and polytechnic-trained personnel make up nearly half the total staff.

GSN is primarily an applied research and data-collecting organisation, which has as its principal objective the preparation, publication and distribution of geological reports, maps and databases describing Namibia's geology, mineral deposits and mineral potential.

GSN carries out regional and economic geological investigations throughout the country and has made numerous publications. A handbook entitled *The Mineral Resources of Namibia*, contains reports on 52 different mineral commodities. Work continues on updating the mineral resources database. Linkage with the cartographic database will enable the development of a powerful Namibian earth science-related Geographical Information System (GIS) which will be available to interested parties.

### 2.5.3 The Directorate of Energy

#### The Division Renewable Energy

## 2.6 The National Planning Commission and its Secretariat

### 2.6.1 The National Planning Commission

### 2.6.2 The Directorate of Development Planning

### 2.6.3 The Directorate of Development Co-operation

### 2.6.4 The Central Statistics Office

## 2.7 Institutional Weaknesses

The constraints on human, technical and financial resources severely limit GRN efforts concerning environmental management. There are usually short-term preoccupations and competing priorities to contend with, all falling within limited administrative capacity.

It is generally agreed that one of the most critical shortcomings of the GRN in general is the lack of cross-sectoral planning. Policies are set in one Ministerial sector without considering their impact on another Ministerial sector, throughout the economy and on natural resource use. Therefore policy failures occur where land degradation is caused inadvertently.

Not only are communications poor - whether inadvertent or not - between Ministries, but also often between Departments, Divisions and Directorates within a particular Ministry. Thus gaps, duplication and overlaps occur and officials are expressing their frustration over this state of affairs. In addition, there is insufficient communication between GRN and the Private Sector; opportunities for utilizing the experience and expertise from the latter are frequently lost. NGO's who work closely with GRN are concerned regarding the status quo.

Issues relating to the sustainable utilisation of natural resources can only be properly addressed when incorporated into an integrated approach which addresses constraints to development in general.

A related weakness has been the traditional approach which emphasised conservation at the expense of human activity. This has led to the effect that rural communities often associate environmental issues with alienation and forced exclusion of the human population affected (as was previously the case with the Directorate of Resource Management - DRM). An integrated approach should be followed, one which stresses the incorporation of the communities in the maintenance of biodiversity (as advocated by certain NGO's and the DEA). This approach should furthermore emphasise the need to combine financial sustainability of natural resource management with ecological sustainability (as advanced by certain NGO's and the Directorate of Tourism and Resorts - DTR).

Effective environmental management requires an appropriate institutional framework. If a specialised environmental agency is to play an effective role, it should seek to influence and to coordinate effectively with both government agencies and public and private sector institutions. It should be borne in mind that this cooperation and coordination is usually costly to agencies in terms of staff and other resources.

It is intended to form a body to coordinate efforts concerning land use and the environment to be known as the Land-Use and Environment Board. The expectation is that the LUEB will

facilitate cross-sectoral exchanges and agreement within its mandate. However, cognisance should be taken of a body of opinion which says the problem of poor communication and cooperation is as much attitudinal as organisational.

This need for adequate cross-sectoral communication is obvious. What is not so obvious are the gaps and conflict of interest that occur and exist. For example, with MFMR/MET there is the issue of the seal population with MAWRD/MRLGH there is conflict regarding community development. Should Aquaculture fall under MFMR or MAWRD ? Where does Forestry and indeed Agroforestry belong - with MET or MAWRD ? If it is accepted that Agriculture has the largest single impact on the environment where does the ultimate responsibility for soil conservation lie - with MET or MAWRD ? Some observers say that there are already dangerous trends regarding soil tillage practices being used by MAWRD in the Northern areas; who monitors these and is the soil conservation Act 76/1960 effectively applied ?

Poor institutional design and weak institutional capacity are major hindrances to environmental management in developing countries. Both stem in large from unrealistic objectives and expectations. Programmes should, therefore, be structured to achieve some early successes, however modest, that serve to build confidence and that can then be replicated.

Even though governments may not admit it, they are only able to tackle one or two problems at a time. Better to tackle some effectively than to be ineffective across the board. Setting overly ambitious environmental goals can result in regulatory paralysis. Regulatory systems need to be progressively built upon an understanding of the broad social, economic, and political issues as well as of the government structures within which they must operate.

A major institutional weakness, probably experienced in all sectors of the Government Service of Namibia, is the lack of capacity to execute programmes and projects. The severe shortage of Namibians with the necessary qualifications and experience is mentioned in all sectoral chapters of NDP1. In addition, staff members in the more scientific fields of engineering, hydrology, computer science, geoscience, mining and metallurgy, etc., are leaving the Public Service at an escalating rate for the private sector, where salaries are usually higher. In some Ministries, only half the budgeted positions are filled. Efforts to fill the gaps created with foreign experts on contract have met with some success. However, these experts should train local personnel, but often local counterparts with the necessary basic background are not available in the Public Service. This results in an even greater dependence on expatriate personnel. It should also be mentioned that the provision of expatriate Technical Assistance is often tied to the particular aid package concerned whilst it is often the case that local or regional expertise is actually available to fulfill these functions in a more sustainable way.

### **3. REVIEW OF THE LEGAL AND REGULATORY FRAMEWORK**

#### **3.1 The Legal Framework**

Some of the relevant legislation pertaining to natural resource and environmental issues include the following (responsible Ministry in brackets) :

##### **3.1.1 Resource Conservation and Exploitation**

- Water Act 54/1956 (MAWRD)
- Artesian Water Control Ordinance 35/1955 (MAWRD)
- Forestry Act 72/1968 (MET)
- Preservation of Forests and Trees Ordinance 4/1975 (MET)
- Nature Conservation Ordinance 4/1975 (MET)  
(The act has now been amended. The Nature Conservation Amendment Act No.5, 1996 received Presidential signature on 4 June 1996. The act will amend the Nature Conservation Ordinance, 1975, so as to provide for an economically based system of sustainable management and utilization of game in communal areas; to delete references to representative authorities; and to provide for matters incidental thereto.)
- Controlled Game Products Proclamation 42/1980 (MET)
- Soil Conservation Act 76/1960 (MAWRD)
- Minerals (Prospecting and Mining) Act 33/1992
- Petroleum (Exploration and Production) Act 3/1991 (MME)
- Petroleum Products and Energy Act 13/1990 (MME)
- Sea Fisheries Act 29/1992 (MFMR)
- Foreign Investment Act 96/1990
- Sea Birds and Seals Protection Act 46/1973 (MFMR)
- Locust Suppression Proclamation 34/1923 (MAWRD)
- Agricultural Pests Act 3/1973 (MAWRD)

##### **3.1.2 Pollution Control and Waste Management**

- Hazardous Substances Ordinance 14/1974 (MHSS)
- Atmospheric Pollution Prevention Ordinance 11/1976 (MHSS)
- Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 1947 (MAWRD)
- Nuclear Installations Act 43/1963 (MHSS)

- Atomic Energy Act 90/1967 (MME)
- Public Health Act 36/1919 (MHSS)
- Prevention of Undesirable Residue in Meat Act 21/1991 (MAWRD)

### 3.1.3 Land and Marine Matters

- ▶ Territorial Sea and EEZ of Namibia Act 3/1990 (MFMR)
- ▶ Sea Shore Ordinance 37/1958 (MFMR)
- ▶ Soil Conservation Act 76/1969 (MAWRD)
- ▶ Mountain Catchment Areas Act 63/1970 (MAWRD)
- ▶ Agricultural (Commercial) Land Reform Act 6/1995 (MLRR)
- ▶ Townships and Division of Land Amendment Act 28/1992 (MRLGH)
- ▶ Sub-division of Agricultural Land Act 70/1970 (MAWRD)
- ▶ Fencing Proclamation 57/1921 (MAWRD)
- ▶ National Monuments Act 20/1969 (MEC)
- ▶ Prevention and Combatting of Pollution of the Sea by Oil Act 6/1981 (MWTC)

### 3.1.4 Human Resource Matters

- Public Health Act 36/1919 (MHSS)
- Labour Act 6/1992 (MLHRD)
- Workmen's Compensation Act 39/1941 (MLHRD)
- Factories, Machinery and Building Work Ordinance 34/1952 (MTI)
- Mines, Works and Minerals Ordinance 20/1968 (MME)
- Occupational Disease in Mines and Works Act 78/1973 (MHSS)

### 3.1.5 Revision and Re-drafting

With the assistance of a Norwegian financed three-year programme, the Environmental Legislation Project, all Namibia's environmental legislation will be reviewed and revised.

The drafting of the following acts has been accorded high priority :

- Framework/Umbrella Environmental Act
- Environmental Assessment Legislation

The revision of the following legislation is to be done as a matter of great urgency :

- nature conservation legislation
- water legislation
- land-use, planning and development laws

The drafting/revision of laws pertaining to an environmental investment fund, forestry, fresh water fisheries, pollution control, the coastal zone, biodiversity, desertification and wetlands is urgently required because

- Namibia's environmental law framework is neither coherent nor comprehensive; and
- the statutes are all of South African origin.

As regards renewable natural resources, the review and revision process will, based on the principle of comprehensive public participation, concentrate on the following general aspects:

- provide for sustainable management while allowing for optimum yield;
- where applicable, sectoral legislation will be integrated into a broader environmental and developmental policy and legal context;
- broaden the powers of the responsible Ministries;
- provide for community based natural resource management to avert the alienation of people from natural resources;
- provide for the diversification of production;
- provide for equitable access to natural resources and to the services provided by the responsible Ministries; and
- provide for conformity with international conventions.

With regard to non-renewable resources, the revised legal framework will recognise and provide for

- responsibility of users towards future generations; and for
- environmental audits, assessments, monitoring and management plans.

As far as the general legal framework is concerned,

- Article 95(1) of the Constitution commits the State in principle to adopt certain policies. However, these provisions, being part of the Principles of State, are not enforceable by the courts;
- a general Environmental Act will be drafted, the provisions of which to be adhered to by all sectors in the natural resource and environmental sectors;
- related legislation, presently fragmented, will be coordinated and rationalised into comprehensive provisions so that its implementation would resort under one administrative body, thus facilitating effective and efficient enforcement, supervision and monitoring;

- provide for uniform and consistent standards (Proceedings of the First Working Group Meeting on the Review and Revision of Namibia's Environmental Legislation, MET, 1994)
- provide for the right of citizens to litigate for the protection of the wider community;
- provide for market incentives for more sustainable use of natural resources; and
- legislation will be both reasonable (Constitution, Article 18, Administrative Justice clause) and implementable;  
(Proceedings of the First Working Group Meeting on the Review and Revision of Namibia's Environmental Legislation, MET, 1994)

(Namibia Environment, Vol.1, 1996)

At the present moment, the implementing agencies in the natural resource and environmental field are guided by the below-mentioned legal framework :

#### Forestry

Prior to 1990, forest management in Namibia was guided by two legislative documents, namely, the Forest Ordinance of 1952 and the Forest Act of 1968. At present, there is no relevant legislation to guide the implementation of the Forestry policy (1992). The DoF, with the assistance of the FAO, is currently preparing an updated and appropriate legal framework. However, this exercise should really follow after the Forestry Sector Strategic Plan, presently under preparation, has been completed and accepted by all concerned parties.

#### Mining

MME has given particular attention to the legislative framework controlling the mining industry. MME, in consultation with other ministries, official bodies, representatives of the mining industry and relevant private sector organisations assisted by overseas experts drew up the Minerals (Prospecting and Mining) Act 1992. The Act was promulgated in 1994 and repealed the Mines, Works and Minerals Ordinance, 20 of 1968 and Atomic Energy Act, 90 of 1967.

The Act provides for :

- licensing of mineral prospecting and mining activities;
- control over minerals in Namibia;
- payment of licence fees;
- negotiation of individual mineral agreements with investors together with other pertinent matters;
- allocation of mineral rights to individuals and companies; and
- reporting requirements to monitor work performance and mineral resources.

The Act ensures security of tenure to the investor and ensures that GRN can acquire an equity interest in a mining operation only at the invitation of the investor concerned through voluntary negotiation of a specific mineral agreement.

## Fisheries

All marine resources found in Namibian fishing grounds belong to the State. It is the duty of the GRN to ensure the optimum utilisation of these resources. To attain sectoral objectives, legislation was enacted to regulate activities in the fisheries sector, most importantly the 1992 Sea Fisheries Act which contains provisions for the conservation of the marine ecology and the orderly exploitation, protection and promotion of marine resources. The Sea Fisheries Act also requires the Minister to consult with the Sea Fishery Advisory Council before determining TAC for species to which the quota system applies (not all species are managed in this way).

The Fisheries Regulations of 1993 — made in terms of the 1992 Sea Fisheries Act — constitute a further development of the legal framework for the sector. Fisheries regulations are a set of rules with which fishing right holders, fishing vessels, fishermen and the fish-processing industries have to comply.

The granting of fishing rights and allocation of fishing quotas are done on the basis of criteria set out in the 1992 Sea Fisheries Act and the 1993 Sea Fisheries Regulations.

The Ministry is also responsible for inland fisheries and currently a policy document on fresh water fish is being drafted. The document is to address issues related to the exploitation, protection and conservation of Fresh Water Fish.

After Independence, the initial action by the new Government was to declare a 200 nautical miles EEZ along the coast to ensure the conservation of marine resources. Consequently, a large number of unlicensed vessels fishing in the 200 nautical miles were forced to leave the Namibian fishing grounds.

### 3.2 The Regulatory Framework

The consultative approach seems especially well suited in developing countries. First, many countries have cultural traditions which emphasise consensus building and compromise over confrontation. Second, where government resources are limited, other parties may be able to contribute valuable technical inputs into the formulation of regulations. Third, limited enforcement capabilities in many developing countries make it desirable to obtain as much voluntary compliance as possible.

Environmental authorities often have limited power within the government bureaucracy and therefore they need to negotiate and compromise with other government agencies as well as with the private sector and the general public.

There is also a real danger that regulations, however impressive on paper, may be beyond the capacities of government to enforce and users to meet. To minimise the risk it is important for government to consult closely with those to be regulated in the early stages of formulation.

Consultations should be aimed at building the widest possible consensus among those to be regulated so that the measures intended are necessary, reasonable, equitable, and affordable.

From the outset the design of a country's environmental management programme needs to consider the specific balance of problems confronted. For example, if the legal system is not well developed and property rights are ill-defined, there is a case for broad-based use of economic instruments, with a sparing use of regulation focussed on a few carefully selected major targets. Similarly, the removal of market distortions is suggested as an early priority where these are widespread. Finally, a certain scepticism about the importance of the environment suggests a different approach, which should emphasise the need for environmental education, both of the governors and the governed.

There are several issues that need to be addressed in constructing a basic regulatory framework, e.g. environmental quality standards, selecting the method of regulation, and introducing a system of Environment Impact Assessment and Cost-benefit Analysis.

Much can be achieved within a government with limited resources through the astute (re-) design of the regulatory framework combined with the selective introduction of economic instruments.

In setting up an environmental management programme, developing country governments have normally opted for the regulation-based, "command-and-control" approach (COC). Such systems, however, rely heavily on the availability of technical skills and an effective administrative infrastructure for monitoring and enforcement. Frequently too, regulatory systems have only weak grounding in local legal, institutional, political and social realities. Moreover, central government control over remote communities and enterprises is often tenuous at best, making for weak enforcement of regulations on natural resources extraction and primary processing activities.

The limitations and costs of straight command-and-control approaches have encouraged a search for alternatives. In general, the tendency has been to design and employ instruments that rely on altering or generating market signals - so-called Market-Based Instruments (MBI).

There are two basic institutional prerequisites for ensuring that economic instruments generate the intended incentives for behavioural change in the targeted groups: these are the delineation of property rights and the specification of user rights.

Economic instruments generally work through market mechanisms to create incentives for less environmentally damaging behaviour. The benefits are that MBIs allow individuals to choose their own approach to compliance so as to minimise their compliance costs. MBIs, like taxes and user charges, provide a constant stimulus to the search for less resource-intensive technologies.

It is said that "regulations carry the big stick while economic incentives provide for a daily diet of small carrots".

Though sometimes portrayed as diametrically opposed to COC, MBI generally presuppose and build upon a basic regulatory framework so that, in practice, policies and programmes frequently combine elements of regulation with incentives. In many practical situations, hybrid systems of regulation-*cum*-incentives may well be the most cost-effective in meeting environmental targets. The regulatory component reduces the degree of uncertainty, while the incentive component allows for flexibility in responding to regulatory pressures. It is also clear that a poorly designed incentive system can turn out to be a costly policy failure just as can an inappropriate regulation.

A properly devised environmental strategy must place regulatory measures in a broader context, including economic instruments, environmental education and social measures. In this way governments can avoid unrealistic expectations about what regulation alone can accomplish.

The following needs also to be considered in seeking to improve performance in the area of enforcement :

- research and monitoring: in the absence of good baseline data and a research and monitoring capacity, reports on over-utilisation are based on visual observation. However, problems may become visible long after they have become serious; and
- compliance: in the best of circumstances, voluntary compliance is unlikely ever to be total, so government will have to resort to some means of enforcement.

## 4. REVIEW OF THE POLICY FRAMEWORK

### 4.1 Background

Explanations of environmental degradation normally invoke one or both of the two basic causes: market failure and policy failure.

Market failure refers to situations where markets fail to price goods and services at their true cost to society as a whole. One reason why environmental costs are frequently externalised is the lack of clearly defined property right. In some cases, a special effort to agree upon and to define such rights is a first step towards enforcing appropriate environmental behaviour, as for example insecure land tenure would discourage long-term investments and encourage short-run output maximisation.

Because of the difficulty in establishing markets for some natural resources because they are regarded as public goods, markets do not function well without property/user rights, some natural resources can only be marketed through natural monopolies and markets require competition, transaction costs, etc.

Price distortions which often have negative effects on the environment include input subsidies. Simply reducing distortions by allowing prices to reflect more closely private costs would be an important first step towards encouraging greater resource conservation and reducing environmental damage. Eventually, prices need to be adjusted further to fully reflect environmental and other social costs.

Policy failure occurs when a policy designed to achieve one objective has an unintended, adverse impact on another objective. These failures can often be addressed by redesigning policy instruments to eliminate such negative impacts while continuing to target their original objective.

Livestock subsidies during drought are a good example. The policy is principally intended to ensure that farmers have a viable, productive herd by the provision of extra fodder once the drought is over. However, the policy leads to degradation of rangelands because it discourages farmers from de-stocking to levels which the land can support during drought. The policy should be redesigned to promote long-term strategies through increased expenditure on either land reform, de-stocking/re-stocking initiatives, etc.

GRN should generally avoid using direct subsidies (except where correcting for market failures) but rather focus on the creation of an enabling environment for development.

However, there are also conflicts between policy objectives which go beyond economics: social (equity) and political considerations will often override economic efficiency.

### 4.2 General Policy Framework

#### 4.2.1 Global Policies and Concerns

Environmental issues have moved to the top of the international policy agenda, in part due to critical concern over global issues like climate change and ozone depletion. What distinguishes the current situation is the growing recognition in all quarters of the inextricable link between environmental and developmental concerns.

GRN should recognise that global environmental problems give a perhaps unprecedented degree of leverage to negotiate with industrialised countries a *quid pro quo* for its participation in any international convention.

Namibia signed the Convention on Biological Diversity on 12 June 1992 in Rio de Janeiro at the UNCED, the conventions on desertification, wetlands (RAMSAR), toxic waste (Basel Convention), climatic change, CFCs (Montreal Protocol), and the Vienna Convention.

#### 4.2.2 Regional Policies and Associations

GRN's policies should be consistent, not only with global policies, but more importantly with regional (Southern African Development Community - SADC) aims and objectives.

On an economic level, Namibia's membership of the Southern African Customs Union (SACU) has a marked influence on the prices of imported goods. This is especially relevant in view of the stated policy of self-sufficiency in wood products and food stuffs. These policies might only be viable because alternative markets outside the SACU are not explored because of high tariff barriers.

It should also be recognised that access to protected regional markets such as to the European Union under the Lomé Convention, effectively provides a subsidy to the beef and livestock markets. However, subsidisation of livestock production should be avoided in order to protect natural resources from over-exploitation.

Apart from Namibia's regional affiliation, external assistance to Namibia is often subject to the EFA's own regional objectives. Examples include DANCED's Strategy for Danish Regional Environment Cooperation in Southern Africa and USAID's Initiative for Southern Africa (ISA).

#### 4.2.3 Government Policies and Priorities

Natural resources are overused because of increases in demand through population and economic growth, and rising expectations of living standards. Apart from policy measures such as changing the composition of growth, moderating unsustainable aspirations and reducing the population growth rate, it is also essential to develop strategies to increase supply and to manage existing stocks sustainably. Economic growth and the related phenomenon of population growth probably has the greatest impact on natural resources use and land degradation. This necessitates a planning process where natural resource considerations are taken into account in planning economic growth.

In this section, some policy measures that affect the use of natural resources will be discussed. Please note that a comprehensive draft report on the "Policy Factors & Desertification - Analysis & Proposals" has recently been compiled by a consultant at the initiative of the Namibian Programme to Combat Desertification (NAPCOD). This section quotes extensively from the draft report.

#### 4.2.4 Supplementary Institutional Policies

GRN institutional policies that have an important, albeit secondary, influence on environmental issues and that have to be considered when formulating policy include the provisions relating to the state revenue fund and the public service staff code.

The Namibian Constitution stipulates that all funds accruing to GRN must be channelled through the Central Revenue Fund. This would mean that any fund raising activity through levies, taxes or other user charges would not be to the direct benefit of the implementing line Ministry.

It must also be borne in mind that any policy measure that would influence an IA's staff component must be approved by the Public Service Commission. The Commission also stipulates minimum educational requirements and service conditions.

#### 4.3 Underlying Policy Factors

##### 4.3.1 Poverty

GRN lacks a comprehensive poverty strategy. Some poverty alleviation measures actually contribute to land degradation because they subsidise natural resource use.

It is often argued that redistributing access to land - rather than subsidising livestock production - will have a positive environmental effect as it will relieve the pressure on "open access" land. This line of argument seems to be followed in almost all major documentation available. However, the issues that are left open and need substantial research are:

- who are the owners of the livestock on the "open access" land?
- what is the rate of absentee landownership in communal areas?
- from an environmental perspective, what will become of the newly opened areas in the absence of supportive policy measures and institutions?

Moreover, the only redistribution currently taking place is small-scale resettlement. The resettlement programme risks undermining both poverty and environmental objectives through:

- i) the provision of an unsustainably high level of infrastructure and services to those resettled, creating dependency and high unit costs, both of which reduce the number of people who can be resettled, resulting in social welfare for a few and not poverty reduction, and
- ii) poor management of grazing areas through over-stocking and the collapse of rotational grazing.

GRN should develop a poverty reduction strategy for the rural poor which reduces rather than increases pressure on the environment, such as :

- land reform, including tenure over natural resources, which gives incentives to enhance the sustainable management of natural resources and opportunities for earning income;
- promotion of alternative income generating activities;
- promotion of labour-intensive development projects;
- provision of infrastructure and marketing opportunities; and
- continued reorientation of health and education spending towards primary sectors, and of agricultural spending towards communal areas.

In addition, GRN should target the reduction of absolute rather than relative poverty.

##### 4.3.2 Population

It is important for environmentalists and policy makers to realise that reducing population growth can only be one component of a broader environmental strategy. Research has shown

that while population growth is a proximate cause of land degradation, it is mediated through a number of other factors including poverty, market failure, access to credit, weak land management institutions and poor macro-economic management. What is needed is a strategy to address all the causes of land degradation.

Population growth makes it all the more imperative to improve the management and productivity of renewable resources so that falling standards and degradation are avoided.

The related priority of GRN to combat urbanisation will certainly influence population pressure on communal land. The rural regions of Namibia experience a much higher population growth rate than the urban areas.

#### 4.3.3 Economy

GRN's growth policy certainly has an influence on the environment as it assumes an increase in supply and a rise in productivity. However, any economic growth policy has conflicting implications, namely growth reduces rural poverty and therefore reduces dependence on land and primary resources, while at the same time growth increases the demand for natural resources in industry and urban households. This increases the need to ensure that the structure of growth promotes rural poverty reduction and develops in sectors which places less demand on natural resources, such as extended investment incentives to services, promotion of growth in rural areas, promotion of high value-adding activities, etc.

The agricultural policy of food self-sufficiency will certainly put great additional pressure on the natural resource base of Namibia with its population growth rate in excess of 3% and the achievement of this goal is highly debatable anyway. The comparative advantage of food production in Namibia without input subsidies, which the recently formulated agricultural policy is committed to removing, is relatively small. GRN should rather pursue a policy of national household food security.

### 4.4 Immediate Policy Factors

#### 4.4.1 The Constitution

Article 95(1) of the Constitution, Promotion of the Welfare of the People, states *inter alia* that the State shall promote and maintain the welfare of the people by adopting policies aimed at "...the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic wastes on Namibian territory...".

Furthermore, Article 91(c) states that the Ombudsman shall have "...the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia."

#### 4.4.2 The First National Development Plan

The provisions contained in the First National Development Plan (NDP1) provide for the overall framework for development in Namibia until the turn of the century. The document has been endorsed by the highest official organs of Namibia and, although arrangements have been made for flexibility, the provisions should be adhered to by all institutions, national as well as international.

## 4.5 Sector Specific Priorities and Policies

### 4.5.1 The Environmental Sector - General

Namibia's environmental problems, priorities and policies are described in the First National Development Plan (NDP1), which was ratified by the National Assembly in November 1995. Apart from the Constitutional commitment to the sustainable utilisation of Namibia's natural resources, the relevant chapter in the NDP1 is primarily based on *Namibia's 12 Point Plan for Integrated and Sustainable Environmental Management* (April 1993) and *Namibia's Green Plan* (September 1993). In this regard, Namibia's environmental commitment fully complies with the fundamental objectives of 'Agenda 21' of the UNCED Conference.

### 4.5.2 Namibia's Environmental Problems

Namibia's economy relies almost totally on natural resources, both renewable and non-renewable. The sectors showing the fastest economic growth and long-term potential are those using or relying on renewable natural resources (fisheries and tourism). In addition, two-thirds of Namibians in rural areas are directly dependent on the soil and on living natural resources for their survival and well-being.

In the past, Namibia's environmental constraints have not been taken into account at all levels, and resource use has too often been unsustainable. Shifting the pattern of development onto a more sustainable path is the major challenge during the Plan period (1995/96 to 1999/2000).

Before Independence, there was virtually no environmental planning across sectors and regions. As a result, sectors operated in isolation, and there was little contact within sectors, between GRN institutions, NGOs and the business community. In addition, access to international expertise and technology was prevented due to the boycott on South Africa.

Three additional factors which exacerbated Namibia's environmental problems were the neglect of the communal areas of the country, the neglect of rural women (who are often the main environmental managers), and the application of rigid policies in the commercial farming areas, imposed on a highly variable environment.

The following main problems with serious implications for the environment faced Namibia at the time of Independence (1990) :

- slow and uneven economic growth to alleviate poverty and unemployment. As a result, the majority of the population (especially women) remains dependent on primary production, and those with the fewest options for survival place continued pressure on limited and declining natural resources;
- human population pressure leads to ever-increasing demands on natural resources;
- human-induced loss of productivity of the rangelands and croplands, collectively termed "desertification", and manifest as deforestation, overgrazing, soil erosion, bush encroachment, declining groundwater resources, declining cropland production and salinisation;
- lack of planning and coordination in natural resource management;
- people alienated from resources;
- no mechanisms for encouraging or ensuring that the private sector utilises Namibia's resources in an environmentally responsible way;

- many environmental resources are not owned by individuals or traded in the market and therefore they are seen as "free goods" rather than scarce goods, resulting in over-use (for example, water and grazing);
- lack of information, awareness, education, and training needed for making decisions on sustainable management; and
- conservation was seen as an issue of parks and wildlife. The numerous ways in which policies, prices, and actions across a wide range of sectors affect the environment was not taken into account (for example, land tenure, meat prices, location and use of boreholes, investment incentives, etc.).

The key problem is that Namibia is heavily dependent on renewable resources, and yet there has been no system for ensuring that these resources are used sustainably and equitably in order to support present and future generations.

In most cases, these problems continue to face the country to varying degrees, but actions have already been taken to address many of them:

- the Constitution commits Namibia to the principle of sustainable utilisation, and sets the framework for environmental management;
- the Ministry of Environment and Tourism (MET) was created. The Namibian Cabinet delegated broad environmental responsibility to it, and specifically to the Directorate of Environmental Affairs (DEA), established in July 1992;
- numerous related, supporting and overlapping policies, strategies and programmes necessary for environmental planning and management have been identified. Many of these building blocks are in place or are being developed;
- coordination and inter-sectoral cooperation has been established on environmental issues (as evinced by the Green Plan and partnerships such as the desertification programme); and
- NDP1 will for the first time provide an holistic and long-term approach towards development planning.

#### 4.5.3 Namibia's Environmental Priorities

The over-riding objectives of the environmental sector during the Plan period and beyond are to :

- promote sustainable development within all sectors and across all regions to ensure that present and future generations gain optimal benefit from the equitable and sustainable utilisation of Namibia's renewable resources; and
- protect biotic diversity and maintain essential ecological life-support systems.

Additional objectives, which contribute to the above, are to :

- promote the training of Namibians and strengthen institutions in the field of environmental management;
- democratise environmental planning and management, and promote integrated planning and management of land, forestry and other natural resources with increased involvement of rural communities, women and local institutions;

- educate the Namibian public on environmental issues; and to
- establish an appropriate policy framework of legislation, market incentives, regulation, procedures, rights and responsibilities to ensure more sustainable resource management.

If these environmental objectives are not achieved, key national objectives will be undermined. Given the country's dependence on natural resources, if these resources are not used sustainably, economic growth will not be sustainable. The sectors of agriculture, fisheries and tourism all depend directly on renewable natural resources, while all sections of the economy require water and the functioning of essential eco-systems. Key sectors with potential for expanding employment are fishing, fish processing, and wildlife-based tourism. The long-term future of each depends on wise management of resources.

Some of the quantifiable targets for the environmental sector include amongst others :

- the establishment of an Environmental Commissioner in the Secretariat of the National Planning Commission by 1996 to oversee the full implementation of the Environmental Assessment Policy;
- assurance that the policies of sectoral Ministries are consistent with environmental constraints and principles of sustainability;
- the revision of all environmental legislation by 1997;
- the ratification of a new Environmental Management Act by 1998;
- the ratification of a new Integrated Pollution Control Act by 1998; and
- the establishment of an Environmental Investment Fund by 1997.

To ensure sustainable development, GRN will ensure that all agents in development will be compelled to adopt the following perspectives :

- a long-term view, providing for consequences over 20, 50 and more years to be assessed;
- the impact on other sectors, and on resources required by other sectors;
- the impact on a wider region than the exact location of operation;
- the value of natural resources, whether marketed or not, to individual welfare, the subsistence economy, and to national economic growth; and
- the distribution of costs and benefits from environmental resources, and the need for greater equity.

GRN aims to ensure that all resource managers and users adopt the above principles through a combination of incentives, regulation, legislation, information, education, training, responsibility, planning procedures, partnerships and protection.

The most important strategies that GRN has identified in the NDP1 for implementation are detailed below :

- **Revise environmental legislation**
- **Enhance the information base**
- **Enhance environmental planning within GRN**
- **Decentralise and democratise environmental rights and responsibilities**
- **Protect essential eco-systems, conservation areas and bio-diversity**
- **Invest in skills, training and institutional development**
- **Establish a framework for private sector environmental responsibility**
- **Restore, maintain and improve long-term productivity of the land**
- **Develop and implement policies for sustainable use of key renewable resources**
- **Invest in environmental education and awareness**
- **Fulfil Namibia's international environmental obligations**

GRN has recognised the private sector as a key player in implementing sustainable development. However, GRN will supply the necessary information for sound decision-making, incentives for environmental responsibility (including market and price incentives), clear procedural guidelines for transparent and easy implementation, and legal regulation to ensure that responsibility is equally shared by all industries.

Parastatals will also have a key role to play. Their terms of reference will include long-term resource sustainability, not just short-term profit maximisation. This is particularly important in the water and electricity sectors where monopoly suppliers usually pay more attention to financial gain, and therefore encourage greater consumption rather than efficiency savings.

NGOs are already active in promoting sound environmental management, both through the implementation of projects (such as community-based natural resource management) and environmental education.

#### 4.5.4 Land

Land is a central issue to development in Namibia because of the continued predominantly rural base of the majority of households, and because of the legacy of unequal land distribution inherited from the colonial period. The communal lands held and used by local communities were limited by the boundaries of what became freehold tenure areas occupied by individual settler farmers.

This created the dualistic land tenure structure and agricultural economy of today. Communal land — which is mainly in the higher rainfall areas of northern Namibia — covers 335,400 Km<sup>2</sup> (41% of total land) and is home to 138,000 households. The freehold tenure area occupies 362,000 Km<sup>2</sup> (44% of the country) which is divided into 6,300 farms belonging to 4,200 large-scale farmers.

Except for 110,000 hectares of land of arable quality in the higher rainfall area of the Otavi-Tsumeb-Grootfontein triangle, much of the freehold area is unsuitable for crop production. Freehold area production systems are based on extensive livestock rearing.

Prior to Independence and in the absence of land-use planning guidelines and of a national land-use plan, planning of the nation's natural resources for various uses was practised in an *ad hoc* and fragmented manner. Agencies and institutions involved in the planning of natural resources practised land-use planning from their own sectoral perspective with little coordination with other sectors. However, after Independence the MLRR was established. The Ministry was assigned the important task of initiating, facilitating and coordinating the land reform process in Namibia, including the resettlement of displaced and landless citizens (and the rehabilitation of the handicapped).

At Independence three key problems were inherited :

- unequal access to land;
- absence of planning structures to allocate land for specific land uses to ensure that benefits are both optimal and sustainable; and the
- degradation of land, resulting in reduced productivity, due to a combination of pressures from mismanagement, population growth and the semi-arid climate.

After Independence, GRN decided to strive towards sustainable land use in the communal areas by implementing projects specifically designed for these areas whose objectives were to optimise benefits (income, welfare, equity) both present and in the long term.

GRN initiated the land reform process through various activities such as:

- The foundation for the land reform process was laid with the national conference on land reform and the land question in June 1991 (the Lands Conference). During the Conference it was concluded that land reform was not only the resolution of the question of land tenure, but that it had to strive towards a more holistic approach emphasising the role of land and agriculture in national economic development. In doing so it should recognise the regional differences in Namibia, also within the communal lands. Equity in access to — and control over — natural resources, and efficiency in the use of Namibia's resources can only be achieved through a consistent and integrated set of policies.
- The efforts of the Land Reform Advisory Committee resulted in the preparation of the Commercial Land Reform Act. The Commercial Land Reform Act will be administered by the MLRR.
- The Traditional Authorities Bill was introduced by the MRLGH. This bill makes provision for the establishment of a Council of Traditional Leaders. However, the Bill does not clearly spell out the role of the Traditional Authorities in land allocation and land management.
- The Communal Land Bill has been drafted. It is expected that the MLRR will also administer the Communal Land Act.
- Other crucial developments affecting the land reform process were the establishment of Regional Councils and Local Authority Councils in 1992. The Regional Councils have been allocated control over the natural resources including land, in the rural areas under their jurisdiction. Their specific tasks, responsibilities and jurisdiction still have to be clearly defined. The Local Authority Councils were allocated control over land of proclaimed town and urban settlements. The Regional Councils Act as well as the Local Authorities Act are administered by the MRLGH.

The objectives of this sector for the Plan period are to :

- provide adequate access to land for landless people; and to
- promote, facilitate and coordinate access to and control over land at all levels following integrated land-use planning techniques involving all sectors so as to support long-term sustainable development for all Namibians.

Secondary objectives which contribute to achieving the primary objectives are to :

- develop policies on how to implement land reform process;
- provide training to the relevant officials in the MLRR and other ministries in integrated land-use planning with regard to the following topics :
  - \* involvement of the target communities;
  - \* regard to the role of gender in society;
  - \* the socio-economic characteristics of the planning area; and
  - \* long-term viability of proposed land-use options;
- continue to coordinate the process of land-use planning in Namibia by continued support to IMSCLUP and the LUEB;
- continue to create awareness on central Government level for integrated land-use planning principles;
- prepare relevant policies, guidelines and directives which are necessary to facilitate integrated land-use planning and local resource control as tools in the land reform process;
- prepare sound land-use proposals, including resettlement schemes; and
- provide planning assistance to regional and local authorities.

In order to achieve the objectives, the most important policies for the sector include the following :

- land reform and improved land administration to reduce unjust land allocation;
- creation of an integrated land-use planning capacity which coordinates land-use planning at all levels;
- improved access to land by regulating and regularising land tenure in the communal areas;
- introduction of land-use planning in all communal areas and unproclaimed state land before new allocations are made.

Amongst others, the following strategies all strive to achieve the above mentioned policies :

- during NDP1, GRN will allocate N\$100 million to purchase land for landless people following proper land-use planning techniques; decisions on land acquisition will be made by the Land Commission established in terms of the Land Reform Act;

- develop the following policies :
  - \* land tenure in the communal areas;
  - \* national land-use planning; and
  - \* land allocation;
- propose appropriate changes in legislation to facilitate proper land-use planning;
- establish a national data base for natural resources and socio-economic data accessible to all GRN institutions and approved outsiders;
- prepare land-use plans;
- monitor land use in communal areas, including resettlement schemes; and
- assist the Directorate of Resettlement in the MLRR in preparing a final resettlement policy and in defining criteria for settler selection.

As regards the legal framework, the present legislation does not cater for GRN control of land use in the commercial areas (with freehold title) except for Article 95 of the Constitution, which, on a general level, deals with the maintenance of ecosystems for the benefit of all Namibians. Consequently at the moment land-use planning exercises of the MLRR are limited to communal and unproclaimed government land in the rural areas (ie. GRN-controlled land).

Other GRN institutions involved in land-use planning include

- the MRLGH; directly responsible for the planning and administration of urban areas and the institution to which the Regional Councils are responsible and as such is directly involved in regional planning, which is the responsibility of the Councils under the Regional Councils Act (1992);
- the MET; responsible for the conservation of the environment and its efforts focus on the concept of sustainable development; MET provides crucial information for the land-use planning process by indicating the acceptable limits of the influence certain developments are allowed to have on the environment; conducts environmental assessments within the land-use planning process on policies, programmes and projects on national, regional and local levels; it also contributes to regional development planning by developing scenarios for the sustainable use of natural resources, based on community involvement; and
- the MAWRD; aims at optimising agricultural production; indicates the viability of agricultural enterprises in specific areas; MLRR integrates this information in proposed land-use plans for consideration by the MRLGH through the Regional Councils.

Given the diverse actors in the field of land-use planning and their difference in mandate and goals, it is evident that if land-use planning cannot be coordinated and remains *ad hoc* and fragmented, natural resources, including land, will continue to be used in an unsustainable manner. This in turn will hinder development and economic growth will not be sustainable, given its dependency on natural resources.

At the National Conference on Land Reform held in 1991 a Technical Committee on Commercial Farm Lands was established to make proposals for the development of a land reform programme. A Cabinet appointed committee on land reform tabled the Land Reform Bill on Commercial Farm Lands in 1994. The Bill on the Communal Lands is expected to be enacted shortly.

During the deliberations it has become apparent that many of the instances of over-use of natural resources which result in degradation are the consequence of the fact that rural communities do not have secure, exclusive tenure over natural resources. While they bear the costs of overgrazing, deforestation and excessive water extraction, they are not in a position to reap the benefits of sustainable management of these natural resources.

The introduction of secure, exclusive tenure at the community level is the most important policy reform needed to prevent degradation. This institutional reform would embrace all natural resources on the land. A related institutional reform which is required is the creation of local bodies capable of managing natural resources within their community.

#### 4.5.5 Forestry

Forests and other woody vegetation occur in Namibia within two vegetation types broadly classified as woodlands and variations of wooded savannas. The woodlands which contain Namibia's main commercial and other tree species constitute 20% of the total land area (savannas and deserts occupy 64% and 16% of the total land area respectively).

It is recognised that these vegetation formations have important ecological, economic, climatic and cultural functions and should be managed carefully.

Forestry development is constrained as much by social as by physical factors. Social issues having a significant impact on forestry development in Namibia include poverty, population growth, traditional land ownership systems, traditions and culture, and lack of knowledge and local participation.

Despite these constraints, significant achievements have been recorded by the DoF in areas such as :

- improvements in institutional capacity in terms of the number of district forestry offices established. Over the period since Independence the number has increased from two to nine. This has made it possible for areas previously neglected to benefit from the Directorate's presence;
- the process of demarcation of forest areas into reserves is gaining momentum following the creation of the first forest reserve in Katima Mulilo. Forest areas in various regions in the former Owambo have already been identified. Similar initiatives are taking place in Okavango region and former Bushmanland. The general staffing constraint in the directorate inhibits the rapid execution of the demarcation activity; and
- the number of nurseries has increased together with the production of seedlings aimed at reforestation.

The protection and management of Namibia's forests, woodlands and wooded savannas is now guided by the Cabinet approved 1992 Forest Policy Statement. The major objectives of the policy document are to :

- maintain environmental stability through the preservation and restoration of the ecological balance of areas which have been adversely disturbed by forest depletion;

- conserve the national heritage of the country by preserving the remaining natural forests with a vast variety of flora and fauna;
- recognise the fact that forestry is an essential part of land use planning to the extent that sufficient land must be set aside for forestry activities for multiple use;
- make Namibia greener by increasing the wooded area and by improving the quantity and quality of wood in our forests (at least 10% of the total land area to be declared as state forest);
- make the country self-sufficient in fuel-wood, poles, construction wood and timber by supporting afforestation and reforestation with indigenous and suitable exotic species (envisaged that 20 million plants will be raised and planted by various NGOs, communities, individuals and the Directorate of Forestry during NDP1);
- encourage the efficient and sustainable utilisation of forest resources;
- ensure that state, community and private forests are properly managed and controlled, especially with respect to exploitation;
- encourage and support the development and increase of professional knowledge in Namibia's forests and forestry and support this knowledge through organised research;
- direct, guide and control the trade and processing of wood and other forest products, in order to promote forest based industrial development and also protect both the environmental and the commercial interests of the nation;
- support the participation of rural communities with special attention to the role of women, in all forestry and conservation activities; and
- address the problem of "food security" by integrating forestry with other sources of livelihood such as animal husbandry and crop cultivation.

The main policies in the forestry sector during NDP1 will include the following :

- protection and management of indigenous forests for the production of forest products and the protection of the environment on a sustained basis;
- development of an extension and advisory service in order to increase public awareness and people's participation in forest conservation, and more specifically to promote the incorporation of trees into farming systems for the supply of various products and the conservation of soil fertility;
- assessment and compilation of the quantity and quality of the available forest resources in the northern part of the country;
- development of forest research programmes and the implementation of research initially on nursery and establishment techniques and natural forests;
- increase of wood supplies through the planting of trees; and
- strengthening of the institutional capacity of the Directorate through training of staff at all levels and creation of infrastructure.

To achieve the above set of policy objectives and targets, the overall strategy for the development of the forestry sector will seek to utilise forest resources sustainably by promoting a partnership and a participatory approach to forest management.

The specific strategies and actions during NDP1 will include :

- promotion of community participation in forest management through a system of incentives;
- revision of the policy and legislative framework to provide for community participation in forestry, joint management of forests between GRN and communities, community rights and revenue sharing. Also, aspects of trade in wood and wood-products from public, communal and private farms will be given special attention;
- protection and management of forests on communal or trust lands will be clearly defined and mutually agreed upon or recognised by GRN and communities;
- harmonisation of policies and regulations with those of related ministries or institutions such as wildlife, agriculture, water affairs and NGOs;
- support for agro-forestry through strong policy guidelines and laws requiring minimum tree cover in the most threatened or fragile cultivated areas; and
- provision of adequate funding, staffing and training for the Directorate of Forestry.

As forest resources provide staple materials to the large number of subsistence households in communal areas in the form of fuel wood, fencing, building materials, fruit and other food, it is probably neither possible nor desirable to try to establish markets for these products since most communal residents would not be able to afford them. What is needed is a management system which promotes sustainable use.

Local people bear the cost of deforestation in their area. However, without security of tenure over forestry resources there is little incentive to limit use or increase supply. Communities cannot be certain of reaping any benefit from their wise management as access is not restricted.

The forestry policy - perhaps inadvertently - sidelines the role of communities in forest management with its emphasis on State-run forests.

The 1992 National Forestry Policy has three potentially controversial objectives, i.e. the principle that "The derivation of direct economical benefit must be sub-ordinate", "All uninhabited land covered with forests or vegetation should be administered by the Government through the Directorate of Forestry", and "The national goal should be to have a minimum of one tenth of the total land area of the country under forest of tree cover".

However, a policy on the sustainable management of forest resources should address the following issues :

- the principle of community management of forest resources should be incorporated into any forestry legislation and into the Communal Land Reform Bill;
- the recent conservancy legislation should be extended to forest resources (see also Annexure 2); and

- State forest should only be introduced to protect critically endangered species and habitats as there is no case for declaring State reserves simply to try to exclude community access or to achieve an unrealistic target of forest cover.

In implementing a reforestation policy, the DoF should consider that reforestation requires that problems be addressed simultaneously in a range of areas - building procedures, land-use problems and unemployment.

The DoF is currently drafting a Forestry Sector Strategic Plan (FSSP).

#### 4.5.6 Water

GRN is committed to providing safe drinking water to the whole population. Water is also a key input for economic development, be it mining, tourism or livestock. GRN will ensure that water consumption reflects the relative contribution of industries to sustainable economic development.

Demand management — through pricing and conservation — is as important as expanding water supply from new sources. Without adequate demand management water consumption will quickly become unsustainable.

Rainfall and groundwater in Namibia are extremely limited. Throughout the country, potential evaporation exceeds precipitation by a factor of at least three. It is estimated that 56% of water consumption derives from groundwater, 20% from ephemeral rivers and 24% from the perennial border rivers. Because of high temperatures (average 25°C), it is estimated that 83% of the total rainfall evaporates, only 1% contributes to groundwater recharge and 2% can be harnessed in surface storage facilities. Added to this is the low levels of average rainfall: ranging from less than 50 mm per year in the western regions to 700 mm per year in the north east.

The combination of low rainfall and high evaporation results in irregular and unreliable supplies of water from ephemeral rivers, with only the perennial rivers on the borders of Namibia providing reliable sources of water. However, as this water is shared with the neighbouring countries, the use of water from these rivers must be based on agreements.

Rural water supply is mostly dependent on groundwater as the only source of water and apart from the north and north-eastern parts of the country, indications are that the groundwater potential is frequently fully committed and even over-utilised in some cases. A large proportion of water supplied to rural communities is not metered, so no accurate figures for volumes supplied are available, but there are about 6,000 rural water points under the jurisdiction of the Department of Water Affairs. In 1990, it was estimated that only 50% of the estimated rural population had proper access to a reliable source of safe water.

By contrast, the current water distribution situation in most urban centres is satisfactory with reasonable coverage, although low service levels prevail among lower income groups. However, being able to meet the projected growth in urban demand is a matter of concern, as most of the larger water schemes are already operating close to their maximum production levels. Further extensions to urban schemes will need high capital inputs and the water to be supplied will be expensive. It is, therefore, important to examine a combination of other options, such as increasing efficiency in the use of water and changing the demand pattern, in addition to increasing water supply.

There are already supply deficits in some regions of the country, requiring costly inter-regional water transfers, for example, the Eastern National Water Carrier. Major water sources in the interior are virtually fully exploited and Namibia's economic development will become increasingly dependent on long-distance water transfers. An increasing percentage of water

from the perennial border rivers will have to be used in future to meet the growing demand for water. Thus one of the major challenges is to ensure that existing and future demand can be met from limited supplies. This will involve improved and stricter controls and incentives to ensure the most efficient use of water.

The effect of water abstraction on the environment in certain areas is a matter of concern. In addition, the provision of groundwater sources in communal areas — without associated land-use management plans — has resulted in the over-exploitation of other natural resources such as grazing.

The main actors in the sector are the Department of Water Affairs in the MAWRD, the MRLGH, the Department of Works in the MWTC, the Department of Agriculture and Rural Development in the MAWRD, the MHSS, Regional and Local Authorities, rural communities and with regard to environmental protection and sustainability the MET. Other players include the Ministry of Basic Education and Culture, NGOs and donors.

The role of the Department of Water Affairs in the rural domestic water supply sub-sector is that of a facilitator. Rural water points are established by the Department of Water Affairs, which also provides training for personnel from the community, but day-to-day operations and maintenance of the water points is the responsibility of the community. However at this stage, due to lack of capacity within communities, the role of the Department extends well beyond facilitation only. This sub-sector is a new responsibility of the Department of Water Affairs and much of the present work and expenditure relates to the development of institutional capacity. During the 1994/95 financial year the Department of Water Affairs was allocated approximately N\$ 210 million for recurrent and development purposes, of which 38% was in support of rural water supply activities as compared to 62% for bulk water supply.

Rural livestock water supply is an area for which it is difficult provide a clear picture. In the commercial farming areas it is the responsibility of the farmers themselves and in communal areas where a water point is created for domestic consumption by the Department of Water Affairs, facilities are created for livestock as well to avoid pollution and degradation of the domestic water point. Responsibility for water points created in communal areas for livestock only is under the Department of Agriculture and Rural Development; however, there is a need for greater involvement of DARD in this area. There is at present no limitation on livestock numbers and the livestock population will usually increase in proportion to the provision of water points thus exacerbating ecological damage. Under the present Water Act, a permit is required if more than 1 ha is to be irrigated, similarly a permit will be required for a dam construction with a greater capacity than 20 000 m<sup>3</sup>. However, this Act has not been effective in water management, and it is intended that a new Act should be formulated and enacted during the Plan period to provide for stronger measures.

Bulk water supply by the Department of Water Affairs over the past 15 years has shown an upward trend in bulk water consumption, with variations from year to year being the result of drought. Domestic and livestock consumption has risen since the late 1970s, while mining consumption has fallen.

All proclaimed towns and most centres with a population in excess of two thousand people are supplied from a State Water Scheme by the Department of Water Affairs. Due to rapid urbanisation, water demand at these centres is growing faster than schemes can be extended. The volume of water supplied from State Water Schemes for domestic and industrial consumption during 1993 was about 60 million m<sup>3</sup>.

Responsibility for reticulation rests with the Local Authorities, or where a bulk scheme is for supply to a GRN centre, responsibility for reticulation rests with the Department of Works. Municipalities and Local Authorities are responsible for collection of revenues and maintenance of distribution infrastructure. The involvement of other actors largely relates to needs assessment.

Water supply for irrigation is largely the responsibility of the Department of Agriculture and Rural Development, with the Department of Water Affairs providing assistance. The one major exception is the Hardap Irrigation Scheme, where the Department of Water Affairs supplies between 20-30 million m<sup>3</sup> per year directly to farmers at highly subsidised rates. Commercial farmers in other areas are allowed to irrigate up to one hectare under their own jurisdiction.

Water supply to industry is largely from bulk water supply schemes via Local Authorities. The exception to this rule is the extractive industry, where mines are supplied directly by the Department of Water Affairs on a full cost recovery basis. The mine with the largest consumption is Rössing Uranium with a consumption of roughly 3.5 million m<sup>3</sup> per year.

Adequate sanitation facilities are essential for promoting public health and avoiding damage to the environment. This sub-sector has been neglected in the past, especially in rural areas. During NDP1, GRN will allocate responsibilities for sanitation to particular institutions and develop their capacity to meet these responsibilities.

At present, there is a lack of clear direction as to the division of responsibility, institutional capacity and finance in the sanitation sub-sectors. Water borne sanitation is frequently perceived as a requirement for a minimum acceptable standard of living. Unfortunately, the establishment, operation and maintenance of a sewerage system is very expensive in terms of water usage and frequently not financially viable. The larger towns finance their sewerage system by a monthly charge to residents. Unless charges are introduced it is unlikely that water borne sewerage can be made sustainable at other centres. In areas without the necessary finance and technical skills to maintain the system, the costs — in terms of lost capital investment and deteriorating health — of introducing water borne sewerage systems are extremely high.

Non water borne sanitation, which apart from public buildings is dominant in the rural areas, is the most neglected sub-sector. Very few households have latrine facilities and this contributes to the poor health status among the rural population and lower income groups in urban areas. In addition to the lack of facilities, behaviour can be as important a cause of poor health.

The sector objectives for NDP1 are to :

- provide safe water to the whole population;
- give priority in provision of water to rural areas;
- provide water at affordable prices;
- conserve water and avoid wasteful use of water and environmental damage;
- ensure that water contributes to improved public health;
- provide water within the community's reach, and avoid the burden of water collection; and
- ensure that water promotes and supports community-based social and economic development, particularly in rural areas.

In developing and expanding water sources, first priority will be accorded to developing water sources for domestic and livestock consumption, while the second priority will be water for mining and industry, and where suitable, for irrigation.

Having suffered from a lack of investment in the past, rural water supply is clearly defined as a priority sub-sector. The total expenditure on rural water supply over the five year period of the PSIP will be well over 50% of total expenditure to meet the following targets :

- 80% of the rural population to have access to safe, reliable supplies of water by the year 2010. Access is at present defined as within 2.5 km of the home; and
- 95% of the rural population to have representation on water committees at the district level by 2000.

The equitable improvement of services will be achieved by the combined efforts of GRN and the beneficiaries, based on community involvement, community participation, and the acceptance of mutual responsibility.

Community participation is emphasised in all aspects of water provision and maintenance: selection of sites, types of facilities, appropriate technology and level of service to be provided. Communities will be responsible for the daily operation of water points, including small repairs and maintenance. GRN support will be provided on the basis of an agreement between the community and the authorities setting out the respective responsibilities and commitments. The Water Point Committee members will also advise on appropriate tariffs for water.

Community liaison at various levels is required; to this end the Directorate of Rural Water Supply encourages and facilitates the formation of Central Water Committees for Regions, Local Water Committees and Water Point Committees to address problems at the appropriate level.

For bulk water supply, the target is defined as keeping pace with growing demand (5-11% per annum) of industry and an increasing population. This is estimated to entail annually the supply of between one and two million cubic metres of water additional to the previous years demand. By effective demand management through market pricing and conservation, it is expected that the water consumption growth rate can be restricted to 3% per annum. In the long term, such a growth rate implies that consumption will double every 20-25 years, with obvious implications for the need to find new sources of water supply.

The importance of the end consumer paying for water supplied cannot be over emphasised. If the end consumer does not pay a charge related to the level of service, every household will want a piped supply to the house. Such a service is not a financially viable option if beneficiaries do not contribute to the costs of services. Rural communities will as a general rule cover the operation and maintenance costs although there may be cases where government subsidies are required. Because of the great variations in the costs of water supply throughout Namibia, the ability of communities to pay for the actual costs of services will be assessed and if subsidies are needed, they may be applied.

Cost recovery in the water sector involves two issues: reducing subsidies to the relatively well off and increasing incentives to use water carefully. In this context the planning work of the Department of Water Affairs now entails studies related to demand management, water tariff structures and affordability of water for all large scale development programmes.

The policy of using stepped water tariffs will be considered by the Department of Water Affairs, for charges to Local Authorities, but the combination of full cost recovery by central Government and the use of stepped water tariffs by Local Authorities will also be considered as it is likely to be far more effective. Where a need exists for subsidisation of low income

consumers, the stepped tariff can be employed by the Local Authorities for the purpose of cross subsidisation.

With regard to effective protection of water from pollutants every effort is made to encourage the inclusion of local teachers and health workers on water committees. A Public Awareness Campaign on Water, Health, Hygiene and Sanitation has been started, although there have been problems in finding suitable staff to manage this programme.

In all cases where water is supplied by the State for irrigation it is to be charged at an economic rate, which may be reduced through a special subsidy determined by the value of the produce relative to its socio-economic benefits. The distribution network and land management (including drainage systems) will be the responsibility of the beneficiaries, assisted where appropriate by the Department of Agriculture.

As far as the environmental impact is concerned, the over-extraction of underground water resources has had an adverse impact on the vegetation, especially the tree inventory. Poor planning and coordination of borehole and waterpoint placement (aggravated by emergency drought relief provision) has encouraged permanent settlement and grazing in areas previously used seasonally. The reduced distance between waterpoints has enabled livestock to graze entire areas.

GRN should ensure that anticipated policy measures include provisions for consumers to pay the full financial cost of water supply, that water point management forms part of a comprehensive natural resource management bill, that water costs be recovered as part of an integrated natural resource user fee, and that limits on the proximity of rural water points be established.

#### 4.5.7 Agriculture

Agriculture currently contributes more than 8% to overall economic activity. However, agriculture's contribution to rural livelihoods, particularly in the communal-tenure areas, is much more significant than this figure might suggest — subsistence farming provides the principal source of income for 41% of all households in the country. In light of the modest growth projections for other sectors of the economy, the bulk of the population will therefore continue to rely upon the agricultural sector for their livelihoods.

The sector is the main source of employment and livelihoods for the population, with an estimated 70% dependent to a greater or lesser extent upon it. Furthermore, the private-tenure farms employ approximately 36,000 farm workers, representing some 13% of those employed in the rural areas and, together with their families, number approximately 200,000 people. The employment afforded by the sector helps to stem the flow of migrants to the towns. At the same time the poorest rural households, many of which do not have access to off-farm sources of income, depend almost entirely on the land and its products.

The sector is also an important source of foreign exchange — providing more than 15% of visible export earnings during recent years — as well as being an important source of raw materials for local industries. The principal export commodities are meat and meat products, as well as cattle and smallstock on-the-hoof, the bulk of which are destined for the South African market. These four commodities made up 91% of total agricultural exports in 1992.

Agriculture in general makes only a small and, it is believed, declining contribution to average communal-tenure area household income, both actual and imputed. Thus households have adopted highly-diversified livelihood strategies in order to minimise the risks posed by the uncertain climate and the poor (and declining) physical resource base, which cause extreme and unpredictable changes in both output and revenue. Agriculture can therefore be seen to play

a supplementary but essential role in the livelihoods of rural households and particularly for the poorest, with least access to off-farm incomes.

With *de facto* agricultural production being inadequate to meet basic food needs even in the best production seasons among northern households, food insecurity is a serious problem among much of the rural (and urban) population, in particular for members of households headed by women.

In spite of the poor quality of the country's natural resource endowment there is, nevertheless, scope for improving agricultural productivity and therefore food security and incomes, if an enabling environment can be put in place which encourages greater use of inputs by smallholder producers.

Given the high degree of inequality and partial neglect which were features of the agricultural sector before Independence, the strategy which GRN has pursued with regards to the sector since 1990 has been to redirect development efforts towards farmers in the impoverished and under-developed communal-tenure areas.

GRN has elaborated its National Agricultural Policy (1995). Among other things, the policy re-emphasises the fact that agriculture is to remain one of the priority economic sectors for the foreseeable future and emphasises the pivotal role to be played by the private sector in the development of agriculture.

The overall agricultural sector objective is to bring about the continued growth in agricultural incomes, across the broadest possible socio-economic base, in a sustainable manner.

The immediate objectives for the sector are to :

- improve levels of household food security nationally with an ultimate goal of achieving food self-sufficiency;
- raise the value of agricultural exports and/or reduce the value of agricultural imports;
- create productive employment opportunities; and
- increase the value added within the country to national agricultural output.

In order for these objectives to be realised, efforts to implement a number of current policies will be redoubled and new policies will be introduced. These policies include :

- encouraging an increase in the volume and diversity of agricultural output, in an economically-efficient and environmentally-benign manner;
- promoting the expansion of downstream agro-processing; and
- supporting farmers' co-operatives.

GRN will promote the involvement of the private sector and co-operatives in both agricultural investment and production activities and in providing essential commercial services such as input distribution, output processing and marketing of produce. GRN will also withdraw gradually from supplying services that are more appropriately and adequately handled by private sector initiatives (the supply of seeds, fertiliser and tractor hire services, etc.).

In summary, the key strategies to be adopted during the Plan period are to :

- focus resources and development efforts on the farmers in the communal-tenure areas, whilst seeking to sustain the performance of the private-tenure farming sector;
- allow the extension service to withdraw gradually from providing agricultural services which are more appropriately supplied by the private sector;
- develop more efficient input and output marketing systems;
- improve the efficiency with which the publicly-provided agricultural services are delivered;
- promote complementary off-farm income-earning opportunities;
- ensure that in planning interventions, gender issues, economic and environmental sustainability and the recurrent phenomenon of drought, are fully taken into account; and
- strengthen links with GRN departments, parastatals and other organisations, the activities of which impact on the agricultural sector.

The emphasis on ensuring the development of the small-scale, labour-intensive farming sub-sector has a greater potential for:

- (i) poverty reduction;
- (ii) social welfare generation; and
- (iii) labour absorption, than any other development strategy. In addition, such a focus will strengthen household food security and stabilise rural-urban migration, thus facilitating more balanced regional development.

GRN will seek to promote the use, for agricultural purposes, and in an environmentally-sustainable manner, of areas which are currently under-occupied.

In addition, GRN will encourage the development of non-traditional agricultural enterprises (such as game and ostrich farming, and grape and date cultivation) in order to promote the diversification of the sector and to develop enterprises which provide enhanced prospects for rural employment creation and income generation, particularly amongst resource-poor farmers. GRN will also promote complementary, non-agricultural income-generating activities to increase rural employment and food and livelihood security.

GRN will gradually limit its involvement in the agricultural sector to cases of market failure and will also withdraw gradually from direct involvement in agricultural production activities.

The coverage and effectiveness of agricultural extension are to be enhanced so that information and advisory services can be provided to all members of the country's farming community.

A further component of the GRN's agricultural development strategy will be to encourage the development of more efficient input and output marketing systems, in particular in the communal-tenure areas, and integrate them fully within national systems. The principle of aligning producer prices with those of border prices for the various commodities produced locally, will be followed closely. Where uncertainties and risks deter private traders from launching marketing ventures, direct GRN assistance will be provided, where appropriate, for

specific programmes but only in a limited way on a temporary basis until such time as private interests have the capacity to assume the responsibility.

Improved and assured access to agricultural financing in an equitable manner for all members of the farming community, irrespective of land tenure status, is an integral part of the agricultural development strategy. Such funds will be made available on a financially-sustainable basis through formal channels.

GRN support for livestock production in the communal area has been driven by social and political - rather than economic or environmental - objectives. This is an example of policy failure: supporting livelihoods through subsidies to livestock production has led to a misallocation of natural resources and has promoted land degradation. A solution needs to be found which enhances the standard of living in communal areas without undermining the resource base.

With regard to livestock numbers in the communal areas a clearer policy is required on who may run stock in these areas and up to what limits in numbers. At present much of the stock running on communal land belongs to absentee owners, very often the very civil servants who are in one way or another involved in land use administration generally. In addition, wealthy cattle owners are running large herds in illegally fenced-off areas, at the expense of the true communal farmer.

The Drought Aid Scheme provides fodder, transport and grazing subsidies. The scheme does not require communal farmers to de-stock in order to receive assistance.

Drought subsidies on a per head basis in the commercial sector is encouraging over-stocking. In the communal sector, drought aid has been reactive and does not take into account a long-term strategic approach that would strengthen the resilience of farming systems. This requires recognition of the inter-relationship of the impacts of droughts and resource degradation. Drought relief has included food aid and credit for the acquisition of animal and feed supplements, but most notably borehole development to provide water for livestock. Because this has taken place in an unplanned way, it has encouraged communal farmers to overstock.

In order to alleviate pressure on rural communal land, the GRN should aim at the establishment of market access and credit facilities so that livestock does not remain the only store of savings and source of status. In addition, drought relief measures should include incentives for destocking and assistance for restocking once the drought is over.

#### 4.5.8 Rural Development

The country's communal areas share the fundamental characteristics of underdevelopment and widespread poverty, which has led to complex inter-related problems. The key problem areas are :

- The social dislocation and disruption of social systems, and specifically the increased workload of rural women. This is in part due to the effects of the migrant labour system, which include the high proportion of female headed households (up to 57% in certain areas in the north).
- Low levels of agricultural productivity due to the lack of access to productive resources and markets for the majority of farmers, and a lack of effective agricultural research, extension, training and credit services.
- Poor health and educational standards due to inadequate availability of social services such as health, education, and skills training centres.

- Water shortages caused by the lack of protected and accessible water supplies, and inadequate sanitation facilities.
- Limited manufacturing and industrial development due to a market environment which discourages small-scale non-agricultural enterprises and associated appropriate technologies.
- Environmental degradation associated with overstocking, over-population, and deforestation due to the absence of alternative energy sources and building materials.
- Ignorance of improved technologies and life skills due to the lack of a well established information, education and communication capacity.
- Widespread unemployment amongst the economically active population in most regions.
- Low levels of popular participation in local decision making due to the lack of effective participatory institutions.
- Increasing rural-urban migration of people searching for better job opportunities, leading to an increase in urban unemployment and other social problems.
- Generally inadequate coordination between GRN and NGO institutions in the formulation of policies and implementation of projects and programmes.

These factors — in addition to the inherent agro-ecological vulnerability of the rural areas — have given rise to extensive poverty amongst rural households.

Regional poverty profiles clearly indicate the imbalance between the rural and urban areas. Extreme poverty in Namibia is by and large a rural phenomenon. Rural poverty is exacerbated by the widespread vulnerability to drought throughout the country.

The most immediate manifestation of this widespread poverty is household food insecurity which affects the majority of households at various periods during the year. This results in a high prevalence of nutritional disorders, especially amongst women and children.

With the attainment of Independence, GRN adopted the policy of redirecting public resources to cater for those most in need. This means that public spending will increasingly be directed towards education, health and social services, housing and rural development. The underlying philosophy is that, not only does such spending alleviate the immediate hardship of the poorest members of society, but it also represents an investment in people who will, over time, be in a better position to contribute productively to the development of the economy of the country.

GRN has embarked on several sector specific programmes to meet the needs of the rural poor. Projects have been embarked on in agriculture (special emphasis on the provision of resources to poor farmers and household food security), health and social security (community based primary health care approaches to improve access to rural disadvantaged communities), education (establishment of the National Literacy Programme, distance education programmes, adult education programmes and school feeding programme), housing, energy (rural electrification, promotion of alternative energy sources such as biogas and solar energy), food and nutrition (Household Food Security Programme, National Food Security and Action Plan), rural water supply (National Water and Sanitation Policy [WASPI]) and on gender issues (Department of Women's Affairs, various gender focussed training and income generating projects).

A regional perspective has been added to rural development in that development planning is being decentralised to take account of regional variations. In 1992, the Regional Councils and Local Authorities Acts were passed. The Regional Councils Act stipulates that national development planning should integrate plans initiated at the regional level.

The main objectives during NDP1 will be to :

- reduce levels of rural poverty;
- achieve more equitable distribution of the country's wealth;
- achieve more equitable access to productive resources;
- slow down the current high rate of rural/urban migration through increased development and service delivery in rural areas (while recognising that the pressure of population growth and industrialisation make some urbanisation desirable);
- improve the provision of health, education, water and sanitation services in rural areas;
- promote employment generating opportunities, including informal activities;
- Rural development is a multifaceted process, and will involve the implementation of a range of strategies and programmes.

Strategies will be implemented which aim to improve the provision of basic services such as health, education, water and sanitation in rural areas, with the focus on communal areas, in order to raise productivity and levels of income. An equally important strategic approach will be the promotion of the participation of communities in needs identification, assessment, planning, monitoring and decision-making.

Programmes will be implemented by a number of Ministries, NGOs and the private sector. One of the key strategies which will be employed in the promotion of rural development efforts is that of coordination. Coordination of rural development activities, both within Government and between Government and NGOs, is still in its infancy. However, it is recognised as a prerequisite for sustainable rural development.

#### 4.5.9 Rural Housing and Resettlement

It is estimated that about 150 solid trees are required to build one traditional house with many more trees used for the construction of the kraal fence. Based on a new household formation rate of about 3.1% per annum, it can be estimated that about 4,200 traditional homesteads are established each year. Assuming there are 2.8 traditional housing units per homestead, 1.8 million trees will be consumed just for the establishment of new homesteads each year. Considering this huge demand for trees, it is not surprising to find large-scale deforestation in the northern regions. Availability of grass for thatching is also a severe problem in villages. Alternatives to traditional homestead construction materials are, therefore, urgently needed.

As an initial step, a community awareness programme will be launched through the Community Housing Development Groups. All new homestead builders will be encouraged to switch to sun dried clay bricks.

As regards resettlement, its policy framework covers all kinds of destitute and displaced people in the country. There are no definitive figures but around 80,000 unemployed, landless and homeless Namibians are estimated to be eligible for resettlement. Since Independence the resettlement programme has focussed on the following high priority categories of vulnerable people :

- returnees who have no land and no jobs;
- demobilised ex-servicemen and their dependants who have no land and no jobs; and
- small scale livestock farmers with a maximum of 15 head of cattle and 90 head of small stock.

Since Independence, GRN has received over 16,000 applications for resettlement. Of these, about 13,000 have been resettled in thirteen projects throughout the country.

The nature of resettlement is highly complex, with social as well as physical planning problems. The difficulties experienced in other countries over the past thirty years in implementing resettlement schemes bear testimony to this complexity. Because of the need to move quickly immediately after Independence, and also because of a lack of trained and experienced personnel, a number of the first batch of resettlement projects were inadequately conceived, designed and appraised. As a result, these resettlement projects have been slow to be implemented, are proving to be costly (raising questions about the cost-effectiveness of the approaches used), and are not showing the anticipated capacity to be self sustaining after the initial 3-5 year establishment period.

Additional constraints relate to the shortage of serviced arable land for the many applicants in the north of the country who wish to pursue crop or mixed farming. In the south, much of the land available for resettlement is as yet incapable of supporting viable livestock activity because of past overgrazing and the below normal rainfall experienced over recent years.

By 1994, GRN had acquired 75,000 hectares of commercial farm land for resettlement schemes. A further 103,000 hectares have been negotiated and generously donated to GRN by communities in communal areas. To date, about 10,000 hectares have been utilised for resettlement or rehabilitation purposes.

The primary objective of GRN's resettlement policy during the NDP1 period will be to carry out the resettlement of eligible persons in ways which are institutionally, sociologically and economically sustainable and which allow the settlers to be self supporting.

The approach to settlement pursued so far has been based on the provision to settlers of land, social infrastructure (water, housing, electricity, roads, schools and clinics), marketing facilities, inputs and training. It is official policy to give a settler family a plot of land of 4-7 hectares. The settlers are free to use and develop their plots as they wish on condition that they are cleared and used productively. Settlers are encouraged to enter into cash generating activities (brick making, tailoring and so on) either on an individual or cooperative basis to diversify and augment their crop production activity.

#### 4.5.10 Mining

GRN recognises the important role of the mining industry in employment, mineral production, total export earnings and social advancement. The industry has been an important part of the economy since the turn of the century and continues to play a dominant role. In addition, the natural resource potential of the country is by no means exhausted. Namibia is under-explored, even by developing country standards, and enormous potential exists for new discoveries of ore bodies.

Namibia's transitory and uncertain status prior to Independence was not conducive to the optimal realisation of the country's full mineral potential, but rather to the maximisation of short-term profits for predominantly expatriate operators.

The natural resource potential of Namibia is by no means exhausted. The geological heritage has been found to host a variety of mineralisation types, including world class deposits such as those at Oranjemund (diamonds), Tsumeb (base metals) and Rössing (uranium). The comparative advantage of Namibia thus lies in its natural resource endowment (potential new discoveries). The possibilities for enhancing domestic value added through further processing of the natural resources have also not been fully explored.

The backlog of exploration expenditure, resource appraisal, manpower and skills training, institutional framework, and others, still constitutes a serious constraint to the development of the sector.

The economic value of the mineral sector is declining with increased unemployment due to mine closures, few new mines being opened and under-exploration of mineral resources. The structure of the mining sector is concentrated in large and medium scale ventures, with small scale mining being constrained by the lack of financial and technical resources necessary to make a significant contribution to the economy.

Prospects for employment look bleak with the trend towards capital intensive off-shore diamond operations, the closure of at least one major mine, and the uncertain but probably limited upswing in uranium markets.

Although new deposits may be discovered, the long lead times between exploration and exploitation mean that such discoveries are unlikely to make a significant impact on the economy during NDP1.

Independence in 1990 removed some of the constraints which hampered development of the mining industry leading to a more balanced stimulation of the Namibian mining industry. However, the following areas need to be strengthened :

- infill high resolution airborne geophysical survey data upon which to base exploration for undiscovered ore bodies;
- regional geochemical surveys integrated with other scientific information to promote development of the mining industry;
- a well-equipped geolaboratory;
- additional mapping at 1:50,000 — current coverage is only 20% and of the remaining 660,000 km<sup>2</sup>, some two thirds is considered to be of high prospectivity and therefore a priority; and
- revised and updated mapping at 1:100,000 (40% of the country) and 1:40,000 (60% of the country).

With regard to the environment, explicit stipulations on environmental protection and management are contained in the Minerals (Prospecting and Mining) Act of 1992 and a formal environmental assessment is now required before any mining project is approved. For this purpose, the Geological Survey of Namibia has two approved posts to fill for environmental geologists. Additional expertise will be sought to strengthen existing environmental capability in monitoring prospecting and mining ventures and rehabilitation of abandoned mine sites.

Since mining is in essence a destructive process, it is bound to take its toll in terms of environmental degradation. This is particularly so in arid lands. Physical degradation in arid environments usually has long-term aesthetic implications due to the low rate of regeneration of desert landscapes. However, mining activities take up only 0.1 % of the total land surface of Namibia.

To ensure that all mining activities are conducted within the framework of minimal environmental impact, GRN will :

- continue to regulate exploration and mining activities to ensure that they are performed effectively and meet health, environment and safety standards;
- develop environmental information and management systems for the minerals sector, including the study and implementation of environmental conservation measures related to mining;
- consolidate environmental standards for mining and minerals processing in consultation with relevant Ministries and private sector;
- define environmental management policies and strategies for exploration and mining operations; and
- establish training programmes in all mining-related aspects of environmental management.

The overall objective of the mining sector is to create an environment that enables private companies to maximise profits and GRN to maximise revenue for the benefit of all Namibians. More specific objectives are to :

- enforce the Foreign Investment Act and the Minerals (Prospecting and Mining) Act to establish consistent fiscal and taxation regimes that serve the interests of all parties;
- increase knowledge of Namibia's mineral resources through increased exploration efforts and dissemination of information;
- encourage and intensify mineral exploration in all regions of the country and to ensure that all acquired data are properly documented and stored for future use by investors;
- facilitate the development of new mines for increased mineral production exports and employment;
- ensure that all mining operations are conducted within the framework of minimal environmental pollution and disturbance;
- encourage local beneficiation of minerals including the processing of industrial minerals, dimension stone and semi-precious stones;
- create local employment opportunities, including opportunities for small-scale mining;
- encourage training of professional, managerial and technical personnel in all aspects of mineral resource development;
- encourage local utilisation of mineral raw materials; and to
- generate linkages with the rest of the economy.

As regards the policy context, GRN has given high priority to creating a fair and flexible fiscal regime that will ensure revenues to the state from successful mines and provide a competitive return on investments to the private mining sector.

An appropriate fiscal regime for the mining industry has evolved that is internationally competitive and sufficiently flexible to maintain a relatively stable flow of revenue to the state.

It also encourages exploration and development expenditure and is supportive of marginal operations. In addition, export-oriented processing operations are encouraged with a view to adding value to semi-processed commodities.

#### 4.5.11 Energy

Namibia's energy resource base can be broadly classified into two groups, commercial and traditional forms of energy. Commercial energy resources comprise petroleum products, electricity and coal, and amount to about 78% of energy consumption, while traditional fuels (wood, charcoal and animal waste) account for 22%. Traditional fuels, however, are the primary energy source for about 60% of Namibians.

The Ministry of Mines and Energy (MME) is responsible for overseeing the general development of the sector, as well as for the drafting of the legislative and policy framework governing all players in the sector. NDP1 stipulates that, on the policy level, GRN strives to promote measures that will encourage the exploration and exploitation of the country's energy resources in a sustainable manner, encourage foreign and local investment in the sector, and ensure that the sector's development is not in conflict with Article 95 of the Namibian Constitution.

At Independence, Namibia had a good basic electricity generation and distribution framework. However, most rural areas were not connected to the grid. Recognising the social and economic benefits of rural energy supply, GRN has embarked on a programme of rural electrification to extend the grid to rural areas.

Consumption of non-biomass renewable energy (solar and wind power) is a minuscule part of total energy consumption (0.3%). In 1991, 510 kilowatts of photovoltaic systems were installed. There are an estimated 30,000 windmills in the country used for water pumping that generate approximately 135 TJ of energy. In recent years the trend has been to move away from windmills to solar and diesel pumps because of the low wind speeds over much of the country.

The objectives for the energy sector include to :

- increase the availability and provision of energy supplies necessary for improving the quality of life and economic development;
- redress inequalities in provision of energy supplies;
- ensure that increases in energy supply and utilisation are sustainable; and
- electricity self-sufficiency (by 2010).

Achieving these objectives will mean working to expand the indigenous resource base, as the least cost solution, while at the same time actively pursue energy conservation strategies.

Given the constraints and challenges facing the energy sector and taking account of GRN's policy framework, the following strategies will guide the development of the energy sector :

- developing an enabling environment for private sector development of the sector;
- use of most cost effective and economically viable energy sources;
- improving efficiency of energy supply and utilisation;

- use of appropriate technology and renewable energy sources; and
- appropriate pricing to encourage efficient use and cost recovery.

With respect to investments in the energy sector, it is GRN policy that a favourable fiscal and legal regime be in place to enable the private sector, both domestic and international, to take the lead in developing the country's energy resources. Where parastatal organisations are involved in energy production, they will operate on strictly commercial lines and be operationally autonomous.

GRN regards energy conservation as one the key components of the sector strategy. While recognising the link between rising energy consumption and economic growth, the ultimate objective is to decrease energy consumption as a percentage of GDP.

Improving energy efficiency will be achieved by focussing on the main energy consumers, namely the industrial, mining and household sectors, and to sensitise these users on the need to conserve energy and on how investments in energy-efficient technologies can reduce overall costs. Businesses and households also need to be made aware that many energy conservation techniques do not require additional expenditure but merely changes in procedures and practices.

Energy conservation programmes will focus on the identification and dissemination of fuel efficient wood stoves and firewood substitution in the domestic sector, compilation of a database on energy efficient technologies, formation of an industry coordinating committee on energy efficiency, provision of guidance to industry on efficiency measures in the transport and construction sectors, public awareness campaigns through media advertising and production of publicity materials.

#### 4.5.12 Fisheries and Marine Resources

The fishing grounds off the Namibian coast have one of the highest primary production rates in the world which makes marine resources Namibia's most important renewable natural resource.

The pre-Independence period experienced weak performance of the fisheries sector, characterised by overfishing, bad management and negative environmental factors.

After Independence, the new Government was faced with the task of redeveloping the fisheries sector by implementing legislation that would promote the conservation of the marine ecology and the orderly exploitation, conservation, protection and promotion of marine resources.

Several years after having been established, the new fisheries policy has begun to bear fruit. Protection and conservation measures have enabled depleted commercial species to recover. This in turn has made it possible for the Ministry of Fisheries and Marine Resources (MFMR) to increase the Total Allowable Catches (TACs) in respect of pilchard, horse mackerel and hake. Meanwhile, special incentives for fisheries industrial development have attracted both local and foreign fishing interests while GRN policy of Namibianisation of the fishing industry has provided access for the local business community and allowed Namibians to invest in the fisheries sector. Namibian companies, joint ventures and foreign-owned interests have injected a significant amount of capital into the sector.

To rebuild the overexploited resource base, GRN has since 1990 set TACs at levels conservative enough to promote recovery of depleted stocks. Further, an efficient and transparent granting of fishing rights, allocation of fishing quotas and vessel licensing was introduced to ensure the sustainable utilisation of marine resources.

Another important action taken was the gradual strengthening of fisheries research and surveillance capacities. No rational setting of the TACs can be done without fisheries surveys. Equally, no proper control and protection of marine resources can be achieved without the existence of a well established surveillance service.

GRN is encouraging the establishment of onshore processing through the creation of an attractive investment climate. This has had, however, a major influence on the water resources at the coast. In addition, recent unusual environmental conditions have raised concern among those with interests in the Namibian fisheries sector. It is strongly felt that these adverse conditions will have some implications on the overall performances of the sector.

The broad objectives for the fisheries sector are to :

- ensure the sustainable utilisation of marine resources; and to
- ensure that the development of industries based on the Namibian marine resources contributes to the nation's overall economic and social development goals.

Fisheries policies promoting these objectives are contained in the legislation on the fisheries sector. These can be summarised as follows :

- promotion of stock recovery to long-run sustainable yield levels through the conservation of marine resources and the protection of the EEZ;
- eradication of illegal fishing by unlicensed vessels and the control of fishing practices;
- promotion of on-shore processing by means including the introduction of on-shore processing incentives;
- Namibianisation of the fishing industry by encouraging access to the sector by Namibian nationals with emphasis on those who have previously been socially, economically and educationally disadvantaged;
- provision of protein to the local population by making fish available at an affordable price (30% of production consumed locally by 2000); and the
- maintenance of a fair contribution by the fisheries sector to Government revenue.

For the implementation of these policies, the following strategies have been identified :

- setting of TACs at levels capable of promoting the recovery of depleted fish stocks;
- application of efficient and competent methods with regard to the granting of fishing rights, the allocation of fishing quotas, and the licensing of fishing vessels;
- strengthening of research capacities to facilitate the decision-making process on matters related to the setting of TACs;
- build up of a conducive environment for investment in on-shore processing facilities;
- promotion of joint venture undertakings between Namibia and foreign-owned companies; and the
- application of a quota fee and research levy system for generating Government revenue.

As regards aquaculture and fresh water fisheries, the absence of perennial rivers and unreliable rainfall account for the scarcity of fresh water fish in the hinterland. Nevertheless, major activities on fresh water fish take place in regions close to the borders, especially in the northern regions. The utilisation of fish resources in these regions is not regulated as there is no legislation on fresh water fish, while relevant legislation administered by the MET is not applicable in the communal areas.

Currently, MFMR is looking into the protection and management of fresh water fish. Studies and research were undertaken in this regard and the results are being used to draft a white paper on Fresh Water Fisheries Policy for Namibia.

#### 4.5.13 Infrastructure

- Road construction, e.g. roads and Oshanas
- channels, e.g. Eastern National Water Carrier

### 4.6 Possible Policy Conflicts

#### 4.6.1 Fisheries

In the long-run, fisheries will remain one of the most important sectors of the Namibian economy. In the short-term, marine mining (and possibly oil exploitation) is a highly relevant contributor to much needed Government revenue and employment opportunities. As a result, increasing pressure is exerted on the very habitat that shelters Namibia's most significant renewable resource. If not managed well, marine mining not only poses a real danger to the marine ecology but it also presents an interesting Constitutional problem, namely the dilemma between a short-term gain through the exploitation of a non-renewable *versus* the long-term loss of a renewable resource.

In order to address the issue, the MFMR, in cooperation with other interested partners, is planning to host an international conference on the impact of marine mining on the marine ecology. Preparation for the conference, to be held in Swakopmund in March 1998, will commence as early as June/July 1996.

#### 4.6.2 Land

Conflicting claims to the use of unoccupied or under-utilized land in the communal areas should be addressed by the LUEB. Contenders for the right to utilise these areas include :

- communal farmers who unlawfully erect fences and thus *de facto* privatise land;
- absentee stock owners who utilize scarce grazing whilst having other adequate means of support;
- scarce riverine land is sought for capital-intensive commercial irrigation schemes;
- resettlement programmes;
- drought relief programmes;
- new mining operations;

- declaration of nature conservation parks;
- declaration of state forests; etc.

(see also National Agricultural Policy, MAWRD, October 1995, page 35, and draft National Agricultural Strategy, MAWRD, April 1996)

## 5. REVIEW OF THE SECTORAL LINKAGES

The diverse institutions involved in the management of natural resources and the environment can, and should, be compelled to cooperate in the achievement of national objectives by way of a combination of mechanisms. These mechanisms include the establishment of coordinating institutions, the enactment of legally binding policy measures and procedures, and the realisation of cross-sectoral development/conservation programmes. The coordinating and policy making institutions, the NPC and the DEA, have been dealt with earlier.

### 5.1 Inter-Ministerial Institutions

#### 5.1.1 The Land Use and Environmental Board

The MLRR has started to address the issue of inter-ministerial coordination. On the initiative of the Ministry the Inter-Ministerial Standing Committee on Land-use Planning (IMSCLUP) was formed. This interim Committee had as its primary objective the coordination of land-use planning in Namibia until such time as a central, recognised institution is established - the Land Use and Environmental Board (LUEB). Through IMSCLUP GRN is creating awareness among relevant Ministries of the need for integrated planning in cooperation with communities.

Details of the Land Use and Environmental Board, as provided by DEA, are attached as Annexure 3. The concept has in principle been accepted by Cabinet and the LUEB was formally launched in May 1996 by the Hon. Minister for Lands, Resettlement and Rehabilitation. However, the institutional structures, such as the appointment by the MET of an Environmental Commissioner to the National Planning Commission (NPC), have as yet not been established.

The concept of a LUEB provides for an exemplary institutional arrangement to coordinate the sustainable implementation of policy matters. As the LUEB is based on the principle of popular participation, on the basis of consensual relations with private citizens, and if the board is administered conscientiously, wide acceptance of, and participation in projects and programmes by participating GRN institutions, regional and local authorities, the donor community, NGO and the target groups as well as the private sector, is virtually guaranteed. The effective establishment of LUEB should receive urgent attention.

#### 5.1.2 National Rural Development Coordination Council

To achieve the goals set in NDP1, GRN will establish a National Rural Development Coordination Council (NRDCC). The NRDCC will be composed of Permanent Secretaries of line Ministries involved in rural development, and representatives of identified NGOs and the private sector. The Council will be supported by sub-committees responsible for natural resources and land use planning; rural/regional extension services; food and nutrition; rural research and information; drought and rural disaster management and rural poverty alleviation.

A National Rural Development Action Plan will be formulated which will elaborate strategies and programmes to be undertaken by various agencies.

#### 5.1.3 National Emergency Management Committee

GRN created the National Drought Relief Programme and established the National Drought Task Force which was charged with the responsibility to run the relief operation in 1992/93. This operation catered for about 625,000 people, of whom 250,000 were classified as the most vulnerable. GRN mobilised N\$ 171 million for the programme. The Programme funded free food rations for some 250,000 people in the vulnerable groups, emergency water supplies, livestock and crop schemes, and institutional capacity building to deal with drought. In 1994, the

National Drought Task Force was replaced by the National Emergency Management Committee (NEMC).

## 5.2 Policy Measures and Procedures

### 5.2.1 Environmental Assessment Policy and Natural Resource Accounting

Only when a LUEB has been properly established can the Environmental Assessment Policy (EAP), which has been approved by Cabinet already in August 1994, and a system of Natural Resource Accounting be enforced. The EAP stipulates that "all listed policies, programmes and policies, whether initiated by GRN or the private sector, should be subjected to the established [Environmental Assessment] EA procedures...". However, as is the case with the LUEB, neither the legal framework nor the institutional arrangements are in place.

## 5.3 Cross-Sectoral Development/Conservation Programmes

When identifying natural resource and environmental programmes, GRN considered the underlying general policy framework, as defined in NDP1, namely

- the Constitutional requirement to actively promote and maintain the welfare of the people by adopting policies aimed at the maintenance of ecosystems and the sustainable utilisation of natural resources;
- Government's national development goals of
  - \* reviving and sustaining economic growth;
  - \* creating employment;
  - \* reducing inequalities in income distribution; and
  - \* eradicating poverty;
- Government's national strategies of
  - \* providing an enabling environment for sustained socio-economic development;
  - \* investing in human resource development;
  - \* promoting participatory development and equity;
  - \* ensuring that development is sustainable;
  - \* defining and promoting Namibia's international role;
  - \* ensuring that Government machinery is responsive and works efficiently; and
  - \* defining the PSIP in support of NDP1's development objectives.

Apart from desertification and the general degradation of Namibia's natural resource base, the problem areas identified by GRN largely relate to institutional matters, namely :

- lack of trained manpower;
- lack of research staff;
- insufficient extension and advisory services;
- inappropriate land tenure system; and
- lack of accessible information.

Consequently, GRN identified the following general development programmes to address the above-mentioned problem areas :

- community based programmes;

- institutional development and capacity building programmes;
- extension and advisory programmes;
- resource assessments and management planning;
- management, conservation and protection; and
- utilisation and marketing of natural resource products.

The more specific initiatives taken by GRN to observe its Constitutional responsibility towards the sustainable utilisation of Namibia's Natural resources and the environment can be grouped into various multi-sectoral programmes.

#### 5.4 Initiatives in the Natural Resources Sector

##### 5.4.1 **Namibia's Programme to Combat Desertification**

The overall goal of Namibia's Programme to Combat Desertification (NAPCOD) is "to combat the process of desertification by promoting the sustainable and equitable use of natural resources suited to Namibia's variable environment for the benefit of all Namibians both present and future". The programme is one of many cross-sectoral components of the strategy to operationalise Namibia's Green Plan and NAPCOD's objectives can be summarised as follows:

- key players are identified and their capacity is established/improved;
- mechanisms for information collection, analysis and communication are established, strengthened and functioning;
- integrated planning and strategies at all levels developed and introduced on the basis of clearly defined policies;
- appropriate inter-disciplinary research programmes elaborated and implemented;
- appropriate training and education provided according to needs at all levels;
- natural resource users and managers empowered to plan and implement sustainable management practices in an integrated and decentralised manner;
- frame conditions, incentives and decision making affecting sustainable resource management identified, monitored and influenced; and
- organisational management structure established and functional. (R. Dewdney; 1996)

##### 5.4.2 **Sustainable Animal and Range Development Programme (SARDEP)**

##### 5.4.3 **Northern Livestock Development Programme (NOLIDEP)**

##### 5.4.4 **Community Based Natural Resource Management Programme (CBNRM)**

##### 5.4.5 **Integrated Farming Systems Development Programme (IFSDP)**

This programme will focus on the development of improved farming systems suited to the varying agro-ecological zones and resource endowments found in Namibia. There must be an integration of both on-farm (mixed farming modalities) and non-farm income diversification

schemes by exploiting existing or creating new technologies and facilitating their transfer to farmers. The programme will serve as the Ministry's strategy to link with various cross-sectoral institutions responsible for land tenure and settlement policies, forestry and agro-forestry conservation and sustainable utilisation of land, water and other natural resources. It will deal with the formulation and implementation of sustainable and environmentally benign technology aimed at optimal resource use and range management, combatting bush encroachments and desertification. The programme will focus on high yield farming by optimally utilising productive agricultural lands which are suitable for cropping and intensive livestock production as well as in conserving and rehabilitating marginal and poor quality lands in semi-arid areas and improving its carrying capacity to produce red meat (cattle, sheep, goat) and harbour wildlife species.

The programme will facilitate the integration of agro-forestry, forestry, eco-tourism, soil-conservation schemes and freshwater fisheries (aquaculture) development into existing agricultural systems and viably evolving farming systems. In arid to semi-arid and desert areas, the programme will include bush resource utilisation, including its conversion to charcoal and wood chips manufacture, and the sustainable utilisation of desert resources.

The programme will also promote public and private sector investments in broad-based and community-oriented irrigation development, post-harvest processing, marketing infrastructure and rural finance markets.

The programme will recognise the fact that agricultural and farming systems practices must take into account the restrictive potential of natural agricultural resources and the variability of rainfall. A careful and realistic assessment of the risk factors and constraints posed and opportunities presented by the fragile ecosystem should be made before GRN implements policy incentives aimed at agricultural development and marketing.

The major objective of the IFSDP is to improve the welfare of farm households by increasing the overall productivity, profitability and sustainability of farming systems through :

- the development of relevant improved technologies through farming systems research, with inputs and feedback from farmers and extension workers, and their dissemination to and adoption by farmers via extension approaches to guarantee their equitable distribution;
- resolution of resource degradation and deforestation issues by providing remunerative and high pay-off alternatives to overgrazing and wanton cutting of trees; and
- development of relevant policies and support systems by addressing constraining policies and implementing policy reforms and institutional arrangements to ensure the profitability and sustainability of large-scale commercial farming and small-scale farming systems.

The key strategy is to design and implement the concept of Farming Systems Research and Extension (FSRE) which is one of the core development approaches of the Directorate of Research and Extension Services. FSRE is a set of methods and procedures used to generate, evaluate and diffuse agricultural technologies in close association with and participation of farmers. This involves the utilisation of participatory technology development techniques by mobilising available subject matter specialists to demonstrate and train extension workers and farmer leaders in technology packaging, verification through on-farm trials and effective transfer methods.

The FSRE approach must answer these basic questions.

Do farmers want a specific technology package or options ?

Will that technology be successful and profitable on a typical smallholder farm ?

Are the risks or added costs worth taking vis-a-vis its potential benefits and profit margins ?

The local knowledge of indigenous technology adopted by the farmers must be fully recognised and validated to ensure that existing farmers' knowledge is incorporated into the FSRE process.

The adoption of improved farming systems will be largely dependent on the effectiveness of linkages between adaptive researchers and extension workers and leaders of community organisations, farmers' unions and NGOs. The elements of the FSRE programme should be identified by field studies by outreach research staff, in close association with extension workers, progressive farmers and community leaders. The FSRE linkage needs to focus on the integration of agro-forestry, forestry, legumes, fruits and vegetables in the traditional mahangu and maize based farming systems in the Northern Communal Areas. A significant proportion of funding for research and technology development needs to be channelled to this sector over the next five years, and appropriate incentives should be created for both the public and private sector to support such development.

The farm-household system is the focus of Farming Systems Development (FSD) and consists of three basic sub-systems which are closely interlinked and interactive: the household, the farm and off-farm activities. The FSD approach involves two major categories of activities, both of which involve intensive interaction with farmers, as follows :

(a) Farming systems analysis

This involves studying, together with the farmers, the natural and socio-economic environments in which farm-households operate. The aim is to identify the constraints limiting farm productivity and production and hindering improvement in the welfare of the farm households themselves. Potential solutions to these problems are identified, and the results of this analysis, formulated as recommendation for further action, are then passed on to the relevant actors. These could include researchers, extension and support services staff, and/or policy makers.

(b) Farming systems planning, monitoring, and evaluation

This involves testing, monitoring and evaluating improvements on-farm, with the direct involvement of farmers. Examples of such activities include those regarding proposed technological improvements, proposed revisions in farm plans and improvements in support services and farm-level impact of proposed policy changes. Those improvements thought to be potentially useful are then disseminated to other farms via the extension service. Prior to this stage, it may be necessary to negotiate adjustments in the policy/support services that will facilitate the dissemination and adoption of the improvements. After dissemination, it is of primary importance to monitor and evaluate the adoption rate of the proposed improvements by the farming community. This provides an indication of the improvement being disseminated.

In summary, the basic philosophy underlying FSD is composed of the following :

- Farmer participation is indispensable, if proposed changes are to be responsive to farmers' priorities and objectives.
- There is often a high degree of specificity (e.g., location, time, resources, and farmers) involved in determining what proposed changes are likely to be relevant.

- Assessing this relevancy requires a farmer-participatory systems approach since small-scale agriculture is the product of a complex and dynamic interaction of numerous components both within and outside the farm.
- Given the complexity of this interaction, on-farm testing and, if necessary, adoption of proposed changes in consultation with the farmers, will enhance the likelihood of the successful adoption of proposed changes.
- Monitoring rates of adoption and the impact of changes resulting from dissemination activities can help to justify not only future funding for agricultural development activities but also help provide ideas on future research priorities and, if necessary, indications on adjustments that are necessary to facilitate greater adoption and/or a more favourable impact.

(c) **Agro-Forestry**

Within the framework of IFSDP, an agro-forestry component is essential to sustain agricultural production without serious loss in soil fertility and environmental degradation. The incorporation of trees, through agro-forestry or reforestation, in farming systems is an appropriate soil and ecology conservation, as well as drought mitigation, measure. Coupled with the protection of indigenous trees (e.g. marula) and forests, there will be assurance for the continuous supply of veld and forestry products and conservation of underground water resources, and provision of fodder supply for livestock.

In collaboration with the Directorate of Forestry of the Ministry of Environment and Tourism, the MAWRD's Directorate of Research must immediately adopt the FSRE approach to develop well-tested systems of agro-forestry production and to integrate them with existing farming systems. Such production systems may focus on valuable native tree species, and the adaptation of sub-tropical and arid agro-forestry systems which are successfully tried in countries with a similar agro-economical environment as Namibia. Agro-forestry research initiatives are essential to develop a set of biophysical, technical and socio-economic recommendations appropriate for agro-forestry throughout Namibia with emphasis on the densely populated NCAs. Linkage and a cooperation agreement with the International Centre for Research in Agro-Forestry (ICRAF) is urgently required to implement the identification and demonstration phase of this project.

There is an urgent need to increase tree cover in inter-cropping farming systems to reduce rates of evapo-transpiration, to act as wind-breakers and shelter belts. Cross-country experiences indicate that this technology can improve crop production by as much as 30 percent in dryland farming areas. Adaptive research and field demonstrations are needed on agronomic or horticultural crops under alley cropping techniques with agro-forestry species (e.g. mangoes, cashew nuts, leucaena, gliricidia). The establishment of initially subsidised and eventually privatised agro-

commercial reforestation activities and promote backyard forestry and agro-forestry systems. A national agro-forestry programme for the planting, protection and preservation of indigenous trees needs to be launched and effectively implemented.

A manual on local agro-forestry practices and internationally tested semi-arid agro-forestry systems will in due course enable agricultural and forestry extension workers to facilitate technology transfer to and adoption by farmers.

**(d) Drought and Disaster Management**

Agricultural activities in Namibia are highly constrained by its harsh physical environment. With a mean annual rainfall of 250 mm, Namibia has the driest climate in sub-Saharan Africa. While the average annual rainfall ranges from 20 mm in the southwest to 600 mm in northeast, high variability and frequent droughts are an integral part of the country's agricultural scene. GRN has, accordingly, placed great importance on drought and disaster preparedness and management, as well as drought mitigation activities, including irrigation and water development.

The MAWRD has developed and operates a highly effective cross-sectoral Early Warning and Food Information System (EWFIS). This System, which receives regular inputs from the Meteorological Department and the Central Statistics Office, monitors the various factors (such as rainfall levels, availability of essential inputs, pest and disease attacks) which influence crop production, throughout the growing season. This provides early indications of likely levels of domestic food grain production, reported through 10-day Agrometeorological Updates and a monthly Crop and Food Security Bulletin. Estimates of domestic grain production, together with import plans, are then compared with national food requirements to provide early indications of impending food shortages.

Potential problems identified through the EWFIS are then acted upon by the Emergency Management Unit (EMU) of the Prime Minister's Office. This Unit identifies and quantifies vulnerable groups throughout the country and takes timely action to avoid potential disaster. Emergency management structures have been established at the regional level (Regional EMU) to work with the EMU as and when required.

GRN fully recognises and acknowledges that drought is a recurring characteristic of its agricultural sector. It is accordingly taking strong action to reduce the impact of drought in a sustainable manner, which in turn will reduce the need for emergency action. GRN will support those activities which mitigate the potential impact of drought. While such activities will require multi-sectoral action and cooperation, MAWRD recognises that it must take the lead role in drought mitigation and management activities. Such activities will include, amongst other things, the provision of drought tolerant, early maturing seed varieties, irrigation and water management, the development of appropriate processing and storage techniques and facilities, and forestry and agro-forestry development. The Ministry's strategy for drought mitigation and management are included in this National Agricultural Strategy as one of the major action programmes.

**(e) Rural Development**

The MAWRD has been charged with the overall coordination of rural development activities in the country. Many of the policies and strategies developed for the agriculture sector will directly contribute to improvements of living conditions in rural areas. However, the Ministry is also conscious of the need for more focussed and directed policy and strategic guidelines in order to effectively and efficiently address the full range of cross-sectoral rural development issues. To meet these requirements, the Ministry has taken decisive action and the lead role in the formulation, promulgation and

implementation of cross-sectoral rural development policies, strategies and programmes, as indicated in NDP1.

GRN's efforts for rural development focus on overcoming poverty in rural areas on a sustainable basis. This focus places poverty alleviation and sustainability in the centre of rural development efforts. The overall goal of GRN's rural development initiatives is sustained improvement of the living conditions for the rural population with special emphasis on the participation and upliftment of the poor. This will require a multi-faceted process for the formulation of a range of strategies and programmes, with a focus on raising productivity and income levels in the communal areas. The strategic approach will promote the participation of communities in needs assessment, planning, implementation, monitoring and decision-making.

GRN's current thrust for rural development places highest priority on the formulation and implementation of effective rural development policies, strategies and institutional arrangements, in collaboration with NGOs and the private sector, through a participatory planning process at national and regional levels. These shall aim at reducing levels of rural poverty, achieving more equitable distribution of the nation's wealth, achieving more equitable access to productive resources, slowing down the current high rate of rural-urban migration through increased development and service delivery in rural areas, improving the provision of health, education, water and sanitation in rural areas, and promoting employment and income generating opportunities, including informal activities. These objectives will be realised by developing and implementing strategies which focus on :

- ensuring household food security;
- promoting labour-intensive economic growth;
- empowering marginalised population groups;
- overcoming socially and legally derived gender discrimination;
- strengthening drought and disaster preparedness and management;
- meeting the backlog in infrastructure development;
- promoting sustainable natural resource management;
- improving social welfare;
- promoting rural research;
- strengthening human resource capacity for rural development; and
- improving rural development planning, implementation and monitoring capacity.

These strategies for rural development will be based on improved institutional arrangements and effective coordination at the Cabinet and inter-Ministerial levels, a regional focus and a cross-sectoral approach. They will help ensure the successful application and implementation of ecologically, economically, institutionally and socially viable rural development procedures and measures by the rural population which are essential for lasting improvements in their living conditions. Through these strategies, GRN will promote the consistent application of the principles and guidelines within its rural development policies through a well targeted poverty orientation, participation and gender equality.

(f) **Food Security and Nutrition Programme**

Household food security depends primarily on the ability of the household to secure enough food to ensure an adequate dietary intake for all of its members at all times for a healthy and active life. The Ministry of Health undertook a study in 1992 which showed that 28% of children under five years of age suffered from chronic under nutrition, as indicated by low height-for-age (stunting). In the north-east this figure reached 42%.

Household food security depends on direct production of food and the availability of cash income to buy food. Thus employment opportunities may be more important than food production as a source of food for many families. This means that an integrated approach to food security and nutrition must address issues of health delivery systems, water and sanitation and family food practices, as well as issues of agricultural production, support services, access to markets and non-farm income earning opportunities.

Food security and nutrition issues are being addressed by a number of Ministries in Government. Most prominent are the Ministry of Health and Social Services and the Ministry of Agriculture, Water and Rural Development. The Ministries of Basic Education and Culture, Trade and Industry, Lands, Resettlement and Rehabilitation and the Department of Women's Affairs in the Office of the President are among the many other Ministries whose programmes have a direct impact on households' access to food.

NGOs and donor agencies also play an important role in improving food security and nutrition. Activities supported include a Household Food Security Programme.

In addition, GRN declared 1992-2002 the "Namibia Food and Nutrition Decade". This declaration was endorsed by Cabinet in September 1994, making it a Government-wide effort. A multi-sectoral institutional framework was established to monitor and coordinate food security and nutritional issues and activities in Namibia. A Food Security and Nutrition Council was established with the clear mandate to address policy-related issues pertaining to food security and nutrition, the members of which are the permanent secretaries of appropriate Ministries. The Council is supported by a Food Security and Nutrition Technical Committee which has the task of overseeing, coordinating, directing and monitoring, on an on-going basis, all technical activities and projects related to food security and nutrition. At present, the main tasks facing the Technical Committee are overseeing the development, operation and implementation of the National Food Security and Nutrition Action Plan and a National Food and Nutrition Policy which is soon to be submitted to Cabinet.

The cross-sectoral nature of food security and nutrition issues poses a real challenge to the sectoral focus of most Government activities. However, the establishment of cross-sectoral institutions to address these issues should be seen as a major opportunity to bring together the different Ministries which are already involved in addressing specific aspects of the problem, to develop an integrated, cross-sectoral and multi-agency approach which will be more efficient and more effective in achieving results.

Several national initiatives augment the Food Security and Nutrition Programme, namely the National Programme of Action for the Children of Namibia, finalised in December 1991, the formulation of a comprehensive Food Security and Nutrition Action Plan, a draft Food and Nutrition Policy, the Family Food Systems and Practices Programme, the Health, Water and Sanitation Programme.

Food security at both national and household levels must be achieved in a sustainable manner. Households have to be encouraged to use their resources in a way which is consistent with maintaining the long-term productivity of the environment. In the medium term, food security for many households is dependent on the decisions currently being made with respect to land reform and land-use policy. Where scarcity of resources results in over-exploitation, alternatives must be found for the local population. Regulation on its own will not be effective in the face of extreme need. This programme explores ways of developing sustainable food and livelihood security.

(g) **Water and Sanitation Programme**

Past under-investment in the rural water supply sub-sector has created a situation where there is a massive backlog of rural communities with inadequate water supplies. Due to failure to involve and train communities, a high proportion of existing rural water supply facilities created in the past are not functioning effectively. The situation is worsened by the fact that, where water was supplied by central Government to rural communities, no charge was levied. This has led to a perception that it is the duty of central Government to provide water free of charge.

In recognition of the need to redress past inequalities in provision of water and sanitation services, an inter-ministerial Water Supply and Sanitation Policy (WASP) Committee was established to define water and sanitation policy. During the period 1991 to 1993 a document entitled Water Supply and Sanitation Sector Policy of GRN was compiled by consultants under the guidance of the WASP committee. This document was approved by Cabinet in September 1993.

In the period following Independence there has not been much progress in the development of sanitation: there is still no central Government agency with either effective authority or institutional capacity to deal with this sub-sector. Various NGOs and donor organisations are active in this sub-sector, but in the absence of a governmental coordinating agency, no national policy or plans have been developed. The Water and Sanitation Policy Document recommended the formation of a Water and Sanitation Coordinating Committee to take responsibility for, amongst other issues, identifying an appropriate institution to take responsibility for sanitation. The Committee is chaired by the Permanent Secretary for MAWRD, and a representative of the NPC is a permanent member of the Committee.

- **Initiatives in the Environmental Sector**
- **Introduction of Cleaner Technology**
- **Hazardous and Toxic Waste Management**
- **Integrated Coastal Zone Management**
- **Environmental Education**
- **Renewable Energy**

Renewable energy (RE) is seen as the major alternative for rural populations and as a means of further reducing the disparities in access to energy between rural and urban areas. In Namibia, 97% of RE consumption is biomass. However, there is great potential in rural and peri-urban areas for non-biomass RE and commercial energy sources to combat deforestation and land degradation.

RE promotion became a key activity with the establishment of the Renewable Energies Section of the Electricity Division in 1991. Since then the RE Section has been responsible for the formulation of a RE policy, the development of a solar cooker, studies on the use of RE in rural areas, the establishment of an energy database and the overall promotion of RE. The thrust of GRN's effort to promote the use of RE is twofold. Firstly, to encourage the use of solar power for domestic lighting, water heating and water pumping. Secondly, to encourage the substitution of biomass by petroleum products and electricity.

More specifically, the current RE programme has directed its work towards :

- the establishment of a national energy data base;
- the drafting of a RE policy;
- the familiarisation of Ministries, organisations and potential users and suppliers on opportunities for the use of RE;
- the coordination of all RE projects of other Ministries and NGOs; and
- the preparation of appropriate RE dissemination strategies including demonstration projects, training courses, awareness campaigns and financing schemes.

During the orientation phase of the programme, the following major fields for future application of RE in Namibia have been identified :

- decentralised rural electrification by means of solar home systems;
- substitution of electrical water heaters by solar water heaters in urban areas;
- promotion of solar cookers and/or fuel efficient wood-stoves in rural areas;
- assessment of the potential of wind and solar energy for large scale electricity generation;
- desalination of sea water and brackish water by means of solar- and wind-energy; and
- pumping of drinking water by means of photovoltaic pumps.

**Annexure 1**

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## **1. Important Non-Governmental Organisations**

### **1.1 National NGOs**

The most important national NGOs in the NR and environmental sectors include the

- Integrated Rural Development and Nature Conservation;
- Namibia Nature Foundation;
- Namibian Development Trust;
- The Wildlife Society;
- Earthlife Africa;
- The Cheetah Conservation Fund;
- The Namibia Animal Action Committee;
- Save the Rhino Trust;
- Africat;
- Namibian Business Forum for Environment;
- Club for Awareness of Volunteer Environmentalism;
- The Legal Assistance Centre;
- Rössing Foundation.

### **1.2 International NGOs**

The most active international NGOs include the

- World Wide Fund;
- IBIS (formerly WUS-Denmark);
- DanChurchAid;
- Deutscher Entwicklungsdienst (DED);
- Development Assistance from People to People (DAPP);
- ACORD (Action for Cooperation and Development); and
- Oxfam Canada.
- Oxfam U.K.

### 1.3 Umbrella Organisations

The most important umbrella organisations, committees and NGO networks include the

- Namibia NGO Forum (NANGOF);
- Namibian NGOs (NANGOS);
- Community Based Natural Resource Management Programme (CBNRM); and the
- Namibian Environmental Education Network (NEEN).

## 2. Training and Research Institutions

### 2.1 Training

Training in NR and environmental sectors include the

- University of Namibia (UNAM);
- Technicon;
- Teacher Training Colleges; and the
- Agricultural Colleges in Ogongo, Neudamm and Tsumis.

### 2.2 Research

Research is conducted primarily at the

- Multi-Disciplinary Research Unit (at UNAM);
- Namibia Economic Policy Research Unit (NEPRU); and the
- Desert Research Foundation of Namibia (DRFN).
- Agricultural Research Stations - various

**Annexure 2**

## 1. *Institutional Structures*

### 1.1 *Conservancies*

Top-down approaches generally have proved to be ineffective when local user groups consider that such approaches are not consistent with their socio-economic objectives. Policy and programme interventions should therefore be developed in such a way that local communities can participate effectively in their design. Similarly, the implementation of programmes should be based on a participatory planning process which incorporates the knowledge and interests of affected groups. The full role for local people and their representatives in natural resource management must be ensured if sustainability is to be achieved.

"Empowerment" is essential to participatory development in the context of the environment (defined as the ability of individuals, groups, organisations and institutions, in a given context to address environmental issues as part of a range of efforts to achieve sustainable development). Empowerment is enhanced when organisations in which people participate are based on a democratic approach, strengthening the capacity of members to initiate actions on their own or negotiate with more powerful actors. It thus builds up the capacity of people to generate and influence sustainable development at various levels, not least for environmental reasons, increasing their access to and influence over resources and institutions, including groups hitherto marginalised such as low-income populations and most particularly women.

Before colonial times, the rural people of Namibia had developed their own institutions for controlling resources management, particularly land and grazing allocation. However, since colonial rule began, these institutions and management systems have come under increasing pressure. The centralisation of authority has weakened traditional institutions and leadership. Direct State control of certain resources has also been imposed. Forestry and wildlife resources, for example, have become the sole domain of the State. The State determines how wood can be used without a permit and all wildlife on communal land belongs to the State.

The primary reason for the imposition of State control was for conservation, but law enforcement against illegal use has proved impossible due to a lack of human and financial resources. Further-more the forestry and wildlife laws have little or no legitimacy among the rural people and law enforcers are not supported by community members.

The State has declared that it owns communal land, but has done little to develop management institutions and management systems. Although still nominally 'communal', land in the rural areas is no longer a true common property resource but an 'open access' resource (B. Jones, 1994). Because control over access has broken down, management of land and grazing resources cannot be applied.

The two key issues which need to be addressed are security of land tenure and security of resource tenure. Without this security, wise and sustainable use of resources is unlikely.

Despite the apparent break-down of traditional management systems, opportunities still exist for community-based approaches to natural resource management.

MET has developed a policy for extending rights over wildlife to communities in communal areas. If certain conditions are met, the State will devolve ownership of game and the right to use it.

The main condition will be the formation of a conservancy, which must have a defined geographical boundary, a defined membership and a legally recognised constitution. A management body must be elected or appointed which is representative of its members. Once the Ministry is satisfied that a conservancy meets these conditions, a quota for the use of wildlife will be allocated to the conservancy. The quota can be used by the conservancy or be sold commercially. The role of GRN is to provide the skills that might be lacking.

The advantages include secure tenure and rights to utilise resources, legitimisation by the community of rules and regulations, direct profit sharing by the community, combination of traditional with scientific knowledge, and an emphasis shift from law enforcement to the provision of extension and technical assistance.

The establishment of conservancies to promote the sustainable resource management requires several steps to be taken :

**a) Re-empowering Local Communities**

The most important step is to ensure that communities have secure tenure over land and resources as well as clearly defined rights to use and benefit from the resources. Government control should be limited to ensuring that community-based institutions do not exceed the bounds of sustainability in the use of resources.

**b) Institutional Support**

Community-based institutions need institutional support not only to be able to organise themselves and administer the resources under their jurisdiction effectively but also to make government feel confident in relinquishing control.

**c) Awareness Building**

GRN will need to assist in broadening and deepening the perspectives of rural communities by providing relevant information about environmental problems.