

1. Introduction

Namibia has no perennial rivers within its territory. A large proportion of the nation's perennial water is found in the trans-boundary rivers that form the northern and southern borders, far from the main centres of demand. As water sources in the interior of Namibia becomes virtually fully exploited, the country's future economic development will increasingly be dependent on long distance water transfers from shared watercourses.

These shared watercourses are governed by various bilateral, regional and international instruments, which provide for integrated management and sustainable development of the shared resource. With the advent of these instruments of cooperation as well as other general framework international agreements and conventions, new concepts, guidelines, approaches and requirements have come into being. Namibia's international obligations under these instruments need to be taken into account in the management, development and regulation of the shared water resources.

Population growth, economic development, and urbanization are placing increasing pressure on existing water resources and give rise to the need for further abstraction of water from trans-boundary rivers. In addition, growing demand for energy has precipitated a search for new sources of hydropower, again requiring development of international rivers. This theme of review has attempted to make recommendations on possible mechanisms for conflict prevention and dispute resolution and will propose a framework for the utilization of shared waters by Namibia which takes into account the importance of respecting other riparian countries' entitlement in shared waters as prescribed by international law.

Under this theme research has been conducted on shared watercourse issues with a view to formulating a policy for their management. Attention has been given to designing enabling legislation that will address and facilitate proper integrated management of the watercourses and enhance co-operation among riparian states, while enabling Namibia to become an active and effective role player in the process.

Work has also been done on assessing methods and strategies for capacity building with a view to enabling the country to play an effective role in shared watercourse relations and to secure such share of water resources from shared watercourses as it is entitled to in international law.

Added to this state of affairs is the fact that the current water legislation is outdated and does not adequately address the issue of trans-boundary rivers. Where an attempt to address international water issues is made in the Water Act, No 4 of 1956, it is for the purpose of border delimitation and the establishment of a legal regime for ownership of the joint water facilities in the territories of different riparian states bordering with RSA. A review of the current Water Act's provisions relating to shared waters has been conducted and suggestions made for the future Water Act's coverage of shared rivers issues.

To assist in the determination of appropriate policy the Review has conducted training workshops on the techniques of good policy formulation. The recommendations and findings of these workshops have been taken into account in formulating policy proposals for government consideration.

A broad consultative process has also been put in place to facilitate maximum stakeholder input in the development of a white paper and the legislative framework in respect of shared watercourses. Research has also been conducted as to how some instruments of international law

concerning shared watercourses affect Namibia and recommendations has been made on how Namibia could give effect to its international obligations and entitlements.

In order to achieve these goals and objectives, special attention has been paid to regional and local co-operation instruments, and to the manner in which Namibia can effectively utilise them whilst meeting its international legal obligations.

In order to facilitate proper research the theme of shared river basins has been divided into two main components: the external or international component and the internal or national component. Bearing in mind the objectives of the review in as far as shared watercourses are concerned, which include identifying key issues constraining water resource development and management, the following issues have been identified as constraints:

- Insufficient inter-agency consultation and involvement in the business of managing shared waters
- Absence of a proper and formal institutional home to address issues of shared watercourses
- Inadequately established and functioning river basin authorities
- Weak or non-existent conventional international negotiation strategy
- Absence of clear policy guidelines to guide the country's business in shared waters
- Lack of capacity
- No public participation and involvement in the process

2. Situation Analysis

2.1 The Physical Shared Water Resources

2.1.1 The Zambezi River Basin

The Zambezi River is the largest African river to flow into the Indian Ocean. Its basin, with an area of about 1300 000sq. km covers the territories of eight different countries: Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe. Floodplains, swamps, lakes, and dams are all features of the basin, making the river and its tributaries part of a great natural irrigation system in these countries. Namibia has direct access to the Zambezi River where it forms the border with Zambia. Another link to the Zambezi River Basin is through the Kwando River, which drains off from the Angolan highlands and enters Namibia as the Kwando River, which in years of exceptionally high rainfall links up through the Linyanti River with the Chobe River on the border with Botswana. The latter then joins the Zambezi River at the northeastern tip of Namibia. The area is extremely flat and depending on the relative height of the water in the Zambezi and the Kwando, the flow of the water may reverse, push back into the Chobe Swamps, and may finally spill into Lake Liambezi. The Kwando catchment therefore forms part of the Zambezi basin only in years of good rains. For these reasons these basins are treated as separate parts of two different watercourse systems, namely the Kwando and the Zambezi respectively.

2.1.2 The Orange River Basin

The Orange River rises in the mountainous Kingdom of Lesotho, on the eastern side of the subcontinent. It is known in Lesotho as the Senqu, and flows in a westerly direction for 2300 km across the interior of South Africa, before discharging into the Atlantic Ocean. The river and its main tributaries, the Vaal (known as the Mahokare by the Basotho), Caledon, Vet, Riet and Fish rivers, as well as a number of ephemeral, often endoergic rivers within the basin, run through four states: Lesotho, South Africa, Botswana and Namibia.

The Orange River constitutes the lifeblood of the industrial heartland of South Africa, the Gauteng province, and the more than 24 large dams along its length and its main tributaries serve a variety of purposes such as water supply, including irrigation, and hydropower generation.

The hydrology of this extensive river system has been changed in many ways in an effort to meet South Africa's water demands, with intra- and inter- basin transfer schemes playing a major part. It is estimated that the mean annual runoff was between 11000 and 12 000 Mm³ before the South African dam building scheme began. The total Orange River catchment has a surface area of in excess of 1 000 000 km² with most of the runoff coming from South Africa followed by Lesotho and Namibia.

On average, more than 500 Mm³ /a is contributed from Namibian territory at the present stage of the system's development. The flow in the lower parts of the Orange has however been cut by nearly two thirds, especially over the last 35 years since the inception of the Orange River Project (ORP) in South Africa. This project transfers water from the westward direction flowing Caledon and Orange Rivers to rivers outside of the basin that flow eastwards towards the cities of Port Elizabeth and East London in the Eastern Cape. In order to operate the ORP there are more than a dozen dams with a combined capacity of 8 500Mm³. The key structure in this development is the Gariep Dam, previously known as the Hendrick Verwoerd Dam. In addition there are several large dams in the Upper Vaal River to which water is transferred from other parts of the Orange River catchment in order to supplement the supply to Gauteng. The most recent and largest component of this transfer is the Lesotho Highlands Water Scheme (LHWS) that transfers water from the upper reaches of the Orange catchment to the Vaal River basin. These water abstraction and transfer schemes have had a huge impact on the natural flow in the river further downstream in its lowest reaches where it forms the border between Namibia and South Africa. For example, just upstream the confluence with the Fish River the mean annual runoff has been reduced from approximately 9 600 Mm³ to only 3 335 Mm³. Consequently the environmental impact has been considerable both along the length of the Lower Orange and at the mouth of the river.

On the other hand, it is a fact that the scheme has assisted the agricultural development of the land in the area, allows the generation of hydroelectric power and the control of floods in the Orange River. It appears, however, that the initial estimates of benefits and advantages it would bring were unrealistic: predictions of demand were over-estimated and the scheme has not met expectations of solving the local water quality problems.

Other environmental problems have also emerged since the scheme became operational. Despite precautions having been taken, Orange River fish species have completed the journey through the transfer tunnel and have established populations in the recipient rivers. There has also been a marked increase in the low flow in the Great Fish River, making it perennial rather than seasonal. In addition, water chemistry has been greatly altered. Changes in the invertebrate fauna have also caused plagues of the cattle pest black fly.

Within Lesotho and South Africa water is transferred both into and out of the Orange River basin through a network of engineering schemes. These transfer schemes complicate, and to some degree violate, the principle of equitable and beneficial use of internationally shared watercourse systems, particularly in view of the fact that at the time when these schemes were planned and implemented not all the riparian states were present at the negotiating table.

2.1.3 The Okavango River Basin

The Okavango River with its two major tributaries, the Cubango and the Quito, rises in Angola, before crossing the Caprivi Strip and flowing into Botswana, where it forms the Okavango Swamps.

While the Cubango, which is known as Kavango River in Namibia, has a significantly larger catchment area than Quito, its mean annual runoff is only slightly higher. The Cubango river flows through a mountainous and hilly terrain in Angola for about 600 km, after which it enters the Kalahari sands zone near to the Namibian border and meanders through a wide and shallow valley, with flood plains of between two and six kilometers in width.

About 300km after the Cubango, or Kavango, first reaches the Namibian border, it makes its confluence with the Quito River. The latter rises in less mountainous terrain than the Cubango and meanders through some vast floodplains in southern Angola, contributing almost half of the total flow of the Okavango. The floodplains have the effect of creating a more even flow regime. After the confluence, the Okavango River crosses the Caprivi Strip and enters Botswana. Seventy kilometers further downstream, the mainstream starts to divide and the Okavango Delta is formed which has a surface area of between 10 000 to 15 000 km².

In Namibia another tributary of the Okavango is the Omatako River, which contributes no flow. Originating in the dry interior of Namibia, there is no evidence of the Omatako ever having flowed further than 400km from its source. The big flood of 1934 is said to have been blocked by the sand dunes in the Kanovlei area.

2.1.4 The Kunene River Basin

The Kunene River rises in the Sierra Encoco Mountains in southwestern Angola, which receive relatively good rains of on average approximately 1 300mm/a. Its headwaters lie at elevations of between 1 700 and 2 000m. The total catchment area is 106 500 km², of which 14 100 km² lies within Namibian territory. The Kunene is a watercourse that Namibia shares with Angola as it forms the border between the two countries from Ruacana to the coast.

Between the river's origin and Matala, a distance of nearly 250 km, the main channel is well defined, with a number of rapids and steep sections. From Matala to the Namibian border the river changes drastically and experiences a gentle gradient. Only the eastern bank is well defined with wide floodplains characterising the western bank. From upstream the Ruacana Falls to the coast, a distance of just under 385 km, the river drops nearly 1200m through several spectacular falls. Although there are a number of ephemeral tributaries in the southern part of the catchment, they add very little to the total flow with most of the runoff being generated from rainfall falling over the highlands between October and April.

The Kunene catchment lies relatively far to the west, so rainfall is largely unreliable and variable. The relatively small catchment and steep river bed slope in the upper section also mean that flows run relatively quickly to the coast, leaving the river almost dry at the end of the dry season. With the inception of the Ruacana hydroelectric scheme and its associated storage dams further upstream flows should have become more regulated. This unfortunately has not materialised, as the Gove Dam in Angola has never been adequately operational.

In addition to being used to generate hydropower, the Kunene also supplies a significant amount of water to Oshakati, Ondangwa and other areas in the Omusati, Oshana, Oshikoto and Ohangwena Regions. The demand is at its peak in October, which corresponds with the period of minimum flow in the Kunene.

2.1.5 The Cuvelai Systems

The Cuvelai, which is an endoergic river-of some 430 km in length, rises in the southern foothills of the Sierra Encoco in southwestern Angola. It is perennial for about 100 km before it spreads out into a delta of ephemeral watercourses, known as oshanas, which run through a broad flat plain. The delta is about 130km wide where it crosses the Namibian border but converges to terminate in the Etosha Pan. Runoff in the Cuvelai is erratic and has been observed to vary from no flow to 100 Mm³ p/a as was gauged in 1995¹. The oshanas are the lifeblood of an area where more than half of Namibia's population lives and where agriculture forms the basis of the subsistence economy. The main crop produced under dryland conditions is millet (mahangu) while livestock farming is very important too. Due to flat topography and shallow saline groundwater, surface water storage facilities are limited to shallow earth or excavation dams, which suffer from high evaporation rates.

One of the problems associated with the oshana system is the lack of quantitative understanding of the hydrology of this system. Current available data is mainly based on the gauging carried out during 1995 which have invalidated the less reliable observations carried out in the late seventies. Improved knowledge and understanding of the oshana system is crucial, particularly as it supports the most densely populated regions in the country. Bad land use, fragmented management and over-exploitation of water and other resources in either Angola or Namibia have severe environmental consequences for these areas.

The Master Water Plan for the Owambo Region (1990), by Department of Water Affairs states that: "Groundwater sources are important in those areas where it is potable or suitable for stock watering purpose. It is therefore necessary to embark upon thorough geohydrological investigations to establish the true nature of the hydrogeological environments in Owambo, especially with reference to the occurrence of a possible perched freshwater table..."

Until such investigations are carried out and the data made available, knowledge about the oshana system will be lacking and as a result resources and efforts in the form, for example, of planning and borehole drilling, will be wasted.

2.2 River Basin Organisations (RBOs) and Basin-Wide Integrated Water Resource Management

Currently there are good water sharing arrangements in place between Namibia and other shared watercourse states. Among such arrangements are those administered by the Permanent Okavango River Basin Water Commission (OKACOM) and the Orange River Permanent Commission in respect of the Okavango and Orange River basins respectively.

There is, however, both external and internal dimensions to these arrangements. Whilst the international or external part of these arrangements is fairly well developed, the internal aspects have not enjoyed as much attention. As a consequence the mechanisms necessary for creating an environment conducive to the efficient and effective execution of obligations arising from or giving rise to such international arrangements are underdeveloped.

2.3 The Colonial Water Act and Shared Watercourses

The international character of Namibia's perennial rivers derives from pre- and post independence treaties and agreements. The uses and operational regimes of these rivers are

¹ Report on the State of the Environment, Namibia, 1999

conducted and regulated in terms of these agreements. The formation, existence and application of these agreements and treaties should have their basis in the modern rules, practices and theories of international water law, which are premised on notions of territorial integrity and national sovereignty, balanced with equitable utilisation. The Water Act, (Act 54 of 1956) currently in force in this country does not adequately provide for the regulation of shared waters and the principles on which such regulation are based are not derived from, nor are they informed by, theories and state practices based on philosophies of water sharing as enshrined in international law. Given the fact that when the existing Water Act was promulgated none of the riparian states, with the exception of South Africa, enjoyed national sovereignty, this state of affairs is hardly surprising.

Other principles of international law that come into play are the principles of good neighbourliness and mutual respect between independent and sovereign states.

Policy proposals will thus have to be developed in respect of the use of shared watercourses by Namibia, the retrospective recognition of pre- independence agreements, regulation of national authorities dealing with river basin issues and the relationship between them and international river basin organisations (RBOs).

This Theme Report has also attempted to make recommendations as to the extent to and the manner in which the new Namibian Water Act will make provision for shared watercourse issues.

2.4 Existing Multilateral and Bilateral Agreements

2.4.1 Post-Independence Instruments for Co-operation

The boundaries of the eleven SADC states lie across fifteen major perennial and ephemeral river basins, and straddle five major lakes. At present there are approximately 21 agreements between different SADC countries concerning joint co-operation in various fields, including water resources of mutual interest.

Below are listed some of the agreements and commissions between Namibia and its riparian neighbours that affect internationally shared water resources:

1. The Permanent Joint Technical Commission (PJTC) between Angola and Namibia on the Kunene River Basin was established at the same time as the agreement of co-operation between the two countries, signed in 1990. The major priority for the PJTC at present is the development of a hydroelectric power scheme on the lower Kunene River.
2. The Joint Operating Authority between Angola and Namibia was also reinstated in 1990 in Lubango. It deals specifically with the operation of the regulating dam on the Kunene River at Gove, in Angola, and with the infrastructure for the Ruacana hydropower station on the same river in Namibia. This power station itself is in Namibia, but part of the infrastructure, such as the diversion weir and the intakes, are situated in Angola.
3. The Joint Permanent Water Commission (JPWTC) between Botswana and Namibia concerning the development and utilisation of water resources of common interest was established in November 1990 in Windhoek. It has jurisdiction over activities on the Okavango River (until OKACOM was formed) and the Kwando-Linyanti-Chobe System in the Zambezi River Basin.

4. The Permanent Okavango River Basin Water Commission (OKACOM) between Angola, Botswana and Namibia was established in September 1994 in Windhoek. It has recently commenced with its activities overseeing development in the Okavango basin.
5. The Joint Permanent Technical Commission (JPTC) between Lesotho and South Africa on the Lesotho Highlands Water Project (LHWP) was established in October 1986 in Maseru, Lesotho. This Commission serves in an advisory and monitoring capacity for all the activities in the construction of the LHWP, which transfers water from the headwaters of the Orange River to Gauteng. Two parastatal organisations were established at the same time to operate the LHWP. They are the Lesotho Highlands Development Authority, which is responsible for the development activities in Lesotho, and the Trans-Caledon Tunnel Authority, which is responsible for those in South Africa. Neither Botswana nor Namibia, who share the Basin with South Africa and Lesotho, were included.
6. The Permanent Water Commission (PWC) between Namibia and South Africa was established in September 1992 at Noordoewer, to deal with water matters of mutual concern. Since the re-integration of Walvis Bay in Namibia in 1994, the Commission has concentrated its activities on the Orange River Basin.
7. The Treaty of the Vioolsdrift and Noordoewer Joint Irrigation Scheme between Namibia and South Africa was also signed in September 1992 at Noordoewer. This established a parastatal Joint Irrigation Authority to operate the irrigation project located on both sides of the Orange River at Vioolsdrift and Noordoewer.

There are also a number of multinational agreements in existence that have a bearing on water matters. One such agreement (established in 1948) is the Southern African Regional Commission for the Conservation and Utilisation of the Soil (SARCCUS) with Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa and Swaziland as members. One component of SARCCUS was the Standing Committee for Hydrology. This committee, which was reportedly very active, dealt with a wide spectrum of water resources related matters, including hydrology, geo-hydrology, aquatic weed control, training and exchange of information on water resource development in the region. With the establishment of the SADC Water Sector in 1996 the Standing Committee for Hydrology was subsumed under the subcommittees for hydrology, hydrogeology, for water quality, and aquatic weeds, and for water supply and sanitation established and resorting under the Sector's Technical Committee. It would appear that with the amalgamation of the SARCCUS structures with the structures established by the SADC Water Sector some of the original objectives of the Standing Committee on Hydrology have been lost. Attention therefore needs to be given to further adjusting and harmonising SARCCUS structures and objectives with those of the SADC Protocol on Shared Watercourses.

2.4.2 Pre-Independence Agreements Affecting Shared Watercourses

Although a number of pre-independence agreements are in place there has been no re-assessment of these agreements after independence. This failing has to some extent been caused by the fact that some of the documents pertaining to these agreements are difficult to locate as well as by the inavailability of necessary human resources to carry out this job.

A formal review of pre-independence agreements will have to be undertaken to assess whether any conflict exists between these agreements and the legal order of present day Namibia.

A review of this nature is also necessary to ascertain the nature of the provisions to be included in the new Namibian Water Act in order to enable Namibia to give effect to her obligations in terms of these agreements.

It will also be necessary to develop procedures, policy guidelines and principles to be observed in initiating, negotiating, signing, acceding to and administering future international agreements. As these agreements are of national importance, it is essential that these procedures and policy guidelines make provision for input from relevant stakeholders.

2.5 International Framework Agreements

2.5.1 The Zambezi Action Plan

The Zambezi River System Action Plan (ZACPLAN) comprises a series of projects (ZACPROs), whose common objective is to promote the development and implementation of an environmentally sound integrated water resources management and development plan for the entire basin. One such project is ZACPRO 2 that has as its purpose the development of regional legislation for the management of the entire river basin. During the implementation of ZACPRO 2 this regional project ZACPLAN was overtaken by the adoption of the SADC Protocol on Shared Watercourses. ZACPLAN and in particular ZACPRO 2 can thus deservedly be conceived as the genesis of the SADC Protocol on Shared Watercourses.

Although the Zambezi Action Plan (ZACPLAN) initiative has been overtaken and overshadowed by activities related to the development of the SADC Protocol and the UN Convention on the Law of Non-Navigational Uses of International Watercourses, it is hoped that ZACPLAN will regain momentum once the amendment process of the Protocol is finalised and the harmonisation of the Protocol with the Convention has been completed.

2.6 U.N Convention on the Law of the Non-Navigational Uses of International Watercourses

2.6.1 The Scope of the Convention

The Convention applies to uses of international watercourses and their waters for purposes other than navigation, and to measures of protection, preservation and management related to the uses of those watercourses and their waters.

2.6.2 Definition of Terms

For the purposes of this Convention the term watercourse means a system of surface waters and groundwater constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus.

2.6.3 Principles Underlying the Convention

2.6.3.1 Equitable and Reasonable Utilization and Participation

This principle implies that international watercourses should be utilized in an equitable and reasonable manner and that while watercourse states have the right to participate in the use and development of the watercourse, they are required to protect it.

The emergence of this principle was prompted by the limitations of the no-harm rule as the latter did not allow for the settlement of controversies over allocation issues on fully used and over-used international watercourses or would have done so in an inequitable way, by either giving complete priority to existing priorities or by prohibiting the development or the extension of existing uses.

The application of the principle of equitable utilization is crucial as it allows for the striking of a balance between the protection of existing uses and the development of new or an extension of existing uses, departing from the premises of equity and fairness. It is particularly relevant for Namibia as a newcomer to water sharing platforms, especially in respect of the negotiation of shared uses of already over-utilised watercourses such as the Orange River and to a lesser extent the Kavango River.

In the application of this principle the factors and circumstances that should be taken into account include the following:

- Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
- The social and economic needs of the watercourse states concerned;
- The population dependent on the watercourse in each watercourse state;
- The effects of the use or uses of the watercourses in one watercourse state on other watercourse states;
- Existing and potential uses of the watercourse;
- Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;
- The availability of alternatives, of comparable value, to a particular planned or existing use.

The convention provides that in the application of this principle, watercourse states concerned shall, when the need arises, enter into consultations in a spirit of co-operation.

2.6.3.2 Obligation Not To Cause Significant Harm

Watercourse states shall, in utilising an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse states. Where significant harm is caused to another watercourse state, the state whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, in consultation with the affected state, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.

Under the no-harm rule watercourse states are required not to use or tolerate the use of their territories for activities that will cause harm to their neighbours. Among the activities under consideration are the protection of the environment and the allocation and consequent utilisation of the watercourse that may cause harm to other riparian countries.

This principle is of particular relevance to the environmental protection of Namibia's watercourses and associated ecosystems.

If this principle is however to be optimally utilised Namibia needs to develop her capacity to monitor and to prove significant harm. To this end, joint monitoring and verification mechanisms must be put in place.

2.6.3.3 General Obligation To Co-operate

In terms of this principle watercourse states shall be required to co-operate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilisation and adequate protection of an international watercourse. In determining the manner of such co-operation, watercourse states may consider the establishment of joint mechanisms or commissions, as deemed necessary by them, to facilitate co-operation on relevant measures and procedures in the light of experience gained through co-operation in existing joint mechanisms and commissions in various regions.

Co-operation by Namibia with other riparian states is in our opinion good and mechanisms for facilitating such co-operation are already in place. Co-operation should by nature be on the basis of reciprocity. Understanding shown by other riparian states towards Namibia for its water scarcity is however far from ideal. It would accordingly be worthwhile to examine incentives, trade-offs, negotiation packages and the inclusion of other stakeholders such as the Ministry of Foreign Affairs, in order to enhance co-operative responses from our neighbours. It may also be useful for Namibia to more assertively invoke the principles of national sovereignty and territorial integrity, particularly, for example, in respect of the Orange River. There is clearly a need to review and revamp the way commissions and other co-operating mechanisms are managed with a view to strengthening the positive aspects and improving on the weaknesses.

2.6.3.4 Regular Exchange of Data and Information

Watercourse States shall on a regular basis exchange readily available data and information on the condition of the watercourse, in particular that of hydrological, meteorological, hydro-geological and ecological nature and related to the water quality as well as related forecasts.

If a watercourse state is requested by another watercourse state to provide data or information that is not readily available, it shall employ its best efforts to comply with the request but may condition its compliance upon payment by the requesting state of the reasonable costs of collecting and, where appropriate, processing such data or information.

Watercourse states are obliged to employ their best efforts to collect and, where appropriate, to process data and information in a manner that facilitates its utilisation by the other watercourse states to which it is communicated.

There is no doubt that the exchange of information will contribute to enhanced co-operation between watercourse states. To facilitate this process mechanisms and frameworks for the exchange and verification of data should be established where they do not already exist. In

many basins, fortunately, such structures do exist. It is the way they function that needs enhancing.

Likewise the SADC Protocol provides for regular exchange of information. There is however a lack of capacity in respect of the verification of data. It is also not very clear on instances of breach of the undertaking to exchange information or where deliberate withholding hereof occurs. These shortcomings constitute cause for concern. Initiatives such as the joint monitoring exercises carried out by Namibia with Botswana, South Africa, Zambia, FRIEND and SADC/HYCOS, that create regional hydrological databases and freely disseminate information in real time, should be further encouraged.

2.6.3.5 Relationship Between Different Kinds of Uses

In determining the relationship and order of priority between different uses of a shared watercourse, the Convention provides that two considerations apply:

- a) In the absence of agreement or custom to the contrary, no use of an international watercourse enjoys inherent priority over other uses.
- b) In the event of a conflict between uses of an international watercourse, it shall be resolved with special regard being given to the requirements of vital human needs.

In terms of Namibia's Water and Sanitation Policy (WASP), uses of national waters are prioritised with water for domestic use being afforded the highest priority. There is however no conflict between the domestic and international law in this regard as in terms of this Convention special regard shall be given to the requirements of vital human needs when allocating water to competing uses. The definition of vital should, in our opinion, be understood to mean elemental, basic human needs.

2.6.3.6 Planned Measures

The Convention sets out the procedures that should be followed in relation to a new activity in one state that may have a significant adverse effect on other watercourse states. It places an obligation on the state intending to carry out planned measures to notify other watercourse states that may be adversely affected by the planned activity.

As the perception of what may constitute significant harm may differ from state to state, the Convention requires watercourse states to notify, consult, exchange information and negotiate with regard to harm that may result from the application of such measures. This will certainly promote co-operation between watercourse states even if the state applying such measures is of the opinion that no significant harm will occur. Other watercourse states do not need to be notified on the activities on the lowest tributary of the lowest riparian state. If however the tributary in question is a tributary to a contiguous river, which terminates in an estuary and coastal zones of common concern the obligation to notify still applies.

2.6.3.6.1 Implementation of Planned Measures

With regard to the implementation of planned measures, the watercourse state planning to implement such measures is required to exchange with or provide information concerning planned measures to other watercourse states.

Watercourse states shall be required further to exchange information and consult each other and, if necessary, negotiate on the possible effects of planned measures on the condition of an international watercourse.

2.6.3.6.2 Notification of Planned Measures with Possible Adverse Effects

Before a watercourse state implements or permits the implementation of planned measures that may have a significant adverse effect upon other watercourse states, it shall provide those states with timely notification on the taking of planned measures. Available technical data and information, including the results of any environmental impact assessment, shall accompany such notification in order to enable the notified states to evaluate the possible effects of the planned measures.

2.6.3.6.3 *Period For Reply To Notification*

Unless otherwise agreed:

- (a) A watercourse state providing notification shall allow the notified states a period of six months within which to study and evaluate the possible effects of the planned measures and to communicate its findings;
- (b) This period shall, at the request of a notified state for which the evaluation of the planned measures poses special difficulty, be extended for a period of another six months.

2.6.3.6.4 *Obligations of the Notifying State During the Period for Reply*

During the period referred to above the notifying state:

- (a) Shall co-operate with the notified states by providing them, on request, with any additional data and information that is available and necessary for an accurate evaluation; and
- (b) Shall not implement or permit the implementation of the planned measures without the consent of the notified States.

2.6.3.6.5 *Reply to Notification*

The notified states shall communicate their findings to the notifying state as early as possible within the period applicable. If a notified state finds that implementation of the planned measures would be inconsistent with the provisions of the Convention; it shall attach to its finding a documented explanation setting forth the reasons for the finding.

2.6.3.6.6 *Absence of Reply to Notification*

If, within the period applicable, the notifying state receives no communication, it may, subject to its obligations stipulated by the Convention, proceed with the implementation of the planned measures, in accordance with the notification and any other data and information provided to the notified states.

Any claim to compensation by a notified state which has failed to reply within the period applicable, may be offset by the costs incurred by the notifying state for action undertaken after the expiration of the time for a reply that would not have been undertaken if the notified state had objected within that period.

2.6.3.6.7 *Consultations and Negotiations Concerning Planned Measures*

If a communication is made that implementation of the planned measures would be inconsistent with the provisions of the Convention, the notifying state and the state making the communication shall enter into consultations and, if necessary, negotiations with a view to arriving at an equitable resolution of the situation.

The consultations and negotiations shall be conducted on the basis that each state must in good faith pay reasonable regard to the rights and legitimate interests of the other state.

During the course of the consultations and negotiations, the notifying state shall, if so requested by the notified state at the time it makes the communication, refrain from implementing or permitting the implementation of the planned measures for a period of six months unless otherwise agreed.

2.6.3.6.8 *Procedures in the Absence of Notification*

If a watercourse state has reasonable grounds to believe that another watercourse state is planning measures that may have a significant adverse effect upon it, the former state may request the latter to notify it with respect to such planned measures. The request shall be accompanied by a documented explanation setting forth its grounds.

In the event that the state planning the measures nevertheless finds that it is not under an obligation to provide a notification, it shall so inform the other state, providing a documented explanation setting forth the reasons for such finding. If this finding does not satisfy the other state, the two states shall, at the request of that other state, promptly enter into consultations and negotiations in the manner indicated by the Convention.

During the course of the consultations and negotiations, the state planning the measures shall, if so requested by the other state at the time it requests the initiation of consultations and negotiations, refrain from implementing or permitting the implementation of those measures for a period of six months unless otherwise agreed.

2.6.3.6.9 *Urgent Implementation of Planned Measures*

In the event that the implementation of planned measures is of the utmost urgency in order to protect public health, public safety or other equally important interests, the state planning the measures may immediately proceed to implementation, notwithstanding the obligations and procedures stated above.

In such a case, a formal declaration of the urgency of the measures shall be communicated without delay to the other watercourse states that might be adversely affected together with the relevant data and information.

The state planning the measures shall, at the request of any of the states referred to above, promptly enter into consultations and negotiations in the manner prescribed by the Convention.

These provisions are designed to facilitate co-operation between watercourse states and to ensure that planned measures are in accordance with the no harm principle and the principle of equitable utilisation.

2.6.3.7 Protection, Preservation and Management of the Environment

The Convention contains certain environmental provisions. These provisions are potentially powerful in that they require watercourse states to preserve and protect the ecosystem of international watercourses.

2.6.3.8 Protection and Preservation of Ecosystems and Prevention, Reduction and Control of Pollution.

Pollution of an international watercourse is defined in the Convention as “any detrimental alteration in the composition or quality of the waters of an international watercourse, which results directly or indirectly from human conduct.”

Watercourse states are obliged, in terms of the Convention, individually and, where appropriate, jointly to prevent, reduce and control the pollution of an international watercourse that may

cause significant harm* to other watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse.

Watercourse states are further obliged to take steps to harmonise their policies in this regard.

Watercourse states are also obliged, at the request of any of them, to consult with a view to arriving at mutually agreeable measures and methods to prevent, reduce and control pollution of an international watercourse, such as:

- (a) Setting joint water quality objectives and criteria;
- (b) Establishing techniques and practices to address pollution from point and non-point sources;
- (c) Establishing lists of substances, the introduction of which into the waters of an international watercourse is to be prohibited, limited, investigated or monitored.

The relevance of this provision to Namibia can not be over-emphasised given the current lax control of pollution of transboundary waters, the absence of joint pollution monitoring, report verification mechanisms and the lack of technical and human resources capacity to monitor pollution.

2.6.3.9 Introduction of Alien or New Species

Watercourse states are obliged, in terms of the Convention, to take all measures necessary to prevent the introduction of species, alien or new, into an international watercourse, which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse states.

2.6.3.10 Protection and Preservation of the Marine Environment

Watercourse states shall, individually and, where appropriate, in co-operation with other states, take all measures with respect to an international watercourse that are necessary to protect and preserve the marine environment, including estuaries, taking into account generally accepted international rules and standards.

2.6.3.11 Management

Watercourse states shall, at the request of any of them, enter into consultations concerning the management of an international watercourse, which may include the establishment of a joint management mechanism.

For the purposes of the Convention "management" refers, in particular, to:

- (a) Planning the sustainable development of an international watercourse and providing for the implementation of any plans adopted; and

*Significant harm is perhaps one of the most controversial terms of the convention in terms of, for example, at what scale, at whose standards, etc. can harm be considered as significant.

- (b) Otherwise promoting the rational and optimal utilization, protection and control of the watercourse.

2.6.3.12 Prevention and Mitigation of Harmful Conditions

Watercourse states shall, individually and, where appropriate, jointly, take all appropriate measures to prevent or mitigate conditions related to an international watercourse that may be harmful to other watercourse states, whether resulting from natural causes or human conduct, such as flood or ice conditions, water-borne diseases, siltation, erosion, salt-water intrusion or drought.

2.6.3.13 Emergency Situations

For the purposes of the Convention, "emergency" means a situation that causes, or poses an imminent threat of causing, serious harm to watercourse states or other states and that results suddenly from natural causes, such as floods, the breaking up of ice, landslides or earthquakes, or from human conduct, such as industrial accidents.

A watercourse state shall, without delay and by the most expeditious means available, notify other potentially affected states and competent international organisations of any emergency originating within its territory.

A watercourse state within whose territory an emergency originates shall, in co-operation with potentially affected states and, where appropriate, competent international organisations, immediately take all practicable measures necessitated by the circumstances to prevent, mitigate and eliminate harmful effects of the emergency.

When necessary, watercourse states shall jointly develop contingency plans for responding to emergencies, in co-operation, where appropriate, with other potentially affected states and competent international organisations.

2.6.3.14 Miscellaneous Provisions

The Convention deals with issues like armed conflicts and sets rules of international law for the protection of international watercourses, related installations and facilities during times of hostilities.

It further prescribes methods and procedures for the settlement of disputes.

2.7 Namibia's Position on the Convention

Namibia has signed but not yet ratified this Convention. During the consultation process it remained unclear as to why ratification has not occurred. Stakeholders consulted are of the opinion that it would be in the country's interest to ratify the Convention. We accordingly recommend that the Convention be ratified without further delay.

2.8 The SADC Protocol on Shared Watercourses

2.8.1 Background

The Declaration Treaty and Protocol on the establishment of the Southern African Development Community (SADC) was signed on 17 August 1992 in Windhoek, Namibia. The activities of SADC have been divided into ten different areas of co-operation, called Sectors, each of which has been allocated to one of the member countries. Water is one such area and the SADC member country responsible for the Water Sector co-ordination is Lesotho. A Water Sector Co-ordination Unit (WSCU) that has been established in Maseru performs the function of secretariat.

The Protocol on Shared Watercourses in the SADC region, to which the Republic of Angola, the Republic of Botswana, the Kingdom of Lesotho, the Republic of Malawi, the Republic of Mozambique, the Republic of Namibia, the Republic of South Africa, the Kingdom of Swaziland, the United Republic of Tanzania, the Republic of Zambia and the Republic of Zimbabwe are parties, was signed by the heads of state or government in Johannesburg on 28th August, 1995. After signature of the Protocol, Angola and Mozambique in their capacity as state parties, raised concerns that needed to be addressed.

2.8.2 First Amendment Workshop

At its meeting in Windhoek, Namibia in 1997, the SADC Council issued a directive to the Secretariat and the Water Sector Co-ordination Unit (WSCU) to convene a Protocol Implementation Workshop with the primary purpose of reviewing the comments raised by Mozambique and Angola and elaborating a programme for the implementation of the Protocol. For this purpose a workshop was held in Manzini, Swaziland from 21st - 22nd April 1997 and consensus was reached on the amendments proposed by the two member states. It was resolved that these amendments would be tabled before Council through the Water Sectoral Committee of Ministers for consideration and possible incorporation into the Protocol after its ratification. The workshop adopted a Protocol Implementation Programme, which was to be submitted for further discussion and elaboration by the SADC Water Resources Technical Committee in May 1997.

At the time of the workshop, ten of the eleven original member states of SADC had signed the Protocol (with the exception of Angola), but only four had ratified it. Mauritius became a member of SADC in 1995 and acceded to the Protocol. Under Article 10, the Protocol enters into force thirty days after ratification by two thirds of the member states. In view of the need for more ratifications to bring the Protocol into operation, the workshop emphasised the urgency attached to further ratification by member states.

Consequently a sufficient number of ratifications has been obtained to enable the Protocol to come into force. In the intervening period, however, two significant developments have occurred which have a direct bearing on the Protocol Implementation Programme. First, the United Nations has adopted the Convention on the Law of the Non-Navigational Uses of International Watercourses, which impacts directly on the Protocol as SADC member states parties thereto have also adopted this Convention. This development necessitates a clear definition of the relationship between the UN Convention and the SADC Protocol, to eliminate confusion as to the present obligations of member states under the two regimes. Second, further comments were raised by member states pursuant to a Council directive that the Water Sector Co-ordinating Unit assisted by the Secretariat, should continue with the process of soliciting proposed amendments from member states and present a consolidated report in September 1998.

2.8.3 Second Amendment Workshop

The Second SADC Shared Watercourses Protocol Amendments Workshop was held in Ezulwini, Swaziland on 17-21 August 1998. The workshop objective was to review and reach consensus on comments raised by member States since the first workshop held on 21-22 April 1998.

2.8.4 Third Amendment Workshop

The objectives of the Third Amendment Workshop that took place in Mutare, Zimbabwe, from 19-22 April 1999 were:

- ❑ To resolve two outstanding issues on which consensus was not reached at the Ezulwini Workshop, namely: the use of the “river basin” and “watercourse” concepts;
- ❑ To consider Zambia’s proposal for amendment; and
- ❑ To adopt a final Draft Amendment Protocol for submission to SADC policy organs for adoption in accordance with article 12 of the Protocol.

2.8.5 General Principles underlying the Protocol

The protocol is informed by the following general principles:

- ❑ The utilisation of shared watercourses within the SADC region shall be open to each riparian state in accordance with principles contained in the Protocol.
- ❑ States that are parties to the Protocol undertake to respect and apply the existing rules of general or customary international law.
- ❑ They undertake to maintain a proper balance between resource development for achieving higher standards for their peoples and conservation and the enhancement of the environment.
- ❑ They further undertake to pursue and establish close co-operation in the study and execution of all projects that are likely to have an impact on the watercourse system.
- ❑ They shall exchange available information and data about the watercourse system.
- ❑ State parties to the Protocol undertake to:
 - utilise shared watercourse systems in an equitable manner;
 - require any person intending to use water from a shared watercourse within their respective territories for purposes other than domestic use or who intends to discharge any type of waste to obtain permission be it through a permit, licence or any similar instrument;
 - notify, without delay, any potentially affected states as well as competent international organisations of any emergency situations originating from their territories; and
 - utilise shared watercourses and related facilities and installations exclusively for peaceful purposes and in accordance with the SADC Treaty and the UN Charter.

A further important feature of the Protocol is the establishment of river basin management institutions, namely:

- ❑ River basin commissions between basin states; and/or
- ❑ River Authorities or Boards.

According to the Protocol river basin organisations shall have the following functions:

(a) With regard to National Water Resources Policies and Legislation:

- ❑ Harmonisation and monitoring of compliance with national water resources policies and legislation for integrated development and management.

(b) With regard to Research, Information and Data Handling:

- ❑ Collecting, analysing, storing, retrieving, disseminating, exchanging and utilising data relevant to the integrated development of the resources within shared watercourse systems and assisting member states in the collection and analysis of data in their respective states;
- ❑ Reviewing the provisions of National Development Plans relating to the water course systems;
- ❑ Designing and conducting studies, research and surveys related to the environmentally sound development and management plans for shared watercourses;
- ❑ Stimulating public awareness and participation in the sound management and development of the environment, including human resources development; and
- ❑ Promoting, in accordance with the national development plans of the Basin States, the formulation of integrated master plans for shared watercourse systems.

(c) With regard to Water Control and Utilisation in shared watercourse systems:

- ❑ Recommending regulation of the flow and drainage;
- ❑ Promoting measures to control desertification, soil erosion and navigational uses of the shared watercourses;
- ❑ Recommending and promoting measures to control desertification, soil erosion and sedimentation;
- ❑ Monitoring the utilisation of water for agriculture, domestic, industrial and navigational purposes;
- ❑ Monitoring the establishment of hydroelectric power installations; and
- ❑ Monitoring the generation of hydroelectric power.

(d) With regard to Environmental Protection:

- ❑ Promoting measures for the protection of the environment and the prevention of all forms of environmental degradation arising from the utilisation of the resources of the shared watercourse systems;
- ❑ Assisting in the establishment of a list of substances whose introduction into the waters of a shared watercourse system is to be banned or controlled;
- ❑ Promoting environmental impact assessments of development projects within the shared watercourse systems; and
- ❑ Monitoring the effects on the environment and on water quality arising from navigational activities.

(e) With regard to Hydro-meteorological Monitoring Programme:

- ❑ Promoting a hydro-meteorological monitoring programme in consultation with other SADC sectors.

A new article on the objectives of the Protocol, which draws heavily on the overall objectives of the SADC Treaty, has been added. These include the facilitation of the establishment of river basin organisations, contribution to regional economic integration, poverty alleviation, sustainable development and integrated watercourse management.

One of the significant shortcomings of the Protocol is the fact that joint monitoring and verification issues are not sufficiently provided for.

3. Issues Arising

3.1 National Level Issues

3.1.1 Participation of Water Institutions in the Management and Administration of Shared Watercourses

The participation of Namibian water organisations in the management and administration of shared watercourses is too autonomous. In addition there seems to be little realization of the fact that the business of sharing water internationally is a potentially dangerous area, out of which conflicts have historically arisen. As international water sharing has political and diplomatic implications and repercussions, it is desirable that it be carried out within a framework of regulations or guidelines clearly laid down by the political arm of government. In particular need of regulation are the following areas:

- ❑ Powers, functions and mandate of bodies participating in the management and administration of shared watercourses;
- ❑ The manner and process of consultation with other ministries, and stakeholders whose expertise or input might be required, or who might ultimately be affected in one way or another by the outcome of the negotiations, with a view to reaching consensus on positions to be adopted at international negotiations;
- ❑ Procedures and mechanisms for cross-sectoral planning, integrated resource management and sustainable development issues. (Implementing and technical institutions should preferably be involved in the formulation of proposals for such mechanisms and procedures).

In order to achieve the foregoing, a forum consisting of the concerned directorates of ministries such as Regional, Local Government and Housing (Directorate of Regional and Local Government: Town and Village Administration), National Planning Commission (Directorate of Planning), Lands, Resettlement and Rehabilitation (Directorate of Lands), Environment and Tourism (Directorates of Forestry and Environmental Affairs), Mines and Energy (Directorate of Energy) and Trade and Industry should be established. The establishment of a forum of this nature will facilitate discussions on how best integrated management of shared watercourses can be achieved in the Namibian context.

The forum should serve to:

- ❑ provide feedback on the outcome of negotiations relating to the signing of and accession to international water sharing agreements;
- ❑ inform stakeholders of new or existing policy guidelines, principles and practices that should be observed in respect of shared watercourses;
- ❑ promote inter-sectoral co-operation with a view to facilitating integrated water resources management in Namibia;
- ❑ ensure accountability in relation to, and compliance with, obligations under international law; and
- ❑ ensure that the various stakeholders are aware of their obligations under international agreements concluded in respect of shared watercourses.

Such a forum should be established without delay to facilitate future international negotiations in respect of shared watercourses.

3.1.2 Basin Level Cross-Sectoral Planning and Management of the Resource

The concept of integrated watercourse management is not as yet well grasped by the water sector, which tends to be sector-specific in its approach. As long as this sector-centred approach is maintained, it will be hard to sensitise and educate other sectors and agencies about the issues and the strategies involved. It is only through a cross-sectoral approach that these particular sectors and agencies will acquire and exercise a sense of ownership in integrated watercourse management issues. Therefore it is essential that they are involved in the process from the outset if integrated management as provided for by the National Water Policy in general and by the SADC Protocol with regard to shared watercourse cooperation mechanisms is to be achieved.

3.1.3 Inter-Agency Consultations

As different government institutions have different mandates and are custodians of different information and data, information sharing is crucial. Lack of consultation and communication between different institutions involved in the water sector is prevalent. This is obviously problematic as it results in uncoordinated and fragmented development of the water sector, which leads to unnecessary waste of financial and human resources.

During the consultation process it came to light that there is little or no knowledge among stakeholders regarding the existence of international water sharing arrangements. One of the contributing factors to this lack of information or awareness is little or no involvement of

stakeholders in the whole process. To remedy this, stakeholders must be involved, through consultation, in the different stages of initiation, drafting, negotiation, signing, accession and implementation of water sharing agreements.

For integrated management of water resources to take place, integrated planning must precede it. A forum for soliciting views and securing comments of stakeholders should thus be created. In the absence of such a forum and approach, the obvious consequence will be isolated planning and fragmented management, decisions taken on the basis of incomplete information and insufficiently verified data. Such an approach carries with it the latent danger of compromising the country's ability to adequately negotiate water-sharing agreements. It must also be pointed out that this is one such exercise, where planners, policy-setters on one hand and "doers" on the other, need to interact in a continuous manner.

3.1.4 Capacity to Claim, Monitor and Defend Entitlement to Clean and Safe Shared Water Resources

As indicated above the existing monitoring and verification systems need to be strengthened and upgraded to facilitate the gathering of more accurate and reliable information and the verification of data provided to Namibia by other watercourse states.

Namibia is currently forced to rely on South Africa to conduct testing of Namibian water samples for pollution. As South Africa is a neighbouring watercourse state with which Namibia is obliged to negotiate in respect of the use of shared watercourses, this situation is undesirable. The fact that Namibia and South Africa are contiguous riparian countries and therefore hypothetically have concurrent and identical interests does not detract from the undesirability of this situation, as each country is duty bound to look after its own interests and cannot entrust this duty to another.

3.2 International Issues

3.2.1 Participation in the Process of Initiating, Drafting and Implementation of Shared Water Arrangements

Although the public traditionally has no involvement in the negotiating and signing of international agreements, modern trends and practical experience show that in some instances guided stakeholder input and engagement is the key to the success and sustainability of such an exercise. The signing of or accession to international conventions and treaties should be preceded by a needs, impact/effect and implications assessment conducted across all conceivable stakeholder sectors. The national sectoral needs should determine whether or not the country should be party to an agreement. Sectoral needs should not be assumed but should be assessed through consultations with stakeholders and the use of negotiation preparatory matrices. The leading or co-ordinating sector should also educate and provide feedback on the status of the negotiations, where appropriate, and seek advice from the affected/impacted sectors should the need to do so arise.

3.2.2 Proactive Strategy in Government Approach to and Interaction with Environmental Groups

Environmental groups have consistently raised environmental objections to the country's attempts to utilise shared waters. Government response to these objections has been of an *ad hoc* nature. In addition government seems to have limited knowledge about international stakeholders active in the sector and their representation at domestic levels. This may lead to

either an ineffective response to objections or increased tensions where they could have been avoided or managed differently. A proactive strategy of interacting with all stakeholders in respect of shared watercourse issues should obviate this problem.

3.2.3 Environmental Issues

3.2.3.1 Transboundary Pollution and Namibia's Position as a Downstream Riparian State

Namibia is a downstream riparian state with regard to all its shared rivers, with the exception of the Zambezi and the Okavango, in respect of which it occupies an intermediary position. Environmental concerns accordingly include those such as water pollution and the maintenance of a balanced ecology. Particular attention thus needs to be given to pollution and other environmentally related issues. The Orange River is a particular case in point because of the major artificial flow quantity manipulations and quality changes it is subjected to before reaching Namibia.

It is interesting to note however that during negotiations with South Africa and in the various documents on the Orange River that have been made available to the Review, the issue of pollution does not feature as one of Namibia's concerns. Another more disturbing factor is the apparent belief that Namibia should not be preoccupied with pollution because all its shared rivers are contiguous.

Namibia contributes very little to the runoff in the main branch of the shared rivers along its borders and is not in a position to take unilateral control of part of the flow. This puts it in a relatively weak position compared to its upstream co-riparian neighbours.

Against this background Namibia needs, more than any other of its negotiation partners, to raise issues and concerns relating to pollution of international rivers in order to protect the environment and the quality of the waters it receives.

3.2.3.2 Water Transfers and Associated Environmental Effects

Of all the artificial manipulations of watercourses, water transfers have potentially the greatest environmental impact.

The hydrological situation in southern Africa, with its variability in rainfall, limited runoff, and with the greatest proportion of runoff found on the eastern escarpment and coastal belt, creates difficulties for water supply, particularly as the large centres of population and industrialisation are predominantly situated on the dry central plateau. The solution seems obvious: to re-distribute the water so that it can be utilised in areas where the local sources are insufficient.

For both users and managers of water, transferring water between geographically distinct catchments or basins or from one reach of a river to another offers considerable advantages. In essence, a river system that is linked up and operated conjunctively with neighbouring catchments can provide more useable water than the combined yield of the individual components.

Furthermore, sources can be integrated to support each other, and the level of assurance of supply can be raised. In some instances water transfers are connected with pumped storage schemes, in which water is pumped back to higher elevations and released to generate electricity when there is peak power demand.

Water transfers, however, are not without challenges, which may only become obvious long after a scheme has been put in operation. It is therefore necessary to gain an in-depth picture of a river system in the early stages of planning. Fine details of water chemistry, flow dynamics, and the dependence of plants and animals on flooding are some examples of the characteristics that are likely to be affected in inter-basin transfers, which may result in a number of unknown consequences.

Environmental assessments of water transfers must consider the broad impacts to the system that donates the water, the system that receives it and to the route between the two. Within each of these systems there are physical, chemical, biological and human components that must all be thoroughly assessed. Many changes that accompany a water transfer scheme may be inevitable, but analysing the possible impacts can at least alert decision-makers to try to reduce or avoid some of the more damaging effects.

That the draft Environmental Management Bill requires environmental impact assessments to be carried out at the strategic level of planning and policy development is a reflection of the prominence government attaches to environmental protection and sustainable utilisation of natural resources.

In order to mitigate negative consequences associated with inter- and intra- basin water transfers it is imperative that integrated planning leading to integrated management precedes water transfers. It is equally important that environmentally assessed national water master plans are compiled, in the same manner as integrated watercourse master plans are. The advantage of taking these elements and facts into consideration when planning or effecting any major water transfer schemes is that it does not only show a strong commitment to, and respect for, environmental protection but carries with it the potential of defusing unreasonable and opportunistic opposition to such transfer schemes.

4. Current Initiatives

4.1 Environmental Legislative Initiatives

4.1.1 Environmental Pollution Control, Integrated Management and Recent Legislative Initiatives

The Ministries of Environment and Tourism and Health and Social Services have embarked upon separate legislative reform exercises aimed at regulating issues of water pollution and sanitation. From the draft legislation that has been produced by each of these Ministries it appears however that there has been little co-ordination between these initiatives. The risk accordingly exists that there will be overlaps and duplications in the resulting legislation.

Hence, efforts should be made to ensure that legislative reform initiatives embarked upon by various ministries on areas that are so closely related are closely co-ordinated. Institutions such as the Namibia Water Resources Management Review through its different themes, namely Legislative and Regulatory Framework, Water Use and Re-use, and Strategic Water Assessment could be made use of in facilitating these kind of efforts.

4.2 Involvement in Multilateral and Bilateral Arrangements

4.2.1 Mechanism for Cross-Sectoral Involvement

Concerted efforts should be made to provide feedback to all stakeholders, including communities, regarding the outcome of negotiations where they are affected or where their cooperation is required, in order for Namibia to meet its obligations under such arrangements.

4.2.2 Process of Initiating, Formulating, Signing and Acceding to International Conventions

Presently there is no public involvement or cross-sectoral participation in the process of formulating, signing or ratification of international conventions and agreements. There appears also to be little or no inter-departmental collaboration in this regard. Cross-sectoral needs assessments that would indicate the advantages or disadvantages of becoming a party or not to such agreements do not take place. This makes it difficult to objectively evaluate the grounds for taking the decision for the country to be party to any such agreements. It follows therefore that a new approach that seeks to correct the situation as described earlier need to be taken without further delays.

5. Options and Recommendations

5.1 Institutional Development

5.1.1 Home for International Watercourse Issues

*"The long-term success of commissions is based on the careful design of management structures that provide for effective planning and management, allow managers and technical staff to operate efficiently and effectively and are affordable for co-operating partners (...) The structures that succeed often are based on fact finding and sharing of information that create a climate of trust among the parties. The institutional sustainability of commissions ultimately rests on a high level of political commitment in each country. Through this commitment developed with transparent structures, and with the participation of stakeholders and civil society institutions, the prospects of sustainability are increased."*²

This statement illustrates the complex and dynamic nature of issues that shared watercourse institutions are faced with: transparency, sustainability of the process, summoning and keeping political commitment and input, securing stakeholder participation and input, and the need for flexibility and adaptability of approach.

The work of the different shared water commissions needs to be co-ordinated, directed and guided by institutions appropriately designed and strategically placed to efficiently and effectively play that role. Given the political nature of issues at hand, the national sovereignty and territorial integrity principles involved and the high level of technical skills required, as well as the need to facilitate cross-sectoral co-operation and a multi-disciplinary approach to negotiations, it is necessary to design and establish an institutional home to deal with such issues in a politically sensitive and diplomatically correct manner, in accordance with established policy directives. An institution of this nature should be located at the central level, close to the political and accounting offices of the sector ministry.

5.1.2 Inter-Sectoral Co-ordination, Planning and Management Mechanisms

In addition to the involvement of stakeholder institutions in the process of planning and managing of water resources in general and shared watercourses in particular, as suggested in other parts of this report, another initiative that could reasonably be looked at for purposes of integrated management and cross-sectoral consultation is the Water and Sanitation Committee (WASCO). This is particularly so in view of its composition and the water related function it was meant to perform. By expanding its roles and responsibilities the committee could also look at sanitation and pollution issues related to shared watercourses.

It must be recognised that the establishment of the Water and Sanitation Policy (WASP) was, and still is, a very valuable initiative of government, in that it serves as a vehicle for cross-sectoral co-ordination and integrated management. It is accordingly important that its operation be evaluated and enhanced. To this end factors that contribute to its current ineffectiveness must be examined. These include the composition of its membership as well as the fact that the principles that informed and motivated its establishment then could not necessarily have taken into account the need for integrated management as conceived and understood today.

² The Berlin Recommendations on Transboundary Water Management- *Experience of International River and Lake Commissions*, Berlin, September 1998.

Other initiatives that are important for the promotion of cross-sectoral and integrated management of water resources are the cross-sectoral initiatives and activities undertaken by the National Planning Commission (NPC).

The WASCO, if reorganised to improve its functioning, has also the potential for promoting inter-sectoral consultation for the integrated management of Namibia's shared watercourses at the sub-basin level.

5.1.3 Water Sector Co-ordination and Leadership Roles Regarding Issues of Integrated Watercourse Management

Integrated watercourse management is a relatively new concept worldwide. For it to be properly understood and implemented a lot of education and co-ordinating work needs to take place. This work should start at the planning and project approval stages. Currently this is not properly done and this results in isolated management. For example, the occupation of land adjacent to riverbanks and human activities that accompany it, have implications and importance not only for the Ministry of Lands, Resettlement & Rehabilitation, but also for Water Affairs, Ministries of Health and Social Services, Environment and Tourism and Regional and Local Government and Housing. For example their input could be helpful and just in line in the process of issuing of permits to occupy (PTOs).

In order to move away from the culture and practice of fragmented management and to bring about integrated resource management, it is recommended that the water sector transforms its role from that of expert-implementer to one of educator, co-ordinator and leader of the activities impacting or impacted upon by integrated water management strategy. The purpose for so doing would be to bring these other sectors on board, secure their co-operation and input and sensitise them as to their obligations in terms of international watercourse agreements entered into by Namibia.

For the water sector to play this role, however, there is a need for it to change its approach. Although a proposal of this nature may not initially be well received by the sector, it is imperative that this occurs if the sector is to achieve the objectives stated above.

As a starting point, consideration should be given to establishing a liaison office, within the water sector, which is properly placed in terms of authority and has focal points in the concerned agencies and ministries, to enable it to promote intersectoral co-ordination and integrated management in an effective manner.

5.2 Human Resources Development

5.2.1 Establishment of an Institute for Natural Resources Law and Policy

International water law, a branch of international law that regulates the use of transboundary waters, is a relatively new subject world-wide and even more so in this region. For this reason capacity to deal with issues of transboundary waters is still relatively lacking and needs to be developed. Water resources development cannot be seen in isolation. National water legislation must thus promote integrated water planning to satisfy environmental and economic objectives as well as considerations of social equity and fairness. To this end an appropriate mechanism to co-ordinate and promote integrated water management and to handle competing claims between different inter-sectoral water uses and between such uses and the environment must be established.

In addition attention must be given to developing interdisciplinary human resource with a view to achieving integrated water resource management. In order to be effective, this human resource development must take into consideration the particular needs of Namibia and reliance should not be placed solely on foreign training or expertise.

To this end, it is recommended that Namibia immediately embark upon the establishment of a multidisciplinary natural resources institute to offer training in integrated water and natural resource management at both national and regional (SADC) levels.

5.2.2 Identification of the Required Competencies and Skills

Practical experience and applied studies have shown that there is no single institutional model for shared watercourse issues. They have also demonstrated the dynamic nature of these issues. Consequently it is not desirable to too narrowly define the list of professional skills and expertise required in managing and negotiating in respect of shared watercourses. At the most basic, however, the following have been identified as the necessary knowledge and expertise the negotiating team should possess:

- ❑ Surface and ground water hydrology
- ❑ Law, preferably oriented towards international law and specialisation in one of the following branches: natural resources, water, public and environmental law
- ❑ Water resources engineering

Efforts should be made to ensure multi-skilling of staff or members of negotiating teams to include negotiation skills, diplomacy and diplomatic etiquette, analysis of international legal instruments, basic legal drafting, basic hydrology, international relations, hydro-politics and water economics.

5.2.3 Setting of New Vision, Aligning of Training and Opening of New Career Opportunities in Water Management and Related Issues

Once the national water policy and country water vision has been formulated and sector developmental goals have been set in accordance with that vision, it will be possible to assess and evaluate how and to what extent the current education and training system must be revised to meet these goals.

To this end a multi-sectoral training needs assessment should be carried out by the water sector as a pro-active move in assuming its leadership role in water related issues and functions.

5.2.4 Change of Curriculum and Training Programmes to Meet Identified Needs

Existing training curricula should be reviewed to see if they are responsive to the needs of capacity building with regard to water issues, including issues relating to the sharing of waters internationally. Shortcomings in this regard must be addressed by revising curricula in university and other training institutions to include relevant information and to address gaps identified in these areas.

5.3 Communication and Awareness Raising

5.3.1 Activities to Inform, Educate and Involve Civil Society

International trends point in the direction of changing the paradigm of trans-boundary water management from the supply driven approach to addressing issues like:

- ❑ Water scarcity and the resulting threat to food security and the economic upliftment of the population,
- ❑ Salinity control, prevention of environmental degradation and preservation of the ecosystem
- ❑ Economic development and poverty alleviation
- ❑ Financial and environmental sustainability
- ❑ Integrated management

Changing the paradigm in this manner requires education, information and awareness raising at all levels of civil society.

The issue of international watercourses is a government-to-government business, and for this reason, it ought to involve the Ministry of Foreign Affairs. Placing it outside of the domain of the general public and foreign affairs, especially the latter, is thus strategically incorrect. If negotiations on the use of shared watercourses are to be beneficial to both the sector and the country at large; this trend must be reversed.

It is also imperative to involve and inform the public about government policies and principles as well as international legal frameworks governing shared watercourses.

These awareness-raising activities should be carried out on a systematic basis and should take place as early as at the project initiation stages. There is no reason why such awareness raising should not form part of the social impact assessment exercise that precedes the initiation of water sharing projects. The media also has a crucial role to play in this awareness raising exercise, depending on how the process is managed.

5.3.2 Identification of Key Stakeholders at National and International Levels, including Donors, Environmental and Pressure Groups

The negative publicity and persistent criticism levelled against government attempts to abstract water from international border rivers is an indication that there is a need for government to be more proactive on this front.

The influence of lobby and pressure groups and the impact they can have on donor attitude should not be under-estimated. Efforts should accordingly be made to provide channels for constructive criticism and dialogue as the reaching of a consensus domestically strengthens the country's negotiating position with other riparian states. Awareness-raising about these issues can also contribute to bringing about cohesiveness, understanding and consensus building.

5.3.3 Strategies to Interact with Stakeholders

A pro-active strategy and mechanism to listen to, assess and respond to input from stakeholders should be created and efforts should be made to make government response less *ad hoc* and reactive.

5.4 Review

5.4.1 Review of the Water Act, (Act 54 of 1956).

A review of the Water Act has been carried out only in as far as it affects issues of internationally shared waters and matters incidental thereto. Other issues are beyond the scope of this paper. A more detailed review of the Act is contained in the Legislative and Regulatory Framework Theme Report.

5.4.1.1 Scope

Act 54 of 1956 was passed to provide for the following:

- ❑ To consolidate and amend the laws relating to the control, conservation and use of water for domestic, agricultural, urban and industrial purposes,
- ❑ To make provision for the control, in certain respects, for the use of sea water for certain purposes,
- ❑ For the control of certain activities on or in water in certain areas,
- ❑ For the control of activities that may alter the natural occurrence of types of atmospheric precipitation,
- ❑ For the control, in certain respects, of the establishment or the extension of townships in certain areas,
- ❑ And for incidental matters³

It is evident that international water sharing was not provided for in this Act. This was by implication not possible for the following reasons:

- ❑ South Africa, the only independent and sovereign state in the region at the time when the Act was drafted, was surrounded by colonies that had no sovereignty, no legal personality and which were, per se, no subjects of international law.
- ❑ The level of development of international water law at that time.
- ❑ The boundary issue in the Orange River and the provision in the Act empowering the minister in charge to allocate water to (and not to share it with) lands outside South Africa's boundaries.

By way of illustration, Section 174A lays down the procedure under which the supply of water at points on the borders, and in territories outside the Republic (of South Africa) can be effected. A closer look at the relevant sections shows that the underlying philosophy was to supply and distribute water to those territories. It is important to note that words such as "sharing" or "entitlement" do not appear in the Act. In fact the Act provides that "the territory so supplied shall be treated as if they were areas within the Republic."

Application of this Act to South West Africa is dealt with in section 174 which stipulates in subsection (1) that: " the provisions of this Act shall apply in relation to any land in the territory of South West Africa which if it were within the Union would have been riparian to the Orange River (...), and such land shall for the purposes of the provisions of this Act be deemed to form part of the Cape of Good Hope." As a passing comment, the use of the word Republic as opposed to just "territories" serves as a testimony to the thinking that prevailed at the time of the passing of this Act and the inequality of treatment that is inherent between the Republic and the "territories".

³ Preamble of Water Act, 54 of 1956

Subsection 2 stipulates that: "For the purposes of subsection (1) the Orange River shall be deemed to form a boundary of any land in the said territory which is situated on the territory."

This stipulation has serious boundary delimitation and consequentially jurisdictional and sovereignty implications because in terms of this Act the Orange River is not considered to be an international shared watercourse between Namibia and South Africa.

There is an urgent need to change this state of affairs so that provision is made for water sharing between Namibia and South Africa rather than merely water allocation.

5.4.2 The New National Water Legislation and Shared Watercourses

Namibia currently has no domestic legislative provisions to govern its utilization of shared watercourses. A policy and legislative framework accordingly needs to be developed which should be informed by or be reflective of Namibia's foreign policy.

5.4.3 International Agreements

A preliminary review of current international agreements reveals the following:

- ❑ Weak implementation, monitoring, evaluation and enforcement mechanisms result in many of the provisions of these agreements not being implemented. As a result there are few experiences to be drawn from the implementation process with respect to many of the stipulated provisions.
- ❑ Provision should be made for regular evaluation or review of international agreements in their implementation strategies.
- ❑ Provision should be made for this evaluation to take place prior to joint-monitoring meetings. The team to review the agreements should of necessity be multidisciplinary and preferably inter-sectoral of composition.
- ❑ Avenues should be explored to harmonise existing agreements with developments in international law. For example, the principle of integrated management, issues of participation and the need for environmental protection have moved up on the legislative and development agenda and these must be adequately reflected in agreements of this nature.
- ❑ The absence of regulations and implementing guidelines to implement international agreements at a national level needs to be addressed.
- ❑ There is a need to assign duties and responsibilities to various responsible sectors to give effect to obligations created by international agreements.

A moratorium on the negotiation and signing of such agreements must be declared until there is appropriate capacity to do so efficiently and effectively.

5.5 Negotiations on Shared Watercourses

5.5.1 Current State of Affairs

Namibia does not currently have a proper national cross-sectoral strategy in place to enable it to participate in shared watercourse negotiations in an effective and efficient manner. Nor are these negotiations preceded by proper, methodical, scientific and professional preparations. The

negotiations appear to take place on an *ad hoc* basis without assessing, in full magnitude, the latent implications and outcome. Much reliance is placed solely on the technical expertise of the negotiators alone. Policy guidelines are not properly shared with stakeholders in advance. Formal and in-advance exchanges with own foreign missions on negotiation subjects do not form a crucial component of strategy, and negotiations are not informed by foreign relation policy between Namibia and the country in question.

5.5.2 Conventional Negotiation Strategy

A properly formulated national shared river negotiation strategy and mechanism must be put in place which should provide for an appropriate multidisciplinary negotiating team which is up to speed, integrative in approach, and which seeks to be informed of other relevant sector policies and the general and specific government foreign policy that also applies and the development of negotiating guidelines in a form of a negotiations manual.

6. Summary

- ❑ A well-structured, formal, multi-disciplinary, institutional home for addressing international watercourse issues, agreements and other incidental matters should be created. This institution must be appropriately placed to afford it the authority it needs given the sensitivity and implications of issues that it will be required to address.
- ❑ The role and functions of this institution must be defined in such a way that it will enable Namibia to meet its obligations with regard to international watercourses, especially in respect of those issues that are related to integrated resource management, the environment and sustainable development.
- ❑ There is a need to establish an appropriate negotiating team whose members, apart from possessing professional expertise, should themselves be widely familiar with prevailing government policies and be able to act as "Namibia's Water Ambassadors."
- ❑ Issues of capacity building and human resources development in institutions involved in shared watercourse negotiations require urgent attention.
- ❑ An education and awareness campaign on water issues directed at stakeholders' needs to be established. The campaign should aim at maximizing input from stakeholders. Since there is such a weak understanding of shared waters and integrated management of water resources regionally, it may be desirable to extend this campaign to the regional level.

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