

**WATER RESOURCES MANAGEMENT
IN
NAMIBIA**

A CONCEPT PAPER

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INTRODUCTION

The Government of Namibia (GRN) is in the process of planning the decentralisation of many of its functions. In the water sector, it has already created NAMWATER and assigned it the responsibility to develop and provide bulk water on a commercial basis to cities, towns and villages of Namibia which can be economically served by the existing bulk water distribution system and its future extensions.

The transfer of Rural Water Supply responsibilities is part of the planned first phase of decentralising other GRN functions to Regional Councils. The first phase is planned to begin in 1998.

The proposed decentralisation will leave the Department of Water Affairs (DWA) of the Ministry of Agriculture, Water and Rural Development (Ministry) with responsibility for water resources management, including regulatory and policy matters, strategic planning for water resource development, monitoring the sector's performance, advice to GRN on international water resource sharing and development, and other water related tasks assigned to it by GRN. DWA will no longer have responsibility for rural water supply operations, although it would be reasonable for DWA to provide technical assistance and advice to Regional Councils, particularly during the initial years of the decentralised operations.

DWA, in recognition of its changed responsibilities, has begun planning for its new role. This paper briefly reviews the recent history of the water sector in Namibia, beginning with the adoption of sector policies by GRN, discusses issues to be resolved and makes some suggestions for the next steps in the development and management of water resources. In planning for the future, DWA has the support of the World Bank, which has positively responded to an invitation by the Prime Minister to assist Namibia with the planning and development of its water resources. Other donors who have assisted DWA in the past will be invited and are expected to participate in his planning effort. This concept paper has been prepared with the assistance of Communal Areas Water Supply Project (CAWS) supported by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)

BACKGROUND

Actions and Planning Activities already completed

The Government of the Republic of Namibia has been engaged for some time in efforts to reorganise the water sector with the objective to bring the benefits of a sustainable and adequate water supply service to all citizens of Namibia. The principal efforts include:

1. Steps leading to the establishment of WASCO and the promulgation of water supply policies in 1993;
2. the establishment of NAMWATER originally proposed in 1995; and
3. the National Consultation from 1995 to 1997 for Community Management of Rural Water Supply which produced a national consensus of stakeholders on the future management of rural water supply.
4. the “Scoping Studies” prepared for the Re-organisation of the Water and the Agriculture and Rural Development functions of the Ministry;
5. the Strategic Planning Workshop the Ministry organised in October 1996 to define its mission, objectives and business profile and to determine the most efficient means to achieve these and
6. the Study Tour of the United Kingdom by senior officials of the Ministry and members of the Management Consultancy Services in the Office of the Prime Minister’s in November 1996 to:
 - a. review the organisational arrangements of the British civil service, particularly the changes implemented in water resources and water supply management as a result of the privatisation of the water supply and waste water industry; and
 - b. evaluate their possible application in Namibia .
7. The Cabinet Agenda Memoranda submitted on the topics of
 - a. Rural Water Supply and Community Management of rural water supply
 - b. Study tour of the United Kingdom regarding Water Supply and Sanitation Sector Privatisation and Civil Service Reform

The aim of the study tour undertaken by the ministry with the assistance of the Management Consultancy Services in the Prime Minister’s Office and supported by GTZ-CAWS was to gather information and experiences which would help the Ministry to develop an organisational structure and management process to carry out its mandated responsibilities after the decentralisation.

With the same objective, the Ministry, in collaboration with the Ministry of Regional and Local Government and Housing, is now in the process of developing an action plan and strategies for implementing the devolution of responsibilities for regional management of rural water supply to the regional councils.

At the same time, the Ministry of Agriculture, Water and Rural Development is also examining the institutional arrangements for the policy/regulatory and other functions, such as core activities related to rural water supply, which will remain at the centre, and to determine the most effective manner to manage the remaining strategic and regulatory water functions. This effort will eventually result in a water resources management structure and policies designed to maximise the benefits to all of Namibia’s citizens of the sustainable and equitable development of the country’s scarce water resources.

This water resource development planning effort is expected to be supported by a multi-donor effort led by the World Bank which has been invited by the Prime Minister to assist Namibia in the planning the development, management and exploitation of its water resources. The participation of the World Bank and other donors, especially KFW which has been the leading donor in the sector and has been active for many years, will bring into the planning process experience from many other African and industrial countries who have successfully developed their own water resources.

The process suggested by the World Bank and endorsed by the Ministry for the review and planning of the development of Namibia's water resources is designed to

1. expose Namibian water resource planners and stakeholders to experience elsewhere;
2. assist them in adapting and applying the most relevant experience for Namibia's benefit;
3. propose a framework for the management of Namibia's water resources; and
4. through the process of review, strengthen the capacity of Namibia to manage its scarce water resources and involve Namibian Society in water management.

PROPOSED WORLD BANK SUPPORTED WATER RESOURCE MANAGEMENT REVIEW

Objectives

The proposed review will examine the sector's organisational arrangements and institutional options, water resource allocation, including international water sharing issues, sector policies, regulations and legislation, water use efficiency and reuse. The objective of the review is to:

1. examine current water resources management practices;
2. define issues and evaluate the impact of water resource allocation, water use and waste water disposal practices; and
3. propose policies, institutional arrangements, planning, monitoring and enforcement processes which will:
 - a. provide for the equitable allocation of water resources,
 - b. ensure the environmental sustainability of water use and reuse,
 - c. support the long term social and economic development of Namibia, and
 - d. be based on the full participation of stakeholders.

The work leading to the accomplishment of these objectives would emphasise:

1. mobilisation and building capacity within the public and private sector for ***cross-sectoral*** water resource management;
2. building awareness across society of the challenges and opportunities in the management of water resources;
3. ensuring the participation of civil society as stakeholders in water resources management;

4. reviewing and analysing key issues, including trans-boundary issues, constraining water resource development and bringing international expertise to bear, where necessary; and
5. examining how to establish financial sustainability and cost recovery

The Process

The model the World Bank has developed for such reviews emphasises national ownership and control and stakeholder and community participation, and includes:

1. a **Review Steering Group** of stakeholder to represent their own constituencies and all other stakeholders, advise the co-ordinator, task force and consultants, review the work performed and advise the Government on implementation;
2. a **Co-ordinator** to manage the work to ensure an unbiased approach;
3. a **Task Force** of national specialists (assigned staff and/or consultants) to undertake the work; and
4. visits of **External Experts** organised by the World Bank to review and advise on selected topics.

In addition, it is suggested that the Government appoint a *Review Management Committee* of senior officials of the Ministry of Agriculture, Water and Rural Development representing the water and agriculture sectors, and the Ministry of Regional and Local Government and Housing, to supervise the Review and ensure the Government's decentralisation policy is adequately reflected in the review's recommendations.

The review would be subdivided into topics, each assigned to a different member of the task force. Task force members will be assisted by consultants as required. Topics suggested include but may not be limited to:

1. Economics and Resource Allocation;
2. Legislation and Regulation;
3. Institutional Reform, and particularly of the DWA as the responsible Government agency, and local participation;
4. International Waters; and
5. Capacity Building as an underlying theme of all work.

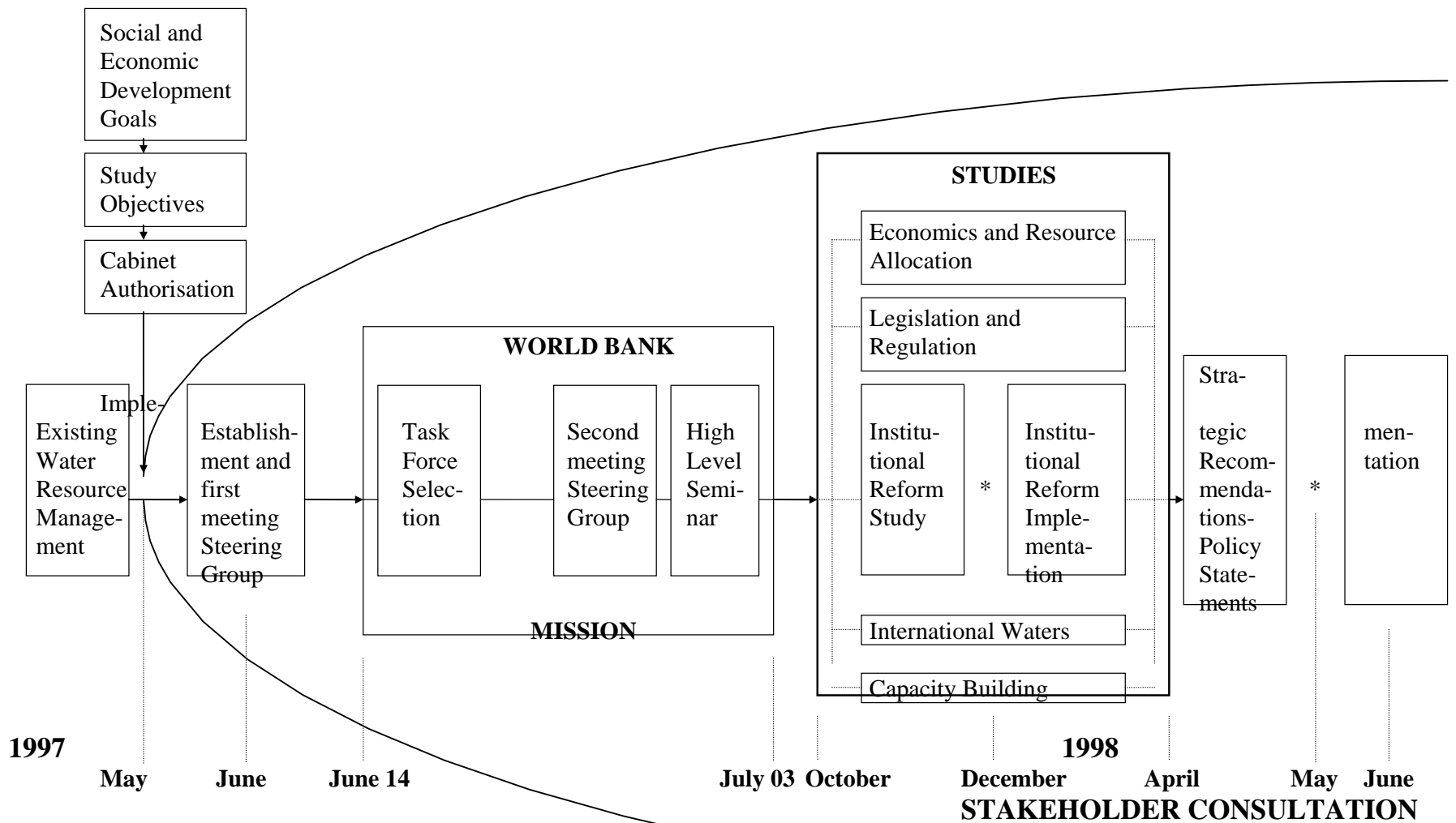
The steering group may form topical working groups to assist specific task force activities. The work of the task force and their consultants would be reviewed at regular intervals by the steering group (or the topical working groups) and their comments considered in the subsequent work to ensure that stakeholder input is fully reflected in the results of the review. Prior to the start of the World Bank mission, DWA will consult with stakeholders on the establishment of the Review Steering Group and then nominate participants for the Steering Group. The Steering Group will be called to a briefing on the purpose of the review and their role in it, facilitated by the GTZ consultant, prior to or shortly after the World Bank mission's arrival. Near the end of the World Bank Mission, the Steering Group will review the mission proposals and work programme for the Review. This review may take place as part of the Senior Level Seminar for appropriate Ministers and agency heads or separately, as determined during the World Bank Mission.

One of the major functions of the Steering Group will be the contact with stakeholders. Thus the Group will advise the Mission on a communication strategy designed to involve all

stakeholders and promote understanding of the issues among the public. The Group is expected to take an active part in the effort of communicating the results of ongoing work and gain acceptance for proposals made. One of the methods of communicating with a broad spectrum of stakeholders and consensus building would be the establishment of national and regional fora to whom the Group would report on progress made, and eventually disseminate proposals for comments and, ultimately, acceptance and participatory implementation.

A graphic presentation of the process is presented in the figure on page 7.

NAMIBIA
WATER RESOURCE MANAGEMENT FOR SUSTAINABLE DEVELOPMENT IN A PROCESS



Implementation and Timing

The proposed World Bank led Water Resources Review is described in detail above and outlined in the Aide-Memoir of the recent World Bank mission dated March 12, 1997, which is included as Annex 1 to this report. The Task Force will be composed of local professionals seconded from the following sources: the DWA, the Ministry and other ministries and departments, or engaged for the purpose. If engaged, they will be contracted for two years so they can also assist in the implementation process. Candidates will be selected on the basis of professional competence and their potential to capably perform in the newly established organisational units. In order to assist them to reach their full potential, they will be provided with appropriate training as part of the Review.

A detailed work plan will be developed during the initial World Bank mission. This work plan will provide direction by the Review Steering Group and consultation with other stakeholder representatives, as required. The mission will consult with the other external support agencies such as KFW who have provided active support to the sector for many years. The work plan will also provide for intermediate reviews by the Ministry and others, and the visit of external experts organised by the World Bank.

The preliminary timing of the activities shown on table 1 will be further refined during the World Bank mission.

Table 1: Timing of Activities

| Description | Provisional Date |
|---|------------------|
| Establishment and first Meeting of Steering Group | June, 1997 |
| Beginning of World Bank Mission | June 14, 1997 |
| Identification of Task Force Members | June, 1997 |
| Second Steering Group Meeting | June 30, 1997 |
| High Level Water Policy Seminar | July 02, 1997 |
| End World Bank Mission | July 03, 1997 |
| Establishment of Task Force | October, 1997 |
| Begin Water Resources Management Review | October, 1997 |
| Restructuring Proposal | December, 1997 |
| Implementation of Restructuring | January, 1998 |
| End of Water Resources Management Review | April, 1998 |
| Review of Water Resources Management Actions proposed | May, 1998 |
| Start of Implementation | June, 1998 |

The Namibian Context

The challenge for Namibia will be to ensure that the expertise gained by the World Bank and others contributing to the review will be properly adapted to Namibia's unique water resource conditions and environment.

One obvious way is to use pertinent experience of DWA, such as the experience gained during the recently successfully completed nation wide process of consultation with rural water supply stakeholders. The consultation has led to the universal acceptance of the principles of cost recovery and community management in rural water supply. Many of these same stakeholders will also participate in the water resources management review. It therefore makes sense to continue the same leadership for the forthcoming effort because the success and acceptance of the review will depend very much on the participation of the stakeholders.

Another way is to build on the expertise gained by local professionals and donors who have worked together on a wide variety of projects. The best example is the knowledge available through KfW supported activities. Some of their projects examined general issues of concern to the water sector and made appropriate recommendations, as part of project preparation and implementation. Experience with the implementation of projects and related, more general water sector reform proposals of KfW and others will form part of this review.

Still another method of ensuring adequate input of Namibian experience, and to benefit in particular from DWA's knowledge of the sector, would be for the Under Secretary for Water Affairs to be seconded to the Water Resources Management Review as the Co-ordinator. Appropriate arrangements would have to be made for continuity in the leadership of the Department of Water Affairs for the duration of the study. Because there would be clear advantages to the incumbent continuing his service as head of DWA while co-ordinating the Review, Project funded executive assistants for both DWA and the Review could be appointed for the duration of the Review.

However the Review is organised, given the importance of water resource management for Namibia's future, the effort needs to be supported at the highest echelon of the Government. The invitation by the Prime Minister to the World Bank to support water resource development is a clear demonstration of the importance that the Government assigns to this effort. For the same reason, the Review should be supervised by the Minister of Agriculture, Water and Rural Development, given his responsibility for Water Resource Management. He would be assisted by a Review Management Committee consisting of the head of the department of agriculture and rural development, the head of the department of water affairs who is expected to be the Review Co-ordinator and who would chair the committee, and a senior official of MRLGH.

In response to GRN decisions and actions already taken, the review will make specific recommendations on how functions of water resources management remaining with the centre, after the establishment of NAMWATER and the decentralisation of rural water supply, would be managed. The remaining central functions are those required to provide direction and guidance to the sector and maximise the benefits to all Namibians through a sound allocation and control of water resources designed to satisfy Namibia's economic, environmental and social development needs in a sustainable manner. Preliminarily, they can be defined as follows:

1. Equitable Water Resource Allocation, including prioritising of needs
2. Policy, Legislation and Regulations
3. Financial Sustainability and Economic Pricing of Water
4. Consumer Protection and Financial Control

5. Bulk Water Regulation
6. Retail Water Regulation
7. Technical Assistance for water development for:
 - a. Urban and Rural Water Supply and Sanitation (domestic, commercial and industrial use)
 - b. Irrigation
 - c. Power Generation
7. Resource and Environmental Protection
8. Transboundary Water Negotiations and Co-Management
9. Strategic Planning for Water Resource Development
10. Water Resource Monitoring and Assessment

With the sector in a state of flux (commercialisation of NAMWATER, devolvement of water supply responsibilities to Regions, and increasing community management of water supply services), questions relating to financial sustainability, effective demand, affordability and economic pricing need to be examined now before decisions on water resource management are finalised.

An assessment of the needed organisational structure will be part of the review, but would be fast-tracked to the extent possible so that implementation of organisational measures could possibly take place as early as the beginning of 1998, when decentralisation is to begin. This can probably be supported through the existing GTZ-CAWS project. The water resources sector may be in a position to fast track the organisational aspects as a result of the intensive preparatory work which has already been undertaken to date, including the creation of NAMWATER, the Scoping Study conducted by the Management Consultancy Group of the Prime Minister's Office, the study tour to the United Kingdom and the expected early decentralisation of rural water supply functions. Nevertheless, World Bank and other experience in sector organisational matters will be a welcome addition to the sector's own efforts. Even if fast-tracked, it will nevertheless be important to ensure adequate stakeholder consultation in the process.

NAMIBIA'S WATER RESOURCES¹

The predominant feature of Namibia's water resources is their scarcity. The mean annual precipitation ranges from less than 50mm in the west to as high as 700mm in the north-east. Unfortunately, the rainfall is not only low, but erratic, difficult to predict and spatially unevenly distributed. Low humidity, high temperatures, wind, sun and sparse vegetative cover combine to limit water availability from rainfall to 3%, two percent as surface runoff and one percent as groundwater.

Safe yield of water in Namibia (excluding imports from sources outside the country) is estimated as 200Mm³/a from surface waters, and 300Mm³/a from groundwater. Surface water is obtained from storage along ephemeral rivers, with an impoundment capacity of

¹ From "Water Sector Facts and Master Water Planning in Namibia", the Deputy Permanent Secretary, Department of Water Affairs, Ministry of Agriculture, Water and Rural Development, Republic of Namibia, Windhoek, October 1995

600Mm³. The 95% assured safe yield from these impoundments amounts to 80Mm³/a only, as a result of Namibia's arid climate. In 1995, some 107Mm³ were obtained from rivers shared with neighbouring countries, 52Mm³ from ephemeral rivers, and 136Mm³ from groundwater.

Demand in 1995 amounted to 295Mm³/a and is expected to rise to 360Mm³/a in the year 2000, and 600Mm³/a by the year 2020.

ISSUES

The Ministry of Agriculture, Water and Rural Development is responsible for the nation's water resource development, and is also the major user of water. It is not, however, responsible for waste water disposal. The Ministry has adopted a mission statement which reads as follows:

“To promote and facilitate the environmentally sustainable development, management and utilisation of water and agricultural resources to achieve sound socio-economic development together with all citizens”

This mission statement was adopted by the *Strategic Planning Workshop* the Ministry held in October 1996. The same workshop formulated the objectives of the Ministry as follows:

- 1. To ensure progressive improvement in household food security and nutrition.**
- 2. To ensure access to a reliable water supply of an appropriate standard for household and economic uses.**
- 3. Facilitate the empowerment of communities to manage their agriculture and water resources.**
- 4. Assist and advise on the land reform process.**
- 5. To continuously improve the capacity of the Ministry to best serve its customers efficiently and cost effectively.**
- 6. Improve agricultural income.**

Effective Water Resources Management is essential to implement the mission the Ministry has defined for itself, and is an indispensable ingredient of measures which will be needed to achieve the majority of the objectives the Ministry has set for itself. There are many issues to be considered during the review of water resources management, the most important of which are discussed below.

Economics and Resource Allocation

Ultimately, the purpose of water resources management is to contribute to the socio-economic development of Namibia today, without jeopardising development in the future. Given Namibia's scarcity of water resources, allocation and use of those scarce resources is a major determinant of the country's future economic progress. Water allocation affects many different aspects of the economy and therefore requires of necessity a multi-sectoral approach. Amongst the economic issues which need to be examined and resolved are:

1. human and cattle watering requirements in rural water supply, in particular the economic benefits of water use in cattle raising compared to other uses;
2. human and industrial/commercial water use requirements and allocation in urban and peri-urban water supply;
3. water resource allocation on the basis of water quality requirements and maximising the substitution of treated waste water in lieu fresh water;
4. hydro-power development;
5. waste water treatment requirements and reuse or, adapting the economists definition of waste as a *displaced resource*, how to economically use that displaced resource;
6. protection of the environment and ensuring the provision of water for wildlife;
7. cost recovery, economic pricing of water and the equitable allocation of costs of supplying water and disposing of it after use to ensure the sustainability of water supply and waste water disposal regardless of the purpose of use;
8. efficiency of irrigation practices and its impact on food security;
9. sequential use of water resources in descending order of use to maximise economic benefits;
10. application of the results of research into the efficiency of water use and reuse, of appropriate technology, and the selection of plants resistant to drought and or low quality (e.g. brackish and saline) water and conduct of similar research in Namibia;
11. trade-offs in costs and benefits in water use by different sector's of the economy leading to a determination of priority in water resource allocation and policies and criteria for the provision of concessionary financial resources; and
12. the economic impact of water use and discharge regulations.

The long term objective of economic policies and regulations developed as a result of the water resources management review is:

1. the financial/economic sustainability of the water resource sector as a whole (water resource development and water use for irrigation, water supply and hydro-power generation) through the recovery of all costs by means of fees, licenses, user charges and other means; and
2. policies and implementing actions which maximise benefits to the overall economy of the country.

Legislation and Regulations

Namibia's Water Act dates from 1956 and is now out of date. It is in some areas in conflict with the constitution. The Act therefore requires revisions to bring it up to date, for example to incorporate the latest water and sanitation policies approved by Cabinet. Other changes are necessary simply because conditions in Namibia have changed very much since 1956. The water resources management review is likely to result in additional recommendations and revisions which will need to be incorporated.

The water resource management review provides an opportunity not only to identify needed amendments and improvements to the water act, but to use the review process to consult with stakeholders, to promote public awareness and gain public support for water resource

management measures, particularly those which directly affect the user. The issues already identified include:

1. impact of land ownership on water point and water resource ownership;
2. the need to reconcile law and customs/traditions in topics related to water use;
3. the need to include consumer protection in the legislation as private sector participation increases;
4. establishment of legal regulations for private sector participation;
5. revisions to the water act in response to GRN decentralisation policies and directives;
6. licensing of *all water abstraction, use, reuse and discharge* by one regulatory agency;
7. establishment of water quality, environmental protection and technical standards meeting today's requirement of Namibia; and
8. co-ordination and reconciliation of all water related legislation and regulations

The legislation should emphasise simplicity of processes and regulations because that will increase their effectiveness and reduce the cost of monitoring and enforcement. It should encourage self regulation of water use through market based incentives as a substitute for excessive regulation. The legislation should also promote the use of water and waste water quality standards necessary for a specific application rather than the application of restrictive national standards designed to protect human health and well being regardless of the purpose for which the water is being used.

A difficult issue to resolve is the division of responsibility for water related actions amongst several organisations, such as public health aspects, including rural sanitation, by the Ministry of Health and Social Services, environmental aspects by the Ministry of Environment and Tourism, hydro-power by the Ministry of Mines and Energy, irrigation and water supply by the Ministry of Agriculture, Water and Rural Development. At a minimum, a clear delineation of responsibilities should be established and anchored in appropriate legislation, with appropriate cross referencing in pertinent legislation and regulations; preferably, one law could incorporate all water related aspects of the health, environmental and water legislation and regulations, and one organisation, such as an inter-ministerial water board, could be made responsible for all water related issues, or at least the monitoring and enforcement of regulations.

Institutional Arrangements

At the moment, DWA is responsible for all water resource regulatory and rural water supply activities in Namibia. Responsibility for bulk water supply is vested in NAMWATER, proposed in 1995, informally established in 1996 and awaiting formal incorporation by the National Legislature. NAMWATER is charged with producing and delivering bulk water on a commercial basis. Under the decentralisation policy adopted by Cabinet in December 1996, operational responsibility for rural water supply will be transferred from DWA to the Regional Councils during the first phase of the decentralisation, which is planned for 1998.

Without actually considering the issue, with these measures the Ministry is already implementing the separation of regulatory and operational functions of the water sector, something which the review in all likelihood will recommend. The reason for the widely

accepted separation of regulatory and operational functions is the need to avoid potential conflicts of interests which tend to occur when the operator is also the regulator. Under this separation:

1. the operator is responsible for all actions directly related to the provision of water for irrigation, hydro-power production and water supply, such as the planning, construction, operation and maintenance of facilities and the commercial activities associated with cost recovery and investment; and
2. the regulator is responsible for strategic planning, water resource allocation for all uses, (irrigation, power production, water supply for domestic, commercial and industrial use), formulation of policies and standards, and the monitoring of operations to ensure that these regulations are appropriately implemented. The regulatory agency is usually also responsible for necessary research and development activities, either by undertaking them or contracting others to do so.

There remain a number of issues, even under the assumption that the de facto separation of regulatory and operational responsibilities will be formally adopted. These issues include:

at national level

1. the form of regulatory agency: should it be a government department such as DWA, an independent agency established by the Minister, a National Water Board or Authority by the Minister, an inter-ministerial Water Board, or some other institution?
2. if a Board or Authority, should it have its own staff and in effect operate as an independent agency, or should the Board's responsibility be limited to water resource allocation and its staff work be performed by an agency or whatever institution will be established to perform the regulatory function?
3. how will responsibility for pollution control and environmental protection, including waste water and reuse regulations, be assigned, to the water resources organisation, or shared with other organisations responsible for public health and environment?
4. if responsibility is shared, will there be one monitoring organisation, or three?
5. what will be the transitional arrangements for rural water supply, when support and technical assistance from the centre will be required by Regional Councils? Should that be a separate, time limited technical assistance agency, or part of the regulatory organisation?
6. what provisions need to be made for providing technical assistance to urban municipalities? In one independent organisation with rural water supply, or independently, or together with the regulatory organisation?
7. will organisations established to fulfil the requirements of (5) and (6) be given the responsibility for waste water and sanitation, or will there be separate organisations?
8. how will these organisations be financed, initially by GRN and progressively by clients on the basis of payments for work performed, with those requiring assistance having the choice to employ the agencies or private sector organisations?

at regional level:

1. will there be a delegated regulatory and a monitoring responsibility at regional level, will that function be exercised by Regional Offices of Ministries, Regional Councils, “Catchment Boards”, or the private sector?
2. should regional organisations be based on watershed rather than political boundaries? should at least the regulatory and monitoring function be based on watersheds boundaries, for example by watershed offices of the national regulatory organisation?
3. what will be the relationship between the national and regional/local regulatory organisation(s) and regional and local operators?

These issues require intense consultation among those now sharing responsibility for water, sanitation and health at the centre, and regional and local stakeholders who will be affected by the decisions made to resolve the issues. The Review provides an opportunity to explore various possible institutional arrangements, to evaluate their efficacy and suitability under Namibian conditions, and reach a consensus among stakeholders.

International Waters

As a result of its expected increasing future dependence on international rivers as a source of supply for its water needs, Namibia is already heavily involved in co-operative activities on water sharing with its neighbouring countries. Those activities are governed by the SADC Protocol on International Waterways which provides a framework for the development of international rivers, emphasising “equitable allocation” and “no appreciable harm”.

The protocol reflects the “Helsinki Rules” proposed by the International Law Association in 1966. Efforts to establish international water law (other than laws which also govern navigational inland waters which exist but are not of significance for Namibia) have been underway for a long time. In 1994, the international law commission recommended draft articles governing the use of joint water resources to the U.N. General Assembly. So far, none of these rules have become international law, and their use by nations in negotiating bi- and multi-lateral agreements is purely voluntary.

Development of shared water resources is therefore based on bi- and multi-lateral agreements. Namibia’s territory is part of five international river basins (the Cunene-, Cuvelai-, Okavango-, Cuando/Zambesi-, and Orange River Basins), and activities based on binding legal agreements with states sharing those river basin resources exist for all five (for some, more than one organisation and corresponding agreement exists). Not all of the organisations established to implement these agreements are restricted to water resource management, some include other, more general development objectives, and not all the organisations are equally effective.

The Review provides an opportunity to conduct an overview of Namibia’s international activities and to examine issues affecting its international posture, which include:

1. long term water needs which have to be satisfied through shared water resources;
2. potential of satisfying those needs under existing agreements and changes needed if existing arrangements are inadequate;
3. inter basin water transfer;

4. innovative arrangements, such as water saving in upstream water use, supported by downstream user in exchange for saved water; and
5. joint applied research for the development of appropriate technologies and processes, such as water saving agriculture and urban development (xeriscaping etc.) and waste water reuse.

Capacity Building

The creation of NAMWATER and the accompanying transfer of most of the experienced staff to the new organisation, attracted by better employment conditions and salaries offered by a quasi commercial organisation, has seriously depleted DWAs professional capacity. Although staff can be replaced, new employees will not have the background and experience of those lost to NAMWATER.

With the forthcoming decentralisation efforts in rural water supply, it is likely that field staff will be transferred to Regional Councils. Such a transfer should not affect DWA regulatory functions in rural water supply, provided present headquarters staff remain in place.

The most serious gap to be filled by DWA, whatever transformation its responsibilities will undergo in the future, is the presently unmet demand for regulatory and technical assistance of future urban and peri-urban water supply and sanitation. Namibia's urban centres are only inadequately served with water and sanitation services and do not have the staff required to improve the situation (Windhoek, Swakopmund and Walvis Bay are the exception). Additional qualified staff will be required at both the municipal and central level if urban consumers are to receive significant improvements in their services.

Capacity building must also include stakeholders of the sector not in Government service, ranging from the private consumer to commerce and industry. The purpose is to create public awareness of water resource constraints and motivate user engagement in water conservation and environmental protection. Comprehensive communication and education programmes are required to engage the stakeholders in the water and sanitation sector to ensure efficiency of water use and the protection of the environment. Included in this effort must be the nation's schools, beginning in kindergarten, so that water saving and conservation becomes second nature to every Namibian.

The sector as a whole is seriously under capacity both in the number of staff needed for future operations, and in terms of qualifications needed for the jobs to be filled. The only institutions which can be said to be reasonably staffed for the exercise of their functions are NAMWATER and the larger cities, such as Windhoek. Among the issues the Review must examine are:

1. what skills are actually available, particularly in topics not so far part of the sector, such as the drafting, monitoring and enforcement of regulations?
2. what training or re-education will be necessary to equip present DWA staff to act as enablers rather than executives and managers?
3. what skills and training is required to successfully promote and then regulate the participation of the private sector?

4. what academic and training institutions are available and what is their capacity to produce the required output ranging from craftsman to managers and other professional cadres?
5. what other sources of training are available, such as professional associations and institutions, in country and externally, to complement national opportunities?
6. what training can local water and sanitation service suppliers provide?

GUIDING PRINCIPLES

Water Resource Management will play a major role in Namibia's economic development. The guiding principles are intended to provide general guidance on how that role is to be realised. At this stage, they are suggestions to be examined during the Water Resource Management Review and, if necessary, reformulated, added to, or eliminated. After the Review and the stakeholder consultations, the principles will represent a national consensus on the function and role of Water Resource Management within the nation's development efforts. Principles should be reasonably permanent and general enough so policies and strategies implementing them can be amended from time to time to reflect changing conditions without the need to re-negotiate the principles and basic conditions governing Water Resource Management.

The guiding principles should include:

- National ownership of all water resources within national boundaries and in relation to resources shared with neighbouring States
- Stakeholder participation in decision making on water resources management at appropriate levels, reflecting the national ownership of water resources
- Equitable allocation of resources reflecting national economic and social development objectives
- Sustainability of water resource development based on
 - a. protection of water sources from over-exploitation and pollution, ensuring their long term exploitable capacity
 - b. economic pricing of water supply, whatever the purpose of water use (with safety net for the poor, where appropriate)
 - c. economic pricing of wastewater disposal and related environmental protection measures
 - d. financial sustainability of water use and wastewater disposal management
- Maximum achievable efficiency of water resource use and waste water reuse to stretch the limited availability of water resources
- Water Resource allocation and regulatory responsibilities separated from responsibilities for exploitation, operation and use of water and wastewater, with both regulatory (after a

transitional phase with government support) and operational activities financially sustainable

- Simplicity of regulations to facilitate their enforcement, and co-ordinated monitoring and enforcement of water resources and applicable environmental and health regulations
- Water use and wastewater disposal activities to be financially viable, with or without private sector participation, with government financial support limited to meet specific nationally important social objectives under policies which ensure equity and transparency
- Co-operative exploitation of water resources of watersheds shared with other nations, and common activities to improve the benefits of joint water use, such as joint research and development
- In conformity with government decentralisation policies, devolvement of responsibility for publicly owned and managed water use and waste water operations

Namibia's Water Act was enacted in 1956, is out of date and not suitable for the conditions prevailing now. A new Water Act or other legislation will need to be drafted and passed by the national legislature to provide the legal basis for the implementation of the recommendations developed during the Water Resources Management Review. The Act should incorporate the Principles, and empower the regulatory institution(s) created by it to develop policies and other instruments to implement them, subject to the approval of the Minister responsible for Water Resources.