

The Legal Framework for Water Security in SADC

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List of Abbreviations

CBD	Convention on Biological Diversity
CCD	Convention to Combat Desertification
GHG	Greenhouse Gas Emission
GMP	Ground Water Management Plan
JPTC	Joint Permanent Technical Commission
JWC	Joint Water Commission
LBPTC	Limpopo Basin Permanent Technical Committee
LIMCOM	Limpopo Water Commission
ILC	International Law Commission
IPCC	Intergovernmental Panel on Climate Change
IWRM	International Water Resource Management
OKACOM	Okavango River Basin Water Commission
RBO	River Basin Organisation
RISDP	Regional Indicative Strategic Programme
RSAP	Regional Strategic Action Plan on Integrated Water Resource Development and Management
RWP	Regional Water Policy
RWS	Regional Water Strategy
SADC	Southern African Development Community
TPTC	Tripartite Permanent Technical Committee
UNDP	United Nations Development Programme
WSSD	World Summit on Sustainable Development

Abstract

Water is a basic human necessity and water resources are becoming scarce, limited and in some cases expensive. The SADC region is a very dry and semi-arid region, which places pressure on the region's water resources and security. Water is a key ingredient for SADC to achieve their regional goals and water security should receive high priority in this region. As SADC's economic development will be defined by the availability of water it is important to define 'water security' for this region. SADC has a large number of shared water resources and the scarcity of water has fostered cooperation between the member states. Achieving water security will rely on the legal instruments that are available to the SADC region. These legal instruments focus on cooperation, integration and management of transboundary rivers. In this dissertation various international, regional and legal instruments were discussed in terms of the definition for 'water security' in the SADC region. This dissertation does not only focus on the legal framework for water security but also where this normative framework failed to address the elements of water security. Two case studies will be done on transboundary rivers (Limpopo and Okavango River) to illustrate how cooperation and agreements between countries could lead to ensuring a water secure region. RBO's are at the core of IWRM and the governance of transboundary rivers will rely on the commitment to the agreements between these countries. OKACOM and LIMCOM are both discussed in terms of their legal frameworks as well as measured against the main elements of water security. This study will thus, by examining the definition of water security and applying it to the legal framework provided for by SADC, establish whether SADC's normative framework effectively provides for water security. The case studies will provide a practical example of where the RBO's have utilised the normative framework provided, and whether RBO's facilitate or enable water security in this region.

Keywords: water resources, water security, transboundary rivers, River Basin Organisations, regional agreements

Opsomming

Water is 'n basiese menslike noodsaaklikheid en waterbronne is besig om skaars , beperk en in sommige gevalle duur te raak. Die SAOG streek is 'n baie droë en semi-droë streek, wat druk plaas op die streek se waterhulpbronne en sekuriteit. Water is 'n belangrike bestanddeel vir SAOGom hul plaaslike doelwitte te bereik en water sekuriteit behoort 'n hoë prioriteit te geniet in hierdie streek. As SAOG se ekonomiese ontwikkeling bepaal word deur die beskikbaarheid van water, is dit belangrik om 'water sekuriteit ' te definieer vir hierdie streek. SAOG het 'n groot aantal van gedeelde waterbronne en die skaarsheid van water bevorder samewerking tussen die lidlande. Die bereiking van water sekuriteit in die omgewing sal staatmaak op die wetlike instrumente wat beskikbaar is vir die SAOG-streek. Hierdie wetlike instrumente fokus op samewerking, integrasie en bestuur van grootskaalse riviere. In hierdie verhandeling word verskeie internasionale, streeks- en wetlike instrumente in terme van die definisie van 'water sekuriteit ' in die SAOG-streek bespreek. Hierdie proefskrif fokus nie net op die wetlike raamwerk vir water sekuriteit nie, maar ook waar die normatiewe raamwerk nie al die elemente van water sekuriteit aanspreek nie . Twee gevallestudies sal gedoen word op oorgrens riviere (Limpopo en Okavango River) om te illustreer hoe die samewerking en ooreenkomste tussen lande kan lei tot die versekering van 'n water-veilige streek. Rivierkom organisasies is by die kern van internasionale waterhulpbron bestuur en die bestuur van die oorgrens riviere sal staatmaak op die verbintenis tot die ooreenkomste tussen hierdie lande. OKACOM en LIMCOM is beide bespreek in terme van hul wetlike raamwerke asook gemeet teen die belangrikste elemente van water veiligheid. Hierdie studie sal dus deur die ondersoek van die definisie van water sekuriteit en die toepassing daarvan aan die wetlike raamwerk van SAOG , bepaal of die SAOG se normatiewe raamwerk voorsiening maak vir water sekuriteit Die gevallestudies sal 'n praktiese voorbeeld gee van waar die rivierkom organisasies die normatiewe raamwerk van SAOG benut het, en of die rivierkom organisasies water sekuriteit in die omgewing fasiliteer.

Sleutelwoorde: waterbronne, water sekuriteit, oorgrens riviere, Rivierkom organisasies, plaaslike ooreenkomste

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1. Introduction

In the *Fourth Assessment Report of the Intergovernmental Panel on Climate Change 2007* (IPCC)¹ it was found that Africa as a whole experiences water stresses. Water scarcity is also going to increase from 47% in 2000 to 65% in 2025.² *The African Environmental Outlook 3* of 2013 highlights the greater competition for water in terms of consumption and production activities, which can lead to conflict between the African countries.³ History has indicated how water can cause or contribute to internal conflict, leading to political instability and increase tensions.⁴ *Swain and Krampe*⁵ state that water is not only limited to the environment and development but has become a national and trans-national security issue. This is currently exemplified by the situation in Egypt where Ethiopia wants to ‘dam’ the Nile.⁶

The Southern African Development Community (SADC) is the Regional Economic Community governing Sub-Saharan Africa.⁷ Article 5(1)(a) of the SADC Treaty 2001 states that their common agenda is to “promote sustainable and equitable economic growth and socio-economic development, poverty alleviation and enhance the standard and quality of life of the people in Southern Africa and support the socially disadvantaged through regional integration”. Water resources are receiving increased attention especially in the SADC area where there are shortages in many areas.⁸ SADC has a large number of shared watercourses between the countries and covers a very water scarce area. The *Revised Protocol on Shared Watercourses*⁹ (Hereafter the Revised Watercourses Protocol) was adopted in 2000 and entered into force in 2003.

This Revised Watercourses Protocol is an instrument to support the management of water resources. The economic development potential of SADC is defined by water

1 *Fourth Assessment Report of the Intergovernmental Panel on Climate Change 2007.*

2 African Environmental Outlook 3 of 2013. (Hereafter the African Environmental Outlook).

3 African Environmental Outlook 19.

4 Church 2000 <http://www.accorc.org.za/web/nsf/0/50c67884a05b59ce42256a10004018de>.

5 Swain and Krampe *Transboundary rivers and climate change: African and Asian rivers* 16-21.

6 Swain and Krampe *Transboundary rivers and climate change: African and Asian rivers* 16-21.

7 Ng’ong’ola *The legal Framework for Regional Integration in the Southern African Development Community* 485-506.

8 Salman *Legal Regime for Use and Protection of International Watercourses in the Southern African Region* 981-1022.

9 Revised Protocol on Shared Watercourses 2001.

availability.¹⁰ Water is thus a key objective for the SADC region and whether or not SADC's legal framework provides for the protection of water security. In SADC certain development and infrastructure will be needed to improve the region's water security.¹¹ Water security is however a very broad term and the Revised Watercourses Protocol and other legal instruments of SADC will have to be explored to define the scope and ambit of water security as the term itself is not defined in the Revised Watercourses Protocol.

Water security is a core component of human security and when it is constrained, people are exposed to certain vulnerabilities such as poor health, loss of livelihood and poverty.¹² Human security is the freedom from want, fear, and hazardous impacts.¹³ Water security is also a very important component of international and food security.¹⁴ Without cooperation between states a state cannot ensure water security, human security especially in situations where there is water scarcity.¹⁵ Two factors will contribute to the cooperation between states: the position of the states and their existing relationship with other countries.¹⁶

The United Nations Human Development Report defines water security as 'every person having reliable access to enough safe water at an affordable price to lead a healthy, dignified and productive life, while maintaining the ecological systems that provide water and also depend on water'.¹⁷ One of the central themes of water security is the challenge of balancing human and environmental water needs while at the same time also protecting the biodiversity and ecosystems.¹⁸ Ensuring water security in a region ensures that this important natural resource is utilised

10 Turton *New thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC region* 2010.

11 Basson "South African water transfer schemes and their impact on the southern African Region".

12 Asiwaju and Adeniyi *Borderlands in Africa: a multidisciplinary and comparative focus on Nigeria and West Africa* 1991.

13 Turton *A South African Perspective on a Possible Benefit-Sharing Approach for Transboundary Waters in the SADC region* 180-200.

14 Böge *Water Governance in Southern Africa – Cooperation and Conflict Prevention in Transboundary River Basins* 4.

15 Böge *Water Governance in Southern Africa – Cooperation and Conflict Prevention in Transboundary River Basins* 4.

16 Floyd and Matthew *Environmental security: approaches and issues* 181.

17 United Nations Human Development Report 2006.

18 Vörösmarty et al *Global threats to human water security and river biodiversity* 551-561.

sustainably for present and future generations. The achievement of water security is challenge due to the various demands on water.¹⁹

As SADC is a region with very dry and semi-arid regions, further pressure is placed on the resources, thus intensifying the need for a cooperative management.²⁰ In SADC most of the water resources are shared and this has created more opportunities for cooperation and cooperative management.²¹ Cooperation should lead to various benefits and a River Basin Organisation is at the core of International Water Resource Management (IWRM).²² As several of the international agreements have been promoted by the international community to govern transboundary water resources, a few of these agreements will have to be discussed.²³

Water will be a key ingredient for SADC to achieve their regional goals and water security should receive high priority in the region.²⁴ SADC's economic development will be defined by the availability for water²⁵ and therefore a definition for water security specifically designed for the SADC region needs to be developed in order to discuss the legal instruments and the case studies. The reason for developing such a definition is to seek/measure whether the current SADC legal framework provides for water security in SADC. Each legal instrument will be measured against the definition, thereby highlighting each instrument's strengths and weaknesses in achieving water security. It is important to focus on their strengths and weaknesses and thus determining how water security can be achieved in these regions. Although certain legal instruments might seem ideal, the most important part of any instrument is whether the end result of the instrument is achieved. The cases studies should provide practical examples of where these instruments have delivered results or

19 Grey and Sadoff *Sink or swim? Water Security for growth and Development* 545.

20 SADC-WSCU Regional Strategic Action Plan for Integrated Water Resources Development and Management in the SADC Countries (1999-2004).

21 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?*.

22 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/water+governance+in+the+limpopo+basin.aspx>.

23 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/transboundary+water+management/international+agreements.aspx>.

24 SADC. 2005a. *Regional Water Policy*. Gaborone: Directorate of Infrastructural Services.

25 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?*

where they are still struggling to achieve water security. At the end of this discussion the legal framework or possible lack of framework for water security in the SADC region will be determined.

2. Definition of water security in SADC

Development and infrastructure is needed to improve water security in SADC.²⁶ These improvements would lead to economic growth in SADC and this is why SADC's aspires to improve water security at a regional level.²⁷ Defining water security and understanding its position in SADC is very important for this dissertation as we will be able to identify the importance of water security in SADC as well as whether the framework of SADC's regional instruments make provision or doesn't make provision for water security. SADC's legal framework for water security can only be researched once these terms are defined and understood within the SADC framework.

A few concepts and terms regarding water needs to be defined to understand how the Watercourse Protocol and other legal instruments in SADC provide for the cooperation and use of these watercourses it will also allow for a basic understanding throughout this dissertation. The first relevant definition is that of a watercourse as defined in the Shared Watercourses Systems in SADC region 1995:²⁸

The inter-related hydrologic components of a drainage basin such as streams, rivers, lakes, canals and underground water which could constitute a unitary whole by virtue of their physical relationship.

A shared watercourse refers to when a watercourse passes through, or forms, a border between two watercourse states.²⁹ Basin means a drainage basin which is a geographical area that is determined by watershed limits of a system including

26 Basson "South African water transfer schemes and their impact on the southern African Region".

27 Ashton et al "Transboundary water resource management in Southern Africa" 371-384.

28 Shared Watercourse Systems in the Southern African Development Community Region 1995.

29 Article 1 Revised Protocol on Shared Watercourse Systems in the SADC region 2001. Watercourse State means a State in whose territory part of a watercourse is situated.

underground water flow.³⁰ These definitions are useful when discussing SADC's regional water supply and the various water sources that is protected or needs protection.

This chapter will focus on water security and the various definitions and concepts it has. The linkage between water security and human security will be discussed together with the conflict that could arise in certain circumstances. Thereafter water security in SADC will be discussed with a brief view of Watercourses Protocol region that was adopted in 2001 and entered into force in 2003.

2.1 The definition of water security

What is 'water security'? This first part of this dissertation will discuss what this term means as well as what is its meaning in the SADC region. The concept of food security relies on 'water security', because growing crops relies on a reliable water resource.³¹ In this dissertation, the focus will be on water as a natural resource and what this resource means to humans and the ecosystems and services we derive from it. Falkenmark³² uses the term 'water stress' to define the stress that is placed on water resources through various issues and situations. The increase in populations decreases our availability to water resources.³³ Because of these growing populations 30% of African basins will experience over 50% more water stress.³⁴ Various issues like the increase in populations, poor policies and water quality issues all have an impact that threatens the economic growth and ecological sustainability in this region.³⁵ As the SADC's economic development potential is defined by water availability³⁶, water becomes a crucially important issue in SADC and all African countries as they have greater responsibility in ensuring water security in this region. Looking at water security, let us focus on the importance of this natural resource to ensure its utilisation for present and future generations.

30 Article 1 Protocol on Shared Watercourse Systems in the SADC region 2000.

31 Turton *New Thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC Region* 2010.

32 Gleditsch and Urdal *Roots of conflict: Don't blame environmental decay for the next war* 2004.

33 Floyd and Matthew *Environmental security: approaches and issues* 169.

34 Floyd and Matthew *Environmental security: approaches and issues* 172.

35 Floyd and Matthew *Environmental security: approaches and issues* 176.

36 Turton *New thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC region* 2010.

Water security is defined as:³⁷

Every person having reliable access to enough safe water at an affordable price to lead a healthy, dignified and productive life, while maintaining the ecological systems that provide water and also depend on water.

Firstly this definition acknowledges that everyone should be allowed access to water. Kidd³⁸ states that 'access' to a resource is an anthropocentric view to see the environment only as something for the benefit of humans. The anthropocentric view is flawed because we cannot survive without our natural resources such as water and food and lately there has been a 'deep ecology' approach. This approach tries to find a balance and harmony between individuals, communities and nature.³⁹ It does not just look at what the environment could do for the communities, but also how the communities could look after and protect the environment. The Regional Water Policy of SADC 2005⁴⁰ (Hereafter the RWP) states that the allocation and access to water must consider the social benefit to the people but also the environment. The Revised Watercourses Protocol states how countries must maintain a balance between resource development and the enhancement of the environment.⁴¹ This in turn promotes sustainable development in this region.

Looking at the UNDP's definition the defining of 'safe' water is hard. The definition does state that it should lead to a healthy and dignified life, thus giving the impression that it will be unpolluted water that won't have any detrimental effect on humans or the environment. Safe drinking water is measured by the proportion of population using a drinking-water source.⁴² As almost half of the population in this region do not have access to clean water, the amounts of 'safe' water supplies are minimal.⁴³ Pollution can 'cause hazards to human health, harm to living resources,

37 United Nations Development Programme (UNDP) *Beyond scarcity: power, poverty and the global water crisis* 12.

38 Kidd *Environmental Law* 14.

39 Deval & Sessions *Deep Ecology* 7.

40 The Regional Water Policy of SADC 2005.

41 Article 3 Revised Protocol on Shared Watercourse Systems in the SADC region 2001.

42 UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation Unknown <http://www.wssinfo.org/definitions-methods/>.

43 UNICEF Global water supply and sanitation 2006.

ecological systems and uses of the environment' that lead to detrimental effects.⁴⁴ Water is thus a crucial element for ecosystems, biodiversity but also humans and their health. The water must be safeguarded as well as be a 'safe' source for all of its users. This does not only provide for water security in terms of humans but also in terms of wildlife and ecosystems.

In Southern Africa, drought affect countries like Zimbabwe, South Africa and Namibia which in turn affects water access.⁴⁵ In Africa 44% of the population do not have access to clean, reliable water supplies.⁴⁶ Depriving people of access to water can lead to affecting domestic and productive water uses while also having problems then with food consumption and production.⁴⁷ Water security is thus linked to access and the availability in a region. This means that there is an interrelationship between these concepts and that they are needed in order for water to be secure. Their linked relationships and was defined as:⁴⁸

Availability of, and access to, water sufficient in quantity and quality to meet the livelihood needs of all households throughout the year, without prejudicing the needs of other users.

Water has a direct link towards livelihood security, which goes beyond the satisfaction of our basic needs.⁴⁹ It enhances the quality of livelihoods and the security in the access and availability of a resource. Calow's definition also recognises the sustainable use of water that allows present and future users to gain the benefit of this resource. Availability depends on climatic variability, but also on land use and human interference.⁵⁰ The demand of water will vary over time as the economic structure and the population changes.⁵¹ Water can be sustainable through

44 Holdgate *A Perspective of Environmental Pollution* 7.

45 Calow et al *Ground Water Security and Drought in Africa: Linking Availability, Access, and Demand* 246-256.

46 UNICEF *Global water supply and sanitation* 2006.

47 Calow et al *Ground Water Security and Drought in Africa: Linking Availability, Access, and Demand* 246-256.

48 Calow et al *Ground Water Security and Drought in Africa: Linking Availability, Access, and Demand* 246-256.

49 Calow et al *Ground Water Security and Drought in Africa: Linking Availability, Access, and Demand* 246-256.

50 Savenije and van der Zaag *Water as an Economic Good and Demand Management Paradigms and Pitfalls* 98-104.

51 Savenije and van der Zaag *Water as an Economic Good and Demand Management Paradigms and Pitfalls* 98-104.

growth requirements balanced against suitable protection for various parts of the watercourse system.⁵² Principles such as sustainable use and equitable use are of importance here to show how water should be managed and also what water security in a region will mean. Field⁵³ also states that ‘seeing rightly’ means the knowledge of our earth’s systems and understanding the link between economic, social and environmental systems.

Water security will always be the balance between human and environmental water needs and this in turn incorporates linkages between ecosystems and human health.⁵⁴ It is a basic approach of conserving our natural ecosystems so we can co-exist with it in harmony, while being able to use the benefits it provides without it adversely impacting us. Grey and Sadoff define water security in a hypothetical water and growth “S-curve”⁵⁵ as:⁵⁶

An acceptable level of water related to risks to humans and ecosystems, coupled with the availability of water of sufficient quantity and quality to support livelihoods, national security, human health, and ecosystem services.

An acceptable level of water means the quantity and quality of water should be of such a level that it is enough to provide for households and their livelihoods while at the same time being of such a quality that it will not affect their health or well-being. The quality of water is linked with water use because it must be of such a level that it can sustain both human and environmental needs.⁵⁷ Having access to a water resource would mean nothing if the water is of a bad quality and cannot be used. This is why water quantity and water quality issues are interlinked.⁵⁸ In certain cases water scarcity can be aggravated if there is pollution or any other discharges that

52 Conley and Van Niekerk *Sustainable management of international waters: the Orange River Case* 131-149.

53 Field *Sustainable development versus environmentalism: Competing paradigms for the South African EIA regime* 414-417.

54 Vörösmarty et al *Global threats to human water security and river biodiversity* 551-561.

55 It illustrates how a minimum platform of investments in water institutions and infrastructure can produce a tipping point beyond which water makes an increasingly positive contribution to growth and how that tipping point will vary in different circumstances.

56 Grey and Sadoff *Sink or swim? Water Security for growth and Development* 545.

57 Kidd *Environmental Law* 95.

58 A Framework for considering market-bases instruments to support environmental fiscal reform in South Africa Draft Policy Paper 2006.

reduces the quality of the water resource.⁵⁹ The Revised Watercourses Protocol identifies pollution of a watercourse as any ‘alteration in the composition or quality of the water which results directly or indirectly from human conduct’⁶⁰. This water can thus not be used and makes the access towards this resource useless.

The quantity of water will vary according to the use of certain households. This is illustrated by people only using it for household needs and people that use it in terms of agriculture or producing their own livelihoods. The definition acknowledges the ecosystem services and how water should be able to support this system. It also incorporates a new factor by introducing human security in the definition of water security. This will be discussed a little later in the paper.

In many societies water security hasn’t been achieved and the rainfall contributes to the poverty and conflict in these societies.⁶¹ These concepts of rainfall and water resources are linked towards prosperity and social harmony.⁶² According to Grey and Sadoff⁶³ the achievement of water security is a fundamental development challenge, because there are so many demands on water. The World Summit on Sustainable Development (WSSD) agreed to:⁶⁴

Intensify water pollution prevention to reduce health hazard and protect ecosystems by introducing technologies for affordable sanitation and industrial and domestic wastewater treatment, by mitigating the effects of groundwater contamination and by establishing, at the national level, monitoring systems and effective legal frameworks; and adopt prevention and protection measures to promote sustainable water use and to address water shortages.

Some of these demands are as a result of growing populations, industries (agriculture and energy) and even the global issue of climate change.⁶⁵ Achieving water security means that investments are needed in infrastructure to store and transport water, treat and reuse water as well as in robust institutions.⁶⁶

59 A Framework for considering market-bases instruments to support environmental fiscal reform in South Africa Draft Policy Paper 2006.

60 Revised Protocol on Shared Watercourse Systems in the SADC region 2001.

61 Grey and Sadoff *Sink or swim? Water Security for growth and Development* 545.

62 Grey and Sadoff *Sink or swim? Water Security for growth and Development* 545.

63 Grey and Sadoff *Sink or swim? Water Security for growth and Development* 545.

64 World Summit on Sustainable Development 2002.

65 Grey and Sadoff *Sink or swim? Water Security for growth and Development* 545.

66 Grey and Sadoff *Sink or swim? Water Security for growth and Development* 545.

2.1.2 Human security and conflict

Water security does have links to human security and the conflict that can arise when people's needs aren't met accordingly. Water security falls under the notion of human security and when people don't have access to water they are vulnerable to other security risks.⁶⁷ These risks include poor health, loss of livelihood, increased vulnerability and conflicts as a result of competition of the water resource.⁶⁸ It is very important to note water security's importance and what a prominent issue it has become for everyone.

Water security is such an essential component that international security, food security, economic and environmental security are all dependant on water security.⁶⁹ Human security can also fall in this category because without human security there will be no food or international security. Human security can be defined as 'freedom from want; freedom from fear, and freedom of hazard impact'.⁷⁰ A benefit-sharing approach is ideal in the regional context and involves human security as the main focus.⁷¹ In this context human security is the main principle and water resource management falls under this principle. Water security is however of such importance and shares linkages with so many other forms of security that it should not fall underneath human security but become a principle on its own.

The definition above recognised water security's role in national security and its support towards providing a nationally secure region. The conflicts arise as a result of water that threatens human security and even the security of these states, especially when they are already experiencing water scarcity.⁷² In situations where water scarcity compromises people's entitlement to water, water suppliers cannot

67 James and Chad "Instrument of international co-operation" 109.

68 James and Chad "Instrument of international co-operation" 109.

69 Böge *Water Governance in Southern Africa – Cooperation and Conflict Prevention in Transboundary River Basins* 4.

70 Turton *A South African Perspective on a Possible Benefit-Sharing Approach for Transboundary Waters in the SADC region* 180-200.

71 Turton *A South African Perspective on a Possible Benefit-Sharing Approach for Transboundary Waters in the SADC region* 180-200.

72 Böge *Water Governance in Southern Africa – Cooperation and Conflict Prevention in Transboundary River Basins* 4.

satisfy all human or ecosystems requirements.⁷³ This can be a man-made-water-scarcity or because of unevenly divided resources and this is when conflict occurs.⁷⁴ An example of where the security of water is being challenged and as a result affects the national security is the case of the Nile River.

In the Northeast of Africa the Nile River is the longest river in the world and has basins in Tanzania, Rwanda, Ethiopia, Sudan, Egypt and a few other countries.⁷⁵ The upstream countries want to keep more water by building dams and this affects the water share of the countries like Egypt and Sudan.⁷⁶ Ethiopia has plans to build a hydropower dam on the Blue Nile and the commission reports that it will not reduce the flow of water to the downstream countries.⁷⁷ The construction for this dam has been progressing for two years already and the dam is expected to be the largest hydroelectric power plant in Africa.⁷⁸ Egypt depends on the Nile River for 95% of their drinking water, agriculture and electricity generation and the population is ever increasing.⁷⁹ The Nile River is also very important for Sudan because 90% of South Sudan's area falls within the Nile basin.⁸⁰

Al-Labbad⁸¹ states that Egypt and Ethiopia may be forced to fight a 'water war' because Ethiopia's ambitions for the Nile contradict Egypt's historical and legal rights towards the Nile waters. Egypt has claimed 'historical rights for more than three decades and Egypt states that the only reason why they would go in to war again would be if someone threatened their control on the Nile River.'⁸² Ethiopia drafted the Entebbe Agreement to modify the legal basis for sharing of water in May 2010.⁸³

73 UNECOSOC *Comprehensive assessment of the fresh water resources of the World* 1997.

74 Böge *Water Governance in Southern Africa – Cooperation and Conflict Prevention in Transboundary River Basins* 4.

75 Encyclopedia Britannica <http://www.britannica.com/EBchecked/topic/415347/Nile-River>.

76 Al-Labbad *Almonitor* 1.

77 Milas <http://africanarguments.org/2013/06/10/egyptethiopia-there-will-be-no-water-war-in-the-nile-basin-because-no-one-can-afford-it-by-seifulaziz-milas/>.

78 Milas <http://africanarguments.org/2013/06/10/egyptethiopia-there-will-be-no-water-war-in-the-nile-basin-because-no-one-can-afford-it-by-seifulaziz-milas/>.

79 Al-Labbad *Almonitor* 1.

80 Salman *New State of South Sudan and the Hydro-politics of the Nile Basin* 154-166.

81 Al-Labbad *Almonitor* 1.

82 Milas <http://africanarguments.org/2013/06/10/egyptethiopia-there-will-be-no-water-war-in-the-nile-basin-because-no-one-can-afford-it-by-seifulaziz-milas/>.

83 Al-Labbad *Almonitor* 1. Egypt and Sudan refused this agreement and the Entebbe Agreement is not legally binding to them.

Wilner⁸⁴ claims that water is now an issue of national security here and water security should be the main priority. Milas⁸⁵ states that there will be no water war because no one can afford it. The Nile River has become a matter of life and death and domestic, foreign policy and national security policy will have to be dominated by water security.⁸⁶ If the dam however does not reduce the Nile's water flow then there is also no need for war and no need for stopping this project that will be a sustainable energy source for this region of Africa.

Water can cause conflict because it 'ignores' political boundaries and has a multiple amount of demands on it.⁸⁷ But despite these potential conflicts over war there is also hope. The potential conflicts over water resources are overwhelmed by cooperation between states.⁸⁸ Water can be a motivator for states, countries and communities to cooperate. There are however two factors to determine the nature of this type of cooperation.⁸⁹ Firstly is the position of states (upstream or downstream) and secondly is the existing relationship with other countries.⁹⁰

Are water conflicts in SADC inevitable or preventable? Dr Ashton states that the simple answer is 'yes' and that these conflicts will be inevitable if nothing is done to prevent this.⁹¹ Water is such a scarce resource in this area that increased competition will lead to a point where interventions are needed.⁹² In SADC water scarcity is already driving cooperative behaviour and could be the driver for potential regional integration.⁹³ It won't be the direct cause of a war in this region but it will contribute to regional instability.⁹⁴ Co-operation will be extremely important to ensure that trans-boundary rivers, basins and other watercourses are managed effectively to ensure maximum benefit for all country parties. The important thing to

84 Wilner *Freshwater Scarcity and Science of Freshwater and the Politics of Conflict* 1.

85 Milas <http://africanarguments.org/2013/06/10/egyptethiopia-there-will-be-no-water-war-in-the-nile-basin-because-no-one-can-afford-it-by-seifulaziz-milas/>.

86 Kenyi, MAJ and Army of South Sudan *Water Security and Hydropolitics of the Nile River: South Sudan's National Security in the 21st Century* 36.

87 Floyd and Matthew *Environmental security: approaches and issues* 176.

88 Floyd and Matthew *Environmental security: approaches and issues* 177.

89 Floyd and Matthew *Environmental security: approaches and issues* 181.

90 Floyd and Matthew *Environmental security: approaches and issues* 181.

91 Ashton *Southern African Water Conflicts: Are They Inevitable or Preventable?* 22-26.

92 Ashton *Southern African Water Conflicts: Are They Inevitable or Preventable?* 22-26.

93 Turton, Patrick and Julien *Transboundary Water Resources in Southern Africa: Conflict or cooperation?* 1-10.

94 Ashton *Southern African Water Conflicts: Are They Inevitable or Preventable?* 22-26.

remember is that conflict might not only happen at an international level, but also at sub-national level where local governments and administrative boundaries could occur.⁹⁵

2.2 SADC

SADC is referred to as an international organisation with a distinct personality in the *Windhoek Declaration and Treaty 1992*.⁹⁶ Its main economic objective is to promote sustainable and equitable economic growth that will eventually enhance the standard and quality of life of the people in the Southern African region.⁹⁷ It is regional economic community that comprises of 15 countries and was established on the 1st of April 1980.⁹⁸ The SADC Treaty is 'the basis and cornerstone for regional cooperation in Southern Africa.'⁹⁹ This region aims to become an integrated regional economy and at the moment the economic development is uneven in this region.¹⁰⁰ The SADC Regional Indicative Strategic Programme (RISDP) provides a strategic direction for SADC to achieve their long-term goals that will improve the lives of people living in SADC.¹⁰¹ The RISDP also sets out certain water infrastructure strategies and emphasises the co-operation needed to ensure infrastructure that supports the regional economic development.¹⁰² This programme will be discussed in length in addition to how infrastructures will achieve a higher level of water security in the second chapter of this paper.

In order for SADC to achieve socio-economic development to enhance the standard and quality of life, cooperation and management of these shared water resources will be very important.¹⁰³ This management will be important for development, political,

95 Turton, Patrick and Julien *Transboundary Water Resources in Southern Africa: Conflict or cooperation?* 1-10.

96 The *Windhoek Declaration and Treaty 1992*.

97 Article 5 (1)(a) of the 2 Revised Protocol on Shared Watercourse Systems in the SADC region 2001.

98 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?*.

99 SADC Member States Treaty <http://www.sadc.int> .

100 SADC Member States Treaty <http://www.sadc.int>.

101 SADC Regional Indicative Strategic Development Programme <http://www.sadc.int>.

102 SADC Regional Indicative Strategic Development Programme <http://www.sadc.int>.

103 The different types of water resources will be discussed shortly hereafter.

institutional and environmental perspectives.¹⁰⁴ Politically, it would mean strengthening communication and cooperation between countries to ensure not only water security but also national security. The national politics of certain countries are a huge challenge for this cooperation in Transboundary Rivers.¹⁰⁵ Rivers unfortunately 'do not respect the political boundaries'¹⁰⁶ and therefore various countries will have to cooperate in order for them to achieve water security and utilise this natural resource to the best of their ability.

2.2.1 Conceptual framework for sharing Transboundary Rivers

Savenije and van der Zaag¹⁰⁷ identify a conceptual framework for the sharing of international water resources and the management of these. At the basis of this 'temple' foundation should be the integrated way in which water resources are managed.

H.H.G. Savenije, P. van der Zaag / Water Policy 2 (2000) 9-45



Fig. 1. The classical temple of sharing international water resources.

104 Mohamed *Cooperation and Joint Development* 214.

105 Swain and Krampe *Transboundary rivers and climate change: African and Asian rivers* 19.

106 Murovhi and Matlala 2008 http://www.inweb.gr/twm4/.../7_Murovhi.pdf.

107 Savenije and van der Zaag *Conceptual framework for the management of shared river basins* 9-45.

There are three main pillars: technical cooperation, political pillar and institutional pillar.¹⁰⁸ The central one is the technical cooperation and this pillar is central to the success of management of international water resources.¹⁰⁹ The side pillars are the political pillar that is responsible for an enabling environment and the institutional pillar responsible for laws and institutions.¹¹⁰ These pillars will be briefly discussed in order to understand how these parts are needed for sharing of water resources and management, and what steps SADC has taken in this regard. The possible need to include another pillar will also be discussed and what this pillar's function will be.

Firstly is the foundation and there are three different types of dimensions to consider in this model. The water's physical size, quality, quantity and its interaction with other ecosystems has to be taken into consideration.¹¹¹ Not only is the physical dimension important but also the non-physical dimension and this refers to the value of the water resource.¹¹² Water does not only have value for humans and wildlife but also for industries like agriculture and fisheries. This means that the water resource and its security will not only influence human security but also ensure economic development. Sustainability is the last principle and it is very important when managing water resources to secure the natural resource for present and future generations.¹¹³

The political pillar faces two problems: management of water resources holistically and sharing the resource internationally.¹¹⁴ The management of water resources has to secure sectoral integration, and this means coordinating planning and implementation has to be done in an integrated manner. Downstream countries sometimes have a more important role in cross-boundary planning and cooperation,

108 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

109 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

110 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

111 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

112 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

113 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

114 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

because they depend more on the upstream countries activities and actions.¹¹⁵ We saw this in the Nile case and how Egypt is trying to stop Ethiopia from building a hydro powerplant, thus affecting their access to this water resource. The legal-institutional pillar deals with the legal instruments countries have in managing these water resources.¹¹⁶ SADC has already acknowledged the importance of these water resources and developed a Protocol that will be discussed hereafter. Sharing Transboundary Rivers can't be seen separately from economic cooperation and the political will to develop the region as a whole.¹¹⁷

The technical cooperation pillar is the centrepiece for sustaining cross-boundary river management and is a more concrete and practical pillar.¹¹⁸ For cross-boundary river management to be effective this pillar provides for establishing trust, confidence and ensuring that reliable information is given to everyone.¹¹⁹ There are some technical issues that lead to ineffective (cooperation, information, crisis procedures, human resource development, joint research, joint plans and joint ventures) and by ensuring that these issues are addressed, the level of cooperation will increase.¹²⁰

For the purpose of this dissertation a fourth pillar, for the integrated management of shared river basins, is proposed. This pillar will be called the sustainable development pillar. The concept of sustainable development has been argued and debated for many years and is seen as the development of international environmental law.¹²¹ Kidd¹²² states that this concept encompasses three pillars: social, economic and environmental. All three these pillars are needed and should be equal to ensure that any development is sustainable. This pillar is vital for the

115 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

116 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

117 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

118 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

119 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

120 Savenije and van der Zaag Conceptual framework for the management of shared river basins 9-45.

121 Sands *Principles of International Environmental Law* 279-285.

122 Kidd *Environmental Law* 17-18.

'appreciation of the role of environmental law in modern society'.¹²³ This pillar will also ensure that the SADC region will be able to develop in a more sustainable way and thus ensuring that the shared river basins are utilised for present and future users.

2.3 Water security in SADC

Water is a basic human necessity and local and national sources of water are becoming scarce, limited or expensive and thus many countries are facing a water crisis.¹²⁴ The Southern African region especially has a very dry and semi-arid region that puts pressure on water resources and food security.¹²⁵ SADC countries are rapidly moving to situations of water stress.¹²⁶ As water resources becomes increasingly scarce in this region, the competition for shared water resources will intensify but so will the need for cooperative management.¹²⁷

In the SADC region, water is the most shared resources and there are 21 river basins across the international political borders.¹²⁸ Of these river basins 15 are considered to be very important for socio-economic development.¹²⁹ SADC has two important water resources in this area, firstly is the high number of transboundary rivers and secondly groundwater.¹³⁰ The significance of groundwater should not be forgotten because it is one of SADC's vital resources that are used by rural communities as drinking water.¹³¹ Turton¹³² states that these resources are extremely important for poverty eradication.

123 Kidd *Environmental Law* 18.

124 Mohamed *Cooperation and Joint Development* 214.

125 Mohamed *Cooperation and Joint Development* 214.

126 Savenije and van der Zaag *Conceptual framework for the management of shared river basins; with special reference to the SADC and EU* 9-45.

127 SADC-WSCU Regional Strategic Action Plan for Integrated Water Resources Development and Management in the SADC Countries (1999-2004).

128 Turton *New Thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC Region* 2010.

129 Turton *New Thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC Region* 2010.

Turton *New Thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC Region* 2010.

130 Malzbender and Earle *Water Resources of the SADC* 4-5.

131 Turton, Ashton & Jacobs *The Management of Shared Water Resources in Southern Africa* 2008.

132 Turton *New thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC region* 2010.

Water will be a key ingredient for SADC to achieve their regional goals and aspirations of the SADC Treaty.¹³³ SADC's economic development will be defined by the availability for water¹³⁴ but will the availability ensure a certain standard of quality? This makes water a very high priority and a water vision was created for:¹³⁵

Equitable and sustainable utilisation of water for social and environmental justice, regional integration and economic benefit for present and future generations.

Water is a resource that is vital to life and for which there is no substitute, so the only option is to determine how water can be allocated and used effectively.¹³⁶ This vision is created with the source in mind and focuses on the long-term benefits it will provide for the people, ecosystems and economic development.

The Revised Watercourses Protocol, the *RWP* and the *Regional Water Strategy* (Hereafter the *RWS*) are instruments to develop and support the management of SADC's water resources. The Watercourses Protocol is the first regional agreement that was signed by all of the SADC member states and represents regional consensus.¹³⁷ In SADC a central role has been given to river basins and the management of these waters, despite regional differences.¹³⁸ Thus, countries have been setting their differences aside to ensure that the seriousness of water security and cooperation for these river basins are given priority.¹³⁹

The Revised Protocol on Watercourses has set the legal framework for transboundary water cooperation and is the primary legal instrument that guides this cooperative use of the shared resource.¹⁴⁰ The objective of the Revised Protocol on Watercourses is cooperation for sustainable coordinated management, protection

133 SADC. 2005a. *Regional Water Policy*. Gaborone: Directorate of Infrastructural Services.

134 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?*.

135 SADC *Southern Vision on Water, Life and the Environment* 1.

136 Savenije and van der Zaag *Water as an Economic Good and Demand Management Paradigms and Pitfalls* 98-104.

137 Turton *New thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC region* 2010.

138 Savenije and van der Zaag *Conceptual framework for the management of shared river basins; with special reference to the SADC and EU* 9-45.

139 Savenije and van der Zaag *Conceptual framework for the management of shared river basins; with special reference to the SADC and EU* 9-45.

140 Molefi "Transboundary Water Cooperation in SADC region".

and utilisation of shared watercourses and advance SADC's regional integration and poverty alleviation.¹⁴¹

Turton¹⁴² identifies 3 categories: Category 1 (transboundary rivers of which not all of the riparian states are SADC member states), Category 2a (rivers that have significant portions of their basins in each riparian state) and 2b (rivers that are fully within SADC territory and thus under the jurisdiction of the SADC Watercourses Protocol, but joint management is not critical and even sometimes impractical) and Category 3 (rivers that have specific hydrological regimes, which are not conducive to the construction of large dams but sometimes also linked to groundwater). SADC's Watercourses Protocol is not applicable to the management of all river basins.¹⁴³ Turton¹⁴⁴ states that the SADC's Watercourses Protocol is not applicable to the management of all river basins, it can however be managed in the future. Of the 21 transboundary rivers in SADC, 9 of these are not included by a treaty or a river basin organisation.¹⁴⁵

2.3.1 Water in other sectors

The Revised Watercourses Protocol states that resources will be used for agriculture, domestic, industrial, navigational and environmental uses.¹⁴⁶ This means that different sectors will be allowed the use and benefit from these watercourse systems. Benefits could include a higher standard of living or even an economic good. This is discussed in the four Dublin principles that describe water as an economic good.¹⁴⁷ These principles are that water is a finite, vulnerable and essential resource which should be managed in an integrated manner, water resources development and management should be based on a participatory

141 Article 2 Revised Protocol on Shared Watercourse Systems in the SADC region 2001.

142 Turton *New thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC region 2010*.

143 Turton states that it can however be managed in the future. 9 of the 21 transboundary rivers in SADC are not included by a treaty or a river basin organisation.

144 Turton *New thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC region 2010*.

145 Turton *New thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC region 2010*.

146 Article 3 of the Revised Protocol on Shared Watercourse Systems in the SADC region 2001.

147 ICWE. 1992. *The Dublin Statement and Report of the Conference*. International Conference on Water and the Environment: Development Issues for the 21st century. 26–31 January. Dublin.

approach, involving all relevant stakeholders, women play a central role in the provision, management and safe guarding of water, water has an economic value and should be recognized as an economic good, taking into account affordability and equity criteria.¹⁴⁸

When considering water as an economic good it revolves around the idea of making integrated choices and not determining the right price of water.¹⁴⁹ Allocation of water to certain sectors is needed to have a positive effect on society.¹⁵⁰ By ensuring certain sectors are receiving the needed amount of water, it ensures their success and effectiveness that will enable development in this region.

It is important to understand how water is used in other sectors and how these uses can be improved.¹⁵¹ Certain protocols, policies and strategies were created for the promotion of joint management, ensuring its implementation and to enable an environment that can manage water resources and development in this region.¹⁵² There is a requirement for regional water infrastructure development to: develop water infrastructure by 2015 and to give people that has no access to drinking water and sanitation.¹⁵³ In 2005 the RISDP was created to enable the environment and this programme identified three pillars: Agriculture (food security), Hydropower (energy security) and Water security (water supply and sanitation).¹⁵⁴

Water contributes to various sectors like agriculture, energy, mining and the environment and it will be very important to ensure that planning is done in an integrated manner.¹⁵⁵ Other sectors need to change and implement new ways to

148 International Conference on Water and the Environment: Development (ICWE) *Issues for the 21st century*.

149 Savenije and van der Zaag *Water as an Economic Good and Demand Management Paradigms and Pitfalls* 98-104.

150 Savenije and van der Zaag *Water as an Economic Good and Demand Management Paradigms and Pitfalls* 98-104.

151 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?*

152 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?* 4-5.

153 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?*

154 SADC. 2008. *Regional Strategic Water Infrastructure Development Programme*. Gaborone: SADC Water Division.

155 Takawira *What should be done to attract private sector participation in the SADC Regional Strategic Water Infrastructural Development Programme?* 21-22.

ensure that water as a resource is being utilised in a more productive and effective manner. It also means water security has to be integrated in other sector policies to ensure the successful implementation of water management. Rivers like the Orange and Zambezi rivers and their water quality and quantity will affect the agriculture sector.¹⁵⁶

Agriculture is a major economic activity and will be severely affected by water scarcity.¹⁵⁷ Agriculture is one of the most important economic developments that provides for these areas and this would lead to challenges in water and food security.¹⁵⁸ Floyd and Matthew¹⁵⁹ state that withdrawals are needed in the agriculture sector especially in developing countries. This is because water needs are increasing and basic needs such as drinking water, washing and food preparation are needed. This means that there is a balance of interests that weighs against each other. Firstly is our basic need for water and secondly the development of SADC's economic development. Water security and its protection in the SADC region means that people will have overall security in their quality of life and development. It also means that SADC will be able to grow and development economically, ensuring a higher quality of life for the people in these regions.

2.4 A definition for water security in SADC

A definition for water security in SADC is needed to discuss the legal instruments applicable to it in the third chapter of this dissertation. From the discussion above a definition can be formulated to specifically encompass what water security in SADC means. This will highlight the issues that need to be addressed as well as the guideline to how water should be utilised in SADC. Accordingly water security is defined as:

- a) The availability and access to water that is;
- b) sufficient in quality and quantity to;
- c) provide for sustaining basic needs, ecological services, national security,

156 Swain and Krampe *Transboundary rivers and climate change: African and Asian rivers* 19.

157 Swain and Krampe *Transboundary rivers and climate change: African and Asian rivers* 19.

158 Swain and Krampe *Transboundary rivers and climate change: African and Asian rivers* 19.

159 Floyd and Matthew *Environmental security: approaches and issues* 172.

- d) to give expression to sustainable development in the region without compromising the needs of future users.

The following definition will be used throughout the dissertation and takes into consideration all the above mentioned definitions and discussions.

3 Legal framework for water security in SADC

3.1 General Remarks and Methodology

SADC's goal is to eradicate poverty, promote economic growth and development and enhance the standard and quality of the people in Southern Africa.¹⁶⁰ In Chapter 2 it was shown how water plays a key role in achieving these goals.¹⁶¹ Achieving water security will rely on the legal instruments that are available in the SADC region that focus on the cooperation, integration and management of these transboundary rivers.¹⁶² To organise and manage a river basin, a very strong political and financial commitment is needed from the SADC countries.¹⁶³ How these countries cooperate will determine how effectively these water resources are managed and utilised for present and future generations. Molefi¹⁶⁴ identifies regional water instruments in SADC that have the capacity to manage the utilisation of water and to use resources in a more sustainable way.

The SADC Water Division, together with stakeholders and member states, developed instruments to manage and develop water resources management. These instruments are: SADC Revised Watercourses Protocol, SADC Vision for Water, Life and the Environment in the 21st Century, SADC RWP, SADC RWS, SADC IWRM and the SADC *Framework for Climate Change Programmes 2010*¹⁶⁵. These instruments will be discussed with regards to what extent the normative framework provides for water security in SADC.

160 Article 5(1)(a) of the SADC Treaty 2001.

161 Paragraph 2.2 page 10.

162 SADC Regional Water Policy 2005 4.

163 Savenije and van der Zaag *Conceptual framework for the management of shared river basins; with special reference to the SADC and EU* 9-45.

164 Molefi "Transboundary Water Cooperation in SADC region".

165 SADC *Framework for Climate Change Programmes 2010*.

The Revised Watercourses Protocol is the only legally binding document on these Member States but it provides flexibility for countries to enter into their own water-basin agreements.¹⁶⁶ Although the RWS and the RWP are non-binding guideline documents they are still adhered to by all the member states.¹⁶⁷ The Revised Watercourses Protocol also provides for the context for the RWP and states that the RWS is responsible for putting these documents into practice.¹⁶⁸ SADC Vision for Water, Life and Environmental provides important input to the RWS and this has led to National IWRM Plans.¹⁶⁹ It is therefore important not only to discuss the legally binding document but also all the documents that will lead to the implementation of the protocol and which provide the framework for the implementation of the Protocol and the Policy.

Measuring the definition developed in the first chapter against these legal instruments in SADC will be a clear indication whether these legal frameworks provide for water security in SADC and to what extent. Each part of the definition¹⁷⁰ will be looked at separately when discussing these instruments. The main points to discuss will be: availability and access, quality and quantity, the various demands on a water resource and lastly sustainable development and policy.

3.2 Legal Framework

3.2.1 Revised Watercourses Protocol

The Summit of Heads of States of SADC revised the 1995 Watercourse Protocol and took into account the developments of international water law to address the limitations (discussed in footnote) of this Watercourses Protocol.¹⁷¹ When the

166 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

167 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

168 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

169 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

170 The availability and access to water that is sufficient in quality and quantity to provide for sustaining basic needs, ecological services, national security, and sustainable development in the region without compromising the needs of future users.

171 Salman *Legal Regime for Use and Protection of International Watercourses in the Southern African Region* 981-1022. These types of limitations include the use of the terms drainage basin and watercourse system, equitable and reasonable utilisation that aren't defined. This Watercourse Protocol also does not make provision for the obligation not to cause significant harm and the planned measures on the environment are very cursory.

member states signed the *Revised Watercourses Protocol on shared Watercourses in SADC* 2001 this Protocol had significance for water in the SADC region because of the water scarcity that was increasing.¹⁷² After the Watercourse Protocol SADC could now focus on the issues regarding the use and protection of the water resource and also the shared river basins.¹⁷³

The Revised Watercourses Protocol does recognise the validity of the Watercourses Protocol, but article 16 of the Revised Watercourse Protocol states that it will repeal and replace the Watercourse Protocol.¹⁷⁴ The Revised Watercourse Protocol was thus formulated in the advancement of SADC's regional cooperation in terms of shared water resources. The Revised Watercourses Protocol aims to foster cooperation between member states to manage, protect and utilise the shared watercourses in the SADC region.¹⁷⁵ This as a result supports SADC's regional objectives to alleviate poverty and grow economically. The Revised Watercourses Protocol has the following objectives:¹⁷⁶

Promoting shared watercourse agreements, advancing the sustainable, equitable, and reasonable utilisation of such shared watercourses, and promoting the coordinated and integrated as well as environmentally sound development and management of shared watercourse.

The Revised Watercourses Protocols main goal is to foster close and coordinated cooperation in the management, protection and utilisation of natural resources in advancing the SADC agenda.¹⁷⁷ This is to be achieved through: promoting and establishing shared watercourse agreements, advancing sustainable and reasonable utilisation of shared watercourses, promoting environmentally sound development and management, promoting the harmonisation and monitoring of legislation and policies and promoting the research and technology development.¹⁷⁸ The Revised

172 *Salman Legal Regime for Use and Protection of International Watercourses in the Southern African Region* 981-1022.

173 *Salman Legal Regime for Use and Protection of International Watercourses in the Southern African Region* 981-1022.

174 *Salman Legal Regime for Use and Protection of International Watercourses in the Southern African Region* 981-1022.

175 Article 2 of the *Revised Protocol on Shared Watercourses* 2001.

176 Article 2 of the *Revised Protocol on Shared Watercourses* 2001.

177 Unknown <http://www.gwp.org/en/gwp-in-action/Southern-Africa/News-and-Activities-GWP-Southern-Africa/Promoting-Transboundary-Cooperation-in-Southern-Africa/>.

178 *Revised Protocol on Shared Watercourses* 2001.

Watercourse Protocol is the legal instrument under which bilateral and multilateral agreements between Watercourse States may be developed.¹⁷⁹ For purpose of this dissertation the Revised Watercourses Protocol will now be focussed on and how it currently provides for water security in the SADC region.

3.2.1.1 The Revised Watercourses Protocol and the elements of water security

Firstly the Revised Watercourses Protocol does not directly deal with the first element of water security (access and availability). Access and availability is not mentioned once throughout the Protocol but in Article 3 it states that State Parties have to maintain a balance between resource developments to achieve a higher standard of living for the people while promoting sustainable development.¹⁸⁰ For people in SADC to achieve a higher standard of living it is important for them to have access and availability of a water resource. Access to water is vital for human health and needs to be included and provided for in the Protocol.¹⁸¹ In article 3(8) a shared watercourse should be utilised and the population that is dependent on it should be taken into account.¹⁸² The availability and access of a water resource could be jeopardised by pollution but this will be discussed when dealing with the quality and quantity of such a resource.¹⁸³

The availability and access to a water resource could be difficult to implement on a regional level if certain countries have different laws in their legal framework. For example South Africa has a constitutional right to access to water but another country might not have the infrastructure or the right to provide for this right.¹⁸⁴ If the Revised Watercourses Protocol includes the element of access and availability it will have the potential to create a certain standard to which all countries will adhere to and provide for and thus harmonise this element. This domestic level is also the most important level in ensuring that human rights are protected by law.¹⁸⁵ There won't be a need to protect these human rights of people, if the legal system of each

179 SADC's Regional Water Policy 2005 4.

180 Article 3 of the *Revised Protocol on Shared Watercourses* 2001.

181 African Environmental Outlook 3.

182 Article 3(8) of the *Revised Protocol on Shared Watercourses* 2001.

183 African Environmental Outlook 3.

184 Section 24/27 Constitution of the Republic of South Africa 1996.

185 Bindu *Environmental and developmental rights in the SADC* 127.

county protects everyone within their jurisdiction.¹⁸⁶ Bindu¹⁸⁷ states that if there is no respect for human rights in a domestic system, then a regional system that is based on consensus cannot function. Each country is therefore left to their own accord in deciding how they provide for certain resources.

The quality and quantity of water resources especially transboundary water resources are very important, especially for countries in a downstream region.¹⁸⁸ The upstream countries have a greater responsibility to ensure that pollution does not occur to secure a certain quality of water for the downstream countries. Section 4(2)(b) of the Revised Watercourses Protocol deals with the prevention, reduction and control of pollution and ensures that the countries harmonise their policies and legislation to set joint water quality criteria and objectives.¹⁸⁹ Therefore the Revised Watercourses Protocol addresses the second element of water security (quality and quantity). This aims to ensure that countries have the same approach to pollution control and list of substances that will not be allowed in the watercourse that ensures that upstream and downstream countries enjoy the quantity of water.

Upstream countries are also in a position where they could alter the regulation of the flow of a watercourse and thus influence the quantity of water the downstream countries receive. The Revised Watercourse Protocol defines regulation of the flow of the waters of a shared watercourse as:¹⁹⁰

The use of hydraulic works or any continuing measure to alter, vary or otherwise control the flow of waters of a shared watercourse.

As discussed above the Nile and the new hydropower station is an example of where the regulation of the flow of the Nile might be altered through hydraulic works.¹⁹¹ This gives the upstream countries a big responsibility in ensuring that the water that is going downstream still provides for a certain quality and quantity for the downstream countries. State parties have to take all appropriate measures to

186 Bindu *Environmental and developmental rights in the SADC* 127.

187 Bindu *Environmental and developmental rights in the SADC* 127.

188 Savenije and van der Zaag *Conceptual framework for the management of shared river basins; with special reference to the SADC and EU* 9-45.

189 Article 4(2)(b) of the Revised Protocol on Shared Watercourses 2001.

190 Article 1 of the Revised Protocol on Shared Watercourses 2001.

191 Section 2 of this Dissertation.

prevent causing significant harm to other States, when they utilize this watercourse.¹⁹²

The Revised Watercourse Protocol recognises the third element of the definition of water security and recognises the needs of potential users and thus the current users have a responsibility in utilising this shared watercourse in an equitable and reasonable manner.¹⁹³ Lastly, this Revised Watercourse Protocol recognises five different uses for the resource. These are: agriculture, domestic, industrial, navigational and environmental uses.¹⁹⁴ The SADC region should take into account the three pillars of sustainable development when any type of development is to be undertaken. Article 3 of the Revised Watercourses Protocol states that: State Parties should ensure the sustainable development of all Watercourse States (therefore ensuring that the last element of water security is provided for) and ensure regional integration for their objectives.¹⁹⁵ It will be important for the region especially when considering the shared watercourses and how development could influence the utilisation of watercourses. Southern Africa is already a region where development is inequitably distributed within separate countries in this region.¹⁹⁶ One of the objectives of the Revised Watercourse Protocol is to promote development and protection of shared watercourses while allocating the resources.¹⁹⁷

3.2.2 RWP

SADC's RWP 2005¹⁹⁸ recognised the need for a long-term policy in the development and management of the region's water resources and transboundary watercourse systems.¹⁹⁹ A feature in this region is the complex water rights and the possibility of conflict over these shared watercourses.²⁰⁰ Even with various projects, programmes

192 Article 3 of the Revised Protocol on Shared Watercourses 2001.

193 Article 3(8) of the Revised Protocol on Shared Watercourses 2001.

194 Revised Protocol on Shared Watercourses 2001.

195 Article 3 of the Revised Protocol on Shared Watercourses 2001.

196 Turton *A South African Perspective on a Possible Benefit-Sharing Approach for Transboundary Waters in the SADC region* 180-200.

197 Article 2 of the Revised Protocol on Shared Watercourses 2001.

198 SADC's Regional Water Policy 2005.

199 SADC's Regional Water Policy 2005 10.

200 SADC's Regional Water Policy 2005 14.

and strategies the development of water resources still faces challenges such as weak coordination and low access to safe drinking water.²⁰¹ This RWP is anchored in the following pronouncements from SADC: the Vision for Water, Life and Environment 2000, Revised Watercourses Protocol and the SADC Declaration and Treaty (Towards 'the Southern African Development Community' that was adopted in Windhoek 1992). The purpose of the RWP is:

to provide a framework for sustainable, integrated and coordinated development, utilisation, protection and control of national and transboundary water resources in the SADC region.²⁰²

Socio-economic development and the quality of life of the people living in this region are at the highest priority and this policy should provide the context for water resource management in achieving these goals.²⁰³

3.2.2.1 RWP and the elements of water security

Currently there is low access to safe drinking water and adequate sanitation as a result of inadequate infrastructure in this region.²⁰⁴ Access to water must be seen as a social benefit to people and the environment.²⁰⁵ Many people in this region are very poor and access to a water resource would improve their livelihoods and human dignity. The SADC states have a responsibility to ensure that there is sustainable access to safe water supply for basic needs in their countries.²⁰⁶ By improving access to a reliable water supply this RWP could even mitigate the impact of HIV/AIDS.²⁰⁷ Thus through improving human life, human health will be improved by the right infrastructure for water access.

The RWP recognises the first element of water security and the challenge to ensure that water resources are available to various users especially in a transboundary

201 SADC's Regional Water Policy 2005 23.
202 SADC's Regional Water Policy 2005 vii.
203 SADC's Regional Water Policy 2005 39.
204 SADC's Regional Water Policy 2005 vi.
205 SADC's Regional Water Policy 2005 22.
206 SADC's Regional Water Policy 2005 23.
207 SADC's Regional Water Policy 200510.

context.²⁰⁸ Certain areas in this region are very water scarce where other areas have an abundance of water resources and the concept of sharing benefits will have to be developed through a negotiated process.²⁰⁹ The reliability of water availability is influenced by the high variability of the water resources and there is a need to regulate flows and thus securing reliable supplies under various conditions.²¹⁰

The quality management of water is very important and there should be a minimum standard for the water in the shared watercourses between the states.²¹¹ This policy promotes the improvement of the quality of life for people, but does not state the quality of water which would lead to the improvement of the community's quality of life. The RWP therefore does not completely address the second element of water security and thus the quality of the water required for this region. There are, however, minimum standards and this means that each Member State has to take it upon themselves to ensure that there are pollution control measures both for ground and surface water.²¹² More than six SADC countries will experience water quality and quantity problems in the dry seasons.²¹³ This creates an even bigger need to ensure that the available water is protected from any pollution or loss of quality.

In the RWP, there is a section regarding the water quality management of transboundary rivers and state how SADC should harmonise and uphold certain minimum water quality standards.²¹⁴ In cases where water crosses the political boundaries, the quality of the water is even more important.²¹⁵ It will be vital for each Member State to adopt certain measures to prevent and control pollution because pollution by one party can impose cost to another country.²¹⁶ The 'polluter pays' principle is applicable and will assist in implementing the mechanisms for pollution control in the various countries.²¹⁷ The quantity of water resources aren't expressly

208 SADC's Regional Water Policy 2005 10.
209 SADC's Regional Water Policy 2005 8.
210 SADC's Regional Water Policy 2005 8.
211 SADC's Regional Water Policy 2005 29.
212 SADC's Regional Water Policy 2005 31.
213 SADC's Regional Water Policy 2005 6.
214 SADC's Regional Water Policy 2005 31.
215 SADC's Regional Water Policy 2005 23.
216 SADC's Regional Water Policy 2005 23.
217 SADC's Regional Water Policy 2005 31.

mentioned and only state that there should be a certain quantity to assist the environment.²¹⁸

The RWP highlights the importance of the third element of water security and how the various sectors need to be regulated. The different types of uses of these transboundary water resources are very important and the major water uses will be regulated through authorisations such as a system of permits.²¹⁹ Water in the SADC area will be used in various sectors like trade, agriculture, energy and the environment.²²⁰ To enable the SADC countries to integrate this water resource development and management, they will need inter-sectoral coordination.²²¹ This means that the agriculture sector will be affected if the energy sector decides to build a new hydropower energy plant, possibly affecting the water flow allocated to the farms. The major water use sectors are agriculture, energy and environment and this RWP should also coordinate with other sectoral policies in SADC.²²² It would also mean that these sectors should contribute to the economic development of SADC but should do it in a sustainable manner while consulting and cooperating with one another.

Agriculture is the sector that uses the highest amount of water resources, accounting for 70% of SADC's water use.²²³ This means that due to this high water use, the agriculture sector needs to take extreme consideration when using the water and protecting these resources. The RWP introduces a section that will try to promote measures to increase the water use efficiency in agriculture, thus becoming more sustainable and allocating more resource for other productive sectors.²²⁴ These efficient technologies will lower the amount of water use and the RWP encourages these technologies in all 'wet industries.'²²⁵ The RWP suggests that industrial water users should pay for economic cost of services and this pricing of water encourages

218 SADC's Regional Water Policy 2005 32.
219 SADC's Regional Water Policy 2005 38.
220 SADC's Regional Water Policy 2005 xvii.
221 SADC's Regional Water Policy 2005 xvii.
222 SADC's Regional Water Policy 2005 12.
223 SADC's Regional Water Policy 2005 26.
224 SADC's Regional Water Policy 2005 27.
225 SADC's Regional Water Policy 2005 28.

more efficient use of water resources.²²⁶ This is extremely important because water use is combined with environmental sustainability and the benefit it has for humans.

Lastly is the sustainability principle and as the fourth element for water security in this region the RWP expressly provides for this element. The RWP defines 'sustainable development' as:²²⁷

A pattern of development that permits future generations to live at least as well as the current generation.

This means that water needs to be protected and regulated in order for future users to have the same or equal amount of water use. A Watercourse Commission that coordinates the sustainable development and utilisation of the water resources will be established from this RWP.²²⁸ The RWP was formulated following the World Summit on Sustainable Development (WSSD) and thus we see that the RWP is aimed at the sustainable development of SADC.²²⁹

3.2.3 RWS

The RWS 2006²³⁰ represents the framework for implementation of the Policy and Protocol, indicating actions, responsibilities and timeframes.²³¹ The RWS gives effect to the RWP and states how to deal with these regional water issues.²³² Member States have a responsibility to implement the RWS and apply the principles in their national policies and strategies.²³³ The RWS is divided into three parts: Chapter 1 and 2 (background and context), Strategy statements and Monitoring and Evaluation processes.²³⁴ Applying the definition for water security on the RWS we will see how this strategy addresses each of these issues.

3.2.3.1 RWS and the elements of water security

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- 226 SADC's Regional Water Policy 2005 29.
 - 227 SADC's Regional Water Policy 2005 59.
 - 228 SADC's Regional Water Policy 2005 xv.
 - 229 SADC's Regional Water Policy 2005 3.
 - 230 SADC's Regional Water Strategy 2006 1.
 - 231 SADC's Regional Water Policy 2005 xvii.
 - 232 SADC's Regional Water Strategy 2006 1.
 - 233 SADC's Regional Water Strategy 2006 1.
 - 234 SADC's Regional Water Strategy 2006 1.

The RWS is aimed to promote the availability and accessibility of water for socio-economic development therefore providing a strategy in achieving the first element of water security.²³⁵ The RWS proposes do to this in three steps: Firstly to develop adaptation strategies to minimise the impact associated with climate change, secondly to develop measures that will ensure availability and access to water, for instance conjunctive uses of surface and groundwater, and lastly to support the development and implementation of awareness programmes on water-use efficiency.²³⁶ The RWS recognises how many people do not have access to adequate water for their daily and productive uses and how these low levels impact the poorest and most vulnerable members of their society.²³⁷

Access to water plays an important role in poverty reduction, economic development and sustainable use and the RWS goal is to have the amount of people without access to safe drinking water and sanitation services by 2015.²³⁸ The availability of the water demand also has not been met, resulting in scarcities and areas of excesses.²³⁹ Water needs to be distributed evenly keeping in mind each country's needs. There is a policy from the RWS that states equitable utilisation of associated water resources should be distributed for mutual benefit and integration.²⁴⁰

The RWS addresses the second element of water security and focusses on strategies of how to achieve water quality in the region. The RWS facilitates the development of guidelines and minimum standards for the quality of water in this region.²⁴¹ As we have seen in this dissertation the second element of water security the quality of water will play an ever bigger role than the quantity, thus ensuring the water is of a certain standard to satisfy basic human needs. There has been a lack of knowledge in SADC regarding the quality and quantities of ground water that has resulted in unsustainable development and the management of these resources.²⁴²

235 Section 4(1)(c) of the SADC's Regional Water Strategy 2006.

236 SADC's Regional Water Strategy 2006 31.

237 SADC's Regional Water Strategy 2006 9.

238 SADC's Regional Water Strategy 2006 104.

239 SADC's Regional Water Strategy 2006 9.

240 Section 9.2.2 of the SADC's Regional Water Strategy 2006.

241 SADC's Regional Water Strategy 2006 4.

242 SADC's Regional Water Strategy 2006 35.

This means there is a greater need to protect the quality of water to ensure that it is optimally used. Any planning should take into account the cross-cutting nature of water between surface, groundwater and land-use.²⁴³ The planning of a river basin will then lead to equitable and sustainable utilisation while having an impact on the availability and quality of water.

The RWS describes strategies to address the issues of water quality and also the control of alien invasive species that have a negative effect on the water resources of this region.²⁴⁴ Factors such as industrial activity and agriculture has a major effect on the quality of water, but water pollution in SADC is the most serious problem that needs to be addressed.²⁴⁵ Although there are efforts from the Member States to monitor and control the water quality, there are still various constraints such as the weak economic situation of most SADC countries.²⁴⁶ Some of these countries do not have the resource capacity to manage water quality and there is also a lack of guidelines and minimum standards for the water quality.²⁴⁷ This has sparked the SADC countries to enhance the guidelines and standards of water quality for this region.²⁴⁸

The RWS recognises the third element of water security, the environment as a resource base and as a legitimate water user.²⁴⁹ Various sectors need to align their sector strategies to improve the efficiency and sustainability of water use in those sectors.²⁵⁰ Water is such an important resource that these alignments and cooperation have to be done to ensure that water resources are used efficiently and allocated efficiently.²⁵¹ Water is not a resource that is infinite and if it is not utilised properly, very soon more areas of SADC will face water stress. Conservation of this resource will ensure that it is more sustainable and ensures the resource's longevity.²⁵² The RWS promotes the availability and accessibility of water and this

243 SADC's Regional Water Policy 2005 67.

244 Chapter 5 of the SADC's Regional Water Strategy 2006.

245 SADC's Regional Water Policy 2005 48.

246 SADC's Regional Water Policy 2005 48.

247 SADC's Regional Water Policy 2005 48.

248 SADC's Regional Water Policy 2005 49.

249 SADC's Regional Water Policy 2005 4.

250 SADC's Regional Water Policy 2005 22.

251 SADC's Regional Water Policy 2005 29.

252 SADC's Regional Water Policy 2005 29.

means that awareness programmes regarding water-use efficiency have to be supported in order for water to be more available.²⁵³ A regional study has to be done to account for the different uses of water resources to be able to promote water use efficiency in all these water allocations.²⁵⁴ The RWS recognises various areas that need to be more effective in their water use for example the industrial sector.²⁵⁵ By implementing new technologies and ensuring that water is used more effectively the RWS hopes to achieve a region and an environment that is sustainable.²⁵⁶

For SADC to achieve their regional objectives of food security, access to water and sanitation, water for peace, security and safety from development they need to focus on the underlying principle called sustainable development.²⁵⁷ Developing in a safe manner that does not harm the environment is the most important goal to achieve. The Integrated water resources management (IWRM) is the approach taken by SADC's water sector, which enables the development to follow a certain guideline and process together with environmental management.²⁵⁸ Although the RWS does not focus on the principle of sustainable development (fourth element of water security), it can be seen that they still aim towards developing for the future of SADC and ensuring that other policies and strategies are fulfilled.²⁵⁹

3.2.4 Regional Strategic Action Plan on Integrated Water Resource Development and Management

The first *Regional Strategic Action Plan for Integrated Water Resources Development and Management*²⁶⁰ 1999-2004 (RSAP I) was approved by the SADC Summit in 1998.²⁶¹ Their main focus was to create an enabling environment for the

253 SADC's Regional Water Policy 2005 31.

254 SADC's Regional Water Policy 2005 39.

255 SADC's Regional Water Policy 2005 38.

256 SADC's Regional Water Policy 2005 4-5.

257 SADC's Regional Water Policy 2005 14.

258 SADC's Regional Water Policy 2005 14.

259 SADC's Regional Water Policy 2005. Sustainable development can be seen in the regional cooperation in water resource management and water resource development and management.

260 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

261 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

joint management of regional water resources.²⁶² The RSAP I was described as the 'most advanced and comprehensive multi-country freshwater programme in the world' and thus lead to the provide recommendations for the formulation of RSAP II.²⁶³ The RSAP II put emphasis on infrastructure development and their focus areas was on regional water resource development, planning and management, infrastructure development support, water governance and capacity building.²⁶⁴ Good progress was made with the RSAP II particularly regarding water resource planning and management, water governance and capacity building.²⁶⁵

The third phase of the RSAP 2011-2015 (RSAP II) was formulated on a basis of open process and collaborative thinking.²⁶⁶ The RSAP III is a work plan that guides the development and implementation of activities in the SADC water sector.²⁶⁷ The RSAP III provides an effective and dependable framework contributing to poverty reduction, regional integration and socio-economic development.²⁶⁸ Their goal is to strengthen the environment for regional water resource governance, management and development through integrated water resource management.²⁶⁹ All the research done in preparation for the RSAP identified issues or constraints involving the development of the water sectors.²⁷⁰ Some of these issues and constraints are weak legal and regulatory framework, weak policy framework for sustainable development of national water resources and an infrastructure that is inadequate and unable to meet the growing demands of service.²⁷¹ The RSAP thus aims to promote interventions in the areas of water governance, infrastructure development and water

262 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

263 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

264 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

265 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

266 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

267 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

268 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

269 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

270 SADC's Regional Water Policy 2005.

271 SADC's Regional Water Policy 2005.

management.²⁷² Hereafter I will discuss how the RSAP makes provision for water security in SADC.

3.2.4.1 RSAP III and the elements of water security

The RSAP III is structured according to a set of strategic areas of implementation and provides for the implementation of priority interventions of the Regional Strategy.²⁷³ There are 15 programmes aimed at the contribution to the achievement of the RSAP strategic and operational objectives.²⁷⁴ One of the RSAP III's strategic objectives is to ensure fair access to water resources allowing social development.²⁷⁵ Programme 10 (Water supply and sanitation) of the RSAP III aims to improve access to water supply and sanitation services. Together this objective and programme will work together to improve water supply and thus work towards the achievement of Millennium Development Goals and defining a common water access definition. The quality of water resources are discussed in Programme 14 of the RSAP III. The objective is to institutionalise water quality management in the region and certain guidelines and standards are developed to represent water quality in Southern Africa.²⁷⁶ The RSAP Sub-Committees are the actors responsible for providing this strategic guidance on water quality.²⁷⁷ The quantity of water resources are not discussed in this document. Although the quality is one of the focuses of the RSAP and Programme 14 aims to develop certain guidelines and standards, the quantity is equally important. The RSAP III thus addresses the first element of water security and to a certain extent also the second element.

As the people in SADC are very reliant on water-based sectors, cross sector cooperation is important and it ensures that they will be able to guide the water

272 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

273 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

274 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

275 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015 17.

276 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015 35.

277 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

sector on key intervention areas that will overall contribute to SADC's goals.²⁷⁸ This support and cooperation should start at a regional level and ensure that certain regional networks and partnerships exist to provide for the implementation and networking support across the sectors.²⁷⁹ The RSAP III does not expressly discuss the various sectors (third element of water security) and how they should function but rather provides a platform where these sectors can discuss and share their experiences in terms of Integrated Water Resource Management.²⁸⁰ This allows the water resources to be utilised and allocated in a more sustainable manner taking into account the different sectors' needs.

The operational objective of the RSAP III is to provide water governance and management that will support the sustainable development of water infrastructures.²⁸¹ The RSAP is the framework to achieve the sustainable development of water resources in the region through developing water infrastructure and thus achieving the fourth element of water security.²⁸² The RSAP will base any new infrastructures on the basis of sound water governance and water management.²⁸³ Programme 5 proposes a training plan to contribute to sustainable development.²⁸⁴ Sustainable development is thus a very high priority and also very important for the SADC region to grow socially and economically. The RSAP creates the framework in which the SADC regional goals can be achieved and also effectively implement SADC water policies.

3.2.5 SADC Vision for Water, Life and Environment

278 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015 27.

279 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

280 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

281 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

282 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

283 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

284 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

The *Southern African Vision for Water, Life and Environment* (hereafter Water Vision) was adopted in March 2000²⁸⁵ and aimed at:

Equitable and sustainable utilisation of water for social and environmental justice, regional integration and economic benefit for present and future generations.²⁸⁶

In SADC water is seen as the driving force towards a better future for the people of Southern Africa.²⁸⁷ The Water Vision is accompanied by a Framework-for-Action, through which water in Southern Africa will be moved from the current situation to a situation which the region desires.²⁸⁸ The RWP recognises the Water Vision as the reference point for water resources contribution to achieve regional integration, development and poverty eradication.²⁸⁹ This Water Vision means that equitable and sustainable utilisation of water will be used for social, environmental justice and economic benefits for future generations.²⁹⁰ The Water Vision has various visions for SADC development and some of these sub-divisions will be discussed to highlight how they are relevant for water security and the protection of water in SADC.

3.2.5.1 The Water Vision and the elements of water security

The Water Vision combines their vision for equitable access to water and acceptable quality and quantity for all.²⁹¹ Therefore, they combine the first and second element of water security in this document and a strategy to achieve both at a regional level. They acknowledge the progress that would happen if responsibilities are decentralised and delegated to provide water services for the local community.²⁹² A lot more can be done at a local community level, especially if there is new technology and new ideas that will lead to safe-water supply.²⁹³ There is, however a huge amount of effort and finance needed to provide access to a certain quality and

285 Southern African Vision for Water, Life and Environment 2000.

286 Regional Water Policy 2005.

287 Southern African Vision for Water, Life and Environment 2000.

288 Southern African Vision for Water, Life and Environment 2000.

289 Regional Water Policy 2005.

290 Southern African Vision for Water, Life and Environment 2000.

291 Southern African Vision for Water, Life and Environment 2000 11.

292 Southern African Vision for Water, Life and Environment 2000 11.

293 Southern African Vision for Water, Life and Environment 2000 11.

quantity of water.²⁹⁴ The following strategic action has been planned in the Water Vision to realise their vision.²⁹⁵ The first step will be to plan access to water and safe water through policies, ensuring sustainability in the long term, forming an integrated planning process that meets the requirements.²⁹⁶ Certain legislative and institutional arrangements are needed to strengthen the role of governments in creating an enabling environment for water supply.²⁹⁷ This is crucial as we have seen that it is the governments and local communities that have to implement these policies at a local level to ensure that the region's objectives are fulfilled.

The Water Vision goes further and states how all these water resources need to be protected by certain water conservation strategies, utilisation of available water, adequate assessment and monitoring programs and certain integrated management of river catchments.²⁹⁸ The goal of this is to ensure that water is sustainable for future generations and that there are systems and strategies that enable countries to protect and utilise their water resource more efficiently. Part 3 of the Water Vision acknowledges that more research needs to be done to realise the Vision and also to allocate sufficient resources for these strategies to be carried out.²⁹⁹ The allocation of resources is a problem in this region because the region's governments do not have sufficient resources to allocate towards development.³⁰⁰ As a result the region goes 'around in circles' because although it tries to develop and enhance their economic growth, they do not have sufficient resources to develop sustainably.

This brings us to the next topic of various water users and sectors that need the water resources. The various sectors that need water in SADC have already been discussed. The Water Vision acknowledges these sectors (the third element of water security) and states that these sectors will be very important.³⁰¹ Each country and their social circumstances will determine the size of the increase in the demand for water for their economic growth. They can only increase their growth in certain

294 Southern African Vision for Water, Life and Environment 2000 12.
295 Southern African Vision for Water, Life and Environment 2000 12.
296 Southern African Vision for Water, Life and Environment 2000 12.
297 Southern African Vision for Water, Life and Environment 2000 12.
298 Southern African Vision for Water, Life and Environment 2000 13.
299 Southern African Vision for Water, Life and Environment 2000 13.
300 Southern African Vision for Water, Life and Environment 2000 8.
301 Southern African Vision for Water, Life and Environment 2000 10.

sectors if the region can support the growth. This means that in a region, agriculture will be allocated to sectors where the amounts of water resources are high and the low water-use industries in the water scarce areas.³⁰² The Water Vision proposes certain strategic actions that will allow economic growth while maintaining the sustainability of the region's environment.³⁰³

The Water Vision also states that every person should have equitable access to a diet adequate for a healthy life and this can be guaranteed by regional food security.³⁰⁴ Water resources contribute to the food security of the SADC regions and promoting cooperation between the water sector and other sectors, and their activities can have a positive effect on food security.³⁰⁵ Water resources need to be used not only for economic growth but also for the community's basic needs. The improvement of the region will only be accomplished if and when the region's people and their livelihoods improve.

For the last part of the Water Vision, sustainable development (fourth element of water security) will be discussed and how the people in Southern Africa need an environment that is conserved for present and future users. The Water Vision recognises the constraints inherent in the natural ecosystems needed to enable the environment to be sustainable.³⁰⁶ The environment needs to be sustainably improved, used and managed in the spirit of social and environmental justice.³⁰⁷ There are massive implications and effort involved if the existing environmental degradation is going to be remediated.³⁰⁸

The Water Division proposed a strategic action to protect biodiversity and optimise multiple water use in this region, enable local communities to manage their own environment and ensure that all development scenarios reflect constraints imposed by natural systems.³⁰⁹ These actions can be achieved by establishing protocols for

302 Southern African Vision for Water, Life and Environment 2000 10.
303 Southern African Vision for Water, Life and Environment 2000 10.
304 Southern African Vision for Water, Life and Environment 2000 17.
305 Southern African Vision for Water, Life and Environment 2000 17.
306 Southern African Vision for Water, Life and Environment 2000 21.
307 Southern African Vision for Water, Life and Environment 2000 21.
308 Southern African Vision for Water, Life and Environment 2000 22.
309 Southern African Vision for Water, Life and Environment 2000 22.

catchment management, allocating sufficient water to maintain ecosystem integrity, developing and teaching appropriate technologies and promoting and effectively enforcing legislation.³¹⁰ All of these strategic actions are aimed to achieve a sustainable environment in this region. The Water Vision proposed various actions that can be taken and an important factor is to ensure regional cooperation and putting effective institutional mechanisms in place.³¹¹ Thus the Water Vision is aimed at ensuring a sustainable future for the SADC region.

3.3.6 *Climate Change Strategy for the Water Sector*

In the last few decades there has been an increase in temperatures in the Southern African region as well as in other areas.³¹² This has been followed by a decrease of rainfall and areas that experience drought more frequently.³¹³ The global warming is as a result of greenhouse gas emission (GHG) and there is a huge need to decrease these emissions.³¹⁴ Not only must the countries decrease their emissions but they must also mitigate their effects as well as adapt to the realities and future of environmental change.³¹⁵ Taking action now would be economically viable and far cheaper than to remediate the effects that will occur later.³¹⁶ Certain adaptive measures have been placed on sectors such as agriculture, water, infrastructure, health and ecosystems.³¹⁷ These are climate-sensitive sectors that are very important especially because the SADC region is so vulnerable to extreme climatic events.³¹⁸ *The Southern Africa Sub-Regional Framework of Climate Change Programmes 2010*³¹⁹ (Hereafter the Framework for climate change) consists of programmes, projects and initiatives on climate change adaptation and mitigation actions that enable SADC countries to implement and use these supportive

310 Southern African Vision for Water, Life and Environment 2000 22-23.

311 Southern African Vision for Water, Life and Environment 2000 10.

312 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

313 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

314 Simon *Climate and environmental change and the potential for greening African cities* 203-217.

315 Simon *Climate and environmental change and the potential for greening African cities* 203-217.

316 Simon *Climate and environmental change and the potential for greening African cities* 203-217.

317 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

318 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

319 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

measures.³²⁰ For this part of the dissertation, this document will be analysed only as far as it contributes to the protection and security of water in SADC.

The SADC region is already an area of poverty with poor access to water and malnutrition and this problem will only be worsened by climate change.³²¹ The recurrent droughts, floods and other natural disasters will place even more pressure on the natural resources and also expose the region to food insecurity.³²² SADC cannot mitigate the weather patterns but they can adapt to these circumstances. Adaptation actions can be taken to prevent these natural events of having adverse effects on the communities: Disaster risk reduction and management (policies and programmes on Early Warning Systems), sectoral planning and implementation (Land and Desertification, Healthy, Infrastructure etc.) and building economic and social resilience (reducing climate-sensitive sectors).³²³ These three measures could be used to ensure that communities are more resilient towards climate change effects and that they will be ready when such a natural event might occur.

The SADC Environment and Sustainable Development Programme's objective is to:

Ensure the equitable and sustainable use of the environment and land based resources for the benefit of the present and future generations.³²⁴

This Programme is some of the other sub-regional intergovernmental programmes on climate change in Southern Africa. This region experiences high levels of environmental degradation that has led to the decrease of the quality and quantity of water.³²⁵ Framework for Climate Change does not address the quality and quantity of water in SADC, but the Sustainable Development Programme together with the adaptive measures mentioned above, it could ensure that water is of a certain standard and quality.

320 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

321 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

322 Proceedings from the SADC International Conference on Poverty and Development 18-20, Mauritius 2008.

323 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

324 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

325 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

As discussed above several of SADC's sectors are climate-sensitive and the climatic events have increased the region's vulnerability.³²⁶ Sectors like agriculture (Climate variability will have a drastic effect on agriculture production and productivity)³²⁷, water and energy is some of the most important sectors in terms of SADC's economic growth. Therefore it is very important to place emphasis on these sectors in terms of adaptation measures to address the impacts of climate change.³²⁸ Due to the fact that climate variability has a macroeconomic effect, certain climatic events like droughts and floods will determine the economic growth of the SADC countries.³²⁹ All water users will have to be aware of the impact climate change will have on their water use. This means that sectors and governments need to plan accordingly to ensure that water-sensitive areas avoid having climate-sensitive sectors in the region. If the region does not plan accordingly it will not only mean that people do not have access to water, but that certain sectors and industries would become 'null and void'. Climate change will just further exert pressure on the region with direct effect on the economy, food security and attaining SADC's regional goals.³³⁰

From the foregoing it is clear that the SADC Environment and Sustainable Development Programme's objective is to ensure a sustainable environment for the future. The Ground Water Management Plan (GMP) has an overall objective to promote sustainable development of groundwater resources at SADC's regional level.³³¹ The GMP is very important especially for the protection and utilisation of natural resources.³³² Any development in SADC will be based on the principle of sustainable development and climate change is just another of the factors that developers and planners will have to take into consideration. Climate change will

326 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

327 Watson *Climate Change, Cropping Systems and Coping Strategies* 2010.

328 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

329 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

330 Ozor, Urama and Mwangi *Climate Change Vulnerability and the Use of Indigenous Technologies for Adaptation among Smallholder Farming Communities in sub Saharan Africa* 161-182.

331 Southern Africa Sub-Regional Framework of Climate Change Programmes 2010.

332 As discussed earlier in the paper, groundwater is the water resource that most communities rely on for their water supply and thus the protection of groundwater would lead to better access to a water resource.

play an important role in shaping ecosystems, human economies and cultures that depend on them.³³³

3.4 Conclusion

In Southern Africa there is an important need for economic development (as a result of increasing population among others) and limited options to secure water supplies.³³⁴ SADC follows a regional approach towards the management and protection of shared water resources. A regional approach has allowed SADC in facilitating negotiations and thus adopting the Revised Watercourse Protocol that facilitates negotiations regarding transboundary water resources.³³⁵ But how effective and comprehensive is this framework is to address the issue of water security in this region? The main focus in this summary will concentrate on how this normative framework failed to address all the elements of water security required for this region to be water secure.

Firstly, the SADC Revised Watercourses Protocol is a legally binding instrument on all SADC countries but it does not specifically deal with the element of access and availability of water in its text.³³⁶ The Revised Watercourses Protocol mentions a balance that needs to be maintained between resource developments. The result of not dealing with this requirement for water security directly, means that people cannot achieve a higher standard of living as there is no provision for addressing this concern.³³⁷ This Revised Watercourses Protocol does however promote certain qualities and quantity standards in this region.³³⁸ Although the RWP provides for most of the elements of water security, it also followed the same trend as the Revised Watercourses Protocol. The RWP does not deal with the availability of water which, a crucial element in the definition of water security in. In SADC this

333 Ozor, Urama and Mwangi *Climate Change Vulnerability and the Use of Indigenous Technologies for Adaptation among Smallholder Farming Communities in sub Saharan Africa* 161-182.

334 Turton A *Southern African Perspective on Transboundary Water Resource Management* 78-87.

335 Regional Strategic Action Plan for Integrated Water Resources Development and Management 2011-2015.

336 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

337 Article 3 of the Revised Protocol on Shared Watercourses 2001.

338 Article 4(2)(b) of the Revised Protocol on Shared Watercourses 2001.

element is very important as some areas are more water scarce than other areas, thus affecting the availability of water during the dry season.³³⁹

The RWP was however followed by the RWS and this was the first legal framework to address and provide for three steps to promote the availability and accessibility of water for socio-economic development. The RWP and the RWS are non-binding guideline documents even though all the member states adhere to these documents.³⁴⁰ The RWS furthermore promotes and provides for strategies to address the issues of water quality, thus ensuring water is available and also safe. There are certain constraints on monitoring and controlling the quality of water due to a weak economic situation in the SADC countries.³⁴¹ The RWS does not address or focus on the sustainability principle when it comes to the future of SADC and ensuring that other policies and strategies are fulfilled.³⁴²

Water is used in various sectors and one problem of the RSAP is that it does not discuss these sectors or how they should coordinate in terms of their functions and use of water. The RSAP does provide a framework where these sectors can share their experiences in terms of IWRM.³⁴³ From all the legal frameworks in SADC, the RSAP is one of the most comprehensive frameworks in which SADC regional goals can be achieved and also implements into SADC water policies. The most recent RSAP, (RSAP III), is the basis for any new infrastructure on the basis of sound water governance and water management.³⁴⁴ The Water Vision is aimed at moving Southern Africa from its current situation to a desirable future. The Water Vision addresses all the elements required for water security in this region.³⁴⁵

SADC will implement certain basic strategies like establishing protocols for catchment management, allocating sufficient water to maintain ecosystem integrity, developing and teaching appropriate technologies, promoting and effectively

339 As discussed throughout the dissertation.

340 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

341 SADC's Regional Water Policy 2005 48.

342 As seen in paragraph 3.3.2.1 of this dissertation.

343 As seen in paragraph 3.3.4.1 of this dissertation.

344 Regional Strategic Action Plan for Integrated Water resources Development and Management 2011-2015.

345 As seen in paragraph 3.3.5.1 of this dissertation.

enforcing legislation to move SADC into a sustainable environment.³⁴⁶ There is difficulty in establishing a balance between economic, social and environmental water resources but SADC does show however a vision for a desirable future for the region that includes the region being water secure.³⁴⁷ One of the challenges that hinder the development in this region is the widespread poverty in the region which leads to low levels of access to safe drinking water.³⁴⁸ To make matters worse the only legally binding document on all member states does not provide for the access and availability of water resources.

The extent to which the legal framework provides for water security in the SADC region is poor, and as a result, water security in this region will only remain a vision. The implementations of international and regional agreements assist the SADC region in having an integrated regional framework for the sustainable use of the environment.³⁴⁹ The challenge of low levels of access to water will however not be met, unless the legally binding document addresses this first element of water security for the region. Even if the Revised Watercourses Protocol provides for the first element of water security, SADC still has an overall shortage of human and financial resources to fully meet the standards that are laid out in these regional and national policies.³⁵⁰ There is a long-term challenge ahead of SADC that will require investments, national incentive and cooperation in terms of a legally binding document that addresses the elements of water security to formally address the issue of water security in this region.

4. Case studies

Two case studies will be done on transboundary rivers to illustrate how the cooperation and agreements between countries could lead to ensuring a water secure region. Especially where the normative framework has failed to address the requirements for water security. Currently there are a number of agreements

346 Southern African Vision for Water, Life and Environment 2000 22-23.

347 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

348 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

349 Southern African Vision for Water, Life and Environment 2000.

350 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

between different basin countries for cooperation in common water resources.³⁵¹ The first river is the Limpopo River Basin that has various dams and has importance for four different countries.³⁵² Secondly will be the Okavango River and their water commission OKACOM. These rivers are regarded as some of the largest rivers in the SADC area and have important characteristics that affect international cooperation.³⁵³ These rivers have been chosen because they have various organisations and agreements, and this will guide this chapter by illustrating how these countries manage these shared watercourses by using international, regional and national agreements.

It is very important for governance structures to be able to deal with complex issues such as water allocation among water scarce countries.³⁵⁴ Because the extent to which the Revised Watercourses Protocol provides for water security is poor, countries are left with little to no guidance regarding what is required for water security in this region. In cases where the normative framework does not provide for water security to the extent that is required, alternative agreements or documents are required. A River Basin Organisation is at the core of IWRM and the governance will rely on the commitment to the agreements between these countries.³⁵⁵ The agreements between the SADC member states shows commitment towards water management and the preservation of a natural resource.

These case studies are important, because it will reflect whether the lack of addressing vital elements for water security in regional documents, have directly impacted the security of the rivers. Or whether the agreements between the different countries regarding one vital resource, has managed to overcome the odds and provide for a water secure region. To discuss these agreements I will firstly discuss the International Agreements that have had a direct influence on these agreements as discussed below. Secondly this dissertation will give a brief overview of the various rivers and discuss how these River Commissions have taken into

351 Mohamed *Cooperation and Joint Development* 214.

352 Agreement between the Republic of Botswana, Mozambique, South Africa and Zimbabwe on the establishment of the Limpopo Watercourse Commission 2003.

353 Mohamed *Cooperation and Joint Development* 214.

354 Ashton et al "Transboundary water resource management in Southern Africa" 371-384.

355 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/water+governance+in+the+limpopo+basin.aspx>.

consideration or perhaps utilised the legal frameworks as provided for by SADC and other International Agreements. Lastly the rivers will be measured against the 3 main elements of water security:

- a) the availability and access of water;-
- b) the quality and quantity of the rivers;- and
- c) the sustainability of this river

; for a practical example of whether these River Basin Organisations facilitates/enables water security.

4.1. International agreements

A Legal framework for managing international waters has been promoted by the international community and agreements governing these transboundary water courses can be traced back to the *Madrid Declaration on the International Regulation regarding the Use of International Watercourses for Purposes other than Navigation* 1911 (hereafter Madrid Declaration).³⁵⁶ The Madrid Declaration outlines some general principles like establishing joint technical committees and avoiding unilateral developments for cooperative management of a water resource.³⁵⁷ The *Brundtland Report* of 1987³⁵⁸ brought the concept of sustainable development and contains two concepts:³⁵⁹

The concept of 'needs' and the idea of limitations imposed by the state of technology and social organizations on the environment's ability to meet present and future needs.

Both of these instruments recognise the need to develop, but to do this while cooperating and developing towards a sustainable future thus not favouring any

356 Limpopo River Awareness Kit
<http://www.limpoporak.org/en/governance/transboundary+water+management/international+agreements.aspx>.

357 Madrid Declaration on the International Regulation regarding the Use of International Watercourses for Purposes other than Navigation 1911.

358 World Commission on Environment and Development, Our Common Future (The Brundtland Report 1987).

359 World Commission on Environment and Development, Our Common Future (The Brundtland Report 1987) 43.

State in particular. Environmental concerns were also more prominent in international agendas and certain perspectives placed any environmental considerations as a privileged position that did not need to be assessed alongside other concerns.³⁶⁰

Later in 1996 the *Helsinki Rules on the Uses of Waters of International Rivers* (hereafter *Helsinki Rules*) elaborated on the Madrid Declaration's principles and stated what would be the best utilisation of shared water resources.³⁶¹ According to Bourne the principle of equitable and reasonable utilisation operates within the notion of sustainable development.³⁶² This means any utilisation of a water resource cannot be seen in isolation but forms a part of a structure that will include procedural requirements to implement this principle.³⁶³ This linkage between equitable use and sustainability promotes common environmental interests in the following respects: the linkage emphasises the need to consider environmental interests when balancing interests, secondly the notion of sustainability ties any state's resource in a broader international concept.³⁶⁴

A State's performance is not only tied to the notion of sustainability of a state's resource but will also be measured against local, regional and global sustainability criteria.³⁶⁵ As seen from the Helsinki rules and the Brundtland Report the element of sustainability is incorporated and this has been shown to be a vital principle for water security. The Helsinki rules also stated that there should be a commitment not to cause 'substantial injury' to any of the co-riparian states.³⁶⁶ This means the states will have to give prior notice to the other watercourse States involved when their might be significant environmental impacts on the watercourse and this must be

360 McIntyre *The Role of Customary Rules and Principles in the Environmental Protection of Shared International Freshwater Resources* 157-210.

361 Helsinki Rules on the Uses of Waters of International Rivers 1996.

362 Bourne *The International Law Commission's Draft Articles on the Law of International Watercourses* 72.

363 McCaffrey *The Law of International Watercourses*.

364 Brunée and Toope *Environmental Security and Freshwater Resources: A Case for International Ecosystem Law* 41.

365 Brunée and Toope *Environmental Security and Freshwater Resources: A Case for International Ecosystem Law* 41.

366 Helsinki Rules on the Uses of Waters of International Rivers 1996.

done in the planning stage of any new development.³⁶⁷ Significant environmental impacts have an effect on water security and if water is for example polluted the quality that is then distributed will affect everyone's water use. When countries plan and manage these impacts and possible adverse effects in the planning stage it can be easily mitigated or remedied when the plan is implemented.

In 1970, the United Nations commissioned a legal advisory body to codify the law on the non-navigational uses of international watercourses.³⁶⁸ This body was the International Law Commission (ILC) and their task was completed only in 1997 when the United Nations adopted the *Convention on the Law of the Non-Navigational Uses of International Watercourses* (UN Convention).³⁶⁹ This UN Convention stressed principles like universal participation, cooperative governance, equity, peaceful dispute resolution and communication and environmental protection.³⁷⁰ All of these principles lead to one basic idea, namely cooperation. Without cooperation there can be none of the above-mentioned principles and it is therefore vital for countries to strive for international cooperation. Although 103 countries approved this document, the UN Convention's practicality was called into question because of the contradictory language and the slow progress made towards this documents ratification.³⁷¹

The UN Convention is the only global treaty applicable to international waters and is designed to provide general guidelines as an umbrella accord that will allow countries to form specific agreements regarding their natural resource.³⁷² This UN Convention states that 'sustainability is a goal or objective which could be attained by reliance on equity'.³⁷³ Article 5 of the UN Convention states that equitable and reasonable utilisation of an international watercourse has to be with the 'view of

367 McIntyre *The Role of Customary Rules and Principles in the Environmental Protection of Shared International Freshwater Resources* 157-210.

368 Lawrence 1998 <http://www.ftp.fao.org/docrep/fao/005/w9549e/w9549e00.pdf>.

369 Lawrence 1998 <http://www.ftp.fao.org/docrep/fao/005/w9549e/w9549e00.pdf>.

370 *Convention on the Law of the Non-Navigational Uses of International Watercourses* 1997.

371 Lawrence 1998 <http://www.ftp.fao.org/docrep/fao/005/w9549e/w9549e00.pdf>.

372 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/transboundary+water+management/international+agreements.aspx>.

373 Bourne *The International Law Commission's Draft Articles on the Law of International Watercourses* 221-230.

attaining optimal and sustainable utilisation thereof'.³⁷⁴ Bothway³⁷⁵ suggest that the concept of equitable utilisation and sustainable development should be recast in a modern concept namely 'sustainable equity'. This concept can be of importance for the future of water management in the SADC region, due to water stress and the need to develop this region. Ensuring that everyone has access to certain qualities and quantities of water will be a challenge whilst countries are developing and ensuring that the development does not affect the water security in these regions. The UN Convention has however not been ratified by the minimum number of states and is therefore not in force.³⁷⁶

When the United Nations Convention adopted the *United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses* 1997³⁷⁷ (UN Convention) it was clear that the Watercourses Protocol had limitations. This UN Convention aimed to ensure the development, conservation, management, protection of international watercourses and sustainable utilisation for present and future generations.³⁷⁸ The UN Convention recognises not only surface water but also ground water that is connected to surface water.³⁷⁹ This is important as most of the rural communities in SADC rely on ground water as their source of water and the fact that it is included in the UN Convention ensures that both water sources can be managed.

The states that are linked to transboundary rivers have shown a commitment to international agreements, policies and treaties and this is apparent when looking at the region's agreements. Botswana ratified the Revised Watercourse Protocol, Mozambique supports the Helsinki Rules and also the UN Convention and South Africa has ratified the Revised Watercourse Protocol and the UN Convention.³⁸⁰ As

374 Convention on the Law of the Non-Navigational Uses of International Watercourses 1997.

375 Botchway *The Context of Trans-Boundary Energy Resources Exploitation* 222-223.

376 GEF Annual Report 2008.

377 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses 1997.

378 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses 1997.

379 Article 2(a) of the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses 1997.

380 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/transboundary+water+management/international+agreements.aspx>.

all of the regional agreements have been discussed in the second chapter the following rivers and their commissions will be discussed.

4.2 Limpopo River Basin

The Limpopo River Basin covers 14% of the land surface area of South Africa, Botswana, Zimbabwe and Mozambique.³⁸¹ It forms the border between Botswana and South Africa, also the border between Zimbabwe and South Africa.³⁸² Botswana, South Africa and Zimbabwe are seen as pivotal states and Mozambique is seen as an impacted state.³⁸³ Pivotal states have a high level of economic development and are very reliant on the shared river basin for an economic source.³⁸⁴ Mozambique as an impacted state will rely on the water resources for economic development and could likely be impacted by a Pivotal state.³⁸⁵

South Africa has the highest percentage (45%) of coverage of this river basin.³⁸⁶ South Africa is also very economically dependent on the Limpopo River because it generates over 50% of its gross national product.³⁸⁷ This river contributes significantly to the livelihoods of many people in these countries and it is important for these countries to manage the water resource and enhance the use of this water resource.³⁸⁸ The management of this water resource in a manner that enhances the use of water will lead to improving water security in this region. Water is however used in various sectors and transboundary rivers like The Limpopo River provides goods and services for various water use sectors but especially the agricultural sector that uses more than 50% of the run-off.³⁸⁹ The agriculture sector dominates

381 Murovhi and Matlala 2008 http://www.inweb.gr/twm4/.../7_Murovhi.pdf.

382 LIMCOM <http://www.limcom.org/en/About/BasinOverview.aspx>.

383 Turton *A South African Perspective on a Possible Benefit-Sharing Approach for Transboundary Waters in the SADC region* 180-200.

384 Turton *A South African Perspective on a Possible Benefit-Sharing Approach for Transboundary Waters in the SADC region* 180-200.

385 Turton *A South African Perspective on a Possible Benefit-Sharing Approach for Transboundary Waters in the SADC region* 180-200.

386 LIMCOM <http://www.limcom.org/en/About/BasinOverview.aspx>.

387 Mohamed *Cooperation and Joint Development* 214.

388 Murovhi and Matlala 2008 http://www.inweb.gr/twm4/.../7_Murovhi.pdf.

389 Murovhi and Matlala 2008 http://www.inweb.gr/twm4/.../7_Murovhi.pdf.

as the main sectoral activity for the Limpopo rivers water use.³⁹⁰ Thus this river does not only provide for a level of water security in this region but also food security.

Water in these areas often results in competition among the various users and this is as a result of the dry season that limits the use of the water resource.³⁹¹ Murovhi and Matlala³⁹² state that any degradation of the Limpopo basin will lead to conflict among the affected countries and even possibly the entire SADC region. This makes the cooperation between the affected countries even more important in that these countries need to focus and consider the arid conditions of this region.³⁹³ Whenever water security is threatened there cannot be a solution unless there is international cooperation and cooperation in the management of these transboundary waters will lead to solutions and even benefits.³⁹⁴

4.2.1 Legal Framework

The Limpopo River has a long history of cooperation between the basin states and includes certain bilateral agreements relating to water management.³⁹⁵ Cooperation between these states has also changed over time due to economic, political and climate variations in this region.³⁹⁶ Mozambique and South Africa established a Joint Water Commission (JWC) in 1996 to deal with the common interests of this water resource.³⁹⁷ Mozambique and South Africa have three overlapping institutional arrangements (LBPTC), The Tripartite Permanent Technical Committee (TPTC) between Mozambique, South Africa and Swaziland, and JWC which are multilateral, trilateral and bilateral agreements. Two of these agreements deal with the Limpopo

390 Mohamed *Cooperation and Joint Development* 214.214.

391 Murovhi and Matlala 2008 http://www.inweb.gr/twm4/.../7_Murovhi.pdf.

392 Murovhi and Matlala 2008 http://www.inweb.gr/twm4/.../7_Murovhi.pdf.

393 Murovhi and Matlala 2008 http://www.inweb.gr/twm4/.../7_Murovhi.pdf.

394 Sadoff and Grey *Beyond the river* 389–403.

395 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/transboundary+water+management/basin+level+agreements.aspx>.

396 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/transboundary+water+management/basin+level+agreements.aspx>.

397 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/transboundary+water+management/basin+level+agreements.aspx>.

River and Mohamed³⁹⁸ stated that this is a clear sign of fragmentation in the co-operation system between these two countries.

Botswana and South Africa established a bilateral agreement on the Joint Permanent Technical Commission (JPTC) for the Limpopo, Molopo and Nossob rivers in 1987³⁹⁹ and also the Joint Permanent Commission for Co-operation (JPCC) in 1997 to deal with issues of water transfer. The JPTC meet on a yearly basis to be able to discuss any technical issues they have.⁴⁰⁰ Another agreement between Mozambique and Zimbabwe was established in 2002 for a joint commission concerning any water concerning the common issues they have regarding the water resource.

There was a lengthy process involved before the LIMCOM Agreement was ratified. In 1986 there was already a commitment from states to manage this water resource and the Limpopo Basin Permanent Technical Committee (LBPTC) was established by the Parties.⁴⁰¹ Since the establishment of the LBPTC the countries have met on a regular basis and established certain teams like the Flood Forecasting Task Team that exchanges information and acts in situations of disaster from flooding.⁴⁰² In 2003 the Limpopo Water Commission (LIMCOM) was established after multilateral agreements.⁴⁰³ The agreement between the Republic of Botswana, Mozambique, South Arica and Zimbabwe on the establishment of the Limpopo Watercourse Commission 2003⁴⁰⁴ (hereafter the LIMCOM Agreement) recognises Chapter 18 of *Agenda 21 of the United Nations Conference on Environment and Development 1992* (hereafter Agenda 21).⁴⁰⁵ This chapter states that water is needed in all aspects of life and the objective is to ensure that there is a certain quality of water that must maintain a population while at the same time safeguarding these resources

398 Mohamed *Cooperation and Joint Development* 214.

399 ORASECOM <http://www.orasecom.org/publications/sadc+water+hub/glossary.aspx?!=J>.

400 Mohamed *Cooperation and Joint Development* 214.

401 LIMCOM <http://www.limcom.org/en/About/BasinOverview.aspx>.

402 LIMCOM <http://www.limcom.org/en/About/Agreements.aspx>.

403 LIMCOM <http://www.limcom.org/en/About/BasinOverview.aspx>.

404 Agreement between the Republic of Botswana, Mozambique, South Arica and Zimbabwe on the establishment of the Limpopo Watercourse Commission 2003.

405 Agreement between the Republic of Botswana, Mozambique, South Arica and Zimbabwe on the establishment of the Limpopo Watercourse Commission 2003.

against pollution.⁴⁰⁶ This highlights the principle of water quality and quantity all of which is important for achieving water security in the region.

The LIMCOM Agreement recognised the objectives of the Revised Watercourse Protocol and the *Convention on the Law of Non-Navigational Uses of International Watercourses* by the General Assembly of the United Nations in 1997⁴⁰⁷. The problem however with the Revised Watercourse Protocol (as discussed in Chapter 2) is that it does not specifically address or provide for the first element of water security. The Revised Watercourses Protocol did however provide principles for LIMCOM like sustainability and equitable utilisation. The River basins are guided by the Regional Water Policy, Regional Water Strategy and Regional Strategic Action Plans.⁴⁰⁸

The objective of LIMCOM was to advise the Parties and provide recommendations on the use of the Limpopo for purpose of protection preservation and management of the Limpopo.⁴⁰⁹ The Council was designed to act as a technical advisor to the Contracting Parties on any matters that relate to the development, utilisation and conservation of the water resource.⁴¹⁰ LIMCOM recognised the that the collaboration between these countries would lead to utilisation of the water resource that will contribute towards the mutual benefit, peace, security, welfare and the prosperity of the Region.⁴¹¹ The general principles of LIMCOM are sustainable development, integration equity principle, prevention principle and the transboundary impact assessment principle.⁴¹²

4.2.2 Water Security and LIMCOM

406 Chapter 18 of Agenda 21.

407 Convention on the Law of Non-Navigational Uses of International Watercourses by the General Assembly of the United Nations in 1997.

408 Siteo "*Limpopo Watercourse Commission*".

409 Agreement between the Republic of Botswana, Mozambique, South Arica and Zimbabwe on the establishment of the Limpopo Watercourse Commission 2003.

410 Limpopo River Awareness Kit

<http://www.limpoporak.org/en/governance/water+governance+in+the+limpopo+basin/objectives+and+structure.aspx>.

411 Agreement between the Republic of Botswana, Mozambique, South Arica and Zimbabwe on the establishment of the Limpopo Watercourse Commission 2003.

412 Agreement between the Republic of Botswana, Mozambique, South Arica and Zimbabwe on the establishment of the Limpopo Watercourse Commission 2003.

LIMCOM formulated the Limpopo River Basin IWRM Plan 2011-2015 (hereafter the IWRM Plan) to provide for a vision that would guide the further management and development of the Limpopo River Basin in a sustainable manner.⁴¹³ Managing water includes the activities of planning, developing, distributing, managing and optimising the use of water resources.⁴¹⁴ These key aspects will ultimately ensure that water security will be sustainable in the SADC region. Some of the core challenges that the IWRM Plan has identified is occurring disasters, increased pollution and limited availability.⁴¹⁵ For SADC to achieve water security in this region they need to fulfil each element of the definition of water security. LIMCOM will now be measured against the definition of water security.⁴¹⁶

- a) The availability and access to water has been identified as one of the challenges for LIMCOM.⁴¹⁷ This is a direct reflection of the failure to provide for this first element of water security in the Revised Watercourses Protocol. The IWRM Plan plans to investigate the availability of water resources and then advise the SADC members on long-term strategies for planning, development, management and utilisation of water resources from the Limpopo River.⁴¹⁸ The IWRM plan also adopted the Limpopo River Basin Monograph, which provides information on water availability, demands and balance that will inform future development.⁴¹⁹ This will ensure that water in the SADC region is used in a sustainable and equitable manner. It is very important to keep benefit sharing and the monitoring of water resources in mind while promoting water efficiency.⁴²⁰ This will lead to greater water efficiency and increased water availability in the region.

- b) Increased pollution has a detrimental effect on the aquatic ecosystems and the high pollution levels in some areas contributed to the degradation in water

413 LIMCOM IWRM Plan 2011-2015.

414 LIMCOM IWRM Plan 2011-2015.

415 LIMCOM IWRM Plan 2011-2015.

416 The availability and access to water that is sufficient in quality and quantity to provide for sustaining basic needs, ecological services, and national security to give expression to sustainable development in the region without compromising the needs of future users.

417 Paragraph 3.4 of this Dissertation.

418 LIMCOM IWRM Plan 2011-2015.

419 LIMCOM IWRM Plan 2011-2015.

420 LIMCOM IWRM Plan 2011-2015.

quality.⁴²¹ As a result of this deterioration of water quality, the water security in this region has not been stable and therefore the IWRM plan has adopted a joint approach towards water quality management.⁴²² This joint approach will establish monitoring systems for water quality and the prevention of pollution and as a result contribute to the water quality and security of the region.⁴²³

- c) The main vision of the IWRM Plan is to ensure sustainable water security for the improved livelihoods of the Limpopo River Basins.⁴²⁴ This can be achieved through developing the organisations and institutions of SADC to ensure the sustainable management and development of the Limpopo River Basin.⁴²⁵ The LIMCOM agreement has the ability to stabilize and enhance security at a regional level.⁴²⁶ This would lead to the protection and promotion of sustainable development and security within this region.

4.2.3 Conclusion

Last year's LIMCOM has shown some strength like a transboundary mandate and cooperation and collaboration between the riparian states for water management.⁴²⁷ LIMCOM not only has the legal and political mandate to host transboundary data from riparian states but also has strong political support from the states to facilitate in transboundary water management.⁴²⁸ These strengths are however weakened by the fact that LIMCOM does not have the skills, personnel or the equipment to carry out their roles effectively.⁴²⁹ Although LIMCOM has the political mandate, it is not equipped to carry out capacity building activities and lacks the professional staff to identify capacity building requirements.⁴³⁰ If LIMCOM lacks the strength to carry out activities and does not have skills, personal equipment to carry out their roles, then

421 LIMCOM IWRM Plan 2011-2015.

422 LIMCOM IWRM Plan 2011-2015.

423 LIMCOM IWRM Plan 2011-2015.

424 LIMCOM IWRM Plan 2011-2015.

425 LIMCOM IWRM Plan 2011-2015.

426 Paisley and Henshaw *Transboundary governance of the Nile River: Past, Present and Future* 59-71.

427 Owen *Groundwater Needs Assessment Limpopo Basin Commission LIMCOM.*

428 Owen *Groundwater Needs Assessment Limpopo Basin Commission LIMCOM.*

429 Owen *Groundwater Needs Assessment Limpopo Basin Commission LIMCOM.*

430 Owen *Groundwater Needs Assessment Limpopo Basin Commission LIMCOM.*

this commission does not have the strength to effectively ensure water security in this region.

LIMCOM does however show the possibilities of certain opportunities that can lead to better governance and monitoring in the region.⁴³¹ The LIMCOM agreement has the ability to stabilise and enhance security at a regional level.⁴³² Formal institutions are more likely to prevent conflict within the region and can address the consequences of water scarcity in a region for international security.⁴³³ Some institutional provisions like LIMCOM can help monitor behaviour, facilitate enforcement and resolve disagreements.⁴³⁴ If the SADC states collaborate for transboundary water management such collaboration will lead to addressing groundwater issues, monitoring the quality of the water, identifying transboundary groundwater and river quality issues and supporting initiatives that address the core challenges of the IWRM Plan in the SADC region.⁴³⁵ When this region assesses the nature and characteristics of the shared water resource it will guide the institutional design to ensure water security in the region.

4.3 Okavango River

The Okavango River basin is shared between Angola, Botswana and Namibia and provides for various uses of this water resource.⁴³⁶ This river is one of the most pristine river systems in Southern Africa has various catchment areas and runoffs that provide water for various communities.⁴³⁷ The Okavango River system is dependent on seasonal floods and in the dry season certain seasonal floodplains provide for grazing and fertile soils.⁴³⁸ This water is used for basic needs, agriculture and even large game parks created in these areas that attract international

431 Owen *Groundwater Needs Assessment Limpopo Basin Commission LIMCOM*.

432 Paisley and Henshaw *Transboundary governance of the Nile River: Past, Present and Future* 59-71.

433 Paisley and Henshaw *Transboundary governance of the Nile River: Past, Present and Future* 59-71.

434 Paisley and Henshaw *Transboundary governance of the Nile River: Past, Present and Future* 59-71.

435 Owen *Groundwater Needs Assessment Limpopo Basin Commission LIMCOM*.

436 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

437 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

438 Bethune 2008 http://www.acwr.co.za/pdf_files/06.pdf.

tourism.⁴³⁹ Certain fertilizers used in agriculture as well as increased siltation caused by erosion threatens the water quality of this river.⁴⁴⁰

The Okavango River Basin is very rich in renewable natural resources but things like the variability of rainfall and the dependence of the season inputs of sediment from upstream makes these resources very vulnerable.⁴⁴¹ Water variability increases water-related conflict globally.⁴⁴² Namibia and Botswana are the driest countries in Southern Africa and this river plays a very important role in ensuring water security in this area.⁴⁴³ It plays a very important role not only for the water security and the local populations but also provides for tourism activities at a national level.⁴⁴⁴ Botswana is seen as the custodian of the Okavango Delta and this may have future impacts on Namibia, which plans to utilise the water from the Okavango.⁴⁴⁵ The future impacts on the water requirements and impacts on sector like mining and agriculture and the quality of the water of the Okavango are unclear. When the three countries realised the implications that any national development could have an impact on the transboundary resources between upstream and downstream countries, they were guided into cooperation and integrated management.⁴⁴⁶ Cooperation is always more likely when regions experience the same extreme climatic variability that affect their transboundary rivers and basins.⁴⁴⁷

4.3.1 Legal Framework

This was the first river basin organisation in Southern Africa and was established even before SADC's Revised Watercourse Protocol.⁴⁴⁸ Because there was no protocol to guide these countries, they used other conventions or treaties to guide

439 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

440 Bethune 2008 http://www.acwr.co.za/pdf_files/06.pdf.

441 Bethune 2008 http://www.acwr.co.za/pdf_files/06.pdf.

442 Dinar et al *Climate change and state grievances: the water resiliency of international river treaties to increased water variability* 1- 32.

443 OKACOM <http://www.okacom.org/okacom-commission>.

444 OKACOM <http://www.okacom.org/okacom-commission>.

445 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

446 Bethune 2008 http://www.acwr.co.za/pdf_files/06.pdf.

447 Dinar et al *Climate change and state grievances: the water resiliency of international river treaties to increased water variability* 1- 32.

448 OKACOM *Thinking Transboundary: Information and Communication Strategy for OKACOM* 2012.

them. There was a record of 11 agreements signed between these governments over 16 years.⁴⁴⁹ International agreements like the Ramsar Convention on Wetlands, Convention on Biological Diversity (CBD) and the Convention to Combat Desertification (CCD) had particular relevance on the case of the Okavango.⁴⁵⁰ All three states (Namibia, Angola and Botswana) are Contracting Parties to these three conventions except Angola has not yet signed the Ramsar Convention.⁴⁵¹

The first agreement between these three governments was the Establishment of a Permanent Okavango River Basin Water Commission (OKACOM) 1994 that related to the conservation, utilisation and development of the water resource. OKACOM's role was to:⁴⁵²

Act as a technical advisor to the Contracting Parties on matters related to the conservation, development and utilisation of water resources of common interest.

This first treaty of 1994 focussed on issues like determining the long term safe yield of water, reasonable level of demand, criteria for conservation and sustainable utilisation, pollution prevention and the short-term drought measures.⁴⁵³ This 1994 treaty acknowledges all the important principles for a water secure region. OKACOM was established because these countries wanted to prevent any possible conflict and rather cooperate in the management of the shared watercourse.⁴⁵⁴ Since the 1994 Treaty, there has been a shift in how countries think about water resource management.⁴⁵⁵

449 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

450 Lai 2002 <http://www.awiru.co.za/occasionalp.asp>.

451 Lai 2002 <http://www.awiru.co.za/occasionalp.asp>.

452 Agreement between 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) Windhoek, 1994.

453 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) 1994.

454 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

455 Thinking Transboundary: Information and Communication Strategy for OKACOM 2012.

A few years later these governments had an agreement regarding the organisational structure of OKACOM.⁴⁵⁶ This agreement established the three branches of OKACOM: the Secretariat, the Steering Committee and the Commission itself.⁴⁵⁷ OKACOM has developed a coherent approach in managing this river basin.⁴⁵⁸ Their approach is based on equitable allocation, sustainable utilisation, sound environmental management and the sharing of benefits.⁴⁵⁹ OKACOM was guided in the 1994 agreement to 'equitably allocate' water resources but to date no allocation scheme has been established.⁴⁶⁰ This creates a problem in times of water scarcity where water needs to be allocated between the riparian states.

4.3.2 Water Security and OKACOM

In the last 10 years OKACOM has become an important actor for the governance in the Okavango Basin and has been able to implement unilateral development that helped and avoided detrimental environmental effects.⁴⁶¹ It is beneficial to govern environmental change especially in river basins as this increases the knowledge base of basins resources and the impact of future resource development.⁴⁶² OKACOM is however a very young RBO and although some mechanisms like the dispute-resolution mechanism hasn't been sufficiently developed, it will only be determined in the long-term what this RBO's impact will be.⁴⁶³ Currently, the water supply situation is not stressed or scarce when measured in total renewable water resources⁴⁶⁴ but according to the water poverty index, which takes into account water access, capacity, environment and water availability, Angola shows the highest level of water poverty followed by Botswana and Namibia.⁴⁶⁵ It is vital that

456 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

457 Agreement Between the Governments of the Republic of Angola, the Republic of Botswana and the Republic of Namibia on the Organizational Structure of OKACOM 2007.

458 OKACOM <http://www.okacom.org/okacom-commission>.

459 OKACOM <http://www.okacom.org/okacom-commission>.

460 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

461 Schulze & Schmeier *Governing environmental change in international river basins: the role of river basin organisations* 229-244.

462 Schulze & Schmeier *Governing environmental change in international river basins: the role of river basin organisations* 229-244.

463 Schulze & Schmeier *Governing environmental change in international river basins: the role of river basin organisations* 229-244.

464 Weinzierl and Schilling *On Demand, Development and Dependence* 60-80.

465 Weinzierl and Schilling *On Demand, Development and Dependence* 60-80.

these three SADC states work together on development decisions and continuously monitor the environmental impacts of water use, as to ensure that these countries remain water secure.

- a) The OKCACOM countries are not water scarce⁴⁶⁶, but there are a few weaknesses in terms of access to water. Angola is one of the countries that enjoy the most rainfall in Southern Africa and has ten times more available water per capita as South Africa.⁴⁶⁷ There is however a problem with the access to water and there is no water allocation method for the Okavango River.⁴⁶⁸ This means that countries that do not live close to a river or a tap do not enjoy the luxury of having water. All of the Rules governing the allocation of water are derived from external instruments and it is the application of these rules and the allocation of available water that could possibly create conflict in this region.⁴⁶⁹

OKACOM's first big achievement was the proposal for a project that would execute an environmental assessment of the Okavango basin and to develop an integrated water resource management strategy by June 1995.⁴⁷⁰ This strategy allows for cooperation and allowing discussions between these countries to allocate water from the Okavango⁴⁷¹ and this would lead to maximum benefit sharing and utilisation of this watercourse.

- b) The quality and quantity in the OKACOM region rural regions in Namibia the communities rely on the availability of groundwater but there are issues regarding the quality of this water.⁴⁷² Fertilizers used in agriculture as well as increased siltation threaten the water quality of this river.⁴⁷³ The IWRM needs

466 Paragraph 4.4.2 of this Dissertation.

467 Redvers 2011 <http://mg.co.za/article/2011-03-14-water-everywhere-in-angola-but-few-places-to-drink>.

468 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

469 Muller *Water Wars?* 32-35.

470 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

471 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

472 Kluge 2006 http://www.cuvewaters.net/ftp/iwrm_final_report.pdf.

473 Bethune 2008 http://www.acwr.co.za/pdf_files/06.pdf.

to address the issue of water quality for human consumption.⁴⁷⁴ With any development decisions the environmental impact upstream and downstream will have to be considered.⁴⁷⁵ The dependence of seasonal rainfall and season inputs of sediment from upstream countries makes this water resource very vulnerable in terms of quality and quantity.⁴⁷⁶

- c) A key goal in the information and communication strategy is to change the mind-set of the basin stakeholders to adopt a transboundary point of view.⁴⁷⁷ OKACOM works on the sustainable development of the river basin and focuses on transboundary resources and on environmental knowledge.⁴⁷⁸ The development of infrastructure needs to be improved if water security in this region is to be improved.⁴⁷⁹ Therefore any development in this region will have to be sustainable if this region is to ensure water security and economic growth at the same time. OKACOM countries have a low level of competition amongst their users and this gives room for OKACOM to allocate water flow for environmental purposes.⁴⁸⁰

4.4 Conclusion

Placing the emphasis on sharing benefits and not the quantities of water this region will ensure maximum and fair utilisation of the natural resource. There was thus a shift from the quantity of water to the equitable sharing of the river's benefits.⁴⁸¹ This means that although a country could have more access to water, there should be equal sharing and an allocation of water quantity according to the needs of the

474 Weinzierl and Schilling *On Demand, Development and Dependence* 60-80.

475 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

476 Bethune 2008 http://www.acwr.co.za/pdf_files/06.pdf.

477 OKACOM *Thinking Transboundary: Information and Communication Strategy for OKACOM* 2012.

478 OKACOM *Thinking Transboundary: Information and Communication Strategy for OKACOM* 2012.

479 Ashton & Turton "South African water transfer schemes and their impact on the southern African region".

480 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

481 OKACOM *Thinking Transboundary: Information and Communication Strategy for OKACOM* 2012.

states.⁴⁸² This would eventually ensure that countries receive the precise amount of water needed for water security in this water scarce region. Governance of the Okavango River Basin needs to be adaptable and there needs to be collaboration between the countries to ensure transboundary collaboration in promoting ecological and social health.⁴⁸³ OKACOM can increase their adaptability through multi-directional information flow, meaningful public participation, local capacity building, and authority to respond.⁴⁸⁴ OKACOM has a few weaknesses but has the potential for future development and water use to increase water security and economic development in these countries.

5. Summary, conclusion and recommendation

Water scarcity is a recognized norm in a large part of Southern Africa and in general water is a scarce resource in many parts of this region.⁴⁸⁵ Increased population, poor policy and water quality issues threaten the economic growth and ecological sustainability of this region.⁴⁸⁶ It is important to focus on water security of any region thus ensuring the utilisation for all present and future generations, especially in a region where the water resources are already scarce. Water scarcity places even more responsibility on governments to promote and achieve water security.⁴⁸⁷ Water is also a key ingredient for SADC to achieve their regional goals, as discussed throughout the dissertations, and thus crucial that this resource receives high priority in the region.

Water security and research for water security is faced with three challenges for researchers, policy-makers and practitioners.⁴⁸⁸ The first challenge is based on the definition or rather the multiple definitions of water security that exist.⁴⁸⁹ Whenever there is no common definition it means that water management and policy-making

482 OKACOM *Thinking Transboundary: Information and Communication Strategy for OKACOM* 2012.

483 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

484 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

485 Page 12 of this dissertation.

486 As discussed throughout this dissertation.

487 Paragraph 3.2.5.1 of this dissertation.

488 Bakker *Water Security: Research Challenges and Opportunities* 914.

489 Bakker *Water Security: Research Challenges and Opportunities* 914.

cannot be effective or specialised.⁴⁹⁰ The first chapter of the dissertation explored the various definitions that exist and harmonised a definition that is applicable to SADC and the needs of the region. It highlighted the issues that needed to be addressed in order for SADC to be water secure region. Accordingly water security is defined as:⁴⁹¹

- a) The availability and access to water that is;
- b) sufficient in quality and quantity to;
- c) provide for sustaining basic needs, ecological services, national security,
- d) to give expression to sustainable development in the region without compromising the needs of future users.

Water security is such an essential concept that it is linked to international security, food security, economic and environmental security.⁴⁹² Water security was not only linked to food security and economic security but also to human security.⁴⁹³ A benefit-sharing approach was found to be ideal for this region. It focusses on human security where the principle of water resource management falls under this approach.⁴⁹⁴ Countries, however, need to manage conflicts that can arise as a result of water scarcity as it will threaten the human security in the region.⁴⁹⁵ The SADC region has shown their willingness to cooperate regarding the scarcity and the utilisation of their shared water resources. Cooperation between the SADC member states has led to the promotion of regional legal instruments as well as RBO.

The regional agreements discussed in this dissertation assist SADC in having an integrated regional framework for the sustainable use of the environment. The comprehensive nature of this normative framework is however questioned with regard to its extent in addressing water security. Another issue is the fact that only the Revised Watercourses Protocol is a legally binding document on all the Member

490 Bakker *Water Security: Research Challenges and Opportunities* 914.

491 Paragraph 2.4 of this dissertation.

492 Böge *Water Governance in Southern Africa – Cooperation and Conflict Prevention in Transboundary River Basins* 4.

493 Section 2.1 and 2.2.1 of this dissertation.

494 4.2.2 and 4.3.2 of this dissertation.

495 Section 2.2.1 of this dissertation.

States and as found in the dissertation, this document does not address or provide for all the elements of water security. Implementing regional agreements assist SADC in having an integrated regional framework. The fact that the Revised Watercourse Protocol does not provide for this element means that SADC cannot achieve a higher standard of living as there is no provision for this element.

The following Table will demonstrate which legal instruments provide for the elements of water security⁴⁹⁶:

Legal Instruments	Water availability	Water Access	Water Quality	Water Quantity	Sustainability
SADC'S Revised Watercourses Protocol	X	X	√	√	√
Regional Water Policy	X	X	X	X	√
Regional Water Strategy	√	√	√	√	X
RSAP II	√	√	√	X	√
SADC Vision for water, Life and Environment	√	√	√	√	√

The extent to which the legal framework provides for water security in the SADC region is poor as a result of various challenges and issues.⁴⁹⁷ The only legal instrument that addresses each and every element of water security is the Water Vision as seen in the above mentioned table and this is not a legally binding document.⁴⁹⁸ The Water Vision is aimed at moving Southern Africa from the current situation to a desirable future for the region.⁴⁹⁹ The Water Vision can however only be achieved by establishing protocols for catchment management, allocation of

496 The Climate Change Strategy for Water Sector 2010 was only analysed as far as it contributed to the protection and security of water in SADC.

497 Chapter 3 of this Dissertation.

498 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

499 Regional Water Policy 2005.

sufficient water to maintain ecosystem integrity, developing and teaching appropriate technologies and promoting and effectively enforcing legislation.⁵⁰⁰ The Water Vision is only a vision for the SADC region and without financial incentives and regional cooperation for this poverty stricken region; it will remain a vision and not a reality.

The last chapter of this dissertation involved a case study on two of the biggest rivers in the SADC region namely the Okavango and the Limpopo River. As the countries had little to no guidance regarding the requirements for water security in this region, these rivers were discussed to see where alternative agreements or documents were created. These countries had a common resource and thus cooperated in terms of the preservation and utilisation of this natural resource.⁵⁰¹ This cooperation was vitally important especially as a result of the Revised Watercourses Protocol not providing a comprehensive framework for water security. LIMCOM and OKACOM (The river's commissions) was however established differently and also used different international and regional agreements, legal frameworks and other sources for the protection and utilisation of their specific river.

LIMCOM recognises Chapter 18 of Agenda 21 and also the objective of the Revised Watercourse Protocol. The Revised Watercourses Protocol however does not address the first element of water security (access and availability). The Limpopo River presents a few challenges in terms of water security: occurring disasters, increased pollution and limited availability.⁵⁰² The availability, access and quality of water means that the Limpopo River and the affected basin states aren't water secure. LIMCOM IWRM plan does however have a few strategies in place to increase sustainable water usage, which will lead to greater water efficiency and water availability as well as monitoring systems for water quality to prevent pollution.⁵⁰³ The LIMCOM agreement has the ability to stabilise and enhance security but if LIMCOM lacks the strength to carry out activities, then they will not have the strength to effectively ensure water security in this region. LIMCOM is

500 Southern African Vision for Water, Life and Environment 2000 22-23.

501 Chapter 4 of this Dissertation discusses the various agreements that were created.

502 LIMCOM IWRM Plan 2011-2015.

503 LIMCOM IWRM Plan 2011-2015.

however weakened by the fact that it does not have the skills, personnel or equipment to carry out their roles effectively.⁵⁰⁴

OKACOM was the first river basin organisation in Southern Africa and there was no protocol in SADC at that stage provide guidance therefore OKACOM used various international agreements like the CBD and the CCD.⁵⁰⁵ This commission focussed on issues like long term safe yield of water, reasonable level of demand, criteria for conservation and sustainable utilisation, pollution prevention and a few other issues.⁵⁰⁶ Unlike the Limpopo River, the Okavango River and its current situation of water supply is not stressed or scarce, measured against total renewable water resources. There are however areas like central Namibia and Angola that have areas of water scarcity.⁵⁰⁷ This is as a result of OKACOM having no allocation method for the Okavango River.⁵⁰⁸ As most of the rules governing the allocation of water is derived from international instruments and agreements, the application of these rules have not been consistent. OKACOM has however created a strategy that allows for cooperation and discussions between these countries to allocate water from the Okavango.⁵⁰⁹

These two case studies provided practical examples of where the legal frameworks did not provide for the element of water security and therefore reflected on the Transboundary Rivers. The Limpopo River lacks access and availability and the Okavango River has various issues with the quality and quantity of water. It is hard for countries to balance economic growth while providing for a sustainable environment especially if countries are poor. SADC however has to ensure water security in the region as water plays a key role in achieving SADC's regional and economic growth and development. According to the Media statement from the

504 Owen *Groundwater Needs Assessment Limpopo Basin Commission LIMCOM*.

505 OKACOM *Thinking Transboundary: Information and Communication Strategy for OKACOM* 2012.

506 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) 1994.

507 Redvers 2011 <http://mg.co.za/article/2011-03-14-water-everywhere-in-angola-but-few-places-to-drink>.

508 Green, Cosens and Garmestani *Resilience in Transboundary Water Governance: the Okavango River Basin* 23.

509 Pinheiro, Gabaake and Heyns *Cooperation in the Okavango river basin: The OKACOM perspective* 105-118.

Summit Head of States and Government⁵¹⁰ the Water Sector of SADC has had various achievements as a result of various strategies and participation. One achievement is the implementation of the SADC Hydrological Observation System (HYCOS) 2005-2010 that enables states to undertake hydrological observation of ground water information.⁵¹¹ This is an important system as ground water is a vital water resource for many rural communities and this system can contribute by detecting any change in the water tables. The other achievements are based on the Water Policy and Strategy that has brought key principles that are being used throughout the Member States.⁵¹²

SADC is clearly making an attempt at achieving water security, and the topic of water security is clearly of high importance. The legal framework provided for by SADC will have to address all the elements of the definition for water security. The Revised Watercourses Protocol has the potential to be a very important protocol for all SADC countries, but it will have to be amended to include and provide for water access and availability. Thus creating an integrated regional framework that is legally binding on all member states to guide them and assist SADC in becoming a water secure region. By combining all regional, national water policies and documents available to SADC, this region has a comprehensive framework where all relevant laws and regulatory mechanisms are in place.⁵¹³ The problem is that SADC has an overall shortage of human, as well as financial resources, to fully meet the standards set out in the regional and national agreements, therefore requiring political and financial incentives.⁵¹⁴ Without these incentives SADC will remain a region that is water insecure and an area vulnerable to 'water conflict'.

510 Infrastructure and Service Directorate 8-18August 2014.

511 HYCOS 2005-2010.

512 Infrastructure and Service Directorate 8-18August 2014.

513 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

514 Msangi *Managing Water Scarcity in Southern Africa: Policy and Strategies* 21-41.

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