HIGH-LEVEL BASELINE STUDY

WATER MANAGEMENT IN NAMIBIA

by

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DRFN
Enhancing decision making for sustainable development

1. Introduction

Namibia is the most arid country in sub-Sahara Africa due to the huge difference between precipitation and evaporation. Freshwater scarcity thus remains a major environmental challenge. Less than 5% of the country is arable and only limited rainfall and groundwater sources are available to support socio-economic development. Although the target of the third National Development Plan (NDP3) to provide 95% of the population with sustainable access to safe water has been reached, sound and sustained water management to ensure social, economic, and environmental benefits remains high on the agenda. Scarce water resources must be shared between the growing population, increasing agricultural production and an expanding industrial sector, while environmental requirements must be accommodated, and pollution prevented at all costs. Water supply is therefore a major challenge in Namibia, especially in the rural areas where small settlements are in very remote places. Water must be transported over long distances from source to consumer. Capital investments are high and then recovery of water supply costs from a predominantly poor population in the urban and rural environment is a major challenge. The existing water supply infrastructure must be maintained, additional water supply infrastructure must be established, facilities must be operated, and fees collected to recover the capital and operating cost to supply water. The same applies to sanitation services and wastewater disposal. Appropriate water policy, legislation, regulations and timeous infrastructure development are therefore of great importance to achieve the national water security objectives.

2. Water management institutions in Namibia

2.1 The Cabinet Committee on Water Supply Security

The Cabinet Committee on Water Supply Security was appointed by President Hage Geingob in July 2016 to address an acute, looming water crisis in Namibia due to a lack of sufficient rainfall to generate runoff into the dams in central Namibia, as well as a failure to do adequate maintenance of existing water supply infrastructure and the planning the development of new infrastructure.

The CCWSS comprises Ministers of the relevant Ministries, i.e. Presidential Affairs, Agriculture, Water and Land Reform, Urban and Rural Development, Economic Planning, Finance, and the Director General of the National Planning Commission. The Committee is also assisted by a Technical Committee of Experts, comprising technocrats and experts from government, the strategic executive for infrastructure, water and technical services of the City of Windhoek, as well as the private sector.

Among others, the function of the committee is to review all existing water supply challenges, consider water supply solutions proposed by various stakeholders, including NamWater, the Department of Water Affairs and the Windhoek Municipality, to enable the Committee to propose an implementation plan and estimated cost on how to avert the projected water crisis.

The planning horizon was one month for an immediate, costed plan by mid-August to alleviate the anticipated water crisis in Windhoek. Once this plan has been adopted and implementation thereof is visibly on track, the Committee should turn its attention to other national water initiatives in a phased approach, including a construction programme and a capital expenditure programme over the following three years. An implementation report had to be available at the end of 2016.

This Committee achieved its immediate objectives and is still doing sterling work to improve the water supply situation in Namibia.

2.2 The Ministry of Agriculture, Water and Land Reform (MAWLR)

The Mission of the Ministry of Agriculture, Water and Land Reform (MAWLR) is to realise the potential of the agricultural, water and land sectors to promote efficient and sustainable socio-economic development to ensure a prosperous Namibia. Only the water related structure of the Department of Water Affairs in the Ministry is discussed. There are two directorates in the DWA.

2.2.1 Department of Water Affairs

2.2.1.1 Directorate: Resource Management

The mission of the Directorate is to promote and facilitate the environmentally sustainable development, management, and utilization of water as a scarce resource to achieve, on behalf of, and with all the citizens of the nation, sound socio-economic development in Namibia. The Directorate has three Divisions: Resource Management, Hydrology, Geohydrology and Water Law Administration

2.2.1.2 The Directorate: Water Supply and Sanitation Coordination

The Mission of the Directorate is to take full responsibility for the implementation of rural water supply for the rural communities on communal land. Its activities are directed towards the ultimate Government goal which is to promote and maintain the welfare of the people. The rural water supply support units will provide project management services, policy advice, training services, management of waterpoints pipelines, advice and support in rural water supply operations

2.3 The Namibia Water Corporation Ltd (NamWater)

The Corporation was established on the 1st October 1997 as a public company. The primary business of NamWater is bulk water supply to customers, in sufficient quantities, of a quality suitable for the customers' purposes, and by cost-effective, environmentally sound and sustainable means. The secondary business of the company is to render water-related services, supplying facilities and granting rights to customers upon their request. To enable, NamWater to supply potable bulk water it must plan, design, build, operate and maintain the bulk water supply schemes while operating according to sound business principles.

3 Water Policy

The administration of water affairs in Namibia is based on several pillars. These are the Constitution of the country, national and regional water policy, national, and international water law, water treaties, international water conventions, regional protocols, regulations formulated to implement national water legislation and the procedures developed to administrate the regulations. The term “regional” in this context refers to the Southern African Development Community (SADC).

What should also be kept in mind is that water policy has a formal and an informal side. It is possible that within the framework of a formal, generic policy statement and the subsequent legislation to formalize the practical implementation of certain policies, there are many internal water management policies which are not enforced by law but is practiced in the general administration of water matters. Some of these policies are contained in the regulations promulgated in terms of the law, others may be based on Cabinet decisions, and some may be part of the daily decisions by the management.

While water law can compel or prohibit behaviours (e.g., a law that prescribes that a permit is required for specific activity), a policy merely guides the actions to achieve a desired outcome such as the promulgation of an Act by Parliament to implement a policy. The technical regulations that prescribe how the Act must be implemented is drafted by the Ministry responsible for the administration of that Act and published in the Government Gazette. This means that regulations are not promulgated by Parliament but can be adjusted by the Minister as required when it needs to be done (e.g., when the cost of a license for a car increases every year) without having to obtain the “approval” of Parliament. The next step is to formulate the internal Ministerial procedures to administrate an Act and the regulations so that there is no ambiguity between Government and the public on how the procedures should be executed and who is responsible for what.

The policy documents most relevant to water resources and wetland resources in Namibia are the:

- Water Supply and Sanitation Sector Policy (WASP).
- National Water Policy (NWP).
- Water Supply and Sanitation Policy (WSASP).

The overall water planning and management functions, as well as the broad division of responsibilities within the water supply and sanitation sector are of extreme importance to achieve efficient water management. The most important functions to create and implement water and sanitation sector policy are primarily the

responsibility of the DWA. This requires the development of water policy and water legislation, the publication of water regulations, the strategic planning of water development and exercising control over the development, utilization, conservation, and protection of the natural water resources of the country. This control is vested in the administration of the water legislation and the legal system in Namibia.
Procedures must also be elaborated to guide the administration required to give effect to the decisions and actions. Procedures are required for each activity and all activities take place within the uniform boundaries of the methods employed in the day-to-day operations of the organization.
The need for potable water and basic sanitation services in Namibia was identified at independence as one of the major and basic essential needs that had to be improved, especially in communal areas. The Constitution of the Republic of Namibia clearly provides for the Government to assume responsibility for the overall management of the water and sanitation sector. It further stands to reason that the Government should be clear about its objectives and policies. Government should furthermore ensure that these responsibilities are carried out efficiently by appropriately structured institutions and with the best coordination possible between the various Governmental authorities, the private sector, water users and other beneficiaries.
In November 1990, the Government took the first steps to achieve the water policy objectives when Cabinet resolved to appoint an Inter-ministerial Committee to investigate the water and sanitation sector with the objective to recommend an appropriate water supply and sanitation sector policy. The Water Supply and Sanitation Sector Policy (WASP) was approved by Cabinet in September 1993

3.1 The Water Supply and Sanitation Sector Policy (1993)

This policy was approved by Cabinet on 21 September 1993. It became an urgent necessity after the independence of Namibia because the Government institutions were restructured, and mandates changed. The homeland authorities who had the responsibility for rural water supply and sanitation services, were abolished. Their staff was transferred to the Department of Agriculture in the new Ministry of Agriculture, Fisheries, Water and Rural Development. This caused confusion because the Department of Agriculture suddenly had rural water supply and sanitation related responsibilities, but the DWA in the Ministry was held accountable for those functions. The Department was at that time responsible for large scale bulk water supply and neither restructured to accommodate the staff allocated to the Department of Agriculture, nor received the additional staff to attend to the additional responsibilities, especially the sanitation function, which was actually in the ambit of the Ministry of Health and Social Services. The DWA therefore proposed that the allocation of the responsibilities for water supply and sanitation functions should be formalised by Government.
The WASP not only dealt with the policy principles regarding water supply and sanitation issues, water supply priorities and cost recovery for service delivery, but paved the way for the creation of a Directorate Rural Water Supply in the DWA, and an investigation to commercialize the bulk water supply function which led to the promulgation of the Namibia Water Corporation Act which established the Corporation (NamWater).
The WASP recognised that it is necessary to prioritise the uses of water in a country with limited water resources, when it comes to the allocation of water for competing demands. In this regard the first priority is water for domestic purposes, which include water for livestock watering for both subsistence and commercial farming. The second priority is for economic activities such as mining, industry, manufacturing, hydropower generation, irrigation, and recreation. Priorities for these activities will in each individual case have to be determined by their respective value in relation to the overall development objectives and plans for the country. Economic activities that employ large numbers of people will in most cases be a higher priority than the use of water for irrigation where mechanisation reduce the number of people employed.
The policy also clarified the allocation of responsibilities in the water supply and sanitation sector, but those responsibilities have been adjusted over time. The present (December 2020) situation is:

- In 1993 the DWA remained responsible for bulk water supply, but responsibility for the rural water supply function was added and the name of the Ministry changed from to the Ministry of Agriculture, Fisheries, Water and Rural Development to the Ministry for Agriculture, Water and Rural Development. (MAWRD). At present the DWA is in the Ministry of Agriculture Water and Land Reform (MAWLR) and responsible for water resource management, as well as rural water supply and sanitation coordination.

- In 1997 the function for the supply of bulk water according to sound business principles was transferred from the DWA to the Namibia Water Corporation (NamWater), established under the Namibia Water Corporation Act No. 12 of 1997.
- The Local Authorities got the responsibility for urban water supply, water reticulation and the treatment of domestic sewage effluent in the cities and towns. Windhoek also became responsible for the reclamation and reuse of treated domestic effluent. Other towns are responsible for water supply, reticulation, and sewage treatment only (e.g., Outjo) or reticulation and sewage treatment only (e.g., Rehoboth).
- The Regional Authorities are responsible for water supply and sanitation services to small communities in villages and settlements.
- In 1993 the Ministry of Health and Social Services got the responsibility for the development of rural sanitation facilities at villages and settlements, but this is now the responsibility of the Regional Authorities, assisted by the Directorate Water Supply and Sanitation Coordination in the DWA.
- The private sector, such as commercial farmers, mines, and tourism lodges, is responsible for its own water supply and disposal of domestic sewage effluent.
- The mining sector is responsible to supply their own water or approach the DWA to provide bulk water and to dispose of mining effluent to avoid pollution and the reuse of water in the mining processes.

The WASP aimed to improve sustainable food self-sufficiency and security and provided a foundation for the equitable and efficient development of water supply in Namibia. The policy promotes the supply of water, as well as improved sanitation at an affordable cost to all Namibians. The objective here is to subject these developments to environmental impact assessments to guarantee their sustainability. The policy states that improved provision of sanitation can contribute to improved health, ensure a hygienic environment, protect water sources from pollution, promote water conservation, and stimulate economic development. The policy laid the foundations for the establishment of a Directorate of Rural Water Supply, the community-based management of rural water supplies, and the establishment of more than 200 Water Point Committees countrywide.

The policy grants communities the right, with due regard for environmental needs, to plan, maintain and manage their own water supply and to choose their own solutions and levels of service. Yet, the policy makes it clear that this right is subject to the obligation that the beneficiaries should contribute towards the cost of the water services provided.

Furthermore, the policy stresses the environmentally sustainable development and utilisation of water resources. The Water Point Committees are obliged to raise concerns about any developments or alterations that may pose a threat to the water supply and their water resources. They are also responsible for implementing specific management measures, such as the strict allocation of an ecological water reserve and water demand management measures.

With these provisions, the policy places strong emphasis on community involvement, participation, and responsibility.

3.2 The National Water Policy (2000)

In March 1998, the Government decided to initiate the Namibia Water Resources Management Review (NWRMR) to:

- Assess the existing arrangements for managing water resources and services.
- Promote the sustainable development of freshwater resources.
- Provide the population with equitable access to water, especially for the rural and urban poor.
- Ensure long-term social and economic development.

The NWRMR took a fresh, progressive look at the advances and initiatives in water resource management that have been made in both Namibia and elsewhere in the world. On this basis a set of new approaches and policies were recommended to address the contemporary challenges facing the country in conserving its limited and vulnerable resource base and to extend reliable water and sanitation services to the population. This work led to the adoption of a National Water Policy (NWP) in 2000. The NWP provides for community

participation to lowest appropriate level in water resources management and the development of basin management plans that will serve as inputs to the national water master plan.
In 2002 Cabinet approved the National Water Policy White Paper, which formed the foundation of the Water Resources Management Act No. 4 of 2004 that was promulgated by Parliament, but de facto never entered into force.
The NWP provides a framework for equitable, efficient, and sustainable water resources management and water services, and stresses sectoral coordination, integrated planning, and management as well as resource management aimed at coping with ecological and associated environmental risks. It states that water is an essential resource to support life and that an adequate supply of safe drinking water is a basic human need. The policy makes it clear that water concerns extend beyond human needs for health and survival. Water is essential to maintain natural ecosystems, and the policy recognises that, in a country as dry as Namibia, all social and economic activity depends on healthy aquatic ecosystems. The NWP stresses that the management of water resources need to harmonise human and environmental requirements, recognising the role of water in supporting the ecosystem. One of the strategies to ensure environmental and economic sustainability is to ensure that in-stream flows are adequate – both in terms of quality and quantity – to sustain the ecosystem. This expectation is a huge challenge because the rivers in the interior of Namibia are ephemeral and many dry up in the dry season.
The NWP was developed to guide water resources management in Namibia. It is based on the country's physical and climatic setting, particularly its aridity, building on the legacy of the pre-independence water supply infrastructure and current trends in water development, specifically relating to water resources management. This policy clearly states that water concerns extend beyond human needs for health and survival, that water is essential to maintain natural ecosystems while all social and economic activity depend on healthy aquatic ecosystems. The policy further recognises the need for inter-sectoral coordination between all stakeholders involved in using and managing water resources. Salient principles contained in the policy include:

- **Integrated management and planning** – Management and planning of water resources should be integrated across economic, environmental, and social dimensions.
- **Development and intergenerational equity** – The country's water resources should be utilised, developed, and managed in a way that promotes equitable and sustainable socio-economic development without prejudicing the benefits and opportunities of future generations.
- **Ownership of water** – Namibia's limited and vulnerable water resources are an indivisible national asset, whose ownership is vested in the state on behalf of the whole society.
- **Equity** – All Namibians should have the right of access to sufficient safe water for a healthy productive life.
- **Water for ecosystems** – Water resources management needs to harmonise human and environmental requirements and recognise the role of water in supporting ecosystems.
- **Shared watercourses** – Namibia should strive to promote the equitable and beneficial use of international watercourses based on generally accepted principles and practices of international law, respect the rights of upstream and downstream users in other countries, strive to harmonise domestic legislation with the tenets of international law and respect the right of all stakeholders including basin communities to participate in negotiations and consultations at international level.
- **Recognition of economic value** – Economic value of water resources in Namibia should be recognised given their scarcity and vulnerability. Water abstraction, use, conservation, and management should be efficient and cost effective.
- **Stakeholder involvement** – Water resource use, planning, service provision and management should take place within a framework that encourages awareness and participation among stakeholders at all levels.
- **Information exchange** – Water resources information systems should be developed and made accessible to the public, and that institutions involved in the management and provision of water services should do so in an open and transparent manner.
- **Decentralisation** – The management of water resources and water services should be decentralised to the lowest practicable level are recommended.

- **Role of institutions** – There is a need to have institutional functions clearly defined; and
- **Capacity building** – Capacity building should be a continuous process of institutional and human development and should include participation by the public and private sectors, civil society, and community structures.

The Policy recognises the need to promote equitable and beneficial use of international watercourses based on generally accepted principles and practice of international law. This realisation originated from the 1974 Water Master Plan that identified the need for Namibia to negotiate for access to shared perennial rivers to complement the internal water sources. The policy proposes to protect water resources from pollution by enforcing the 'polluter pays principle' and regular water quality monitoring on all proposed projects. Furthermore, it proposes to improve knowledge on the vulnerability of critical wetland ecosystems and to develop strategies for their effective management. Two clauses within Section 2.3 on Water Use and Conservation Principles and Section 2.5 on Legislative and Regulatory Principles are particularly relevant to shared water resources:

- Precautionary environmental protection: The resource base shall be protected against any kind of contamination or pollution that could render any part of it unfit for beneficial human, economic and environmental purposes, applying the precautionary principle.
- Factoring environmental considerations in decision making: The need to protect the environment in general, and the aquatic ecosystems in particular, including their biodiversity and the nation's wetlands will be factored into the allocation of water resources for use and will include the prior assessment of the environmental impacts of proposed water uses.

The totality of the principles found in Namibia's policy framework for water resources management satisfies the criteria for sustainable use of shared watercourse systems and principles found in international law instruments that Namibia is party to and provides sound guidelines for future legislation and regulation

3.3 The Water Supply and Sanitation Policy (2009)

Water policy is not cast in concrete and can be changed, revised, or renewed over time as new approaches to water management are required. The effectivity of the WASP was assessed in 2006 mainly due to the slow progress with sanitation services which had only 50% coverage in comparison with water services that reached 95% coverage. The poor performance in the sanitation sector was attributed to "institutional fragmentation" which defeated the objectives of the WASP in the sanitation sector. In 2008 the WSASP was the third water policy adopted by Cabinet and although the directives in the previous two water policies, WASP, and NWP, have not all been accommodated in the WSASP, it does not mean that certain elements in the previous policies have been ignored or rescinded because they are still being applied. For example, the WASP already stated in 1993 that water resources and the environment are closely related. The sensitivity of the ecosystem to any changes in the water balance should always be respected and accommodated when water resources and new water infrastructure developments are planned. Measures to prevent the pollution of water resources and the environment should also be part of the management approach rather than trying to restore previous, or allow future, negative effects. This theme runs consistently through all previous policies and in the WSASP.

One of the main additions to the WSASP is that its principles are in line with the principles of integrated water resources management, including a strong focus on water demand management and the improvement of sanitation services.

Generally, it aims at ensuring equitable access to water resources sufficient to maintain life, health, and productive activities of the population.

Under this policy the Government is the custodian of all water resources and has the right to control all water use and disposal of effluent. Integrated supply and demand planning are required in both the short and long term. Further, the WSASP promotes sustainable water utilisation through suitable pricing, promotion of water-efficient technology, public information and awareness programmes, information sharing and co-operation between parties, the promotion of wastewater re-use and active support of applied research and data gathering to monitor water conservation.

There is also provision made for subsidies to those who cannot afford to pay the full costs of water, however, not all communities who cannot pay, receive subsidies.
Water resources and the environment of Namibia are closely related. Due cognisance of this fact should be taken and respected whenever any employment of water for development is valued. The sensitivity of the country's natural ecosystem to any changes in the water balance should always be appreciated. The possible pollution of water and other resources should also be guarded against. A pre-emptive management approach rather than trying to counteract eventual negative effects should form part of all planning and decision-making processes.

4 Water Legislation

4.1 The Constitution of the Republic of Namibia

There are three Articles in the Constitution that have direct bearing on the management of water resources. Chapter 11 of the Constitution addresses the principles of State policy regarding environmental management of water resources and the ownership of water. Chapter 21 addresses the legal status of international water agreements. The said Articles are:

- Article 95 deals with the promotion of the welfare of the people by adopting inter alia policies such as Article 95 (l) which calls for the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization living natural resources on a sustainable basis for the benefit of all Namibians, both present and future,
- Article 100 deals with the sovereign ownership of natural resources and states that land, water, and natural resources below and above the surface of the land and in the continental shelf and within the territorial waters and the exclusive economic zone of Namibia shall belong to the State if they are not otherwise lawfully owned. However, the reference to “if they are not otherwise lawfully owned” is not only ambiguous and open for interpretation, but often deliberately omitted when the Article is quoted.
- Article 144 states that unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international law and international agreements are binding upon Namibia under the Constitution and shall form part of the law of Namibia.

The emerging dichotomy of the Article 100 is that it affects only the farming community on commercial land as far as water sources are concerned. This can be examined by looking at the present land tenure system which makes provision for the private ownership of land e.g., commercial farms and plots or erven in urban areas. However large tracts of land are either communal land, held in trust by the state, or nature parks that also belongs to the State, and technically the water resources are therefore owned by the State in any case and the State can allocate the water to any user, whether such use is granted or when such use is requested. The land and the water resources on or below the surface of privately owned land is theoretically part of the property because nobody would want to own a farm with the objective to farm commercially, and on business principles, if the water belongs to somebody else. The concept that if one owns something, like water in an arid country, you will take good care of it, is totally defeated if water belongs to the State. A commercial farmer will not invest money in water abstraction facilities or waste pumped water because he had paid for the water supply infrastructure and the operating cost of the service, which is therefore not free of cost in any case. He will also not pollute his water sources or use it in an unsustainable way, because that will ruin his farming activities. Water and property should clearly both be part of the ownership package. If the argument holds that water on privately owned land belongs to the State, then it can be argued that the State has an obligation to supply water to the farmer. (Which is being done in many cases on resettlement farms where it is expected by the resettled farmers that the State, to whom the land belongs, must assist to supply water, which is at the expense of the taxpayer while the commercial farmer who previously provided the same service himself when he owned that same farm and therefore did not burden the taxpayer. A similar situation exists on communal land where not only the water, but also the land belongs to the State. The capital cost of rural water supply infrastructure is, directly or indirectly funded with taxpayers’ money, and the operating cost to supply the water is heavily subsidized by the taxpayer because the rural communities

find it difficult to pay the full economic cost so supply the water, while commercial farmers bear the full responsibility on their farms.
It would also be inequitable to serve some communities with water from sources that do not belong to them, while it is expected from a private landowner to protect the property (water) of the State on his land, but he is not assisted with the supply of water. The best the State can do is to monitor the sustainable abstraction of water on commercial farms through a permit system that may require information about the quantity of water abstracted, but many successful commercial farmers do that in any case because, by doing that, one can plan stock numbers, based on the availability of water and grass after a rainy season, thus enabling the farmer to reduce stock numbers when boreholes are yielding less water after a poor rainy season.

4.2 The Water Act, Act 54 of 1956

Only those Articles of the South African Water Act No. 54 of 1956, that cover issues that applied in a similar way to Namibia, had been made applicable in Namibia and according to Article 140 of the Constitution of Namibia, all laws which were in force immediately before the date of independence shall, subject to the provisions of the Constitution, remain in force until repealed or amended by an Act of Parliament or until they are declared unconstitutional by a competent court.
The Water Act of 1956 is generally referred to as the "Old Water Act", and often in the past tense, remains strictly speaking applicable until it is officially repealed and replaced with a new water act. Two attempts have been made to achieve that objective. The first was the Water Resources Management Act, Act 24 of 2004 (WRMA-24) that never entered into force. The second is the Water Resources Management Act 11 of 2013 (WRMA-11), promulgated by Parliament, but has not been signed into force because the Regulations, which are of a highly technical nature, are still with the Ministry of Justice for approval. As a result, the Minister has not been able to determine a date for the Act to come into operation as required by Section 134 of the Act. Thus, the "Old Water Act" remains applicable for the time being.
The main purpose for passing the WRMA-11, as its preamble states, is to consolidate and amend previous laws relating to the control, conservation and use of water for domestic, agricultural, urban, and industrial purposes in South Africa and made applicable in Namibia for the same purposes. The Act also aims to make provision for the control of the use of sea water for certain purposes, for the control of certain activities on or in water in certain areas and for the control of activities which may alter the natural occurrence of certain types of atmospheric precipitation.
Section 2.(m) of the Old Water Act clearly confirms the interest of the State in protecting water resources by giving the Minister the power to, amongst others, investigate water resources, plan water supply infrastructure, develop water schemes, operate water schemes, control water pollution, protect, allocate and conserve water resources, inspect water works, levy water tariffs and advise on all matters related to the water environment in general. It basically makes the DWA responsible for control over the use, allocation, disposal and conservation of all surface and groundwater resources in Namibia. Provision is made for the protection of river catchments, drilling of boreholes, and making of wells, controlling effluent discharge on land and into rivers as well as to authorise weather modification, such as cloud seeding.
The Act also aims to make provision for the control of the use of sea water for certain purposes (such as desalination), for the control of certain activities on or in water in certain areas (such as unsustainable groundwater abstraction) and for the control of activities which may alter the natural occurrence of certain types of atmospheric precipitation.
The implementation of the Act is guided by the Regulations made to prescribe water quality control, the construction of farm dams, the disposal of wastewater, the protection of artesian water sources and the use of large groundwater sources of national interest in declared groundwater water control areas.
Although the sections in the Water Act that were made applicable to Namibia are still enforced, the Act do not cover all the new policies and principles of water law required in an independent Namibia. To inform the drafting of the WRMA-11, Government considered the WASP, NWP and WSASP (water policies) as elaborated above. The Old Water Act distinguishes between private and public water. Private water is that which flows, naturally rises, falls, or generally drains or is directed into land but is not available for common use. Public water includes any water flowing or found in or derived from the bed of a public stream, whether visible or not. It should also be noted that during the German colonial period the major ephemeral rivers in Namibia all belonged to the State and was therefore "public water". Farms have been surveyed in such a way that the

farm boundaries did not include major rivers and those farmers did not have rights to that public water although their location was riparian to the river.
There is therefore no private property right to public water, and the sole and exclusive use and enjoyment of private water is vested in the owner of the land on which such water is found. The Act thus gives preferential abstraction rights to the landowners on whose land such water is found because the water is required for commercial agricultural purposes, unless the area in which the water resources occur, has been declared as a subterranean water control area and in such cases, water can also be allocated under a permit to enable the farmer to continue with commercial farming activities. The private-public water dichotomy might be unconstitutional in the current constitutional dispensation because whereas the Act provides for private and public water, the Constitution regards natural resources as common resources, thus they constitutionally belong to the State unless otherwise lawfully owned. Considering that all water is controlled by the state under the public trust doctrine emanating from Article 100 read together with schedule 5 of the Constitution, all the water can be regarded as a common resource – hence public. The Act, however, has some balancing provisions whereby the Minister of Agriculture, Water and Land Reform (MAWLR) has the power to control the amount of water to be used by a person who has private water rights. Connected to this in terms of Section 21, the Minister has the power to order a person to purify water he has contaminated. A person can, however, apply for an exemption from this duty and the Minister is empowered to consider whether to grant the application or not. The Minister can also solicit the advice of the DWA about the decision.
Section 23 prohibits pollution of public or private water, including underground water, or seawater. Sections 27 to 55 deal with control and use of subterranean water. The President is empowered to declare certain waters to be a subterranean water control area, if the Minister is of the opinion that it is in the public interest to do so. Once proclaimed, Cabinet has extensive powers to determine how that water is going to be abstracted and all concomitant matters.
This Act gives the Minister the power to investigate water resources, plan water supply infrastructure, develop water schemes, control pollution, protect, allocate and conserve water resources, inspect water works, levy water tariffs and advise on all matters related to the water environment in general. It makes the Department of Water Affairs, in MAWLR, responsible for the use, allocation, control, and conservation of Namibia's surface and groundwater resources.
What is interesting to note is that Section 174 deals with the application of Act in relation to certain land in South-West Africa. Section 174 (1) stipulates that the provisions of the Act shall apply in relation to any land in the territory of South-West Africa which, if it were within the Union of South Africa, would have been riparian to the Orange River in terms of this Act, and such land shall for the purposes of the application of the provisions of this Act be deemed to form part of the province of the Cape of Good Hope. Section 174 (2) states that or the purposes of sub-section (1) the Orange River shall be deemed to form a boundary of any land in the said territory which is situated on the bank of that River. Section 174 was not applied to Southwest Africa, but it is included here for background as it has obvious relevance.

4.3 The Water Resources Management, Act 24 of 2004

The Water WRMA-24 has been passed by Parliament, promulgated on 23 December 2004 by Government Notice 284 and published in the Government Gazette No 3357 . The objective of this WRMA-24 was defined to ensure that water resources of the country are managed, developed, protected, conserved, and used in a sustainable manner for the benefit of every Namibian. It also established the Water Advisory Council, the Water Regulatory Board, the Water Tribunal, and a special section on rural water supply management.
The WRMA-24 was based on the WASP and NWP and provided for the management, development, protection, conservation, and use of water resources. The Act introduced equitable access to water resources for all population groups in Namibia. It provided an integrated, enabling legislative framework within which Namibian water resources could be managed, and water services provided. The objective of the Act was to ensure that Namibia's water resources are managed, developed, protected, conserved, and used in ways, which are consistent with or conducive to be consistent with certain fundamental principles set out in Section 3 of the Act and promote:

- Equitable access to water resources by every citizen, in support of a healthy and productive life.

- Access by every citizen, within a reasonable distance from their place of abode, to a quantity of water sufficient to maintain life, health, and productive activities.
- Essentiality of water to support life and need for safe drinking water as basic human right.
- Harmonisation of human needs with environmental ecosystems and the species that depend upon the water, while recognising that those ecosystems must be protected to the maximum extent.
- Integrated planning and management of surface and underground water resources, in ways which incorporate the planning process, [and] economic, environmental, and social objectives.
- Management of water resources in such a way that sustainable development is promoted.
- Facilitating and encouraging awareness programmes and participation of interested persons in decision-making.
- Prevention of water pollution, and the principle that a polluter has a duty of care and liability to make good; and
- Meeting international obligations of and promoting respect for rights of the country regarding internationally shared water resources and to the abstraction of water for beneficial use and the safe disposal of polluting effluents.

The Act provided for basic human and environmental water needs, although not as specifically as stated in the NWP. Part 5 of the Act, provided for the establishment of Water Point User Associations at community level, consisting of those rural community members who permanently use a water point. Their function was defined as to operate and maintain the water point in question and to make decisions about water use regulations. The Act provided for a Water Point Committee to monitor and enforce compliance with such regulations and for the establishment of a Water Resources Management Agency as well as Basin Management Committees to manage water resources sustainably.

Part 4 of the Act paved the way for establishing basin management committees to promote the management of water resources on hydrological boundaries considering physical, climatic, ecological, and human factors affecting the quantity and quality of water resources. By 2011, eight basin management committees had been established.

The Act specifically dealt with the control of alien invasive species, stating that the Minister may declare any species to be alien invasive species and may make regulations for their control or eradication. Further, as the Act requires water resources management to operate according to the principles of environmental sustainability, this implies that where aquatic invasive species threaten water resources and wetland habitats they will be dealt with. Another fundamental principle upon which the Water Resources Management Act was based is that Namibia meets its international obligations and promotes respect for its rights regarding internationally shared water resources, resource quality, the abstraction of water for beneficial use and avoiding the discharge of polluting effluents.

Part 10, of the Act deals with internationally shared water resources, recognises the obligations of Namibia under international treaties and conventions such as the Convention on the Law of the Non-Navigational Uses of International Watercourses and the revised SADC Protocol on Shared Water Resources. Regarding shared water courses, the Minister was authorised to participate in the development of a common database, joint projects, conflict resolution and to establish institutional links and ensure stakeholder participation with neighbouring riparian states. The Act includes the obligation to collect and share data and information on internationally shared water resources and lists these in Section 55.

However, the WRMA-24 never came into force because a date for the commencement of the Act, as prescribed by Section 138(1)(b) of the same Act, has never been determined by the Minister. This was mainly because the Act instructed the Minister in Section 7 of the Act to establish a Water Resources Management Agency and to abolish the Department of Water Affairs as instructed by a Cabinet decision to that effect. The Minister was hesitant to abolish the DWA and since the Act was promulgated without the Regulations had been drafted, the implementation of the Act and the establishment of the Water Resources Management Agency could not be authorised until that had been done. The regulations for a water act are very technical in nature and the DWA did not have the capacity to prepare the regulations in a short space of time because most of the technical and engineering staff were transferred to NamWater. This caused a delay, and the fact that a new water policy was adopted in 2008, and an Integrated Water Resources Management Plan

formulated by 2010, it was decided to revise the WRMA-24 to accommodate the new developments. It was therefore repealed by the Water Resources Management Act No. 11 of 2013 (WRMA-11)

4.4 The Water Resources Management Act No. 11 of 2013

Although the WRMA-11 has been passed by Parliament, signed by the President, promulgated on 19 December 2013 by Government Notice 332 and published in the Government Gazette No 5367, it has not yet been signed into law by the Minister as required by the Namibian Constitution, and is therefore not in force. The main reason why Minister has not yet determined a date for the Act to come into operation as required by Section 134 of the Act is the cause of the delay in the completion of the preparation of the regulations required to implement the Act. As stated before, the Regulations are highly technical in nature and took some time (7 years) to finalise. The MAWLR is now waiting for comments on the draft regulations by the Ministry of Justice. Once in force, the Act repeals both, the Water Act No. 54 of 1956 as a whole and the Water Resources Management Act No. 24 of 2004 (which had de facto never come into force).

The WRMA-11 was enacted to provide for the management, protection, development, use and conservation of water resources, the regulation and monitoring of water services and incidental matters. The aim of the Act includes to ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, specific fundamental principles including, among others, equitable access to safe and sufficient drinking water; the maintenance of the water resource quality for ecosystems; and the promotion of the sustainable development of water resources based on an integrated water resources management plan which incorporates social, technical, economic, and environmental issues. The Act provides for the establishment of a Water Advisory Council to advise the Minister on issues such as water policy development and review; water resources management; and water abstraction and use.

Furthermore, a Water Regulator is to be established under the Act, to determine the tariffs of fees and charges that may be levied by a water services provider or that are payable by licence holders for the abstraction of water or the discharge of effluent or the supply or re-use of effluent. The Water Regulator also performs other functions regarding water service providers, which must be licenced under the Act. Basin Management Committees are institutions that may be established under the Act to further the Government's objective in achieving the integrated management of water resources.

The Act aims to ensure that Namibia's water resources are managed, in a manner that is consistent with, or conducive to, specific fundamental principles as set out in Section 3 of the Act, namely:

- Equitable access for the population to safe drinking water as an essential basic human right to support a healthy productive life.
- Access by all people to enough safe water within a reasonable distance from their place of abode to maintain life and productive activities.
- Harmonisation of human water needs with the water requirements of environmental ecosystems and the species that depend on them, while recognizing that the water resource quality for those ecosystems must be maintained.
- Promotion of the sustainable development of water resources based on an integrated water resources management plan which incorporates social, technical, economic, and environmental issues.
- Availability of open and transparent information about water resources to the public.
- Recognition of the economic value of water in the allocation of water.
- Development of the most cost-effective solutions to establish infrastructure for the provision of water, including conservation measures.
- Supporting integrated water resources management through human resources development and capacity building.
- Promotion of water awareness and the participation of persons having interest in the decision-making process should form an integral part of any water resource development initiative.
- Cognisance of Namibia's international rights and obligations in the utilisation of internationally shared water resources and the disposal of waste or effluent.

- Consistency of water resource management decisions within the specific mandate from the Government regarding the separation of policy, regulatory and operational functions.
- Prevention of water pollution and implementation of the principle that a person disposing of effluent or waste has a duty of care to prevent pollution.
- A polluter is liable to pay all costs to clean up any intentional or accidental spill of pollutants.
- Cognisance of the regional diversity in water resources development and the decentralisation of responsibilities to the lowest level of Government where adequate and appropriate competency exists to manage water resources effectively.

In these fundamental principles, many general principles of environmental law are echoed, such as the principles of prevention, precaution and the polluter pays principle. The Act in terms of Section 4 of the Act imposes on the state an obligation to ensure that water resources are managed and used to the benefit of all people in furtherance of the aims of the Act.

Part 2 of the Act assigns a variety of powers and functions to the Minister regarding the management of water resources including among many others the powers to conduct water resources management planning and to ensure an adequate supply of water for domestic use.

The Minister is furthermore responsible for international negotiations related to internationally shared water resources and water related matters. Certain powers can be delegated to the Water Regulator, a basin management committee or to the permanent secretary or any other staff member of the ministry. Furthermore, according to Section 129 of the Act the Minister can make regulations relating to various issues pertaining to the management of water resources.

Part 3 of the Act provides for the establishment of a Water Advisory Council to advise the Minister on issues such as water policy development and review, water resources management, water abstraction and water use. The Water Advisory Council is established upon nomination and "consists of 11 members who are persons with extensive knowledge and experience in water resource management and from authorities or institutions responsible for or involved in water supply or water management."

Part 4 of the Act provides for a Water Regulator consisting of five members is to determine the tariffs of fees and charges that may be levied by a water services provider or that are payable by licence holders for the abstraction of water or the discharge of effluent or the supply or re-use of effluent. Part 10 of the Act provides for the establishment of a Water Regulator also performs other functions regarding water service providers, which must be licenced according to the provisions in.

Part 5 of the Act is designated to the management of rural water supply. Basin Management Committees are institutions that may be established to further the Government's objective in achieving the integrated management of water resources. The Act is also notable for its emphasis on community and stakeholder involvement in, and management of, water resources, through the establishment of basin management committees, several of which were operative for some time prior even to the development of the WRMA-24. For example, the committee for the Kuiseb River Basin was formed in 2003, with its own water resources management plan being developed in 2007. Included in a long list of duties of committees are obligations to promote community participation in the protection, use, development, conservation, management and control of water resources, to promote community self-reliance including the recovery of costs for the operation and maintenance of waterworks, and to prepare an integrated water resources management plan which will feed into an overall Integrated Water Resources Management (IWRM) Plan. The establishment of basin management committees is representative of a wider impetus for the decentralisation of Government functions in Namibia, especially relating to water resources management. However, many river basins in Namibia currently have no committee in place and only the Kuiseb committee appears to have a management plan in place. Namibia's Integrated Water Resources Management Plan of 2011 notes the need to increase the number and capacity of committees to improve equitable access to water. The Basin Management Committees have several functions, including the promotion of community participation and "to advise the Minister on matters concerning the protection, development, conservation, management and control of water resources and water resource quality in its water management area." with the option to establish Water Point Committees and local water committees to be "entrusted with the responsibility of managing and controlling the supply of water at any rural state waterwork."

Part 6 of the Act deals with internationally shared water resources and describes in more detail the functions of the Minister related to agreements on internationally shared water resources. Some agreements are listed but the list is incomplete. An amendment of the Act will be required to include those left out and to include new agreements made in future. These agreements have been ratified by Parliament and according to Article 144 of the Constitution they form part of Namibian law. They are therefore binding on Namibia. Instead of listing the agreements, Section 29(2)(e) would have been enough to state that regulations can be made by the Minister to give effect to the international agreements.

For the development, conservation, management and control of Namibia's water resources, the Minister must, in cooperation with regional councils, basin management committees and water services providers, prepare an Integrated Water Resources Management Plan to be submitted to Cabinet for approval and which is subject to review after ten years following Cabinet's approval. This Plan was only adopted by Cabinet in 2012 (Personal communication with the Deputy Executive Director of the DWA) but the plan must be revised every ten years. It is therefore due in 2022, but there was no budget for that activity.

Part 9 of the Act of the Act provides for the regulation of water supply, abstraction and the use of water advocates close cooperation between the Minister responsible for water affairs on the one hand and the Minister of health on the other.

As a rule, a non-transferable licence is required for the abstraction and the use of water This requirement does, however, not apply to the abstraction of water for domestic use and to owners of a private well for the abstraction of water for domestic use.

The licence, which is subject to a fee, may be obtained by application to the Minister and can be combined with a licence to discharge effluent as required according to Section 70 of the Act.

Part 12 of the Act addresses the control and protection of groundwater , including specific provisions regarding the construction of boreholes and wells and their respective licenses.

Part 13 of the Act deals with water pollution control and lays down the precautionary principle. A licence is required to discharge effluent or construct or operate a wastewater treatment facility or waste disposal sites.

Part 14 of the Act provides that Water Protection Areas can be declared on the initiative of the Minister or upon application by other persons having an interest, "in order to protect and enhance any water resource, riverine habitat, watershed, ecosystem or other environmental resource that is at risk of significant changes to resource quality, depletion, contamination, extinction or disturbance from any source, including aquatic or terrestrial weeds." The overall effect of declaring an area a water protection area is that there is a duty to comply with any limitation or prohibition imposed and specified in the notice of declaration of the water protection area.

Part 15 of the Act stipulates certain emergency powers for the Minister to limit the right to abstract and use water, for example in situations where there are water shortages or to control pollution.

Further provisions of the Act deal with water services plans and efficient water management practices; dams, dam safety and flood management; the control of activities affecting wetlands, water resources and resource quality (including the control of aquatic invasive species); water services provided by state; and servitudes which may be claimed by licence holders to give effect to that licence.

Offences are addressed by Section 127 of the Act and cover several acts related to abstraction or use of water not in conformity with the licence or the pollution of water resources. What is remarkable from a legal point of view is the establishment of an appeal body to be known as the Water Tribunal to hear and decide appeals against decisions by the Minister in matters specified in detail in Section 120, including for example, in cases where the issuance of a licence has been refused. The Water Tribunal will consist of a chairperson appointed by the Minister with the concurrence of the Judge President of the High Court and up to 6 other persons selected and appointed by the Minister.

Part 17 of the Act deals with dams, dam safety and flood Management which is of particular importance for disaster risk management in Namibia. This section prohibits construction work or other activity that causes, or is likely to cause, the natural flow conditions of water in, to or from a watercourse to be modified without the Minister's written approval. Safety measures for dams also come under scrutiny, requiring professional engineers' reports regarding the safety of dams, and creating a duty of care on the part of the engineer towards the public and the State, and requiring the owners of dams with potential safety risks to register them with the Minister. The Minister also has relatively extensive powers aimed at the prevention of flood risk.

The implementation of the WRMA-11 is of particular concern regarding the number of regulatory structures and the technical content such as dam safety, water pollution control, wetlands management etc. that must be administrated based on technical inputs from competent engineering and technical staff. In this context the Water Advisory Council, the Water Regulator and the Water Tribunal would require from the DWA to administrate the activities (convene meetings, take minutes, prepare technical and legal documents etc.). Some of these entities must report directly to the Minister, which seems to be very impractical in view of the many duties of the Minister. Furthermore, each of these groups is proposed as a body corporate (in this instance it is not clear whether they will fall within the existing state structures as body corporates, e.g., Local Authorities, or alternatively as completely new parastatal entities).
Another question is whether Namibia, a country with less than three million people, can even begin to consider the necessity for a governance structure that is much more complex than that of many countries with higher populations. This also raises the issue of cost in terms of the existing budgetary constraints, given the fact that the activities of the existing DWA are already underfunded while staff resources that are overstretched.

4.5 The Namibia Water Corporation Act, Act 12 of 1997

The Namibia Water Corporation Act establishes the water utility company, called NamWater, and places an obligation on NamWater to conduct its functions in an environmentally sustainable and sound manner. The Act also specifies the duty to conserve and protect the environment. It should conduct all activities with due regard for the protection and conservation of ecological resources and habitats. Water is allocated by the DWA through a permit regulatory system and NamWater is entitled to apply for a permit to impound surface runoff in ephemeral rivers, to abstract water from perennial rivers and to abstract groundwater. Certain Sections of the Act will be amended by the WRMA-11 when it enters into force.
Section 2(1) of the Namibia Water Corporation Act established a company to be known as the Namibia Water Corporation (NamWater) The objectives of NamWater are to carry out efficiently, the primary business of bulk water supply to customers, in sufficient quantities, of a quality suitable for the customers' purposes, and by cost-effective, environmentally sound and sustainable means; and the secondary business of rendering water-related services, supplying facilities and granting (lease) rights to customers upon their request.
The Act provides for the responsibilities of NamWater as well as to regulate its powers, duties, and functions; to provide for a more efficient use and control of water resources; and to provide for incidental matters.
NamWater was established as a commercial entity and has the duty to supply water and inter alia, must consider each application for bulk water supply by any potential customer, and subject to the availability of the required quantity and quality of water, must accept the applicant as a customer.
In Part 8, Section 40, the provision of water to customers is deemed an essential service (which means it cannot be suspended by labour actions or strikes), but NamWater has the right to interrupt or reduce water supply whenever a condition of drought causes an insufficient source yield; or when there is a breakdown of any water work; or if there is an emergency likely to endanger life or property.
Sections 5 and 6 of this Act set out the Objects and Functions of the Corporation, respectively. Section 5 requires the Corporation to act "in the best interests of the Republic of Namibia". This is not defined further, and it is perhaps worth noting that such a statement could be interpreted widely. It is perhaps reasonable to conclude that it is in the best interests of the country that NamWater provides appropriate water services at an affordable cost recovery regime instead of running the risk of bankruptcy and becoming dependant on Government bailouts as is the case with other parastatals who are supposed to operate on business principles.
Section 6(3) of this Act allows that the Minister may negotiate and conclude, on behalf of the State as the sole shareholder in the Corporation, the expectations of the Government in respect of the scope of business of the Corporation, its efficiency and financial performance, as well as the financial targets which the Corporation is expected to achieve over periods of at least five years at a time. This may be interpreted that the Minister may negotiate and agree with the Corporation on their expected profitability or financial performance and should NamWater be required to implement policies to supply subsidised water under Section 6(2), it would be reasonable to assume that such requirements and implications will be factored into the financial performance required of the Corporation, to be negotiated between the Minister and the Corporation.

It should be noted, that even after NamWater has been in existence for more than 20 years, the agreement between NamWater and the Government, regarding the scope of business and financial performance of NamWater, has still not been concluded. Such an agreement between the Government and NamWater should serve to provide a framework within which the general performance can be evaluated as well as guidelines according to which the income of the Company (water tariffs) can be determined.

Section 7 of the Act deals with the powers of the Corporation. The Act specifies that the Corporation has the power, but not necessarily the duty (according to an opinion from the Attorney General) to impose water on a full cost recovery basis. However, if the Corporation must operate as a commercial enterprise with the primary purpose to supply water in bulk, then it would be reasonable to assume that the levy tariffs for water supplied must cover the costs associated with its business activities as its primary source of income. The fact that tariff setting should be done in consultation with the Minister is slightly ambiguous, and do not provide any practical guidelines. For example, the annual increase in water tariffs, to cover the increase in cost due to inflation, can also be perceived to be a result of an unreasonable increase in salaries or only plain bad management, resulting in extra operating costs. It may also be that the approval of tariff increases could become a political issue and the Minister may then approve an arbitrary reduction in the tariffs proposed by NamWater for approval. As a result, this clause has led to much misunderstanding between NamWater and the Ministry.

Until such time as the independent Water Regulator, as contemplated in WRMA-11, comes into effect, NamWater and the Ministry (the Minister) should agree on the process to be followed to approve and publishing NamWater tariffs, as well as to negotiate a business performance contract for NamWater between the two parties.

Section 15 of this Act deals with subsidies for the supply of water by the Corporation. The Minister may enter into a written agreement with the Corporation for the supply of water services or facilities at a cost subsidised or fully paid for by the Minister with funds appropriated by Parliament for such purposes. In this way the cost for water services can be made affordable for those living in abject poverty. The argument here is: If you pay for something, you will not waste it.

In the case of cross-subsidisation, which is when consumers from one water scheme are charged more than the cost of supply to subsidise consumers of another scheme where the consumers are charged less than the cost of supply, it can be said, according to Section 15 of this Act, that such an arrangement requires the written approval of the Minister. It can also be reasonably assumed that, should the Minister instruct the Corporation to implement a Government policy of subsidisation under Section 6(2), and consequently agree on the financial implications to the Corporation under Section 6(3), he will approve and provide the funds for whatever subsidy is required, under Sections 15(1) and (2).

Section 30(1) deals with the financial provisions of the Corporation and entitles the Corporation to capitalise such portion of its profits as the Board may deem necessary for the financing of future capital works, and any amounts so capitalised and not immediately required to be expended shall be deposited in a reserve account. The reference to profits and the provision of operating a reserve fund is consistent with the operation of a commercial entity. However, profits are not defined in the NamWater Act and due to an anomaly in the tax legislation, NamWater is liable for tax, even if they do not make a profit, or receiving income more than expenditure.

According to Section 30(2), the Corporation may establish and operate such reserve funds as the Board may deem necessary and the management of these reserve funds is therefore left to the discretion of the Board, which implies that the Corporation may indeed make profits as befitting a commercial entity. As a rule of thumb, commercial entities capitalise 30 to 50% of their profit for investment purposes (future upgrades or expansion) and pay out the remainder of the profit as dividends. The issue of dividends on profits is also a contradictory issue since NamWater is not supposed to make “profits” because it makes the water itself more expensive for the consumers A similar arrangement to deal with this could possibly be negotiated between the Corporation and the Minister under Section 6(3).

Sections 32 and 33 of the NamWater Act provides for accounts, auditing and annual reporting that are consistent with the operation of a commercial entity.

Part 8 section 42. (3) subsection (2) does not exempt NamWater from complying with any provision of the Water Act, 1956 (Act No 54 0f 1956) or any other water law which requires a permit or authority to be obtained to impound or utilise water from water resources.

4.6 The Environmental Management Act, Act 7 of 2007

The Environmental Management Act (EMA), 2007 (Act No. 7 of 2007), was promulgated by Parliament on 21 December 2007 and published in the Government Gazette No.3966 dated 27 December 2007. The Act entered into force on 6 February 2012.

The purpose of the act is to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment; to establish the Sustainable Development Advisory Council; to provide for the appointment of the Environmental Commissioner and environmental officers; to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

Environmental management has been defined as a multi-layered process associated with the interactions of state and non-state environmental managers with the environment and with each other. Environmental managers are those whose livelihoods are primarily dependent on the application of skill in the active and self-conscious direct or indirect, manipulation of the environment with the aim of enhancing predictability in a context of social and environmental uncertainty

Undertaking environmental management can bring about higher standards of safety and security by addressing global warming as a cause for environmental disasters or can bring benefits to the food security of people. by protecting the quality of water resources in order to preserve fish stocks as a source of food.

The principles of environmental management have to be applied by Government institutions and private persons including companies, institutions and organisations, when doing or planning things, which may have a significant effect on the environment and the EMA clearly reflects the general principles of environmental law as already developed at an international level, and contained in various international environmental texts such as the Stockholm or the Rio Convention:

- Renewable resources must be used on a sustainable basis for the benefit of present and future generations
- Community involvement in natural resources management and the sharing of benefits arising from the use of the resources, must be promoted and facilitated
- The participation of all interested and affected parties must be promoted and decisions must take into account the interest, needs and values of interested and affected parties
- Equitable access to environmental resources must be promoted and the functional integrity of ecological systems must be taken into account to ensure the sustainability of the systems and to prevent harmful effects
- Assessments must be undertaken for activities which may have a significant effects on the environment or the use of natural resources
- Sustainable development must be promoted in all aspects relating to the environment
- Namibia's cultural and natural heritage including, its biological diversity, must be protected and respected for the benefit of present and future generations
- The option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term must be adopted to reduce the generation of waste and polluting substances at source
- The reduction, re-use and recycling of waste must be promoted
- A person who causes damage to the environment must pay the costs associated with rehabilitation of damage to the environment and to human health caused by pollution, including costs for measures as are reasonably required to be implemented to prevent further environmental damage
- Where there is sufficient evidence which establishes that there are threats of serious or irreversible damage to the environment, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation; and
- Damage to the environment must be prevented and activities which cause such damage must be reduced, limited or controlled.

The EMA assigns general functions to Minister of Environment and Tourism (Section 4)as well as the

- The Sustainable Development Advisory Council (Sections 6 to 15)

- The Environmental Commissioner (Sections 16 and 17)
- Environmental Officers (Section 18)

One mechanism aiming at the realisation of the objectives of the Act is the provision for environmental plans to ensure better co-ordination amongst Government agencies. The organs of State that are supposed to draft such management plans are to be listed by the Ministry of Environment and Tourism in the Government Gazette according to Section 24.
The Act provides for administrative mechanisms such as the necessity of environmental clearance certificates and environmental assessments.13 The EMA's Sections 27 to 48, together with the Namibia's Environmental Assessment Policy and the Environmental Impact Assessment Regulations form the basis of all environmental assessments in Namibia. Procedures and Guidelines for Environmental Impact Assessment and Environmental Management Plans have been drafted in 2008.1

To obtain an environmental clearance certificate, a person who wants to carry out an activity listed in Section 27 of the EMA must follow a multi-stage process in line with Sections 32 to 37 of the EMA. Some of the activities that may not be undertaken without an environmental clearance certificate are:

- Energy generation, transmission and storage activities
- Waste management, treatment, handling and disposal activities
- Mining and quarrying activities
- Forestry activities
- Land use and development activities
- Tourism development activities
- Agriculture, irrigation and aquaculture activities
- Water resource developments
- Hazardous substance treatment, handling and storage
- Infrastructure development

The EMA provides diagram for the stages and procedures to be followed during an environmental assessment and also elaborates an enforcement and appeals procedure. A solid legal framework for environmental management in Namibia and implementation of the Act slowly gains pace. The most important step towards making the Act functional was, without doubt, the appointment of the Environmental Commissioner, whose duties, functions and responsibilities under the Act are substantive.

5 Water Treaties

Effectively managed transboundary water resources can serve as a tool for cooperation, joint planning, building trust, sustainable development, supporting preventive diplomacy between basin States and foster regional peace. Water can have an overreaching value capable of uniting conflicting interests and promoting consensus building among countries and societies. In order to incorporate all social, political, economic, environmental, physical and cultural characteristics of an international watercourse system, water should be managed based on hydrogeographical boundaries and thus not only on administrative and political boundaries. Both the Rio Earth Summit (UNCED 1992) and World Summit on Sustainable Development (WSSD 2002) explicitly recognised that integrated transboundary water resources management is a necessary tool for achieving sustainable development. However, in some cases the absence of detail legal and institutional frameworks, along with effective dispute resolution mechanisms and guidelines for cooperative management involving the riparian countries
Studies in Namibia in the early seventies of the twentieth century indicated that the long-term sustainable yield of the water resources in the interior of the country will not be enough to support the anticipated socio-economic development, which was 7% at that time, until the end of the century and that water must be imported from the perennial rivers on the borders of Namibia to assuage the thirst of the nation. However, the potential for water conflicts over transboundary waters can be high, especially in times of scarcity.

The only other option to import water is to use desalinated sea water, but the capital investment required, and operating cost will be much higher when supplied from the coast because the sea water must first be desalinated, and the fresh water elevated more than a thousand metres from sea level into the interior of the country. The cost of the long-distance pipelines required and the infrastructure to desalinate and pump the water, as well as the energy cost will be much higher than access to the perennial rivers, such as the Kunene or the Okavango. Desalination is an expensive option but is the only solution to supply additional water for development at the coast.

After the independence of Namibia, the country was a sovereign country for the first time since the colonial times. The master water plan had to be completed to obtain an equitable and reasonable share of the water in the transboundary rivers and the Government acted on the advice of the DWA to embark on a project to establish water commissions between Namibia and the other basin states on the Kunene, Cuvelai, Okavango, Zambezi, and the Orange rivers.

Each country has its expectations about the use of shared water sources and the downstream states have their fears about the possibility that their access to a share of the transboundary water will be denied. The purpose of those water commissions is therefore to build mutual understanding and trust while executing joint studies to determine the magnitude of the shared water resources and how much water each state would reasonably require. When the quantity of water that is sustainably available has jointly been assessed and all parties have indicated what their planned measures are in using their share of the water, the “sting” is taken out of the situation and cooperation can thrive.

5.1 International Treaties

5.1.1 The Helsinki Rules

The International Law Association (ILA), having received the Report of the Committee on the Uses of the Waters of International Rivers, approved the Articles on the Uses of the Waters of International Rivers set forth in that Report in Helsinki, Finland in August 1966 and resolved that those rules shall be known as the Helsinki Rules on the Uses of Waters of International Rivers. These rules are an international guideline regulating how rivers and their connected groundwaters that cross national boundaries or are contiguous to national boundaries in the case of rivers, may be used. The Helsinki Rules have been recognized as a basis for consideration in negotiations about water use in the preambles of all the water commission agreements between Namibia and States co-riparian to the perennial rivers flowing on the northern and southern borders of Namibia. A brief overview of the Helsinki Rules is given below and only those chapters and articles that relate to water use, pollution and conflict resolution are discussed.

The Helsinki Rules was used as a basis for discussion, negotiation, mutual understanding and cooperation between the basin States riparian to the border rivers of Namibia since the first watercourse Agreements on transboundary water sources were reached in late 1960’s, until 2000 whereafter the Agreements refer to the Revised SADC Protocol on Shared Watercourses and The Law of the Non-Navigational Uses of International Watercourses, also known as the UN Waters Convention (UNWC).

5.1.1.1 Introduction

The general rules of international law as set forth in UNWC are applicable to the use of the waters of an international drainage basin except as may be provided otherwise by convention, agreement, or binding custom among the basin States. An international drainage basin is defined as a geographical area extending over two or more States determined by the watershed limits of a system of waters, including surface and underground waters, flowing into a common terminus.

A "basin State" is a State the territory of which includes a portion of an international drainage basin. However, surface runoff in ephemeral or perennial river are flowing across the landscape and are easy to recognise as “flowing into a common terminus”, but with the flow of subterranean waters its less clear and in many cases require extensive studies to determine the flow and which States qualify for a share. In the case of Namibia, one of the shared “rivers” is the ephemeral Cuvelai drainage basin which has numerous streams only flowing from southern Angola in the rainy season and terminating in the Etosha Pan. The flow into the pan is endoreic because it is an internal landlocked terminus, not ending in an ocean. There is also a body of groundwaters flowing underground from the highland in southern Angola and emerge as sub-artesian water in the Ohangwena Aquifer in the Ohangwena Region in central northern Namibia. A similar aquifer is the Stampriet

Artesian Basin in the eastern part of the Hardap and !Karas Regions in Namibia The Stampriet Artesian Basin drains underground across the border between Namibia and Botswana while the ephemeral Nossob River crosses the border between South Africa and Namibia on the surface.

5.1.1.2 Equitable utilization of the waters of an international drainage basin

Each basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin. The question here is what is meant with a reasonable and equitable share. The Helsinki rules give guidance about what must be done to determine the share by examining "relevant factors" in each case. The relevant factors which can be considered include, but are not limited to:

- The geography of the basin, including the extent of the drainage area in the territory of each basin State.
- The hydrology of the basin, including the contribution of water by each basin State.
- The climate affecting the basin.
- The past utilisation of the waters of the basin, including existing utilisation.
- The economic and social needs of each basin State.
- The population dependent on the waters of the basin in each basin State.
- The comparative costs of alternative means of satisfying the economic and social needs of each basin State.
- The availability of other resources.
- The avoidance of unnecessary waste in the utilisation of waters of the basin.
- The practicability of compensation to one or more of the co-basin States as a means of adjusting conflicts among uses.
- The degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State.

The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is a reasonable and equitable share, all relevant factors are to be considered together and a conclusion reached based on the whole assessment.

It stands to reason that this method to determine the share of a State identifies may issues that can be considered, but to reach the point where an actual allocation can be made is extremely difficult to achieve in practice. One of the main reasons is that basin States must be able look into a crystal ball and take decisions about an allocation that can be completely inadequate when development possibilities arise that had never been anticipated and countries would always like to play it safe and insist on a large share, regardless of the environmental consequences.

To cover for this the Rules state that a use or category of uses is not entitled to any inherent preference over any other use or category of uses and a basin State may not be denied the present reasonable use of the waters of an international drainage basin to reserve for a co-basin State a future use of such waters. In simple terms. You cannot claim water that you will not be able to use in the reasonably foreseeable future.

The only way to deal with such an issue about future water uses, is when a large dam is built to vest the interests of the basin States in the quantity of water claimed. A good example of this approach is the development of the proposed Noordoewer Vioolsdrift Dam on the lower Orange River. The Namibian interests is to secure the water supply for domestic use, mining and irrigation along the lower Orange River and the South African interests is to make the operation of the large dams in the upper reaches of the Orange River basin more efficient, by achieving higher yields. The investment in the construction of the dam, would be based on the quantity of water that each State will benefit from, thus maximizing the benefits, and achieving more water security by making the investment. In this way the yield available for Namibia and for South Africa will be secured in the agreement between the States.

The Rules also make provision that an existing reasonable use may continue in operation unless the factors justifying its continuance are outweighed by other factors leading to the conclusion that it be modified or terminated to accommodate a competing incompatible use. A use that is in fact operational is deemed to have been an existing use from the time of the initiation of construction related to the use or, where such construction is not required, the undertaking of comparable acts of actual implementation.

Such a use continues to be an existing use until such time as it is discontinued with the intention that it be abandoned. A use will not be deemed an existing use if at the time of becoming operational it is incompatible with an already existing reasonable use.

5.1.1.3 Pollution

The term "water pollution" as used in Rules, refers to any detrimental change resulting from human conduct in the natural composition, content, or quality of the waters of an international drainage basin. This issue is always a threat to a downstream basin State such as Namibia who is at the bottom end of the headwaters of all the perennial rivers flowing on the borders of the country. The Orange River is of particular concern because Namibia is “at the bottom end of the sewer” running from the industrial and mining heartland of South Africa to the Atlantic Ocean.

Therefore, consistent with the principle of equitable utilisation of the waters of an international drainage basin, a basin State must prevent any new form of water pollution or any increase in the degree of existing water pollution in an international drainage basin which would cause substantial injury in the territory of a co-basin State. Each State should take all reasonable measures to abate existing water pollution in an international drainage basin to such an extent that no substantial damage is caused in the territory of a co-basin State. This applies to water pollution originating within territory of the State, or outside the territory of the State if it is caused by the conduct of the State causing the pollutions.

In the case of a violation of the rule to avoid pollution, the State responsible shall be required to cease the wrongful conduct and compensate the injured co-basin State for the injury that has been caused to it.

In a case a State fails to take reasonable measures to terminate pollution, it shall be required promptly to enter negotiations with the injured State with a view towards reaching a settlement equitable under the circumstances.

5.1.1.4 Procedures for the Prevention and Settlement of Disputes

The Rules also relates to procedures for the prevention and settlement of international disputes taking the legal rights or other interests of basin States and of other States into consideration regarding the waters of an international drainage basin.

Consistent with the Charter of the United Nations, all member States are under an obligation to settle international disputes as to their legal rights or other interests by peaceful means in such a manner that international peace, security, and justice are not endangered.

States should resort progressively to the means of prevention and settlement of disputes stipulated. States are under a primary obligation to resort to means of prevention and settlement of disputes stipulated in the applicable treaties binding upon them and they are limited to the means of prevention and settlement of disputes stipulated in treaties binding upon them only to the extent provided by the applicable treaties.

With a view to preventing disputes from arising between basin States, each State is obliged to furnish relevant and reasonably available information to the other basin States concerning the waters of a drainage basin within its territory and its use of, and activities with respect to such waters.

A State, regardless of its location in a drainage basin, should in furnish to any other basin State, the interests of which may be substantially affected, a notice of any proposed construction or installation which would alter the regime of the basin in a way which might give rise to a dispute. The notice should include such essential facts as will permit the recipient to assess the probable effect of the proposed alteration.

A State providing such a notice of a planned measure should afford the recipient a reasonable period to assess the probable effect of the proposed construction or installation and to submit its views thereon to the State furnishing the notice. If a State has failed to give the notice, the alteration by the State in the regime of the drainage basin shall not be given the weight normally accorded to temporal priority in use in the event of a determination of what is a reasonable and equitable share of the waters of the basin.

In case of a dispute between States as to their legal rights or other interests, they should seek a solution by negotiation. If a question or dispute arises which relates to the present or future utilisation of the waters of an international drainage basin, the basin States could refer the question or dispute to a joint agency to survey the international drainage basin and to formulate plans or recommendations for the most efficient and beneficial use in the joint interests of all such States. The joint agency should be instructed to submit reports on all matters within its competence to the appropriate authorities of the basin States concerned and the agency should in appropriate cases invite non-basin States, which by treaty enjoy a right in the use

of the waters of an international drainage basin, to associate themselves with the work of the said agency or that they be permitted to appear before the agency.
If a question or a dispute is one which is considered by the States concerned to be incapable of resolution in the manner set forth, it is recommended that they seek the good offices, or jointly request the mediation of a third State, of a qualified international organisation or of a qualified person.
If the States concerned have not been able to resolve their dispute through negotiation or have been unable to agree on the measures recommended by the agency, it is recommended that they form a commission of inquiry or an ad hoc conciliation commission, which shall endeavour to find a solution, likely to be accepted by the States concerned about the dispute.
It is recommended that the States concerned agree to submit their legal disputes to an ad hoc arbitral tribunal, to a permanent arbitral tribunal or to the International Court of Justice if:

- A commission could not be established or
- The commission has not been able to find a solution or
- A solution recommended has not been accepted by the States concerned, or
- An agreement has not been otherwise arrived at.

In the event of arbitration, the States concerned have recourse to the Model Rules on Arbitral Procedure prepared by the International Law Commission of the United Nations at its tenth session b/in 1958.
Recourse to arbitration implies the undertaking by the States concerned to consider the award to be given as final and to submit in good faith to its execution.
The means of settlement referred to in the Rules are without prejudice to the utilisation of means of settlement recommended to, or required of, members of regional arrangements or agencies and of other international organisations.

5.1.2 The UN Waters Convention

5.1.2.1 Background

The International Law Association (ILA), a nongovernmental organization founded in 1873, has a consultative status with several United Nations (UN) agencies. The ILA's work on international water law began in 1954. The general principle of ILA's work is contained in Article 4 of the 1966 Helsinki Rules, which state that the equitable utilization principle governs the use of international drainage basin waters.
The International Law Commission (ILC) was established by the General Assembly in 1947 to undertake the mandate of the Assembly, under article 13(1)(a) of the Charter of the United Nations to "initiate studies and make recommendations for the purpose of encouraging the progressive development of international law and its codification".
In the late 1960s, the UN decided to assign the international water law topic to ILC for detailed study. In May of 1997, after more than quarter of a century of working on the topic and considerable discussion during the period 1991–1997 on the draft codification on international water law, the UN General Assembly adopted a framework convention on the Law of the Non-Navigational Uses of International Watercourses on 21st May 1997, widely known as the UN Watercourses Convention (UNWC). This Convention codified the principles of sharing international watercourses, building on the 1966 Helsinki Rules. The Convention came internationally into force on 18 August 2014 because more than 35 UN Member States ratified the document. Namibia signed the Convention on 19th May 2000 and is therefore a signatory. Parliament ratified the Convention on 29th August 2001, and it became part of Namibian international water law.
The Law of the Non-Navigational Uses of International Watercourses is elaborated in a users' Guide which has 273 pages. The Convention is presented in seven Parts and contains 34 Articles. Advice is also provided about Arbitration in an Annex with 39 Articles. The rest of the Guidelines provide a detailed explanation regarding the interpretation and understanding of the Articles. Guide can assist in fostering understanding between experts (lawyers and non-lawyers), in developing a common understanding of the applicable rules and principles to address issues regarding international watercourses.

5.1.2.2 Summary of the UN Waters Convention

The main aim of the UNWC is to overcome major obstacles due to the absence of detail legal and institutional frameworks, along with effective dispute resolution mechanisms and guidelines, to achieve cooperative management of transboundary water resources among the riparian countries.

Some of the key challenges in managing transboundary waters are adapting to climate change, changing river flow patterns, floods, and droughts, meeting growing water demands due to population increase, industrialization, increasing agricultural production fed by irrigation and ecological changes in the water environment. The Convention applies to uses of international watercourses and measures of protection, preservation and management related to those uses.

For the purposes of the Convention, "watercourse" means a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole, normally flowing into a common terminus. An "international watercourse" means a watercourse that is situated in more than one State and a "watercourse state" means a State Party to the Convention.

Nothing in the present Convention shall affect the rights or obligations of a watercourse State arising from agreements in force when it became a party to the Convention, but the parties to such agreements can adjust the agreements to harmonize them with the Convention. An agreement between some of the watercourse States will not affect the rights or obligations under the Convention of watercourse States that are not parties to such an agreement. Every watercourse State is also entitled to participate in the consultations and negotiations as well as to become a party to any watercourse agreement that applies to the entire international watercourse.

Watercourse States are obliged to use the watercourse in an equitable and reasonable manner to attain optimal and sustainable benefits, considering the interests of the other watercourse States concerned and the protection of the watercourse. All States must participate in the use, development, and protection of water resources in an equitable and reasonable manner, including the right to utilise the water and the duty to cooperate in the protection of the watercourse.

The factors relevant to equitable and reasonable utilisation in the Convention are like those in the Helsinki Rules but more emphasis is placed on the analysis of alternatives and the participation of all parties affected in negotiating different options and solutions.

Watercourse States shall take all appropriate measures to prevent the causing of significant harm to other watercourse States. If harm is nevertheless caused to another watercourse State, the States causing such harm shall take all appropriate measures, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, discuss the question of compensation.

Watercourse States shall cooperate, based on sovereign equality, territorial integrity, mutual benefit, and good faith to attain optimal utilization and adequate protection of an international watercourse. This can be achieved by the establishment of joint water commissions to facilitate cooperation on relevant measures and procedures. Namibia is party to such commissions established on all the rivers systems shared with the other riparian States.

All watercourse States have the obligation to cooperate based on sovereign equality, territorial integrity, mutual benefit, and good faith to attain optimal utilization and adequate protection of an international watercourse. Pursuant to this, watercourse States shall exchange readily available data and information on the condition of the watercourse, regarding the hydrological, meteorological, hydrogeological, and ecological conditions and issues related to the quality of the water originating in an upstream State.

No use of an international watercourse enjoys inherent priority over other uses and in the event of a conflict between uses it shall be resolved with reference to articles 5 to 7 of the Convention and having special regard for the requirements of vital human needs.

A State party to the Convention has an obligation to inform the other parties about its plans about using the water resources of a shared river system and possible effects on the condition of the watercourse. Such notification shall be accompanied by available technical data and information, including the results of any environmental impact assessment, to enable the notified States to evaluate the possible effects of the planned measures.

Here it should be noted that when Namibia conducted environmental studies on the development of the proposed Epupa and Baines dams on the Kunene, the proposed Noordoewer-Vioolsdrift dam on the Orange River and the recently completed Neckartal dam by informing the other watercourse states about the planned measures and requesting their participation in the environmental assessments. The same was also

done with the ENWC which will draw water from the Okavango River when the proposed pipeline link between Rundu on the Okavango and Grootfontein is completed. In the case with the studies on the Orange River, the challenge was to agree on the harmonization of the respective environmental policies and laws in each State and consensus was achieved by a joint decision to use the South African policy and legislation as the guideline and to negotiate outcomes in good faith and mutual acceptance.

The Convention provides procedures for the notification about planned measures without with adverse effects, the period within which an informed State should reply to the notification, extending the time to render a reply if the informed State requires more information, the obligation to supply such information if requested and what to do when there is no response.

The Convention also provides for cases where the urgent implementation of planned measures is required, especially when public health, public safety or other equally important interests are at stake. In such cases there must be a formal declaration of the urgency of the measures, information about the measures contemplated, the immediate implementation and consultations with any affected States to alleviate the consequences of such implementation.

Part 4 of the Convention deals with the protection and preservation of ecosystems, the prevention, control and reduction of pollution, the introduction of alien or new species in a shared watercourse system, as well as the protection and preservation of the aquatic environment at the terminus of a river system. The Convention also provides guidelines about the flow regulation in shared rivers and the operation of the flood control infrastructure.

In Part 5 of the Convention addresses harmful conditions and emergency situations. Watercourse States must take all appropriate measures to prevent or mitigate conditions that may be harmful,

resulting from natural causes or human conduct, such as floods, water- borne diseases, erosion, siltation, erosion, drought, or desertification. Emergency situations are imminent threats such as floods earthquakes or industrial accidents. The Convention recommend that watercourse States should jointly identify the potential threats and develop appropriate contingency plans to respond effectively.

Part 6 of the Convention deals with miscellaneous issues such as water infrastructure installations during armed conflict, the release of data and information compromising defence security and the protection of the interests of the people in a transboundary river system and the settlement of disputes.

The UNWC covers the basic international law principles regarding the management of international water resources which can briefly be summarised as the:

- Sovereignty principle: Each nation has the right to develop its own policies, laws and institutions and their own strategies for natural resources development and utilization.
- Transboundary principle: Upstream water users have a responsibility towards downstream water users, and vice-versa. This principle is in a sense the extension of the equity and precautionary principles across national borders.
- Equity principle: All people have basic rights of access to resources for their survival and development. Society should not be put at a serious disadvantage in this respect.
- Intergenerational principle: Future generations should not be deprived from access to an adequate resource base.
- User-pays principle: Users should pay the real cost of water services, considering the ability to pay. A different, and more contentious, principle is that water is an economic good, and that users should pay a tariff according to the economic value of water, if this is not conflict with the equity principle.
- Polluter-pays principle: Entities causing damage to the natural resources system should pay for the repair of damage.
- Precautionary principle: Governments are obliged to protect citizens against risks and from disasters, even if the precise effects have not yet been unequivocally established by scientific proof. This principle aims to prevent or reduce pollution by specific `new' pollutants and to preclude irreversible changes to ecosystems.
- Prevention principle: Where there is scientific proof of the cause-effect relationship between pollutants and unacceptable conditions, measures must be taken to prevent or rectify the situation.

- Precautionary principle: Preventive action should not be delayed on the grounds of lack of scientific information proving conclusively that there is an unacceptable situation.
- Stand-still principle: Areas and nature reserves that are in ecological equilibrium should not be allowed to deteriorate.
- Polluter Pays principle: A polluter must pay for the pollution caused.
- Sustainable development: Countries should cooperate to find the most cost effective and affordable solutions to solving unacceptable water misuse and environmental damage.

5.2 Regional Water Treaties

5.2.1 SADC Water Protocols

The Protocol on Shared Watercourse Systems in the Southern African Development Community (SADC) Region was signed on 28 August 1995, Johannesburg, South Africa, by His Excellency the President of the Republic of Namibia, Dr Sam Nujoma. It was ratified on 2 July 1997. The Protocol entered into force in the SADC on 29 September 1998. The main objective of the Protocol is to describe the general principles for the equitable, reasonable, and environmentally sustainable utilization of internationally shared watercourse systems in the SADC Region. The Protocol calls for cooperation between the basin States party to the Agreement and encourage the establishment of river basin institutions for the effective implementation of the provisions of the Protocol.
The main objectives and functions of the river basin institutions are also elaborated with reference to policy, legislation, utilization of water, planning and development of infrastructure, research, pollution control, water quality monitoring, data management and environmental matters.
Provision is also made for general matters such as amendments to the Protocol, dispute resolution, withdrawal, and entry into force.
In view of the adoption of the UN Waters Convention in 1997 and the fact that the first Protocol only entered into force in 1998, it was decided to revise the Protocol by incorporating the applicable articles in the Convention to strengthen the Protocol. The 1995 Protocol will therefore not be further elaborated here.

5.2.2 The Revised Protocol on Shared Watercourses

The Revised Protocol on Shared Watercourses of the Southern African Development Community repeals and replaces the 1995 Protocol on Shared Watercourse Systems. This Protocol recognises international consensus on several concepts and principles related to water resource development and management in an environmentally sound manner.
The policy acknowledges the Helsinki Rules, the UN Convention on the law of the Non-Navigational Uses of International Watercourses and Agenda 21 concepts and facilitates the establishment of shared water agreements.
The scarcity of water restricts economic development and social upliftment in the SADC region. Successfully managing water resources in southern Africa will contribute to reaching SADC's vision of sustainable development in the region:
The people of southern Africa call for a desirable future in which the region's environment is conserved among all the competing uses of water, recognising the constraints inherent in natural ecosystems so that the environment can be sustainably improved, used and managed in the spirit of social and environmental justice.
The Protocol aims to foster closer cooperation for judicious, sustainable, and coordinated management, protection and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation. In order to achieve the objective, this Protocol, by virtue of Article 2, seeks to promote and facilitate the establishment of shared watercourse agreements and shared watercourse institutions for the management of shared watercourses; advance the sustainable, equitable and reasonable utilisation of the shared watercourses; promote a coordinated and integrated environmentally sound development and management of shared watercourses; promote the harmonisation and monitoring of legislation and policies for planning, development, conservation, protection of shared watercourses, and allocation of the resources thereof; and promote research and technology development, information exchange, capacity building, and

the application of appropriate technologies in shared watercourses management. Recognising the principle of the unity and coherence of each shared watercourse, SADC states undertake to harmonise the water uses in the shared watercourses and to ensure that all necessary interventions are consistent with the sustainable development of all watercourse states and observe the objectives of regional integration and harmonisation of their socioeconomic policies and plans. The utilisation of shared watercourses (including agricultural, domestic, industrial, navigational, and environmental uses) within the SADC region is open to each watercourse state, in respect of the watercourses within its territory and without prejudice to its sovereign rights, in accordance with the principles contained in the Protocol. Member states are obliged to respect the existing rules of customary or general international law relating to the utilisation and management of the resources of shared watercourses. According to Article 3.4 of the Protocol, member states commit themselves to maintain a proper balance between resource development for a higher standard of living for their people and conservation and enhancement of the environment to promote sustainable development. Watercourse states in their respective territories undertake to utilise a shared watercourse in an equitable and reasonable manner considering the interests of the watercourse states concerned, consistent with adequate protection of the watercourse for the benefit of current and future generations, and they participate in the use, development, and protection of a shared watercourse in an equitable and reasonable manner. Such participation includes both the right to utilise the watercourse and the duty to co-operate in the protection and development thereof, as provided in this Protocol. Furthermore, the Protocol states that member states must 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 is to take all appropriate measures to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation. Disputes between member states regarding the interpretation or application of the provisions of the Protocol which are not settled amicably, are to be referred to the SADC Tribunal under the SADC Treaty.

The Protocol established several SADC water sector organs (Committee of Water Ministers, Committee of Water Senior Officials, Water Sector Coordinating Unit, and Water Resources Technical Committee and sub-committees) and shared watercourse institutions. The Committee of SADC Water Ministers met in Maseru, Lesotho, in September 2011, where it has been stated that:

as droughts and floods, thus necessitating coordinated management of our shared water courses and resources. For the SADC region with its multiplicity of shared watercourses, issues of cooperation and joint planning and management of the development and utilisation of our shared resources is of paramount importance.

5.3 Agreements to Manage Shared Water Resources

In every river basin there are upstream and downstream States. All States have their expectations about using the water in their territories in the basin and downstream States have their fears about the magnitude of consumptive use of water for development in the upstream States. The way to manage that is basically to do joint studies to determine the yield of the available water sources and the most probable water using developments in each State. The management of shared transboundary water resources is accomplished through joint water commissions established between the relevant basin States and guided by international water law principles, regional integration bodies such as SADC, the SADC Water Sector Division, and the African Ministers' Council on Water (AMCOW). Various bilateral and multilateral water commissions have been established,80 in the SADC region and as far as Namibia is concerned, almost all the Agreements included in the discussion below have been ratified and forms part of the law of Namibia because they are part of the general rules of public international law and are international agreements binding upon Namibia under the Constitution.

The main purpose of a water commission is to advise the basin States about the sustainable development of water resources in a shared river basin, but they are not bodies that implement water infrastructure development. They may facilitate joint studies to determine the development potential of the resource base of the basin, including its people. This work is called a diagnostic assessment of the prevailing and future development possibilities and the water requirements as well as the interventions required to supply in the water demand without compromising environmental concerns beyond the agreed mitigating measures identified. A commission would normally appoint a consultancy to do the work while staff of each of the

relevant Government Ministries or Departments (i.e., Water, Agriculture, Justice, Foreign Affairs) in each State will also participate in the work and in this way the work is done on a joint basis and the reports on the results would be agreed and uncontested between the staff involved.
A diagnostic assessment is followed up by a strategic action plan for the river basin and that provides a framework within which each basin State can do its conservation duties and anticipated water developments while the other States will be aware of those developments. The duty of the Commission is to monitor the developments and jointly advise the Governments about the progress with the ongoing monitoring and development activities. In this context each State will be informed about the planned measures of the other States and hopefully remove the sting of the scorpion on the political front.

5.3.1 Water Commission Institutional Structure

The structure of each water commission is different, but a generic structure is shown in Figure 6.1 to facilitate an explanation of how a commission function. The basin States party to the agreement that established a water commission is represented as “Basin Sates” at the top in in the organogram. In the SADC, the number of basin states can vary between two states on the Kunene (Angola and Namibia) and eight states on the Zambezi (Angola, Botswana, Malaŵi, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe.)
When a commission took a joint decision, the leader of each delegation in the commission must report this joint decision to its government and the path normally goes through the office of the head of the water ministry/department to the water minister’s office and further to cabinet for a decision or approval. Although this method is appropriate in theory, there may be technical issues that get lost on the way because not all people that get informed are technical people. To make sure that the same joint decision is conveyed in the same way to all the ministers it became necessary to invite the ministers of the different states to a joint meeting where everybody present gets informed by the same message. This activity is represented by the “Council of Ministers” and provides the opportunity to get the responsible ministers together with the commission to discuss the proposal, answer questions and obtain contributions from each minister present. At the end of the day the proposal is technically really a joint proposal adopted by consensus by all the basin states.

The “Commission” comprises the members of the delegations from each state and is normally limited to three and one member of each delegation is the leader of a delegation. The members are supposed to be experts in the various disciplines they bring to the table, e.g., an economist, a lawyer, a scientist, or an engineer. The delegation may also comprise additional technical staff, such as engineers, scientists, hydrologists, environmentalists, or other experts as required from different ministries/departments when certain issues must be discussed in greater detail.
From the above it is clear that the civil servants in a government represented in a commission, cannot do the work that may be required on top of their normal duties at home. That is why a commission has a Secretariat that operates on behalf of the different governments. The “Commission” in the Figure 13.5 has full time administrative and limited technical staff in the “Secretariat” and they deal with the “Technical Committees”, “Cooperating Partners” and any joint “Operating Authority” in the river basin. The technical committees comprise staff from the water departments in each state, or consultants. The cooperating partners are the funding agencies, donors, non-governmental organizations, consultants etc and their activities are coordinated by the secretariat. The administrative duties of the “Secretariat” are to organize meetings, workshops, coordinate activities and do general administrative duties. Some secretariats may also be tasked to provide services to any joint “Operating Authority” that is responsible, for example, the operation of a joint hydropower plant or irrigation project. Here it should be noted that the commission or secretariat do not operate the schemes, but their duties are limited to the monitoring of water use and other activities in the basin, such as environmental issues and communicating with the communities in the basin.

5.3.2 The Kunene River Agreements

5.3.2.1 Joint Commission of Cooperation between Angola and Namibia

Since 1886 two border agreements and five water use agreements have been concluded between the Colonial Powers before Namibia became independent in 1990. The first border agreement was between Germany and Portugal and the second between Portugal and the Union of South Africa who was appointed

as the mandatory for territory of German Southwest Africa. (In essence, South Africa was never a "colonial power" regarding Namibia).
After the independence of Namibia, it became necessary to renegotiate the existing Kunene agreements to enable the continuation of the Kunene development project that commenced in 1969 but was on hold since 1973 when the civil war broke out in Angola before the independence of Angola in 1975.
This resulted in an Agreement between the Governments of the People's Republic of Angola and the Republic of Namibia to establish the Angola-Namibian Joint Commission of Cooperation (JCC), signed on 18 September 1990 in Lubango, Angola . Although the agreement was only ratified on 2nd July 1997 it entered into force immediately due to the cordial relations between the parties.
The JCC agreed at its first meeting to endorse and affirm the previous border and water use water agreements between the Colonial Powers, i.e., Germany, Portugal, and South-Africa on the borders between Angola and Namibia, as well as development of the Kunene Scheme.

5.3.2.2 Terms of Reference and Constitution of the Permanent Joint Technical Commission

The Terms of References and Constitution of the Permanent Joint Technical Commission (PJTC) for the Cunene River was drafted and agreed upon on 18 September 1990 in Lubanga, Angola, pursuant to the provision of Article 2.2 of the Third Water Use Agreement for the Kunene River signed on 21 January 1969 in Lisbon, Portugal.
The PJTC was instrumental in the development of the Kunene Project which entailed the construction of three dams in Angola: the Gove Dam, the Calueque Dam, and the Ruacana Diversion Weir, as well as the Ruacana Hydropower Plant in Namibia at the Ruacana Falls. The purpose of Gove Dam is to impound the summer rainfall and to release the water on a continuous basis during the year to provide water to the hydropower station at the Ruacana Falls. The purpose of the Calueque Dam is to regulate the weekly flow to Ruacana and supply water that is pumped into canal taking the water into northern Namibia. The purpose of the Weir at Ruacana is to divert water into the generators in the underground power station to generate electricity during the whole year.

5.3.2.3 The First Border Agreement

This Agreement between the Governments of Germany and Portugal is about respecting the Limits of their respective Possessions and Spheres of Influence in Southern Africa. Signed on 30 December 1886 in Lisbon, Kingdom of Portugal. by the Envoy Extraordinary and Minister Plenipotentiary, Councillor Richard von Schmidthals and Secretary of State of Foreign Affairs, Councillor Henrique de Barros Gomes.
This agreement was ambiguous and open for interpretation because it said that the Kunene will be the border between the two territories and although the agreement said that the middle of the Kunene (or the deepest valley in the river) would be the centre line of the border, it failed to define exactly where the border line from the coast, along the border line into the interior would end.

5.3.2.4 Second Border Agreement

Agreement between the Government of the Union of South Africa and the Government of the Republic of Portugal in relation to the boundary between the mandated Territory of Soutwest Africa and Angola. The South African Authorities at the negotiations about the border wanted the border to run along the middle of the Kunene River from the coast to a point, more or less where the Calueque dam had been built on the Kunene. The Portuguese authorities wanted the line along the river to start at the coast but stop at the top of the Ruacana Falls. The Germans were originally against this position because that would mean that they had to elevate water more than 400 m (metres) from a position downstream of the said falls into Ovamboland while the difference in elevation at Calueque would only be about 20 m. The South African authorities supported this view of the Germans for the same reason, but the South African Authorities then agreed that the border may start at the top of the Ruacana Falls, provided that the border agreement must reflect a compromise that South Africa will have access in perpetuity to a more favourable point upstream of Ruacana for the abstraction of water from the Kunene (at Calueque). At the end of the negotiations, it was agreed to keep the border starting at the top of the said falls in exchange for South Africa having access to the Calueque dam site in Angola in perpetuity, but the Portuguese Authorities then insisted that there must be a separate Border Agreement and a separate Water Use Agreement. The South African delegation failed to notice that the concessions made about the border and access to the water in the two separate agreements were not

reflected in both agreements. This has been a bone of contention and falls in the same category as the agreement on the border between South Africa and Germany on the Orange River where one party was ill prepared and was swindled by the other party.

5.3.2.5 The First Water Use Agreements

The First Water Use Agreement (together with the Second Border Agreement) between the Government of the Union of South Africa and the Government of the Republic of Portugal was signed on 1 July 1926 in Cape Town, Union of South Africa. The agreement dealt with the use of the water of the Kunene River for purposes of generating hydraulic power, as well as the "inundation" and irrigation in the Mandated Territory of Southwest Africa.

5.3.2.6 Second Water Use Agreement

The Second Water Use Agreement between the Government of the Republic of South Africa and the Government of the Republic of Portugal dealt with "rivers of mutual interest" and the Cunene River Scheme. This agreement dealt with "rivers of mutual interest" and "the Kunene River Scheme". The agreement set out general principles for mutually beneficial water management and "best joint utilisation". The activities envisaged comprised technical collaboration, including sharing hydrological and other data, as well as further negotiation on major schemes. In addition, this Agreement set out the basis for further work on specific schemes on the Kunene, namely pumping water for use in Ovamboland, more electrical power from Matala for Southwest Africa and the principle to build a hydroelectric power plant at Ruacana.

5.3.2.7 Third Water Use Agreement

This detailed Water Use Agreement between the Government of the Republic of South Africa and the Government of Portugal regarding the first phase development of the water resources of the Kunene River Basin was negotiated and drafted in Lisbon by the South African and Portuguese delegations from 7 to 10 October 1968 and agreed upon by means of an exchange of notes signed on 21 January 1969 in Lisbon, Portugal.

The agreement detailed works to be carried out in the first phase and these included to:

- Regulate of the flow of the Kunene by means of dams at Gove and Calueque in Angola and a diversion Weir at Ruacana in Namibia.
- Increase the power generation capacity at the existing Matala dam on the Kunene in Angola.
- Supply water for humans, livestock and irrigation in the middle Kunene area in Angola.
- Supply water to northern Southwest Africa for humans, livestock, and irrigation in Ovamboland, today known as the Omusati, Oshana, Ohangwena and Oshikoto Regions.
- Develop a 240 Megawatt (MW) hydroelectric power station at Ruacana. This facility has recently been upgraded to generate 347 MW.

The agreement established a Permanent Joint Technical Commission (PJTC) to act in an advisory capacity to the respective Governments about the construction and operation of the Kunene scheme, as well as the financing arrangements for the various components of the schemes. This mandate was later extended to include the management of the whole Kunene Basin.

5.3.2.8 Fourth Water Use Agreement

This is an agreement between the Governments of the People's Republic of Angola and the newly independent Republic of Namibia to endorse and affirm the old agreements between the Colonial Powers, (Germany, Portugal, and South Africa), to re-establish the PJTC and the Joint Operating Authority on the Kunene River. It was signed on 18 September 1990 in Lubango, Angola. It was ratified by Parliament on 2 July 1997. This was agreement was unique in the world because it endorsed the principles of the previous three water use agreements with specific aims to:

- Establish a joint operating authority on the Kunene.
- Ensure the maximum beneficial regulation at Gove Dam.

- Ensure the continuous operation and adequate maintenance of the water pumping works at Calueque Dam and the diversion weir at Ruacana.
- Task the Permanent Joint Technical Commission to evaluate the development of further hydroelectric schemes on the Kunene River to accommodate the present and the future needs for electricity in both countries.

5.3.2.9 Fifth Water Use Agreement

Protocol of Agreement between the Government of the People's Republic of Angola and the Republic of Namibia on the Development of a Hydro-electric Generating Scheme, in principle, on the Kunene River. It was signed on 24 October 1991 in Lubanga, Angola.

This agreement is pursuant to Article 2 of the Fourth Water Use Agreement of 1990 and laid the foundation for further studies to develop a new hydroelectric scheme proposed on the Kunene River at Epupa. The PJTC was instructed to prepare a pre-feasibility study report about the technical and economic feasibility of such a scheme, inclusive of environmental and ecological studies, to advise the respective Governments about the implementation of such a facility.

The proposed scheme at Epupa met with great opposition by the environmental lobby and an alternative site at Baynes is most probably the most viable to implement.

5.3.3 The Okavango River Agreement

5.3.3.1 Permanent Okavango River Basin Water Commission (OKACOM)

Agreement between the Governments of the Republic of Angola, the Republic of Botswana, and the Republic of Namibia, on the establishment of a Permanent Okavango River Basin Water Commission (OKACOM). The Agreement was signed on 15 September 1994, Windhoek, Namibia. The Agreement was Ratified on 2 July 1997.

5.3.4 The Orange River Agreements

In 1987, shortly before Namibia became independent, a Joint Technical Committee (JTC) was established between the Republic of South Africa and the Transitional Government of National Unity of Southwest Africa/Namibia. The purpose of the JTC was to support the activities of the irrigation farmers in Namibia and South Africa where the Orange River was contiguous along the border between the two countries, and specifically at the Joint Noordoewer-Vioolsdrift Irrigation Scheme. In 1992, two years after Namibia became independent, the JTC was replaced by the Permanent Water Commission (PWC) between Namibia and South Africa.

There are at present three Water Commissions on the Orange River. They are the bilateral Lesotho Highlands Water Commission (LHWC) between Lesotho and South Africa, the bilateral PWC between Namibia and South Africa and the multilateral Orange-Senqu River Commission (ORASECOM) between Botswana, Lesotho, Namibia, and South Africa. See Figure 13.6.

The LHWC is responsible for the management of the Lesotho Highland Water Project and oversight of the Trans-Caledon Tunnel Authority (TCTA) which must plan, finance, implement and operate sustainable and accessible water resource infrastructure. The TCTA was originally established as a special purpose vehicle to fulfil South Africa's treaty obligations in respect of the Lesotho Highlands Water Project.

At a PWC meeting between Namibia and South Africa in Swakopmund, Namibia, in May 1995 the Namibian Delegation proposed that a basin wide Orange River Basin Water Commission must be established between the four basin States, Botswana, Lesotho, Namibia and South Africa. It was agreed by the PWC to write a joint letter in which the said proposal was presented to all the Orange River basin Governments. It was further agreed that South Africa would approach Lesotho and Namibia would approach Botswana, respectively through the existing bilateral commissions between Botswana and Namibia and between Lesotho and South Africa. This proposal was met with mixed feelings but was again mooted by Namibia at a SADC Water Ministers meeting in Cape Town in 1997. Minister Kader Asmal of South Africa took the lead to support the proposal by Namibia and with the support of the other Ministers, Namibia was appointed to "make it happen" by preparing a draft treaty for consideration. This led to the establishment of the Orange-Senqu River Commission (ORASECOM).

The establishment of ORASECOM was indicative of the endeavours of the basin States to cooperate and this facilitated huge interest by many cooperating partners to support the Commission with studies, capacity building and development. The ORASECOM has a Secretariat, stationed in Pretoria, South Africa, to coordinate all the activities of the Commission in the respective countries. On 3 November 2020, the ORASECOM was 20 years old.
The ORASECOM agreement was revised and signed on the 18 December 2018. Copies of the original and revised agreements can be obtained from the DWA or the ORASECOM Secretariat.

5.3.5 Joint Technical Committee

Three years before the independence of Namibia an Agreement of Cooperation was reached between the Transitional Government of National Unity of Southwest Africa/Namibia and the Government of the Republic of South Africa regarding the control, development and utilization of the water of the Orange River The agreement was signed on 13 November 1987 in Windhoek, Namibia. The agreement provided for the establishment of a Joint Technical Committee (JTC) to serve as an interim arrangement for the management of the lower Orange River until Namibia became independent. The purpose of the JTC was to make recommendations to the two Governments about the abstraction and allocation of water from the lower Orange, the creation and maintenance of water supply infrastructure of joint interest, the prevention of pollution and control over the abstraction of allocated water. What is important to note is that although the boundary along the lower Orange was ambiguous, South Africa conceded that Namibia is in principle entitled to utilize water from the Orange River because Namibia is a co-riparian, basin State.

5.3.6 Permanent Water Commission

Agreement between the Governments of the Republic of Namibia and the Republic of South Africa on the establishment of a Permanent Water Commission (PWC) on water matters of mutual interest (but concentrating at present on the lower Orange River). The Agreement was signed on 14 September 1992 at Noordoewer, Namibia and Ratified on 2 July 1997. The objective of the Commission is to act as technical adviser to the Parties on matters relating to the development and utilisation of water resources of common interest to the Parties and shall perform such other functions pertaining to the development and utilisation of such resources as the Parties may from time to time agree to assign to the Commission. The functions and powers of the Commission are to advise the Parties on the reasonable demand for water from common water resources; investigations, separately or jointly by the Parties, related to the development of any water resource of common interest including the construction, operation and maintenance of any water works in connection therewith; the prevention of and control over the pollution of common water resources, soil erosion affecting such resources, etc. The Commission conducted several studies and projects on the lower Orange to support the activities of the Joint Irrigation Authority (JIA), the maintenance of the canal system, and two Joint Feasibility studies between South Africa and Namibia on the management of the Lower Orange River and the development of a dam on the lower Orange, about six kilometres upstream from Noordoewer. The estimated cost of the different dam options is between 4,9 and 3,3 billion Namibian Dollar/South African Rand.

5.3.7 Vioolsdrift and Noordoewer Joint Irrigation Scheme

The agreement between the Governments of the Republic of South Africa and the Republic of Namibia on the Vioolsdrift and Noordoewer Joint Irrigation Scheme (on the lower Orange River) was signed on 14 September 1992 at Noordoewer, Namibia. The agreement was Ratified on 2 July 1997.
The irrigation scheme was completed in 1935 and built during the depression in South Africa. Water is diverted by a weir, located upstream from the irrigation scheme in the Orange River, into a canal system that starts on the South African side of the river and criss-cross the river to reach irrigation fields on the northern and southern banks of the river in Namibia and South Africa. Although the canal system starts at the weir on the South African side of the river, the irrigation fields are on both banks of the river, and it is imperative that the farmers on both sides of the river must work together to operate and maintain the water supply infrastructure. Therefore, the agreement also established a JIA which reports to the PWC.

5.3.8 Orange-Senqu River Commission (ORASECOM)

This is an agreement between the Governments of the Republic of Botswana, the Kingdom of Lesotho, the Republic of Namibia, and the Republic of South Africa on the establishment of the Orange-Senqu River Commission (ORASECOM). It was signed on 3 November 2000 at Okapuka, Namibia. by Honourable Minister Helmut Angula, Minister of Agriculture, Water and Rural Development of the Republic of Namibia. Ratified on 06 June 2001. The driving force behind the establishment of ORASECOM was the Namibian delegation to the PWC between South Africa and Namibia where Namibia proposed the establishment of a basin-wide Orange River water commission. The South African delegation was not very enthusiastic about the proposal because it was argued that Botswana makes no contribution to the flow of the Orange although it is basin State, but Namibia prevailed and the ORASECOM was established.

5.3.9 Revised Orange-Senqu River Commission Agreement

Revised Agreement between the Governments of the Republic of Botswana, the Kingdom of Lesotho, the Republic of Namibia, and the Republic of South Africa on the establishment of the Orange-Senqu River Commission (ORASECOM) was signed on 14 December 2018 at Maseru, Lesotho. This agreement is in the process of ratification.

The main reason for the revision is the adjustments to the structure of the commission to accommodate the Forum of the Parties, the Council of Commissioners, Task Teams, and the Secretariat.

6.5.1 The Zambezi River Agreements

6.5.1.1 Joint Permanent Water Commission (JPTC)

This is an agreement between the Governments of the Republic of Botswana and the Republic of Namibia on the establishment of a Joint Permanent Water Commission (JPWC) (The name changed from Committee to Commission.). It was signed on 13 November 1990, Windhoek, Namibia and Ratified on 2 July 1997. The agreement relates to water matters of common interest and concentrated its activities mostly on the Kwando – Linyanti – Chobe River System that is a tributary of the Zambezi River forming the border between Botswana and Namibia in the eastern part of the Caprivi Region in Namibia.

The main purpose of the Commission was to attend water matters of common interest and a research project in the Eastern Caprivi between Botswana and Namibia to control the Kariba Weed (Salvinia molesta) infestation in the Quando-Linyanti-Chobe River system which is a tributary of the Zambezi River. The weed was brought under control by a research project to test the introduction of a weevil (Cyrtobagous salviniae) for biological control. The weevils eat the leaves of the weed but prefer the buds. Its larvae eat the roots, rhizomes, and the buds. As the plants die, they turn brown and sink to the bottom of the waterway where they decompose. The project reduced the area of the plant mats on the water, but the weevils die when they have eaten all the weeds, and they must be continuously bred to replace those that died, which means it is a never-ending project.

The Commission concentrated its work on Policy and a Legislative Review of Wetland Use and Management in Namibia. They concentrated mostly on the Kwando – Linyanti – Chobe River System. The JPWC was also instrumental in getting the Okavango River basin States together to establish a basin wide Commission on the Okavango.

The JPWC became inactive due to the Kasikili/Sedudu Island border dispute between Namibia and Botswana and the fact that the OKACOM that was established in September 1994, took over the responsibility of advising the respective governments on issues and developments related to the Okavango River. The negotiations leading to the establishment of the Zambezi River Commission (ZAMCOM) further reduced the need for the JPWC to meet because the Kwando – Linyanti – Chobe River System is a tributary of the Zambezi River and can therefore be included under the ZAMCOM.

6.5.1.2 The Zambezi Watercourse Commission (ZAMCOM)

Agreement between the Governments of the Republic of Angola, the Republic of Botswana, the Republic of Malawi, the Republic of Mozambique, the Republic of Namibia, the United Republic of Tanzania, and the Republic of Zimbabwe on the establishment of the Zambezi Watercourse Commission (ZAMCOM). It was signed on 13 July 2004 in Kasane, Botswana and ratified on 15 March 2005.

The objective of the Commission is to promote the equitable and reasonable utilization of the water resources of the Zambezi Watercourse as well as the efficient management and sustainable development thereof. To that end the Commission shall have the following functions:

- collect, evaluate, and disseminate all data and information on the Zambezi Watercourse as may be necessary for the implementation of this Agreement.
- promote, support, coordinate and harmonise the management and development of the water resources of the Zambezi Watercourse.
- advise Member States on the planning, management, utilization, development, protection and conservation of the Zambezi Watercourse as well as on the role and position of the Public regarding such activities and the possible impact thereof on social and cultural heritage matters.
- advise Member States on measures necessary for the avoidance of disputes and assist in the resolution of conflicts among Member States regarding the planning management, utilization, development, protection, and conservation of the Zambezi Watercourse.
- foster greater awareness among the inhabitants of the Zambezi Watercourse of the equitable and reasonable utilization and the efficient management and sustainable development of the resources of the Zambezi Watercourse.
- co-operate with the institutions of SADC as well as other international and national organisations where necessary.
- promote and assist in the harmonization of national water policies and legislative measures.
- carry out such other functions and responsibilities as the Member States may assign from time to time; and
- promote the application and development of this Agreement according to its objective and the international water law principles in the UN Conventions and the Revised SADC Protocol on Shared Watercourses

6.5.2 Cuvelai Watercourse Commission

Agreement between the Governments of the Republic of Angola and the Republic of Namibia on the establishment of the Cuvelai Watercourse Commission (CUVECOM), signed on 16 September 2014 in Windhoek, Namibia. This agreement is in the process of ratification.

The Commission is developing a bulk water supply project in the Cuvelai basin in southern Angola. It is a project that is similar like the water distribution pipeline network in northern Namibia and the pipelines in Angola will at the beginning be supplied from Calueque Dam in Angola, via the Namibian canal and pipeline system, crossing the border at Oshikango in Namibia to Santa Clara in Angola to link up with the Angolan water supply distribution network to numerous small communities.

7. Integrated Water Resources Management Plan

The main objective of an Integrated Water Resources Management Plan (IWRMP) is to achieve a sustainable water resources management regime and adequate infrastructure contributing to social equity, economic efficiency and environmental sustainability. An IWRMP is not a plan to develop a specific water project but to implement a comprehensive plan to address all the relevant activities that will ensure sustainable management of water resource use, water supply services and effluent disposal, as well as addressing capacity building activities and funding requirements. This includes all water that is used for personal hygiene, sanitation, stock and wildlife drinking, industry, mining, and irrigated agriculture.

In 2004 the Government launched Vision 2030 for Namibia. This provides the overarching framework for the development of Namibia with the main goals to improve the quality of life of its people and achieving the status of a developed country by the year 2030.

The IWRM plan was conceived in November 2004 when the Global Water Partnership in Southern Africa hosted a workshop at a Symposium in Windhoek where the concept and implementation of an integrated water resource management plan (IWRMP) for each country in Southern Africa was introduced and encouraged.

In early 2006 the Namibian delegation who attended a meeting of the African Minister's Council on Water (AMCOW) had discussions with representatives of the African Development Bank (AfDB) to obtain assistance for Namibia to develop an IWRMP. The AfDB offered funding and in April 2006 the Namibia Water Partnership hosted a planning workshop to discuss the implementation of an IWRMP. This led to the preparation of a proposal for the development of an IWRMP on behalf of the DWA Fin the Ministry of Agriculture, Water and Forestry (MAWF). The DWA submitted the document to the AfDB for consideration and in May 2007 an Agreement was signed between the AfDB and the DWA to fund the preparation of the IWRMP. This funding enabled the DWAF to retain a consortium of consultants led by Windhoek Consulting Engineers (WCE), in close cooperation with the Ministry of Agriculture, Water and Forestry (at that time) and the Namibian National Water Partnership. The IWRMP for Namibia was completed in 2010 and the 1993 WASP, the 2000 NWP and 2008 WSASP, as well as the existing Water Act and the not yet in force 2004 WRMA were reviewed to determine to what extent the adopted policies support the preparation and implementation of the proposed IWRMP.

The existing water policies and water development plans of service providers such as NamWater, the Directorate Rural Water Supply in the DWA, the Local and Regional Authorities, as well as the plans of the basin management committees, were assessed and taken into consideration during the preparation of the national IWRMP. The IWRMP also called for regional IWRM plans. At present the four Regions in northern Namibia, Ohangwena Oshana, Omusati and Oshikoto, where half of the population of Namibia lives, have a Regional IWRMP in place. Government adopted the IWRMP in 2012. The IWRMP addressed all aspects of water management by means of themes that are elaborated in detail in the plan. The objectives and actions required in IWRM to address the issues were grouped in the following themes:

- Policy, legislation, regulations, and procedures.
- Institutional support for water administration, infrastructure development and financial management.
- Capacity building for engineers, scientists, technicians, artisans, and labourers.
- Stakeholder involvement and awareness about resource use and infrastructure maintenance.
- Groundwater, surface water and unconventional water are assessed to enable sustainable management.
- Knowledge management through data collection, monitoring of resources and demand.
- Monitor the effects of climate change, droughts, and floods.
- Water demand management and water use efficiency.
- Sanitation and effluent discharge control to protect aquatic ecosystems and the environment.
- Investment to facilitate IWRM.

The overall goal in addressing water resources management is sustainability. Planning and implementation of IWRM is not a linear exercise but it is cyclical and must be accompanied by regular evaluation, assessment of progress and re-planning.

A wealth of knowledge exists about the climate, rainfall, runoff, surface water and groundwater resources. Information has been gathered over more than a hundred years including measurements, investigations and research by scientists and engineers. Namibia has been able to meet the growing demand for water to sustain development through innovation and exceptional ingenuity. There is no reason to believe that this could not be maintained with the proper development of human resources and adequate financial investments.

The country has a huge body of experience in the planning, design, construction and operation of water infrastructure development operation and maintenance. Water awareness training, water demand management, community participation and an acute knowledge of the need to be on top of technological developments to maintain access to adequate supplies of water of an acceptable quality for different kinds of uses.

The practical implementation of the proposed IWRMP will ultimately depend on the organizational efficiency of the existing water sector institutions in place, the capacity of the human resources employed in those institutions and the financial resources made available. However, the implementation of water management activities at the community level should receive priority attention to succeed with the IWRMP.

It is essential that the legal framework must be in place and enforced. Although there are good policies, these need implementation, effective legal backing, and competent administration to enforce the control over

water issues by the DWA. Essential role players such as the Water (and Sanitation) Advisory Council and the Water Regulator are key to the success of IWRM.

Integrated water resources management is an important responsibility of all stakeholders in the water sector, i.e., all water service providers, related management and governance entities and all water users in Namibia. Effective stakeholder participation at all levels is required in all decisions concerning water resources allocations and management, with the focus of capacitating stakeholders for managing specific water resources activities, thus ensuring ownership and overall responsibility.

Water Demand Management (WDM) is a fundamental part of an integrated approach to the sustainable management of the water sector and contributed significantly to avoid disaster to a lack of water availability in 1980, 1997, 2014 and 2019. Within the Namibian context the WDM strategy attempts to improve cost recovery, the management and maintenance of infrastructure and the reduction of inefficient consumer demand to reduce the pressure and reliance on conventional water resources as well as infrastructure operation and maintenance. This, in turn, results in a net financial benefit to the supplier as well as its customers and serves the protection of the water environment.

Capacity building and institutional development are essential elements for implementation of IWRM in Namibia. IWRM capacity building must be focused on all stakeholders to ensure effective and balanced water use and water resource conservation for water resource security.

Information systems must be strengthened to keep them relevant and up to date. Funding is crucial to a successful IWRM Plan. In analysing the possible options and instruments available to Namibia for developing a funding strategy there are several approaches and instruments available, domestically as well as internationally. Namibia has come a long way in creating the enabling environment necessary for ensuring that the investments to be made in the WSS can be mobilised, but there are however several issues that are critical to the feasibility of any investment programme and associated funding strategy which must be incorporated into future financial planning. The current underperformance of service providers in terms of financial management must be addressed as a matter of urgency. Namibia is wasting valuable and scarce resources through financial mismanagement. Funds from central government that could be utilised to finance Water Supply and Sanitation programmes and projects are being utilised to finance bad debt.

The overall goal in addressing water resources management is sustainability. Planning and implementation of IWRM is not a linear exercise but it is cyclical and must be accompanied by regular evaluation, assessment of progress and re-planning.

The water sector objectives are specifically aligned to the Poverty Reduction Strategy and the National Poverty Reduction Action Programme. The WRMA-11 is based on IWRM principles and provides overall guidance in the water and sanitation sector. The overarching goals for the water sector are also fully aligned to meeting the Millennium Development Goals (MDG) and the sub regional goals articulated in the Revised SADC Protocol on Shared Watercourse Systems in the SADC and the SADC Water Policy.

The key challenges of the water sector are the operationalisation and implementation of the policies, legislation, and proposed plans. The technical, institutional, financial, socio-economic and many other issues are addressed under the consolidated, National IWRM Plan that will assist to achieve Vision 2030 within the set time framework. Namibia will also increasingly need to use the maximum potential offered by transboundary water resources. Hence the Government has taken steps to ensure sustainable cooperation with the neighbouring sovereign states within the existing international Water Treaty frameworks and the SADC Watercourse Protocol. Transboundary cooperation on beneficial use of shared water resources will be greatly enhanced leading to joint project implementation and operational management. The following issues drive the need for IWRM:

- Shortcomings in the management of water; a focus on developing new sources rather than managing existing ones better, and top-down sector approaches to water management result in uncoordinated development and management of the water infrastructure.
- Growth in population, increased economic activity and improved standards of living lead to increased competition for and conflicts over the limited freshwater resources.
- A combination of social inequity and economic marginalisation forces people living in poverty to overexploit land and other natural resources, with damaging impacts on water resources.
- Water demand has increased faster than the growth in population. (Indicating an improvement of the standard of living.

- The threat of pollution increases the risk of water scarcity.
- More and more development has greater impacts on the environment.
- Current concerns about climate variability and climate change demand improved management of water resources to cope with potentially more intense floods and droughts.

The overall long-term impact of the IWRM Plan will be to enable Namibia to achieve a sustainable water resource management regime contributing to social equity, economic efficiency, and environmental sustainability in the country. This will result in improved health and sanitary conditions of communities, improved water related livelihoods, gains to agriculture from improved land and water management, reduced risk of floods and droughts.

7.1 Regional and Local Water Plans

Water infrastructure planning provides a framework to ensure the availability of water sources when demand grows due to development and the timeous provision of water supply infrastructure to meet the managed water demand. Regional Authorities have the responsibility for the development of water schemes in the rural areas with the assistance of the DWA or NamWater. Local Authorities have the responsibility to reticulate water to urban communities and can provide their own water or buy water in bulk from NamWater. These responsibilities are covered in the Regional Councils Act No 22 of 1992, as amended and Local Authorities Act No 23 of 1992, as amended.
One of the most important policies regarding water scheme development and water use is that the “local” water sources within (say) a five to ten kilometres (km) radius, should be developed first. The next step is a “regional” water scheme where water resources may be more than a hundred kilometres away from the consumer point. The final step is a “national” water scheme which is linked to one of the perennial border rivers of Namibia and may stretch over more than 700 km such as the ENWC which is still under development. NamWater also divided the country into six Management Areas to facilitate and streamline water supply operations and logistic issues.

7.2 Latest Planning Studies

Studies that are in various staged of starting or nearing completion:

- Engineering Consulting Services to Undertake the Consolidation and Comparison of the Three Long Term Water Sources Considered to Supply Windhoek and Related Areas

- A Prefeasibility Study into the Augmentation of the Water Supply to the Central Area of Namibia and the Cuvelai

- Water Master Plan Update Study for the Central-North Area in Namibia

- Assessment and Evaluation of the Condition of the Hardap Irrigation Water Supply Scheme and Possibility of Rehabilitation.

- Consulting Services for Review and Update of the National Integrated Water Resources Management Plan of August 2010

- Medium-Term Water Supply Alternatives for the Central Area of Namibia
- Development of an Integrated Resource Management Plan for the Cubango- Okavango River Basin

SUMMARY

The report summarises the legal and administrative framework governing the water resources in Namibia. It encompasses all Government entities, their functions, and roles as well as their administrative structures. The report equally outlines the functions of established statuary bodies and committees promulgated by the Government of the Republic of Namibia (GRN).

The management of all water resources in Namibia are explained within their relevant context and in line with the established acts, rules and objectives as well as international water conventions with neighbouring countries like South Africa, Zambia, Angola and Botswana.

Water legislation is explained within the context of the constitution of the GRN as well as the the involvement of all local and regional authorities at all tiers of Government. Water Supply and Sanitation Sector Policy (WASP); National Water Policy (NWP) and Water Supply and Sanitation Policy (WSASP) are explained in detail.