PART V:

WATER ENVIRONMENT

Chapter 12: Water Related Policy and Statutory Law

Pieter Heyns and Shirley Bethune

1 Introduction

Namibia is the most arid country in sub-Saharan Africa due to the huge difference between precipitation and evaporation.[1] Fresh water scarcity thus remains a major environmental challenge. As per figures compiled by the World Bank, the percentage of arable land area stands at only 1% of the country's surface area.[2] Only limited rainfall and groundwater sources are available to support agriculture.[3] Water supply is a major challenge in Namibia, especially in the rural areas where small settlements are in very remote places. With an average of 89%, the target of the Fourth National Development Plan (NDP4) to provide 100% of the population with access to water for human consumption has not been reached as revealed by the NDP4 Terminal Report.[4] For the period of NDP5, it is envisaged to supply 95.5% of the rural and 100% of the urban households with access to safe drinking water by 2022.[5] Existing water supply infrastructure has to be maintained, additional water supply infrastructure must be established, facilities have to be operated, and fees collected to recover the cost to supply water.[6] The same applies to sanitation services and waste water disposal. Thus, sound and sustained water management remains high on the agenda, to ensure social, economic and environmental benefits. Scarce water resources must be shared between the growing population, increasing agricultural production and an expanding industrial sector, while environmental requirements must also be accommodated. Appropriate policy, legislation and regulations are therefore of great importance to achieve these objectives.

---

1 Heyns *et al*. (1998:55).

2 Arable land includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded. Latest figures are from 2018. See https://data.worldbank.org/indicator/AG.LND.ARBL.ZS?locations=NA, accessed 1 June 2021.

3 See https://climateknowledgeportal.worldbank.org/country/namibia/climate-data-historical, accessed 1 June 2021.

4 GRN (2017c:7).

5 GRN (2017a:107).

6 On water management problems, especially in the Kavango Region, see Falk (2016).

2 Namibia's Water Environment in Context

2.1 Rainfall

Precipitation comes from convective thunderstorms during the rainy season in summer from October to April.[7] The rainfall is relatively unpredictable, low, erratic, variable, unreliable and unevenly distributed across the landscape. The average annual rainfall varies between 150 mm at Keetmanshoop in the south, 360 mm at Windhoek in central Namibia, 500 mm at Grootfontein in the north and 700 mm in the Zambezi Region, formally known as the Caprivi. Precipitation along the Namibian coast is less than 25 mm per annum and mostly from fog that moves in from the Atlantic Ocean and condenses on the surface of the Namib desert as far as about 60 km from the coast.[8] This moisture is vital to support the ecosystems in the Namib Desert. The average mean annual rainfall across the whole country is about 250 mm.[9]

2.2 Evaporation

The rate of evaporation across the country varies between 3,700 mm in the south to 3,300 mm in central area and 2,800 mm in the north. The evaporation in the south is 25 times more than the rainfall, nine times more in the central area and six times more than in the north.[10] This huge rainfall deficit is the main cause of the arid conditions and desiccation of the landscape.

2.3 Water Balance

It is estimated that 83% of the rainfall evaporates shortly after precipitation, 2% is available as surface runoff, 1% infiltrates the soil to become available as underground water (referred to as "groundwater") while 14% is available to the vegetation and is productively lost as evapotranspiration.[11] This phenomenon is a huge environmental benefit and an important opportunity for stock farmers to "farm with grass" rather than allowing overgrazing, because it is the vegetation that "absorbs" most of the rainfall (14%) and makes the rainfall productive because it and produces the biomass that enables profitable stock farming. It is therefore incumbent on any stock farmer to manage rangeland in a sustainable way and to keep grass in reserve for use during drought

7 Shikangalah (2020); Mendelsohn *et al*. (2002:84ff).
8 Seely (1987:14-15).
9 Shikangalah (2020:40).
10 Heyns *et al*. (2017:42)
11 Ibid:42.

periods. This type of rangeland management is not practical on large tracts of communal land because there is no private ownership of land or fenced farms and grazing is basically a free for all. A policy and remedy for this situation is presently under consideration after a study had been done to investigate land acquisition by private and/or foreign investors in large-scale agricultural activities on communal land.[12] The purpose of such study is, among others, to ascertain the socio-economic impacts of such deals on communities, whether legal requirements are adhered to before land for such deals are acquired or allocated, and whether community members can protect or defend their land rights or successfully oppose such deals if such is not in their interest.

2.4 Water Resources

The water resources in Namibia are classified as perennial surface water, ephemeral surface water, groundwater, and unconventional water sources such as reused water, desalinated sea water and water losses prevented by good practice in demand management.[13]

Some perennial water is available from groundwater via natural fountains, springs and seeps as well as from hand dug wells or "gorras" in the dry riverbeds. These water sources made it possible for the indigenous people in the interior of Namibia to survive for thousands of years during the dry seasons. The water was mainly used for domestic consumption, as well as stock and wildlife drinking. However, the water was not "safe" for human consumption but was all that was available at that time. The people living next to the perennial rivers, forming some of the borders of Namibia, had access to much more reliable and safer water because the rivers were much more pristine than now. All the rivers in the interior of Namibia are ephemeral, which means that they only flow during the rainy season, provided that the intensity of the rainfall in the respective catchments is high enough to cause the rivers to start flowing.

Due to population growth and socio-economic development over time in Namibia, the water demand grew and as a result it became necessary and unavoidable to impound the ephemeral runoff during the rainy season in dams so the water can be utilised during the dry season. In studies that were done by the Department of Water Affairs (DWA), it was estimated that the 95% assured safe yield that can be obtained from possible dams in the ephemeral rivers is about 200 million cubic metres per annum (Mm^3/a). Similar studies and investigations done by the DWA established that the potential of the groundwater sources in Namibia is in the order of $300Mm^3/a$. It is also possible to recover about $25Mm^3/a$ of the used water for reuse. This means that

12 Thiem / Muduva (2015).
13 Heyns *et al*. (2017:42).

the total potential of the internal water sources in Namibia is only 525Mm³/a as can be seen in the figure below.

Table 1: National and Transboundary Water Sources

NATIONAL (Internal water sources)	
	Mm³/annum
Groundwater (Estimated sustainable safe yield) **Ephemeral Rivers** (95% Assured yield from dams) **Unconventional water sources**	**300** **200** **25**
TOTAL	**525**
INTERNATIONAL (Transboundary water sources shared with other States)	
Perennial Rivers	**Mm³/annum**
Kunene (at Ruacana) **Okavango** (at Mukwe) **Zambezi** (at Katima Mulilo) **Orange** (at Noordoewer)	**5 500** **10 000** **40 000** **11 000**

Source: Heyns *et al*. (2017:100).

Although there are no significant perennial water sources in the interior of the country, Namibia has access to the perennial runoff in the rivers on some of the borders of the country. These rivers are the Orange in the south, the Kunene in the northwest, the Okavango in the north and the Zambezi in the northeast.[14] All the watercourses feeding the perennial rivers along the Namibian borders originate upstream from Namibia in the neighbouring countries (The Kunene, Cuvelai and Okavango in Angola, the Orange in South Africa, the Zambezi in Angola and Zambia or in more remotely located sovereign States such as Lesotho on the Orange. These rivers are therefore classified as transboundary watercourse systems and access to the use of the water is governed by the principles of international water law and water treaties.

2.5 Water Demand

In 2015 the total water demand in Namibia was about 427 Mm³/a. This is estimated to increase to 770 Mm³/a by 2030.[15] However, the availability of water from the internal water sources is only 525 Mm³/a. The difference will have to be augmented by developing additional water sources by utilising the perennial boundary rivers or the desalination of sea water. The total estimated water consumption in 2020 by the different consumer groups is 584 Mm³/a. The total domestic water demand is 134 Mm³/a (23%

14 Ibid:45.
15 Ibid:100.

of the total), comprising 91Mm³/a in the urban areas, 11 Mm³/a in the rural areas and 32 Mm³/a by the tourism industry. The water demand, for livestock is 87 Mm³/a (15%), for mining 18 Mm³/a (3%), and for irrigation 345 Mm³/a (59%). Irrigation is by far the largest consumer of water in Namibia and it stands to reason because of the high evaporation losses when irrigating the fields. A hectare of land in Namibia requires between 10,000 and 20,000 m³/a, depending on the expected rainfall and the type of soil and the irrigation method.

Table 2: Total Water Demand in Namibia

Consumer Group	Demand (Mm^3/a)			
	2015	2020	2025	2030
Urban Domestic	80.0	91.1	103.5	117.2
Rural Domestic	10.6	10.9	11.1	11.4
Tourism	27.5	31.9	35.2	38.9
Livestock	86.8	86.8	86.8	86.8
Mining	17.2	18.1	19.1	20.3
Irrigation	204.6	344.6	379.8	497.2
TOTAL	**426.7**	**583.4**	**635.6**	**771.7**

Source: Heyns *et al*. (2017:100).

2.6 Water Scarcity

The natural, internal availability of water in Namibia is about 525 Mm^3/a. The present population is about 2,5 million. This means that the water availability is 210 cubic metres per annum per person (m³/a/p). Water scarcity can broadly be understood as the lack of access to adequate quantities of water for human and environmental uses. According to the 'Falkenmark indicator' or 'water stress index', water scarcity is measured in terms of the total water resources that are available to the population of a country in comparison to the quantity of renewable freshwater that is available for each person each year.[16] If the amount of renewable water in a country is below 1,700 m³/p/a, that country is said to be experiencing water stress. Below 1,000 m³/p/a it is experiencing water scarcity and below 500 m³/p/a, the country faces absolute water scarcity.

16 Damkjaer / Taylor (2017).

Table 3: Water Stress Index

Category	Water Stress Index (m^3/person/annum)	Namibia (m^3/person/annum)
No water stress	> 1,700	Not applicable
Water scarcity	1,700 – 1,000	Not applicable
Water stress	1,000 – 500	Not applicable
Absolute water stress	**< 500**	**210**

Source: Table compiled by the author based on Damkjaer / Taylor (2017).

This simple analysis shows that Namibia is suffering from absolute water scarcity and the only remedy for this situation is to reuse more of the remaining internal water resources, and/or to import water from the internationally shared perennial rivers or to use desalinated sea water from the coast or to reduce demand by using the available water resources in the interior more efficiently.

The latter can be achieved by recycling, reusing or reclaiming used water and to implement water demand management practice. Recycling water is when water that was used for industrial processes (such as in mining) is directly reused without treating the water to improve its quality. Water reuse is when used water is treated to the extent that the water can be used for the watering of gardens, sport fields or golf courses or to irrigate landscape features in cities or certain types of vegetables. Water reclamation is to treat domestic sewage effluent to potable water quality standards. At present, the reclamation of domestic sewage effluent for domestic use has been in practice in Windhoek since 1969 and although the capacity of the reclamation plant is in the process to be increased, it is still a small contribution to the total water demand in Namibia.

Water demand management is achieved by reducing water consumption by employing several measures such as a block tariff system where exorbitant water users are penalised at increasing rates for higher consumption, by reducing unaccounted for water, by preventing leakages, by informing the public about water conservation measures and creating public awareness in general, to name a few.

3 The Challenge to Provide Water Services

Namibia is the most arid country in Southern Africa due to low rainfall and high evaporation. The sustainable availability of water for human and animal consumption, agricultural production and industry is therefore limited and fragile as indicated above. This is further compromised by the increasing demand for water due to population pressure and socio-economic growth while threats such as unsustainable water

abstraction and environmental pollution from wastewater which must be prevented. This situation calls for competent water management to ensure that water supply and sanitation services are available to support development as required over time. For this purpose, there are water policies, water legislation and appropriate institutions in place, such as the DWA in the Ministry of Agriculture Water and Land Reform (MAWLF) to administrate the water act, and to coordinate rural water supply and sanitation services while the Namibia Water Corporation (NamWater) is responsible for the management of bulk water supply services to its customers.

Article 95(l) of the Constitution requires that natural resources (such as water) must be protected against overuse and to prevent wastewater disposal from causing environmental pollution. The Environmental Management Act No. 7 of 2007 entered into force in 2012 to strengthen compliance with the Constitution and environmental requirements. This Act can substantially contribute to reduce the negative effects resulting from poor water resources development, indiscriminate wastewater disposal, the use of pesticides that can contaminate scarce water sources, or by preventing the discharge of toxic wastewater or other substances harmful to aquatic and terrestrial ecosystems. Water projects require an environmental clearance certificate which can only be obtained after a proper environmental assessment to prevent fatal flaws in the design of a project.

4 Conception and Implementation of National Water Policy and Law

The administration of water affairs in Namibia is based on several pillars. These are the Constitution of the country, national and regional (SADC) 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.

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 formalise 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 of the DWA.

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.

5 The Water Policy Framework

The policy documents most relevant to water resources[17] and wetland resources in Namibia are:

- The Water Supply and Sanitation Sector Policy (WASP);
- the National Water Policy (NWP);
- the Water Supply and Sanitation Policy (WSASP); and
- the Draft Wetland Policy.

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, utilisation, conservation and protection of the natural water resources of the country. This control is vested in the administration of the water legislation. 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 organisation.

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 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

17 Heyns (2005:95, 105).

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.

5.1 The Water Supply and Sanitation Sector Policy (WASP)

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 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 commercialise the bulk water supply function which led to the promulgation of the Namibia Water Corporation Act which established Namibia Water 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, as well as economic 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 these responsibilities have been adjusted over time. The present (September 2020) situation is:

- In 1993, the DWA remained responsible for bulk water supply, but rural water supply 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, treatment of domestic sewage effluent, as well as the reclamation and reuse of treated domestic effluent (e.g. Windhoek) or water supply, reticulation and sewage treatment only (e.g. Outjo) or reticulation and sewage treatment only (e.g. Rehoboth) in the cities and towns.
- 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 their own water supply and disposal of domestic sewage effluent.
- The mining sector is responsible to supply their own water or approach the Department of Water Affairs 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 over 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 beneficiaries should contribute towards the cost of the water provision services. 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.

5.2 The National Water Policy (NWP)

In March 1998, the Government decided to initiate the Namibia Water Resources Management Review (NWRMR)[18] 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 the rural and urban poor; and
- 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.[19] 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. 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

18 Heyns (2005:95 and 105).
19 GRN (2000a).

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.

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, the legacy of the pre-independence era and current trends in 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;
- **roles 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[20] 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 legislation.

20 DWA (1974).

5.3 The Water Supply and Sanitation Policy (WSASP)

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[21] 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 means 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 the sanitation services. Generally, it aims at ensuring equitable access to water resources sufficient to maintain life, health and productive activities of citizens.

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.[22]

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

21 GRN (2008f).
22 Schachtschneider (2001).

management approach rather than trying to counteract eventual negative effects should form part of all planning and decision-making processes.

5.4 The Draft Wetland Policy

The vision of the 2004 Draft Wetland Policy[23] is to manage national and shared wetlands wisely by protecting their vital ecological functions and life-support systems for the current and future benefit of people's welfare, livelihoods and socio-economic development.[24] The objectives of the policy are to:

- Protect and conserve wetland diversity and ecosystem functioning to support basic human needs;
- provide a framework for sustainable use of wetland resources;
- promote the integration of wetland management into other sectoral policies; and
- recognise and fulfil Namibia's international and regional commitments concerning shared wetlands and wetlands of international importance.

The basic principles of the policy are intended to provide a framework for the development of all water related policies. In terms of ecosystem values and sustainability, the Policy follows the Ramsar Convention on Wetlands' definitions and guidelines regarding the wise use of wetlands.[25]

The basic principles used in the National Water Policy, which are intended to provide a framework or the development of all water-related policies, have been adapted for the Wetlands Policy in order to complement existing national policy instruments relevant to sustainable development and sound natural resource management and to help meet the national commitments as a signatory to the SADC (Southern African Development Community) Protocol on Shared Watercourse Systems, NEPAD (New Partnership for Africa's Development), several regional water commissions on shared river courses, the Ramsar Convention, the UNCBD (United Nations Convention on Biological Diversity), the UNCCD (United Nations Convention to Combat Desertification) and the UNFCCC (United Nations Framework Convention on Climate Change). It was prepared in consultation with all relevant ministries. Recognising that wetlands often span two or more political regions within a single country or two or more sovereign states and that this can lead to conflicts of interest, duplication and possible habitat loss, a basin-wide approach to wetland management is advocated and to conserve shared wetlands, the establishment of transfrontier protected areas is specifically stated.

23 GRN (2004c).
24 On wetlands in Namibia, cf. Ruppel / Bethune (2007).
25 The text of the Ramsar Convention is available at http://www.ramsar.org.

Legislative and regulatory principles include the development of legislation to protect Namibia's diverse and vulnerable wetlands. Further to this, the need to protect the biodiversity and ecological functioning of wetlands will be factored into all new laws and policies as well as setting aside water for aquatic ecosystems (water for environmental flows). The right to consultation between all relevant stakeholders, including basin communities affected by development decisions occurring at the local, basin and international level shall be respected.

In February 2014, at the occasion of the official launch of the fifth site in Namibia listed under the Ramsar Convention, the Bwabwata-Okavango Ramsar site which covers the lower Okavango River in north-eastern Namibia,[26] the Minister of Environment and Tourism announced that the Ministry will start to finalise the Draft National Policy on Wetlands in the next two years to provide the policy framework and guidance to the management of wetlands. It is furthermore envisaged by the Ministry to establish a National Committee on Wetlands as required under the Ramsar Convention, to spearhead the national wetland programme of the Government.[27] Regrettably, the Draft Wetlands Policy still lacks approval.[28] The Wetlands Working Group submitted the Draft Wetland Policy to the Ministry of Environment and Tourism (MET) to obtain approval from the Cabinet but this authority has not yet been obtained. The MET will be responsible for implementing the Wetland Policy, unless otherwise directed.

6 The Statutory Framework

6.1 The Constitution 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 the ownership of water and Chapter 21 with the legal status of international water agreements. The 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 utilisation living natural resources on a sustainable basis for the benefit of all Namibians, both present and future.

26 The other four wetlands already listed under the Ramsar Convention are the Orange River Mouth, the Walvis Bay Lagoon, Sandwich Harbour and the Etosha Pan.
27 Nakale (2014); see also MET (2015).
28 See the national Report to COP13 (2018) at https://www.ramsar.org/sites/default/files/documents/importftp/COP13NR_Namibia_e.pdf, page 8.

- 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 legally 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.

With these provisions, the Constitution lays the foundation for all policies and legislation in Namibia and contains three key environmental clauses relevant to sustainable use of natural resources. Article 100 of the Constitution vests all natural resources in the state, unless otherwise legally owned. Thus, unless legal ownership in a specific locality is proven, such natural resources are owned by the state; the provision implies that natural resources can be legally owned as private property.

It may be arguable that 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 belong 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 in any case.

The land and the water resources on or below the surface of privately owned land is 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, the owner will take good care of it, seems defeated if water belongs to the State. Will a commercial farmer 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? He/she will unlikely pollute the water sources or use it in an unsustainable way, because that will ruin farming activities. Whether and to what extent water and property should clearly both be part of the (private or commercial) ownership package can be debated. 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 actually being done in many cases on resettlement farms where it is expected by the resettled farmers that the State, to whom the land and belongs, must assist to supply water, which is at the expense of the taxpayer while the commercial farmer who previously provided that service himself, when he

owned that same farm and therefore did not burden the tax payer. A similar situation may exist 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 subsidised 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, they can plan stock numbers, based on the availability of water and grass after a rainy season, thus enabling the farmers to reduce stock numbers when boreholes are yielding less water after a poor rainy season.

6.2 The Water Act No. 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[29] 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, although strictly speaking it remains applicable until it is officially repealed and replaced with a new Water Act. The Water Resources Management Act 11 of 2013 has been promulgated by Parliament to replace the Water Act, but the Regulations, which are of a highly technical nature, are still with the Ministry of Justice for approval. The Act has therefore not yet come into operation because the Minister has

29 Only the following Sections of the Act have been made applicable to Namibia: Sections 1-4, with effect from 25 June 1969 – according to Section 180(2) of the Act; Section 162, with effect from 1 April 1971, by Proclamation 281 of 1970 in terms of South African Government Gazette 2921 of 13 November 1970); Sections 5 to 7, 9A, 21 to 23, 26 (excluding paragraph (a)), 27, 28(1), 30, 34 to 43, 44(2), 45 to 51, 54 to 56, 57(1), 59(2), 66, 69, 70 (excluding paragraphs (d), (f), (g) and (h)), 139 to 152, 164 bis, 164 ter, 165, 166, 170 (excluding sub-Section (3) and paragraph (c) of sub-Section (5)) and 171 – with effect from 26 June 1971 by Proclamation 151 of 1971 in terms of South African Government Gazette 3167 of 25 June 1971; and Sections 9B; 30A (a) and 170(3) with effect from 18 December 1985 by Act No. 22 of 1985. See the Water Act No. 54 of 1956.

not yet specified a date for the Act to come into force as required by Section 134 of the Act. Thus, the 1956 Act remains applicable for the time being.[30]

The main purpose for passing the Water Resources Management Act, as its Preamble states, was 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. 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.

The old Water Act clearly defines the interests of the state in protecting water resources and gives the Minister the power to, amongst others, investigate water resources, plan water supply infrastructure, develop 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 Department of Water Affairs responsible for control over the use, allocation, disposal and conservation of all surface and groundwater resources. 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 waste water, 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 Water Resources Management Act No. 11 of 2013, Government considered the WASP and NWR 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.[31] Public water includes any water flowing or found in or derived from the bed of a public stream, whether visible or not.[32] It should also be noted that during the German colonial period the

30 The Water Act No. 54 of 1956, was for example still applied by the High Court in Windhoek in the case concerning the use of groundwater by the Valencia Uranium Mine; see Menges (2008).

31 Section 1.

32 Section 1.

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,[33] 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.[34] The Act thus gives preferential abstraction rights to the landowners on whose land such water is found[35] 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.[36] 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.[37] 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 must use his/her powers to consider whether to grant the application or not.[38]

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.[39] Once proclaimed, Cabinet has extensive powers to determine how that water is going to be abstracted and all concomitant matters.[40]

---

33 Section 6.
34 Section 5.
35 Land-based entitlement: Rights to abstract and use public and private water is based on the riparian principle which means that the right to water usage is determined by the location of the water resources in relation to the land.
36 See similar arguments advanced in GRN (2000b).
37 Section 9A.
38 Section 21(5).
39 Section 28(1) as substituted by Section 5 of Act No. 42 of 1975. Only this sub-Section is applicable in Namibia. The other sub-Sections including Section 29 are not applicable to Namibia.
40 See the powers in Section 30.

The 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 the 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 South West Africa, but it is included here for background as it has obvious relevance.

6.3 The Water Resources Management Act No. 24 of 2004

The Water Resources Management Act No. 24 of 2004 has been passed by Parliament, promulgated on 23 December 2004 by Government Notice 284 and published in the Government Gazette.[41] The objective of this Act 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.[42]

The Act was based on the 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;

41 Government Gazette No. 3357 (2004) See: https://bit.ly/3mge0EB, accessed 3 June 2021.
42 Sections 16 to 22 of the Act.

- 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,[43] provided for the establishment of Water Point User Associations[44] 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 taking into account physical, climatic, ecological and human factors affecting the quantity and quality of water resources. By 2011, eight basin management committees had been established.[45]

The Act specifically dealt with the control of alien invasive species in Section 133 on regulations, 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

43 For more details on water point associations, see Falk (2008) and the following Chapter.
44 GRN (2012:29).
45 Ibid.

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 with regard to internationally shared water resources, resource quality and, in particular, to the abstraction of water for beneficial use and 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 Act 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 period 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 Act to accommodate the new developments. It was therefore repealed as a whole by the Water Resources Management Act No. 11 of 2013.

6.4 The Water Resources Management Act No. 11 of 2013

Although the Water Resources Management Act No.11 of 2013 has been passed by Parliament, signed by the President, promulgated on 19 December 2013[46] and published in the Government Gazette,[47] it has not yet been signed into law by the Minister,

46 Government Notice 332.
47 Government Gazette No. 5367 (2013).

and is therefore not in force yet. 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 have thus not been finalised as of yet. The MAWLR is currently 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[48] (which had *de facto* never come into force).

The Water Resources Management Act No. 11 of 2013 was enacted to provide for the management, protection, development, use and conservation of water resources, and the regulation and monitoring of water services among others. As per Section 2, the objective 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:

(a) Equitable access for the population to safe drinking water as an essential basic human right to support a healthy productive life;

(b) access by all people to enough safe water within a reasonable distance from their place of abode to maintain life and productive activities;

(c) 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;

48 Section 137.

(d) promotion of the sustainable development of water resources based on an integrated water resources management plan which incorporates social, technical, economic, and environmental issues;

(e) availability of open and transparent information about water resources to the public;

(f) recognition of the economic value of water in the allocation of water;

(g) development of the most cost-effective solutions to establish infrastructure for the provision of water, including conservation measures;

(h) supporting integrated water resources management through human resources development and capacity building;

(i) 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;

(j) cognisance of namibia's international rights and obligations in the utilisation of internationally shared water resources and the disposal of waste or effluent;

(k) consistency of water resource management decisions within the specific mandate from the government regarding the separation of policy, regulatory and operational functions;

(l) 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;

(m) a polluter is liable to pay all costs to clean up any intentional or accidental spill of pollutants; and

(n) 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 with regard to 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[49] 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

49 Section 7.

extensive knowledge and experience in water resource management and from authorities or institutions responsible for or involved in water supply or water management."

Furthermore, a Water Regulator[50] consisting of five members is to be established under Part 4 of 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 according to the provisions in part 10 of the Act.

Part 5 of the Act is designated to the management of rural water supply. Basin Management Committees[51] are institutions that may be established to further the Government's objective in achieving the integrated management of water resources. 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[52] and local water committees to be "entrusted with the responsibility of managing and controlling the supply of water at any rural state waterwork."

Internationally shared water resources are considered in Part 6 of the Act, which describes in more detail the functions of the Minister related to agreements on internationally shared water resources.[53] Specific agreements are listed in relation to which regulations can be made by the Minister to give effect to these agreements. These are in general agreements relating to internationally shared water resources binding on Namibia and announced by the Minister by notice in the Gazette. In particular, the agreements establishing the Orange-Senqu River Commission (Orasecom); the Permanent Okavango River Basin Water Commission (Okacom); the Zambesi Watercourse Commission (Zamcom); and the Kunene Permanent Joint Technical Commission are listed as such 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[54] to be submitted to Cabinet for approval and which is subject to review after ten years following Cabinet's approval.[55]

50 Section 11.
51 Section 20.
52 Section 30.
53 Section 28.
54 Section 31.
55 According to personal communication with the Deputy Executive Director of the DWA, such plan was adopted by Cabinet in 2012.

Water supply, abstraction and the use of water are regulated in Part 9 of the Act which foresees a close cooperation between the Minister responsible for water affairs on the one hand and the Minister of health on the other.

As a general rule, a non-transferable licence is required for the abstraction and the use of water.[56] 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.[57] 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.

The control and protection of groundwater is addressed in Part 12 of the Act, which contains specific provisions as regards to the construction of boreholes and wells and 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 wastewater treatment facility or waste disposal sites. On the initiative by the Minister or upon application by other persons having an interest, Water Protection Areas can be declared under the provisions of Part 14 of the Act "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."[58] 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.

Certain emergency powers for the Minister are stipulated in Part 15 of the Act to limit the right to abstract and use water for example in situations of water shortages or to control pollution.[59] 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[60] 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

56 Section 44.
57 Sections 38 and 39.
58 Section 85.
59 Section 88.
60 Section 117.

Judge President of the High Court and up to six other persons selected and appointed by the Minister.[61]

The implementation of the WRMA 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 it is clear that the Water Advisory Council, the Water Regulator, 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.

6.5 The Soil Conservation Act No. 76 of 1969

The Soil Conservation Act was promulgated in South Africa and dates back to 1969. It was made applicable in Namibia with effect from 1 April 1971 by Act No. 38 of 1971. This Act is another important legal document with regard to the prevention of environmental degradation because it covers the prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation, and the protection of water sources.[62] As per the Act, the Minister has the power to declare directions applicable with reference to land conservation and may order construction of soil conservation works. Soil Conservation Committees may be established under this Act to advise the Minister, owner or occupier of land on all matters relating to soil conservation.

The main driving forces for soil erosion are rainfall, wind and agricultural activities. The cultivation of land loosens the soil while veldfires and overgrazing reduces the vegetation cover. This increases the effect of rainwater and wind eroding the topsoil. Activities such as the alteration of the flow of natural watercourse or the alteration of the banks of rivers may not be done while the drainage of wetlands, marshes, natural

61 See Ruppel (2008d) for the role of the executive in safeguarding the independence of the judiciary.

62 Section 2.

water sponges and watercourses are not permitted. Soil erosion is immensely detrimental to infrastructure like dams which must impound rainfall runoff during the rainy season to use the water during the dry season. Millions of tons of soil and silt is deposited in dams during each rainy season. This reduces the storage capacity and efficiency of the dams. Control of soil erosion and control over the design and construction of small water retaining infrastructure is particularly important from a safety point of view. In order to reduce soil erosion in a donga or gully it is necessary to construct small barriers or embankments in the donga to retain the soil to fill up the donga while allowing the water to pass.

The Water Act has been amended by the Water Amendment Act 22 of 1985 to control the construction of such a structure if it would impound more than 20,000 cubic metres of water. The construction of a farm dam with a capacity of more than 20,000 cubic metres of water requires a formal design and a permit to construct the dam. If large enough, a farm dam must also comply with legislation regarding dam safety and inspections according to the prescribed regulations. The control and protection of groundwater is addressed in Part 12 of the Act, which contains specific provisions as regards to the construction of boreholes and wells and 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 wastewater treatment facility or waste disposal sites.

6.6 Territorial Sea and Exclusive Economic Zone of Namibia Act No. 3 of 1990

The importance of this Act, as far as it relates to fresh water, is that it determines the boundary between internal waters which are located on land in Namibia and the water in the sea. This boundary is at the low water line, which is defined as the line of the lowest astronomical tide.[63]

According to Section 3(1) of the Act the waters landward from the low water line, or any other baseline from which the territorial sea was measured, shall form part of the internal waters of Namibia. Section 3(2) states that the provisions of sub-section 3(1) shall be in addition to and not in substitution for any other law relating to or defining the internal waters of Namibia.

The Water Act No. 54 of 1956 does not make any provision for control over the abstraction of water from the sea, but the disposal of wastewater into the sea and the control over such disposal is covered under Section 21(5)(a) the Act to prevent the pollution of sea water.

The Water Resources Management Act No. 11 of 2013 makes provision for control over the abstraction of water, but not specifically about sea water. There is no provision

63 Territorial Sea and Exclusive Economic Zone of Namibia Act No. 3 of 1990.

about the area of jurisdiction of the Act. There is also no specification about the chemical quality of water that may be abstracted, which means that water, regardless of the chemical quality, can be abstracted and if it is not potable (such as high salinity sea water) it can be treated to the required standard required for the purpose it will be used for.

The caveat in the legislation about the abstraction of sea water is that the point where sea water can be abstracted is not "on land" but beyond the "low water mark" in an area which is under the jurisdiction of the Territorial Sea and Exclusive Economic Zone of Namibia Act No. 3 of 1990. The control over the abstraction of sea water is therefore theoretically not under control of provisions in any of the said Acts mentioned above and needs to be rectified to provide for the abstraction of seawater beyond the "low water line" mentioned above.

6.7 The Namibia Water Corporation Act No. 12 of 1997

The Namibia Water Corporation Act[64] 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 Water Resources Management Act No. 11 of 2013 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

64 Namibia Water Corporation Act No. 12 of 1997.

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 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 bail-outs 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 25 years,[65] 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

65 Namwater was officially registered as a company on 9 December 1997.

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 just 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 Water Resources Management Act No. 13 of 2013 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.

In the case of cross-subsidisation, which is when consumers from one water scheme are charged more than the cost of supply in order to subsidise consumers of another scheme where the consumers are charged less than the cost of supply, it can be said, according this Section 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 receive 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 due to the fact that 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. Section 42 does not exempt NamWater from complying with any provision of the Water Act No. 54 of 1956 or any other water law which requires a permit or authority to be obtained in order to impound or utilise water from water resources.

7 Water Development Planning

7.1 Introduction

Master water planning is the long-term implementation strategy for large scale water projects to ensure that the provision of water at the national level can meet the growing water demand in the country over time. Other water planning activities are also required for shorter term implementation, because the exceptionally large projects are often implemented in phases over time as the demands increase. This requires that the responsible authorities, in this case the DWA, NamWater, local authorities and the private sector, must investigate, plan, design, build and operate the required infrastructure in time to meet the anticipated water demand or waste water disposal requirements. The development of water infrastructure in an arid country is very problematic because the water resources are often remotely located from the places where the water is required and that requires huge capital investments and high operating costs to pump the water over long distances through pipelines. The planning must also be done well in advance of the time when the water will be required because the implementation of a water project may take between three and five years on average. The planning of water supply infrastructure that must be ready in time as development takes place, is normally done with a planning horizon of 30 years. This period is basically a "generation" and many water consuming developments that were not anticipated, may evolve over time. Master Plans are therefore revised every 20 years to accommodate such changes.

The extent to which any Government facilitates the requirements for equitable access to water and sanitation by its citizens has been under discussion for a long time by the international community. However, on 28 July 2010, after years of campaigning to capture the right to water and sanitation services, the United Nations General Assembly eventually passed Resolution 64/292 in which the right to safe and clean drinking water and sanitation was recognised as a human right.[66] The Resolution gives

66 Resolution available at https://bit.ly/33v2XjC, accessed 2 June 2021. See also UN (2002a).

guidance to the standards of service delivery that States must seek to achieve for their citizens or must ensure their private sector providers are achieving. It also calls upon States and international organisations to provide financial resources to support capacity-building and to transfer technology to assist countries, in particular developing countries, to provide safe, clean, accessible and affordable drinking water and sanitation for all.

Here it is important to understand that there is difference between the right to water (or sanitation) and the obligation to pay for water (and sanitation) services provided for the benefit of the population. The principle here is that a human right to water cannot be denied, but that does not mean that the service to supply water must be free. This implies that if a water service is too expensive for the intended users, someone else must pay to recover the full cost of the water service or pay a subsidy which is the difference between the cost that the poor can afford and the full cost. This eventually becomes the responsibility of the State to fund a portion (often the bigger portion which is usually the capital expenditure), or a subsidy, that the State must pay to help the poor, but this eventually becomes a burden on the taxpayer. This *modus operandi* has been approved as part of the WASP policy and the idea was that the State must budget for this expenditure so that the taxpayers would be informed about their contribution to alleviate the plight of the poor. This policy has, however, never been implemented by the Government.

The expression "the cost of water" is therefore a misnomer. People often fail to correctly interpret the terminology that is used when they refer to the "cost of water". What is really meant is that it is the cost to provide a water supply service and not the cost of the water itself because water itself is free in Namibia, but there is a cost to supply the water by a service provider. The cost to build a water supply scheme and the operating cost to supply the water from its source to the tap of the user is the cost that a service provider like NamWater must recover. This cost does not include any cost for the water itself. The cost to supply water under the prevailing arid conditions in Namibia is extremely high and the therefore water is unavoidably expensive. The trick here is to advise the public to understand why water cannot be considered a free commodity (for example, as a gift from God), why the cost of "water" is the cost of the water supply service, why this cost is high and how this unavoidably high cost can be adjusted to make water more affordable for the consumer. The bottom line is that water is free in Namibia, but there is a cost to supply the water.

This means that the water consumer, must pay the full cost for the supply of water, otherwise a water service provider will go bankrupt and the service will have to be terminated, unless a subsidy is provided to enable poor water users to "afford" the water. If the Government pays the subsidy, it is the same difference as funding the difference between the real cost of the water service with the taxpayers' money.

The NWP of Namibia makes provision for more affordable water to the poor by introducing subsidies. Water is an economic good and it is essential to recover the full

financial cost to supply water to enable the water supply and sanitation sector to become self-sufficient and sustainable over time. It is therefore clearly recognised that without the necessary revenue, service providers will be unable to continue providing the expected level of water supply and sanitation services, especially if Namibia wants to achieve Vision 2030 for that matter.

However, there is also a social responsibility to make water available to the poor and, in the case of people with low income in rural and urban areas, at least the operational and maintenance cost must be recovered with support from government subsidies or cross-subsidies amongst consumers. There are various ways to achieve the latter, for example to introduce a block tariff system where users pay different amounts for different consumption levels. If the cost for water supply are subsidised, it should be done in a transparent way by including such subsidies in the national budget.

7.2 National Water Planning

7.2.1 The 1974 Master Water Plan

In the early seventies, the growth rate of the economy in South West Africa picked up (as much as 7%/annum) and the DWA conducted studies to develop a Master Water Plan (MWP)[67] to meet the rapidly increasing water demand. The MWP was formally adopted in1974 and implementation commenced with the construction of water supply infrastructure.

The areas in the country where major developments were expected had been identified and the availability of water resources to meet the estimated water demand was determined. The main areas with accelerated demand would be in the north, the central area, the central Namib coast, and the fish river basin in the south. Irrigation development was recommended along the perennial rivers and the import of water into the interior of the country was considered the only alternative remedy to meet the demand. At that time, the desalination of sea water at the coast was considered, but the technology was new and prohibitively expensive while the science of water reclamation in the central area was in its infancy. In fact, Namibia was a pioneer and world leader in the development of the technology to convert domestic sewage effluent to potable water quality standards. The main thrust of the MWP was that the estimated future water demand that may be required for domestic use, manufacturing, industry, mining activities and agriculture must be met with water from:

- The Kunene River, supplied into the central northern area, known today as the Ohangwena, Omusati, Oshana and Oshikoto Regions, as well as the

67 DWA (1974).

central coastal area where Walvis Bay and Swakopmund are located. The water carrier to the coast was called the Western National Water Carrier (WNWC);

- the Okavango River, supplied into the area known today as the East Kavango and West Kavango Regions, as well as the Central Area of Namibia, including the Otjozondjupa, Omaheke and Khomas Regions, and towns like Okakarara, Otjiwarongo, Okahandja, Gobabis, Windhoek, Rehoboth, Karibib, Usakos, and Omaruru. This water carrier was called the Eastern National Water Carrier (ENWC);
- the Windhoek aquifer, surface water in the central area dams and water reclamation for the city of Windhoek, as well as the future augmentation of those water sources with water imported from the Okavango River, to serve the Central Area;
- the available groundwater sources from the Kuiseb and Omaruru aquifers, as well as possible desalination in the distant future, to supply water to the towns of Walvis Bay, Swakopmund, Hennies Bay and Arandis in the area known today as the Erongo Region;
- the Zambezi River and the Quito – Linyanti – Chobe tributary of the Zambezi into the Caprivi, known today as the Zambezi Region;
- the Orange River and dams in the Fish River basin into the area known today as the Hardap and !Karas Regions; and
- boreholes in the communal and commercial farming areas. This very small-scale water supply activities are mostly for domestic use, stock and wildlife drinking, as well as limited irrigation where possible.

7.2.2 The 1993 Master Water Plan

The 1974 MWP had a planning horizon for 30 years but an update is normally made after 20 years because many of the demand estimates made at the beginning may not have materialised and the potential of more water resources may have been identified. The scheduled updates were 1993 and 2013.

By 1993, three of four phases of the Eastern National Water Carrier proposed in the 1974 MWP had been completed, but an adjustment was made to proposed implementation of the proposed Western National Water Carrier because it was considered a better option to reserve the water from the Kunene for power generation and that the coast should rather be served with water from the ENWC or other local options such as possible additional groundwater sources or the desalination of sea water. It was also proposed that a study should be done to determine which of water supply options would be the most economical and desalination was identified as the most viable option if all other alternatives have been exhausted. The updated in 1993 MWP also

accommodated the objectives of the new Government after Namibia became independent in 1990 and called for water source studies in the Kuiseb, desalination at the coast and further groundwater studies in the Karst area and the Stampriet artesian basin. An updated version of the 1993 Master Plan is presently under preparation.

7.2.3 The Integrated Water Resources Management Plan

The main objective of an integrated water resource 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.

The IWRMP for Namibia was completed in 2010[68] and Government adopted the IWRMP in 2012. The IWRMP addresses 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;

68 DWA (2010).

- 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; and
- 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 collected in Namibia 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 organisational 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 and 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 a number of 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 a number of 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 water sector objectives are specifically aligned to the Poverty Reduction Strategy and the National Poverty Reduction Action Programme. The Water Resources Management No. 11 of 2013 is based on IWRM principles and provides overall guidance in the water and sanitation sector. The overarching goals for the water sector were also fully aligned to meeting the Millennium Development Goals (MDGs) 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 resource;
- 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;
- the threat of pollution increases the risk of water scarcity;
- more and more development have greater impacts on the environment; and
- 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.

7.2.4 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 the Local Authorities Act No. 23 of 1992 as amended.

One of the most important policies regarding water resource use is that the local water sources within (say) a five to ten kilometres 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 rivers and may stretch over a distance of more than 700 km such as the Eastern National Water Carrier which is still under development. NamWater also divided the country into six management areas to facilitate and streamline water supply operations.

8 Transboundary Water Management

8.1 Introduction

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.[69] Both, the Rio Earth Summit[70] and the World Summit on Sustainable Development (WSSD 2002)[71] explicitly recognised that integrated transboundary water resources management is a necessary tool for achieving sustainable development.[72] 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 poses major challenges to efficient integrated transboundary water resources management.

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 Independence, Namibia 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

69 Rahaman / Varis (2005).

70 See the 1992 UNCED Report of the United Nations Conference on Environment and Development. (Rio de Janeiro, 3-14 June 1992) Annex I, at https://bit.ly/2VjMEBO.

71 See the 2002 WSSD Report of the World Summit on Sustainable Development, A/Conf. 199/20. at https://digitallibrary.un.org/record/478154?ln=en.

72 Rahaman / Varis (2008).

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, cooperation can thrive.

8.2 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.[73] 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 recognised 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 were 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 started in late 1960's, until the 2000 whereafter the Agreements make reference to the Revised SADC Protocol on Shared Watercourses and the United Nations Waters Convention (UNWC). As per its Preamble, the UNWC established "a framework for the utilization, development, conservation, management, and protection of international watercourses; whilst promoting optimal and sustainable utilization thereof for present and

73 The Helsinki Rules and the commentaries are given here as they have been published in the ILA publication Helsinki Rules on the Uses of the Waters of International Rivers, London, 1967. See: https://bit.ly/3fCejap, accessed 14 February 2022.

future generations, and accounting for the special situation and needs of developing countries".

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 it is less clear and in many cases extensive studies to determine the flow and which States qualify for a share is required. 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.

8.2.1 Equitable Utilisation 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; or
- 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 include 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, water that will not be able to be used in the reasonably foreseeable future cannot be claimed. 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 maximising 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.

8.2.2 Pollution

The term water pollution as used in the 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 that 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.

8.2.3 Procedures for the Prevention and Settlement of Disputes

The Rules also relate to procedures for the prevention and settlement of international disputes taking the legal rights or other interests of basin States and 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 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 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 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 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, 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 good offices, or jointly request mediation of a third State, a qualified international organisation or 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 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.

8.3 The United Nations Watercourses Convention

The International Law Association (ILA), a nongovernmental organisation 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 utilisation 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 the 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 from 1991 to 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).[74] This Convention codified the principles of sharing international watercourses, building on the 1966 Helsinki Rules. The Convention came into force on 18 August 2014. Namibia signed the Convention in 2000 and ratification by Parliament followed in 2001.

The Law of the Non-Navigational Uses of International Watercourses is elaborated in a users' Guide.[75] 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.

74 Abu-Zeid (2001).
75 UN Watercourses Convention User's Guide. See: https://bit.ly/39uc9IY, accessed 27 January 2022.

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, industrialisation, 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.[76]

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 harmonise 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.[77]

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.[78]

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.[79]

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

76 Ibid: Article 2.
77 Article 4.
78 Article 5.
79 Article 6.

consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, discuss the question of compensation.[80] They shall cooperate, based on sovereign equality, territorial integrity, mutual benefit, and good faith to attain optimal utilisation 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.[81] 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 utilisation 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.[82]

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.[83]

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.[84] 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.[85]

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 harmonisation 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.

---

80 Article 7.
81 Article 8.
82 Article 9.
83 Article 10.
84 Article 11.
85 Article 12.

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.[86]

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.[87]

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.[88] The Convention also provides guidelines about the flow regulation in shared rivers and the operation of the flood control infrastructure.[89]

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.[90]

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.[91]

The UNWC covers the basic international law principles regarding the management of international water resources, including:

- Sovereignty principle: Each nation has the right to develop its own policies, laws and institutions and their own strategies for natural resources development and utilisation.

86 Articles 13 to 19.
87 Article 19.
88 Articles 20 to 24.
89 Articles 25 to 26.
90 Articles 27 to 28.
91 Articles 29 to 33.

- 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.

8.4 Theories of Sharing Transboundary Water

Before the customary international law governing international watercourses began to emerge in the 1950s, there were two conflicting approaches reflecting the claims and counterclaims of States over their share of transboundary water resources.[92] The **theory of absolute territorial sovereignty** favours upstream States, allowing the unlimited use of the waters of a transboundary watercourse located within national borders regardless of any consequences that may occur downstream. In short it insists upon the complete freedom of action of the upstream State. The **theory of absolute territorial integrity** on the other hand, favours the downstream States wishing to prohibit any

92 Theories of Resource Allocation UN Watercourses Convention User's Guide Fact Sheet Series: Number 10. See: https://bit.ly/3fVLHcl, accessed 27 January 2022.

development in an upstream State that would interfere with the natural flow of such a watercourse. Both traditional doctrines oversimplify the complex issues associated with modern resource allocation. For example, they equally deny that sovereignty entails duties as much as rights. However, these two approaches have been modified to adopt a more balanced concept of "limited territorial sovereignty" and is widely accepted as the foundation upon which the general laws and principles of international watercourses have evolved.

The **theory of limited territorial sovereignty** stipulates that all watercourse States enjoy an equal right to the utilisation of a shared resource, and each watercourse State must respect the sovereignty and reciprocal rights of other watercourse States. The concept of limited territorial sovereignty is also strongly reflected in the principle of equitable and reasonable utilisation. One of the main advantages of this principle is that it simultaneously recognises the rights of both upstream and downstream nations without sacrificing the principle of sovereignty.

The **theory of community of interests** indicates the current trend and future general direction in which the law and practice in this field appears to be moving towards. It derives from the idea that a community of interest in the water is created by the natural, physical, and social unity of the ecosystems that rely on the watercourse. By its nature water is a common property and should be shared by the community. When compared to the principle of limited territorial sovereignty, the community of interest includes a more accurate conception of the relationships of the States. It also encapsulates the notion of watercourses as being part of a broader hydrological system and implies collective action when managing it.

It can be said that there is little support for isolationist theories of absolute territorial sovereignty or integrity. At present, the doctrine of limited territorial sovereignty most accurately reflects the actual situation produced by State practice, but mindful that the community of interest theory is rapidly developing. It is therefore part of the strategy of the Namibian Government to survive water scarcity by utilising the principles of international water law dealing with transboundary water resources management. This requires an analysis to determine to what extent these principles are incorporated into recent international conventions and treaties as well as to scrutinise the provisions of the Helsinki Rules, the UN Watercourses Convention, and the Revised SADC Water Protocol to serve as background to Namibian endeavours to obtain an equitable and reasonable share of the transboundary water resources it has access to.

8.5 Customary and General Principles of International Law

Some important customary and general principles of international law applicable to transboundary water resources management that are accepted globally and in modern international conventions, agreements and treaties include:

- Equitable and reasonable utilisation of transboundary water sources – sharing water;
- obligation not to cause significant harm – pollution or unreasonable abstraction;
- principles of notification, consultation, and negotiation – discuss planned measures;
- principles of cooperation and information exchange – building trust and understanding; and
- peaceful settlement of disputes – increasing the benefits for the total population in each basin state with territory in a shared river basin.

These principles are incorporated in most international water agreements between Namibia and States riparian to the international boundary rivers of Namibia.[93]

8.6 The SADC Water Protocols

After the Independence of Namibia, the country became a member of SADC and a Zambezi River basin state. In April 1993, Namibia attended a meeting of the Zambezi Action Plan (ZACPLAN) where a draft document about a protocol on the management of the Zambezi basin was discussed. At that time Namibia was a new SADC member country on the Zambezi, sharing transboundary rivers with Lesotho, Botswana and South Africa on the Orange, Angola on the Kunene, Cuvelai, and Okavango, with Botswana on the Okavango, Orange, and Zambezi. Namibia then proposed that the draft protocol should not only be a Zambezi basin protocol but a SADC Protocol on Shared Watercourse Systems. Further motivation was that other SADC states such as Botswana, Lesotho, Mozambique, Swaziland, and Zimbabwe also shared transboundary rivers with South Africa and between themselves. The first SADC Protocol on Shared Watercourse Systems entered into force in 1998 and was succeeded by the Revised Protocol on Shared Watercourses, which entered into force in 2003. Both these protocols were ratified by Parliament. The reason why the first Protocol was revised was to bring it in line with the United Nations Watercourses Convention.

The Revised Protocol on Shared Watercourses of the SADC repeals and replaces the 1995 Protocol on Shared Watercourse Systems and recognises international consensus on several concepts and principles related to water resource development and

93 E.g. the 1966 Helsinki Rules (Articles 29.2, 29.3, 29.4, 30, 31), the 1992 Water Convention (Article 10) of the United Nations Economic Commission for Europe (UNECE), the 1995 SADC Protocol on Shared Watercourse Systems (Articles 2.9, 2.10), and the 1997 United Nations Watercourses Convention (Articles 3.5, 6.2, 11-19, 24.1, 26.2, 28, 30) These principles are also acknowledged by modern international environmental conventions and declarations, e.g. the 1992 Rio Declaration on Environment and Development (Principles 18, 19) and the 1992 Convention on Biological Diversity (Article 27.1).

management in an environmentally sound manner. The Protocol acknowledges the Helsinki Rules, the UN Convention on the Law of the Non-Navigational Uses of International Watercourses, Agenda 21 concepts and facilitates the establishment of shared water agreements.[94]

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, the 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. 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

94 Ruppel / Bethune (2007).

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[95] under the SADC Treaty.

The Protocol establishes 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.

8.7 The SADC Regional Water Policy

The Regional Water Policy for the Southern African Development Community (SADC) was launched in 2005. It is aimed at providing a framework for sustainable, integrated and coordinated development, utilisation, protection, and control of national and transboundary water resources in the SADC region. This policy is intended to support the SADC Common Agenda of socio-economic development and regional integration and improvement of the quality of life of all people in the region. The policy was formulated through a participatory and consultative process, and includes nine thematic areas, addressing key water resources management issues and challenges:

- Regional Cooperation in Water Resources Management: including policy provisions on water for regional integration and socio-economic development; cooperation in water resources management of shared watercourses; inter-sectoral and international cooperation; and the harmonisation of national policies and legislation.
- Water for Development and Poverty Reduction: containing policy provisions on water for basic human needs and for industrial development; water for food and energy security.
- Water for Environmental Sustainability: containing policy provisions on water and the environment, water quality management, and control of alien invasive species in watercourses.
- Security from Water-related Disasters: including policy provisions covering people's protection from water related disasters; disaster prediction, and management and mitigation.
- Water Resources Information and Management: covering data and information acquisition and management; and information sharing.

95 Which is currently not functional.

- Water Resources Development and Management: including policy provisions on a river basin approach; integrated planning; dams and dam management; water demand management; and alternative sources of water.
- Regional Water Resources Institutional Framework: including policy provisions covering institutional arrangements at regional and national levels and for Shared Watercourse Institutions (SWCIs).
- Stakeholder Participation and Capacity Building: including provisions focusing on participation and awareness creation; capacity building and training; gender mainstreaming; and research, technology development and transfer.
- Financing integrated water resources management in the region.

9 Transboundary Water Agreements

9.1 Introduction

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 in the SADC region and as far as Namibia is concerned, almost all the Agreements included in the discussion below have been ratified and form part of the law of Namibia as they are part of the general rules of public international law and are international agreements binding upon Namibia under the Constitution (Article 144).

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

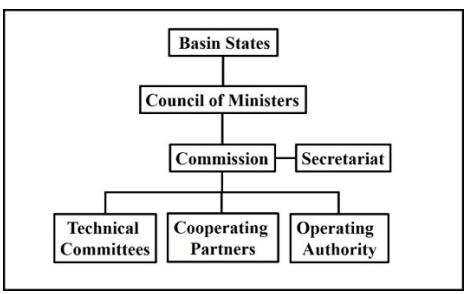
basis and the reports on the results would be agreed and uncontested between the staff involved.

A diagnostic assessment is followed up by a strategic action plan for the river basin providing a framework within which each basin State can do its conservation duties and anticipated water developments while 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.

9.2 Water Commission Institutional Structure

The structure of each water commission is different, but a generic structure can be described as follows. A commission usually comprises the members of the delegations from each basin state. The members are supposed to be experts in the various disciplines. The number of basin states in the SADC can vary between two states on the Kunene (Angola and Namibia) and eight states on the Zambezi (Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe). The Council of Ministers is composed of the responsible ministers and discusses proposals with the Commission. Technical committees comprise staff from the water departments in each state, or consultants. Cooperating partners are the funding agencies, donors, non-governmental organisations or consultants and their activities are coordinated by the Secretariat. The administrative duties of the Secretariat are to organise meetings, workshops, coordinate activities and do general administrative duties. An Operating Authority may be responsible, for example, for the operation of a joint hydropower plant or irrigation project.

Figure 1: Typical Structure of a Water Commission



Source: Figure compiled by Pieter Heyns.

9.3 The Kunene River Agreements

9.3.1 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, appointed as the mandatory for territory of German South West Africa. After Independence 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) [96] signed on 18 September 1990 in Lubango, Angola. The agreement was ratified in 1997 and 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.

9.3.2 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[97] 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

96 The Treaty document is not available on the internet, but at the DWA, Namibia.
97 Available at https://bit.ly/33hz2eL, accessed 3 June 2021.

into the generators in the underground power station to generate electricity during the entire year.

9.3.2.1 The First Border Agreement

This Agreement between the Governments of Germany and Portugal[98] is about respecting the limits of their respective possessions and spheres of influence in Southern Africa and was signed in 1886. 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.

9.3.2.2 The Second Border Agreement

This 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 South West Africa and Angola.[99] 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

98 Ibid.
99 Ibid.

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 on the Orange River.

9.3.3 The Water Use Agreements

9.3.3.1 First Water Use Agreement

The First Water Use Agreement[100] (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 in 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 South West Africa.

9.3.3.2 Second Water Use Agreement

The Second Water Use Agreement[101] 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 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 South West Africa and the principle to build a hydroelectric power plant at Ruacana.

9.3.3.3 Third Water Use Agreement

This detailed Water Use Agreement[102] 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 in 1968 and signed in 1969. The agreement detailed works to be carried out in the first phase and these included to:

100 Available at https://bit.ly/39lyA37, accessed 4 June 2021.
101 Available at https://bit.ly/3fyR2WK, accessed 4 June 2021.
102 Available at https://bit.ly/363p4zn, accessed 4 June 2021.

- 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 South West 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 Kunene Basin.

9.3.3.4 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.[103] It was signed in 1990 in Lubango, Angola[104] and ratified by Parliament on 2 July 1997. This 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; and
- 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.

103 Fourth Water Use Agreement. See https://bit.ly/3l0Zu2k, accessed 4 June 2021.
104 The document was signed by Honourable Minister Hidipo Hamutenya, Minister of Information and Broadcasting.

9.3.3.5 Fifth Water Use Agreement

The 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[105] was signed in 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.

9.4 The Okavango River Agreement

The 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)[106] was signed in Windhoek in 1994 and ratified in 1997. Chapter 13 will elaborate on the conflict between development and the environment in the Okavango River Basin.

9.5 The Orange River Agreements

9.5.1 Introduction

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 South West 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

105 Fifth Water Use Agreement. See: https://bit.ly/37eCrMD, accessed 4 June 2021.
106 Permanent Okavango River Basin Water Commission. See: https://bit.ly/3luCLvU accessed 4 June 2021.

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.

9.5.2 The Joint Technical Committee

Three years before the Independence of Namibia an Agreement of Cooperation was reached between the Transitional Government of National Unity of South West Africa/Namibia and the Government of the Republic of South Africa regarding the control, development and utilisation of the water of the Orange River[107] The agreement was signed in 1987 in Windhoek. 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 utilise water from the Orange River because Namibia is a co-riparian basin State.

9.5.3 Permanent Water Commission

The 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)[108] was signed in 1992 at Noordoewer, Namibia and ratified in 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

107 Joint Technical Committee Agreement: A copy can be obtained from the DWA, Namibia.
108 A copy of the Permanent Water Commission Agreement can be obtained from the DWA.

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 was said to be between 4.9 and 3.3 billion NAD.

9.5.4 The 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 [109] (on the lower Orange River) was signed on 14 September 1992 at Noordoewer, Namibia, and ratified in 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.

9.5.5 The Lesotho Highlands Water Commission

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.

109 A copy of the Vioolsdrift - Noordoewer Joint Irrigation Scheme Agreement can be obtained from the DWA.

9.5.6 The Orange-Senqu River Commission (ORASECOM)

This 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)[110] was signed in 2000 at Okapuka, Namibia and ratified in 2001. The establishment of the ORASECOM goes back to a PWC meeting between Namibia and South Africa in Swakopmund, Namibia, in May 1995, during which 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. 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. The ORASECOM agreement was revised and signed in 2018.

9.5.7 The Revised Orange-Senqu River Commission Agreement

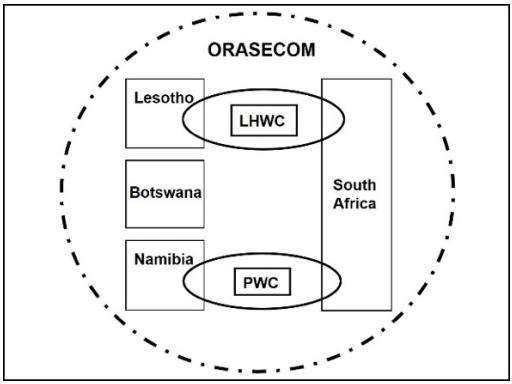
The Revised Agreement between the Governments of the Republic of Botswana, the Kingdom of Lesotho, the Republic of Namibia, and the Republic of South Africa on the establishment of the ORASECOM[111] was signed on 14 December 2018 at Maseru, Lesotho.[112] This Agreement is in the process of ratification. 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.

110 Copies of the original and revised agreements can be obtained from the DWA or the ORASECOM Secretariat.

111 Revised Orange-Senqu River Commission Agreement: The Treaty document is not available on the internet, but a copy at the DWA, Namibia.

112 The agreement was signed on behalf of the Republic of Namibia by the Honourable Minister of Agriculture, Water and Forestry, Alpheus !Naruseb.

Figure 2: Water Commissions on the Orange River



Source: Figure compiled by Pieter Heyns.

9.6 The Zambezi River Agreements

9.6.1 Then 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).[113] It was signed in Windhoek in 1990 and ratified in 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 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 that came before the International Court of Justice[114] 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

113 The name changed from Committee to Commission. A copy of the Joint Permanent Water Commission treaty document can be obtained from the DWA.

114 *Kasikili / Sedudu Island (Botswana/Namibia)*, ICJ Reports 1999, 1043.

because the Kwando – Linyanti – Chobe River System is a tributary of the Zambezi River and can therefore be included under the ZAMCOM.

9.6.2 The Zambezi Watercourse Commission (ZAMCOM)

The 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)[115] was signed in 2004 in Kasane, Botswana and ratified in 2005. The objective of the Commission is to promote the equitable and reasonable utilisation of the water resources of the Zambezi Watercourse as well as the efficient management and sustainable development thereof. To that end, the Commission *inter alia* has 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, utilisation, 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, utilisation, development, protection, and conservation of the Zambezi Watercourse;
- foster greater awareness among the inhabitants of the Zambezi Watercourse of the equitable and reasonable utilisation 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; and
- promote and assist in the harmonisation of national water policies and legislative measures.

115 Zambezi Watercourse Commission. See: https://bit.ly/37pIM7T, accessed 4 June 2021.

9.7 The Cuvelai Watercourse Commission

The Agreement between the Governments of the Republic of Angola and the Republic of Namibia on the establishment of the Cuvelai Watercourse Commission (CUVECOM)[116] was signed in 2014 in Windhoek. 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 to 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.

116 Cuvelai Watercourse Commission Agreement at https://bit.ly/39zrqrZ, accessed 5 Jun 2021.