

**THE UNIVERSITY OF THE WESTERN CAPE
FACULTY OF LAW**

**An assessment of the adequacy of the present legal
regime for the conservation of wetlands and estuaries in
South Africa**



Mini-thesis submitted in partial fulfilment of the requirements for
the LLM Degree, University of the Western Cape

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Date: 17 November 2011

DECLARATION

I DECLARE that ‘An assessment of the adequacy of the present legal regime for the conservation of wetlands and estuaries in South Africa ‘is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Signed

Date: 17 November 2011



This mini-thesis has been submitted for examination with my approval as the designated supervisor

Signed

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University of the Western Cape

Date.....

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God bless you all.
Ernest Booy



KEYWORDS

Adequacy

Climate Change

Conservation

Estuaries

Legislation

Management

Policy

Protection

Sustainability

Wetlands



LIST OF ABBREVIATIONS AND ACRONYMS

AEWA	African Eurasian Waterbird Agreement
Biodiversity Act	National Environmental Management: Biodiversity Act 10 of 2004
Bonn Convention 1979	Convention on Migratory Species of Wild Animals 1979
CARA	Conservation of Agricultural Resources Act 43 of 1983
CITES	Convention on International Trade in Endangered Species of Flora and Fauna 1973
CMS	Catchment Management Strategy
CONNEPP	Consultative National Environmental Policy Process 1996
CBD	United Nations Convention on Biological Diversity 1992
DEAT	Department of Environmental Affairs and Tourism
ECA	Environment Conservation Act 73 of 1989
EMP	Estuary Management Programme
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities 1995
IUCN	World Conservation Union
MARPOL	Convention on the Prevention of Pollution from Ships (1973/1978)
NEM: ICMA	National Environmental Management: Integrated Coastal Management Act 24 Of 2008
NEMA 1998	National Environmental Management Act 107 of 1998
NEP	National Estuarine Programme
NGO	Non- Governmental Organisation

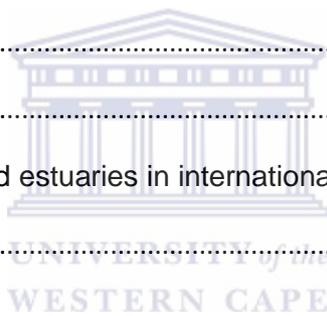
NWA	National Water Act 36 of 1998
NWRS	National Water Resources Strategy
Ramsar Convention	The Convention on Wetlands of International Importance Especially Waterfowl habitat 1971
SANBI	South African National Biodiversity Institute
UNCLOS	United Nations Convention on the Law of the Sea 1982
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
WRC	Water Research Commission



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CHAPTER 1

Introduction

1.1 Introduction/History

Very little protection has been afforded to wetlands¹ and estuaries within the South African legislative framework.² These ecosystems are extremely important and valuable to mankind, the flora and fauna.³ The continued destruction of wetlands and estuaries is the most heinous act of environmental vandalism on a worldwide scale today.⁴

Wetland and estuarine loss has been accelerated and extended by human activities such as mining,⁵ urbanisation,⁶ drainage, river diversion,⁷ groundwater abstraction as well as climate change.⁸ Time is running out for so many critically important sites

¹ Beazley M -in association with the International Union of Conservation of Nature and Natural Resources (IUCN) The World Conservation Union 'The Ramsar Convention defines wetland as: 'areas of marsh, fen, peatland or water whether natural or artificial, permanent or temporary with water that is static or flowing fresh, brackish or salt including areas of marine water the depth of which at low tide does not exceed six metres'. *Wetlands in Danger* (1993) 12.

² Allanson B R and Baird D 'One of the problems faced by environmental managers in South Africa is the difficulty of adequately defining an estuary. According to Pritchard: An estuary is a semi-enclosed body of water which has a free connection with the open sea and within which sea water is measurably diluted with fresh water derived from land drainage. However, there is a difference of opinion when it comes to the definition of an estuary. Some writers disagree with the above definition'. *Estuaries of South Africa* (1999) 303-304'.

³ Environmental Law-*What you need to know* 'Natural wetlands covers six percent of the worlds surface and have been cited as being one of one of the most important systems for sustaining life on this planet'. available at <http://www.agiweb.org/gap/legis107wetlands.html>. (accessed 18 March 2011),

⁴ Vymazal J 'Wetland habitats have undergone an extensive decline over the last 60 years, and have been extensively drained for agriculture and urban development. *Natural and constructed wetlands*' (2005) 91.

⁵ Cousins T, du Toit D & Pollard S *Wetlands & Governance* (2005) 9.

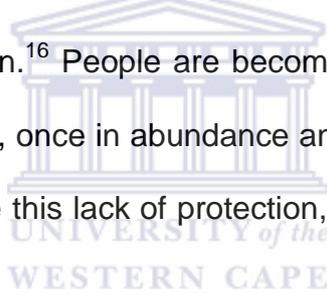
⁶ Brown C and Magoba R 'The most important impact has been the increase in runoff; as a result of two main factors, firstly water for domestic and industrial purpose and secondly, the hardening of the catchments by buildings, roads and other surfaces'. *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage.* (2009) 30-37.

⁷ Brown C and Magoba R 'Infilling, channelization and canalisation have also a profound effect on river systems and wetlands. *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage*' ((2009) 308.

⁸ Mitsch W J and Gosselink J G 4 ed 'Wetlands and estuaries are highly sensitive to climate change. Wetlands may be key ecosystems for mitigating the effects of fossil fuel emissions on climate.

and for the world at large.⁹ Without wetlands and estuaries the biosphere¹⁰ cannot continue to do its essential work.¹¹

Despite, the importance of a range of resources and services¹² which wetlands and estuaries provide, these have been taken for granted by humans.¹³ As a result hereof, the maintenance of wetlands and estuaries has received low priority in many countries.¹⁴ This is further precipitated by the lack of interest and ignorance which result in the conversion of wetlands and estuaries into man-made structures.¹⁵ Research has shown that the lack of information and the awareness of the importance of these ecosystems has made the conservation legislation for these ecosystems a toothless dragon.¹⁶ People are becoming increasingly aware¹⁷ of the loss of wetlands and estuaries, once in abundance and now merely shadows of their former nature.¹⁸ To investigate this lack of protection, the starting point would be the global level.



Conversely, climate change and resulting sea-level and temperature changes may have significant impacts on estuaries and inland wetlands'. *Wetlands* (2007) 327.

⁹ Day J A in Fuggle R F , Rabie M A Strydom H A & King N D (eds) 'Ramsar sites (wetland areas) are wetlands of particular significance which have been designated under the Convention of Wetlands of International Importance'. *Environmental Management in South Africa*. (2009) 697.

¹⁰ Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'Biosphere reserves are intentionally designated protected areas which are managed to demonstrate the value of conservation'. *Environmental Management in South Africa* (2009) 697.

¹¹ Bellamy D J *The Conservation Foundation* London 1.

¹² Keddy P A 'Wetlands and estuaries provide goods and services to satisfy human needs. This concept challenges humans to recognise, inquire and quantify the benefits they receive from these ecosystems'. *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 56.

¹³ Mitsch William J Gosselink James G 'The most common alterations of wetlands and estuaries have been drainage, dredging, and filling, modification of the hydrologic regime, highway construction, mining and mineral extraction and water pollution'. *Wetlands* (2007) 327.

¹⁴ Beazley M *Wetlands in Danger* (1993) 12.

¹⁵ Beazley M *Wetlands in Danger* (1993) 12.

¹⁶ Beazley M *Wetlands in Danger* (1993) 12.

¹⁷ Vottler T H University of Texas Muir Thomas A Natural biological Services *Wetland Management and Research, Wetland Protection Legislation available* States are becoming more active in wetland protection, as of 1993, 29 states had some type of wetland law. (1993). available at <http://www.water.usgs.gov/nwsum/WSP2425/legislation.html> (accessed 18 March 2011).

¹⁸ Mitsch W J and Gosselink J G *Wetlands* (2007) 327.

1.2. The Global Level in relation to the conservation of wetlands and estuaries

On international level the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, 1971 (Hereinafter Ramsar Convention) affords protection to wetlands and estuaries.¹⁹ In the current South African legal regime, the Ramsar convention does not afford any protection to wetlands and estuaries.²⁰ The reason for this is South Africa is only a signatory to the Convention.²¹ It has not yet incorporated the treaty into its domestic law.²² To bring about legal reform, wetland and estuarine specific legislation needs to be enacted in South Africa.²³

The Convention on Biological Diversity affords protection to ecosystems, a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.²⁴ The Convention does not afford protection to wetlands and estuaries.²⁵

¹⁹ Beazley M -in association with the International Union of Conservation of Nature and Natural Resources(IUCN)-The World Conservation Union.. Ramsar is an Iranian city lying on the shores of the Caspian Sea, and it was here that the Wetland Convention was adopted in 1971. *Wetlands in Danger*, (1993)12.

²⁰ Glazewski J Environmental Law in South Africa 2ed (2005) 447.

²¹ Kidd M Environmental Law (2011) 45.

²² Beazley M -in association with the International Union of Conservation of Nature and Natural Resources (IUCN) -The World Conservation Union 'Teeth must be put into the Ramsar Convention by the rich, developed countries putting their own wetlands in order . How can they expect desperate poor countries to look after their wetlands heritage, when the rich countries continue to destroy theirs? In the context of international cooperation the Ramsar Convention has a central role to play, providing the single most important framework for intergovernmental cooperation on wetland issues. An important area that has so far received limited attention under the framework of the Ramsar Convention is development assistance and its impact upon wetland ecosystems'. *Wetlands in Danger* (1993) 12.

²³ Butler L L Environmental Water Rights: An Evolving Concept of Public Property (1990) 358.

²⁴ The United Nations 1992 Convention on Biological Biodiversity 'States have in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies and the responsibility to ensure that the activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction'. (1992) 8.

²⁵ The United Nations 1992 Convention on Biological Biodiversity. (1992) 8.

The ensuing paragraphs will be devoted to the investigation of the present regulatory regime in South Africa to see whether there is adequate and appropriate legislation, law and policy to conserve wetlands and estuaries.

1.3. The South African Level in relation to the conservation of wetlands and estuaries

Environmental law in South Africa has been developed haphazardly in response to environmental needs and pressures.²⁶ South Africa has an overabundance of general legislation dealing with the environment.²⁷ Despite, the general framework this is an insufficient mechanism to conserve wetlands and estuaries.²⁸ The primary reason for this is that the responsibility for the formulation of legislation and enforcement thereof is divided amongst a large number of different regulatory authorities.²⁹ They are often not adequately trained, funded or organised.³⁰ The current legislative framework relating to the environment in South Africa is fraught by the complicated separation of delegated legislative powers and functions between the national and provincial spheres.³¹

²⁶ Allanson B R and Baird D 'Historically, in South Africa the notion of environment has often been identified with the preservation of wildlife and the conservation of nature. In contrast the new 1996 Constitution for the first time includes a direct reference to the environment'. *Estuaries of South Africa a* (1999) 303.

²⁷ Allanson B R and Baird D *Estuaries of South Africa* (1999) 303.

²⁸ Kidd M *Environmental Law* (2008) 45.

²⁹ Allanson B R Baird D *Estuaries of South Africa* (2009) 303.

³⁰ Allanson B R Baird D *Estuaries of South Africa* (2009) 303.

³¹ Cousins T, Pollard Sharon & du Toit 'Problems around the enforcement of environmental law has as much to do with the lack of departmental capacity as with any shortcoming in the local institutions. There is every indication that in these areas this situation will remain thus for a long time to come. , *Legislation in relation to land, water and natural resource governance in communal land in South Africa* (2007) 1.

Although, South Africa lacks wetland and estuarine specific legislation, there are a few frameworks and statutes that afford limited protection to wetlands and estuaries.³²

The point of departure would be section 24(b) of the South African Constitution, which provides protection to the environment in general.³³ This section does not specifically provide protection for wetland and estuaries.³⁴ South Africa needs wetland and estuarine specific legislation which should be enacted in terms of the values and principles of the Constitution.³⁵

The only protection which is afforded to wetlands and estuaries in the South African context, is to be found in the National Environmental Management Act 107 of 1998 (NEMA) principles.³⁶ This provision is the only specific environmental concern for wetlands and estuaries.³⁷ However, this framework alone would not suffice to conserve wetlands and estuaries for future generations to come.

In terms of the National Water Act,³⁸ National Environmental Management: Integrated Coastal Management Act,³⁹ National Environmental Management:

³² Kidd M Kidd M *Environmental Law* 2ed (2011) 42.

³³ Allanson B R and Baird D 'This section is likely to influence judicial decision-making by requiring that due weight be given to environmental considerations, traditionally undervalued by courts'. *Estuaries of South Africa*(2009)302.

³⁴ Allanson B R and Baird D *Estuaries of South Africa* (2009) 302.

³⁵ Glazewski J *Environmental Law in South Africa* 2ed (2005) 447.

³⁶ S2 (4) (r).

³⁷ Kidd M *Environmental Law* (2011) 45.

³⁸ Day J A in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'The restrictions on owner's rights relating to wetlands are, however not sufficient to ensure the conservation of wetland ecosystems. The main threat to wetlands survival comes from urban and agricultural development in these areas.

Biodiversity Act 10 of 2004 very little protection is afforded to wetlands and estuaries.⁴⁰ Furthermore, the Protected Areas Act 57 Of 2003, the Conservation of Agricultural Resources Act 43 of 1983 and the discarded Wetland Conservation Bill 1990, also afford limited protection to wetlands and estuaries.⁴¹ Some of these statutes main focuses is not the protection of wetlands and estuaries but something else.⁴² The existence of these ecosystems is still declining and it results in wetland and estuarine loss which should be of great concern to water-scarce South Africa.⁴³

A number of White Papers⁴⁴ deals with the conservation of ecosystems and Land Use, but has not become national legislation yet.⁴⁵ Most of these drafted White papers deals with sustainability of natural resources and not the protection of

The only other provision in the Water Act, which can be interpreted as referring to wetlands and limiting the owners exclusive use and enjoyment of land on which a wetland occurs , is that pertaining to catchment control areas'. *Environmental Management in South Africa* (2009) 306.

³⁹ 'The Act identifies the need for Estuary Management Programmes (EMP`s) to coordinate estuary management at a local level. The Act has been more than a decade in the making, its Green Paper has been published in 1998 and the Act finally gazetted in February' *Estuaries Management, Turning A Conservation Vision Into Reality , The Water Wheel ,September/October*(2009) 15.

⁴⁰ Allanson B R and Baird D *Estuaries of South Africa* (2009) 302.

⁴¹ Davies and Day *Vanishing Waters* (1998) in Fuggle R F Rabie M A, Strydom H A & King N D (eds) *Environmental Management in South Africa*(2009) 306.

⁴² Day J A in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'The Act represents the only legislation directly aimed at the conservation of wetlands. The Act is administered by the department of agriculture, adding a further authority to wetland management. The regulation forbids the use of vegetation in wetlands that would cause deterioration or damage of agricultural resources. Furthermore, Regulation 12(1) prohibits veld burning without written consent affords protection to wetlands, since it would cover the burning of vlies and reeds beds'. *Environmental Management in South Africa* (2009) 306.

⁴³ Cousins T, Pollard S & du Toit 'Legislation in relation to land, water and natural resource governance in communal land in South Africa (2007) 1.

⁴⁴ Davies and Day *Vanishing Waters* (1998) in Fuggle R F ,Rabie M A ,Strydom H A &King N D (eds) 'The White Paper on a national policy regarding environmental conservation recommended environmental impact assessments (EIA`s) to be voluntary procedure. The Department of Water Affairs (DWA) sets a precedent by undertaking EIA`s for all its major projects'. *Environmental Management in South Africa* (2009) 308.

⁴⁵ Walmsley R D 'According to the International Union for Conservation of Nature and Natural Resources (IUCN) wetlands are one of the most globally endangered habitat types. Throughout the world vast areas of wetlands have been modified to alternate land uses. A similar trend of wetland losses has occurred in South Africa and it has been recommended that urgent steps should be taken to improve the conservation and management of wetlands. *Description of the Wetland Research Programme, South African National Scientific Programme Report NO 145*' (1988) 1.

wetlands and estuaries.⁴⁶ Defining wetlands and estuaries are important for both regulatory agencies and lawmakers⁴⁷ as well as for the general public to understand which wetlands and estuaries are important to conserve.⁴⁸ The state has a duty to make law and policy that will conserve wetland and estuaries.⁴⁹

Wetlands and estuaries are among the most beautiful places on earth and are home to a rich diversity of species and wildlife.⁵⁰ Yet for many years the developed world has been alerted to the destruction of the rain forests and the degradation of the seas and oceans.⁵¹ Little attention and consideration has been paid to wetlands and estuaries.⁵² Wetland and estuarine loss are currently responsible for bringing to the verge the extinction of dozens of species and other wildlife.⁵³ Research by the World Conservation Union (IUCN) has shown that the continuous destruction of wetlands and estuaries can destroy these sensitive environments forever.⁵⁴



⁴⁶ Day J A in Fuggle R F and Rabie M A , Strydom H A & King N D (eds)'A White Paper represents merely a declaration of intention and has no legal force. It does not serve as an obligatory guideline for administrative action that affects the environment. In fact, it cannot even be used in the interpretation of legislation in terms of which actions affecting the environment are undertaken. , *Environmental Management in South Africa* (2009) 103.

⁴⁷ 'Variations within the wetland categories lead to some difficulty in prescribing a definition. The differences can arise from a change in a type of wetland or simply the governing body that oversees them. Therefore, there are times when an overarching definition is needed' *Wetland Conservation* available at http://en.wikipedia.org/wiki/Wetland_conservation. (accessed 17 March 2011).

⁴⁸ Allanson B, R and Baird D *Estuaries of South Africa* (1999) 303.

⁴⁹ Kidd M *Environmental Law* 2ed (2011) 24.

⁵⁰ Mitsch W J and Gosselink J G 4ed *Wetlands* (2007) 327.

⁵¹ Mitsch W J and Gosselink J G 4ed *Wetlands* (2007) 327.

⁵² Allanson B R and Baird D *Estuaries of South Africa* (2009) 302.

⁵³ Beazley M *Wetlands in Danger* (1993) 12.

⁵⁴ Beazley M *Wetlands in Danger* (1993) 12.

1.4 Problem Statement

Wetlands and estuaries are extremely vulnerable ecosystems. These sensitive environments are at the mercy of poor decision-making in government with regard to the issuing of water and mining licenses.⁵⁵ Not much protection, consideration and attention is given to these vulnerable environments to conserve them for the future. Although, South Africa's legislative frameworks, law and policies to conserve wetlands and estuaries appears to be adequately all-inclusive, the challenge however is, the implementation of these frameworks, law and policies.⁵⁶ According to some authors, the failure by the South African legislator to specifically identify wetlands and estuaries has exacerbated and threatened the environmental sustainability and the importance of this natural resource.⁵⁷ This is an opportunity missed, according to Kidd.⁵⁸



1.5 Theoretical Assumptions/Points of Departure/Premises

In this modern day and age, the state has a primary duty with regard to the conservation of the environment and all the elements, and must therefore consider international law.⁵⁹ The legal regime applicable to wetlands and estuaries begins

⁵⁵ Allanson B, R and Baird D *Estuaries of South Africa* (1999) 303.

⁵⁶ Allanson B, R and Baird D *Estuaries of South Africa* (1999) 303.

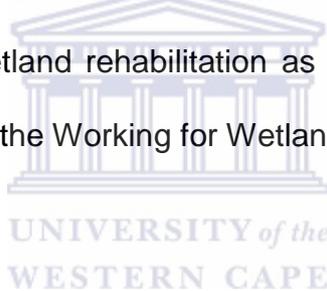
⁵⁷ Beazley M –in association with IUCN –the World Conservation Union ‘It was the poet Gerard Manley Hopkins who wrote “What would the world be, once bereft, of wet and of wildness? Let them be left. Wetlands and estuaries have been drained, shrunken and parcelled more severely than almost any other wild habitat, and humanity has lost in transformation. We need to plan and manage our remaining wetlands far more wisely than in the uncritical years of the drainer’. *Wetlands in Danger* (1993)3.

⁵⁸ Michael Kidd *Environmental Law* (2008)122.

⁵⁹ The Constitution of the Republic of South Africa of 1996 s39 (1) (b).

with the Ramsar Convention.⁶⁰ States must designate wetlands for inclusion in the list. To date seventeen wetlands⁶¹ have been included on the list by South Africa.⁶²

The Convention on Biological diversity also provides that the state has a duty to conserve wetlands and estuaries and to rehabilitate them.⁶³ The same duty is also enshrined in section 24(b) of the South African Constitution which provides that the state must take reasonable legislative and other measures to realise this obligation.⁶⁴ Reasonable legislative measures mean that the state must progressively fulfil this obligation within its available resources.⁶⁵ In this context NEMA is seen as a reasonable legislative measure.⁶⁶ Other measures that have been taken includes: the R30 million budget for wetland rehabilitation as well as the establishment of a nation-wide implementation of the Working for Wetlands programme.⁶⁷



The principles underpinning environmental management contained in the National Environmental Management Act 107 of 1998 (NEMA) are required to be taken into account by any organ of state in the exercise of any power that may impact on the

⁶⁰ 'Article 3 of the Convention provides that contracting parties to the convention shall formulate and implement their planning so as to promote, as far as possible the wise use of wetlands in their territory. Restoration of water resources (natural capital) through the clearing of invasive alien plants from riparian areas in South Africa' *The legal regime applicable to Wetlands and Wetland Rehabilitation* (1992) Article 3.

⁶¹ *Activities Supporting Implementation of the Ramsar Convention in South Africa* (Abstract from the Ramsar Briefing , Directorate Biodiversity Conservation DEAT in International Agreements and South African Law (2002) 39.

⁶² *The Legal Regime applicable to Wetlands and Wetland rehabilitation* (2001) 1.

⁶³ The United Nations Convention on Biological Diversity 'Article 8 provides that the contracting parties shall regulate or manage biological resources for conservation of biological diversity to ensure their conservation and sustainable use and to rehabilitate and restore degraded ecosystems and promote the recovery of threatened species'.(1992)Article 8.

⁶⁴ The Constitution of South Africa 1996 Section 24(b).

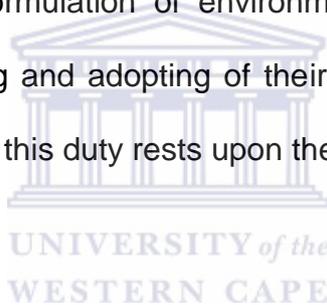
⁶⁵ The Constitution of South Africa 1996 Section 24(b).

⁶⁶ The Constitution of South Africa 1996 Section 24(b).

⁶⁷ *The legal Regime applicable to Wetlands and Wetland Rehabilitation*' (2001).2.

environment.⁶⁸ The foundation stone of NEMA is the set of bed-rock national environmental principles set out in Chapter 1 of NEMA.⁶⁹ It applies throughout the Republic to the actions of all organs of state that may significantly affect the environment.⁷⁰ The state must also take cognisance of sections 25 to 27 of NEMA; it has a duty to incorporate International Environmental law into its Domestic law such as the Ramsar Convention.⁷¹

In the case of *Minister of Public Works and Others v Kyalami Ridge Environmental Association and Others*, Judge President Chaskalson held that the principles in NEMA are directed to the formulation of environmental policies by the relevant organs of state, in the drafting and adopting of their environmental implementation and enforcement.⁷² Therefore, this duty rests upon the state.⁷³



Since 1994, a number of new laws and policies were enacted, for example the NEMA, National Water Act 36 of 2004 (NWA), National Environmental Management: Biodiversity Act 10 of 2004, National Environmental Management: Protected Areas Act 57 of 2003, World Heritage Convention Act 49 of 1999, the Conservation of Agricultural Resources Act 43 of 1983 (CARA), Mineral and Petroleum Resources Development Act 28 of 2002 and National Environmental Management: Integrated

⁶⁸ Sustainable Development requires the consideration of all relevant factors including the following: the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided is minimised and remedied'. (1998) s4 (a).

⁶⁹ Glazewski J 'It also includes the State's responsibility to respect, protect, promote and fulfil the socio-economic rights in Chapter of the Constitution. *Environmental Law in South Africa* (2005) 138.

⁷⁰ The National Environmental Management Act 107 Of 1998 Chapter 1.

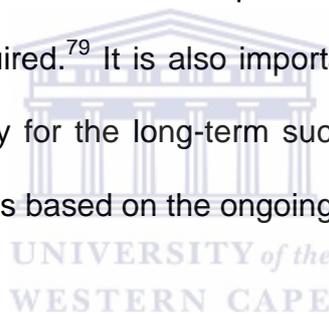
⁷¹ National Environmental Management Act 107 of 1998 s25-27.

⁷² *Minister of Public Works and Others v Kyalami Ridge Environmental Association and Others*, 2001 (3) SA 1151 (CC).

⁷³ *Minister of Public Works and Others v Kyalami Ridge Environmental Association and Others*, 2001 (3) SA 1151 (CC).

Coastal Management Act 24 of 2008 (NEMICMA) but limited protection is still afforded to wetlands and estuaries.⁷⁴

Working with these new laws and policies calls for learning and to do things in different ways such as collaboration across different levels of government and structures.⁷⁵ This is to seek integration and cooperation from different groups.⁷⁶ NEMA⁷⁷ places a huge responsibility on government to provide for co-operative governance with respect to natural resources.⁷⁸ In order to achieve this, the development of a shared vision between all spheres of Government to promote the application and evaluation of environmental practices in relation to wetland and estuarine conservation is required.⁷⁹ It is also important to seek an agreement with land users and the community for the long-term success of wetland and estuarine conservation.⁸⁰ This success is based on the ongoing community support.⁸¹



The people of South Africa are seeking to meet the challenges of using natural resources in a way that future generations may benefit from a clean, healthy and safe environment.⁸² In order to achieve this, government must make law and policy to push for wetland and estuarine specific legislation.

⁷⁴ Cousins T, du Toit D & Pollard S *Wetlands & Governance* (2007) 19.

⁷⁵ *The legal Regime applicable to Wetlands and Wetland Rehabilitation*.2

⁷⁶ *The legal Regime applicable to Wetlands and Wetland Rehabilitation*.2.

⁷⁷ National Environmental Management Act 107 of 1998.

⁷⁸ National Environmental Management Act 107 of 1998.

⁷⁹ Cousins T, du Toit D & Pollard S *Wetlands & Governance* (2007) 19.

⁸⁰ Cousins T, du Toit D & Pollard S *Wetlands & Governance* (2007) 19.

⁸¹ Kotze D *Wetland Use, South African Wetlands Conservation Programme* (2000) 17.

⁸² Beazley M *Wetlands in Danger* (1993) 12.

1.6 Rationale for Study/Research

The South African legal regime does not provide for wetland and estuarine specific legislation. In view, of the absence of an adequate and appropriate legal regime, it is necessary to establish South African wetland and estuarine specific legislation which will conserve these vulnerable environments.

1.7 Hypothesis and Research Question

In the present legal regime of South Africa it does not seem that legislation and policies affords adequate and appropriate protection for the conservation of wetlands and estuaries. It can be viewed that the current situation is, that South Africa is in serious need of wetland and estuarine specific legislation or an act to ensure that these ecosystems are properly regulated, managed and protected to conserve them for future generations to come. South Africa has only a few statutes that conserve these ecosystems. These statutes would not be adequate and appropriate to conserve wetlands and estuaries, because human activity still destroys these catchments.

1.8 Research Question

To establish whether and to what extent South Africa needs wetland and estuarine specific legislation to ensure that wetlands and estuaries are adequately and effectively conserved.

1.9 Research Methods

Research method that will be used will essentially be a desktop study which will consist of an analysis of all the relevant writings on the subject. A variety of sources will be used including primary sources and secondary sources.

1.10 Significance of Research

The results of my preliminary research have indicated there is no such adequate legislation in the South African present legal regime, to protect wetlands and estuaries. The significance of this research is to see if South Africa needs wetland and estuarine specific legislation to conserve these ecosystems. Indeed, South Africa is in need of wetland and estuarine specific legislation, to conserve wetlands and estuaries for future generations to come. The current law and policies do not suffice to conserve these service systems. South Africa does have statutes which afford protection to these ecosystems, but this protection is limited with regard to wetlands and estuaries.

1.11 Chapter Outline/Structure

The first chapter is a presentation of the study, its background and history, the problem statement, research question, rationale, hypothesis and the significance of the research. Chapter two will be a discussion of the conceptual analysis of the definitions, the importance of wetlands and estuaries and the greatest impacts upon

them. Chapter three, will deal with the present international regulatory regime in relation to wetlands and estuaries. Chapter four will be devoted to the conservation of wetland and estuaries in the present South African legal regime. The fifth chapter provides for conclusions and recommendations.

1.12 Conclusion

Research findings has indicated that, whilst policies, legislation and the will that may exist to promote the conservation of wetland and estuarine life, this has been confused by the role of the stakeholders.⁸³ Despite, all the government legislation, policies and programmes, wetlands and estuaries will not be protected if the regulations are not enforced.⁸⁴ Perhaps the best way to protect wetlands and estuaries is to educate the public of their benefits.⁸⁵ Protection of these vulnerable environments can only be accomplished through the cooperative efforts of citizens as well.⁸⁶

What should be asked is will this current legal regime be adequate and appropriate for the conservation of South African wetlands and estuaries? Well, against the

⁸³ Federal Wetland Protection Programmes and Policies 'The Clean Water Act regulates dredge and fill activities that would adversely affect wetlands'. available at <http://water.usgs.gov/nwsum/WSP2425/legisaltion.html>. (accessed 24 March 2011).

⁸⁴ Federal Wetland Protection Programmes and Policies 'The Clean Water Act regulates dredge and fill activities that would adversely affect wetlands'. available at <http://water.usgs.gov/nwsum/WSP2425/legisaltion.html>. (accessed 24 March 2011).

⁸⁵ Votteler T H and Muir Thomas A U.S Geological Survey 'Wetland Management and Research, Wetland Protection Legislation if the public does not recognize the benefits of wetland preservation, wetlands will not be preserved'. available at <http://water.usgs.gov/nwsum/WSP2425/legisaltion.html>. (accessed 24 March 2011).

⁸⁶ Votteler T H and Muir Thomas A U.S Geological Survey *Wetland Management and Research Wetland Protection Legislation* available at <http://water.usgs.gov/nwsum/WSP2425/legisaltion.html>. (accessed 24 March 2011).

background of a strong environmental component in the new Constitution and the exiting body of environmental law, South Africa has embarked on a process aimed at developing a new environmental policy.⁸⁷ However, there is a difference of opinion amongst authors.⁸⁸ According to them, the importance of pointing out the conservation of wetlands and estuaries has not been accomplished by South African Legislation.⁸⁹

There is an urgent need to focus on estuarine and wetland specific legislation in South Africa to bring about legal reform.⁹⁰ This will be discussed in the chapter 4.



⁸⁷ Allanson B R and Baird D *Estuaries of South Africa* (2009)303.

⁸⁸ Votteler T H and Muir Thomas A U.S Geological Survey *Wetland Management and Research Wetland Protection legislation* available at <http://water.usgs.gov/nwsum/WSP2425/legisaltion.html>. (accessed 24 March 2011).

⁸⁹ Kidd M 'Although the legislative framework to conserve wetlands appears to be sufficiently comprehensive, the challenge is the implementation (especially considering that the necessary list of ecosystems under threat under the Biodiversity Act have not yet been produced) A final observation is that the symbolic importance explicitly singling out wetlands for conservation has not yet been achieved by our legislation and this is an opportunity missed'. *Environmental Law* (2008)122.

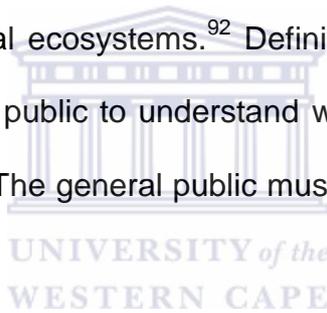
⁹⁰ Votteler T H and Muir Thomas A U.S Geological Survey *Wetland Management and Research Wetland Protection Legislation* available at <http://water.usgs.gov/nwsum/WSP2425/legisaltion.html>. (accessed 24 March 2011).

CHAPTER 2

A conceptual analysis of wetlands and estuaries

2.1. Introduction

It is important to analyse the concepts of wetlands and estuaries.⁹¹ The purpose for this is to make policy and law, which are appropriate for their protection, conservation and sustainable use of the natural services which they might provide to human beings as living natural ecosystems.⁹² Defining wetlands and estuaries are also important for the general public to understand why wetlands and estuaries are important for conservation.⁹³ The general public must understand what the object of law and policy is.⁹⁴



The definition of wetlands is considered to be a problem as well as the legal aspects of the definition.⁹⁵ In the following paragraphs the definitions and the interrelationships between wetlands and estuaries will be considered.

⁹¹ Brown C and Magoba R 'Estuary is that area where river meets the sea characterised by a zone of intermediate salinity and often influence by tidal action.' *Rivers and wetlands of Cape Town, Caring for our rich aquatic heritage* (2009) 364.

⁹² Keddy P A 'One of the simplest classification systems recognizes only four types of wetlands: swamps, marshes, fens and bogs. Other wetland types could be added to these four. Two important ones are the following, wet meadow and shallow water.' *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 18.

⁹³ Allanson B, R and Baird D 'One of the problems faced by environmental managers in South Africa is the difficulty of adequately defining an Estuary.' *Estuaries of South Africa* (1999) 303.

⁹⁴ Wetland Conservation, from Wikipedia available at <http://en.wikipedia.org/wiki/wetland-conservation> (accessed 17 March 2011).

⁹⁵ Parliamentary Monitoring Group (1996) 8.

2.2. Definition of wetlands

Human activity, specifically development and urbanization have had a huge impact on the systems⁹⁶ of wetlands and estuaries⁹⁷ in South Africa. The great variation⁹⁸ in size and location⁹⁹ makes it difficult¹⁰⁰ to define wetlands and estuaries. Perhaps, this is the reason, why there are more than 50 separate definitions¹⁰¹ of wetlands in use throughout the world.¹⁰²

The term 'wetland' is relatively new.¹⁰³ It covers a broad range of distinctive habitat types which do not fit neatly into aquatic and terrestrial classification systems.¹⁰⁴

Wetlands commonly occur in a transitional zone between wet and generally dry environments and share characteristics of both,¹⁰⁵ of these types of environments.¹⁰⁶

⁹⁶ Keddy P A 'One of the simplest classification systems recognizes only four types of wetlands: swamps, marshes, fens and bogs. Other wetland types could be added to these four. Two important ones are the following, wet meadow and shallow water.' *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 18.

⁹⁷ Brown C and Magoba R 'Estuary is that area where river meets the sea characterised by a zone of intermediate salinity and often influence by tidal action.' *Rivers and wetlands of Cape Town, Caring for our rich aquatic heritage* (2009) 364.

⁹⁸ Shine C and de Klemm C 'wetlands also varies widely in type, with the significant differences from one region to another. for example the grassland floodplains in Africa and South America may be contrasted with Sudan's huge swamps, the enormous mangrove forests of Asia , coral reefs in the tropics and the high concentration of peatlands around the margins of the South China Sea. *Wetlands Water and the law. Using law to advance wetland Conservation and wise use.*' (1999) 5.

⁹⁹ Day J A in Fuggle R F, Rabie M A Strydom H A & King N D (eds) *Environmental Management in South Africa edited by HA Strydom & ND King* (2009) 429.

¹⁰⁰ Keddy P A 'Many other definitions, particularly longer ones, are possible. Some definitions are predominantly written by and for scientists, others by and for lawyers. Yet many court cases that deal with wetlands can hinge upon definitions.' *Wetland Ecology: Principles of Conservation* (2010) 34.

¹⁰¹ Dungan P J 'Indeed over fifty separate definitions of wetlands are currently in issue.' *International Union for Conservation of Nature and Natural Resources.* *Wetland Conservation: A review of current issues and required action* (1990) 9.

¹⁰² Beazley M in association with IUCN- the World Conservation Union, *Wetlands in Danger* (1993) 12.

¹⁰³ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 3.

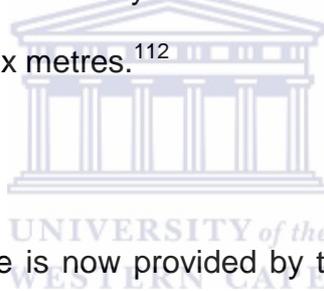
¹⁰⁴ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 3.

¹⁰⁵ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 3.

¹⁰⁶ Beazley M in association with IUCN- the World Conservation Union, *Wetlands in Danger* (1993)12.

Wetland types range from permanently immersed wet land to land that is only intermittently submerged.¹⁰⁷ The levels of submergence also vary, for example some are deeper than others.¹⁰⁸

Whilst they have traditionally been associated with areas of shallow water such as marshes, swamps and peatbogs, there is no scientific reason to restrict their definition to fresh water habitats.¹⁰⁹ Wetlands can also include salt marshes and mangroves.¹¹⁰ A line must be drawn when delimiting coastal and marine wetlands to avoid over extending of the definition to include all water surfaces of the world.¹¹¹ The submergence of wetlands is usually considered to be between depths of which at low tides does not exceed six metres.¹¹²



A common frame of reference is now provided by the Convention on Wetlands of International Importance, Especially Waterfowl Habitat.¹¹³ It defines wetlands as follows.¹¹⁴

areas of marsh , fen , peatland or water whether natural or artificial, permanent or temporary with water that is static or flowing , fresh brackish or salt including areas of marine water the depth of which at low tide does not exceed six metres.¹¹⁵

¹⁰⁷ Rubec C A *Framework for developing and Implementing National Wetland Policies* (1999) 3.

¹⁰⁸ Rubec C A *Framework for developing and Implementing National Wetland Policies* (1999) 3.

¹⁰⁹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 3.

¹¹⁰ OECD Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropic and Sub-Tropic Wetlands .Guideline on Aid and Environment,No9 (1996) 9.

¹¹¹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 3.

¹¹² Ramsar Convention Definition (1971).

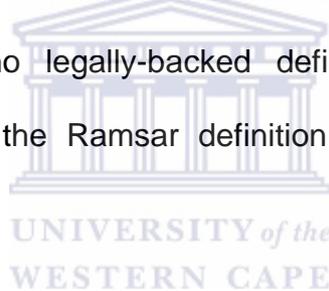
¹¹³ Ramsar Convention on Wetlands of International Importance, Especially waterfowl Habitat (Ramsar Convention). 'Ramsar is an Iranian City lying on the shores of the Caspian Sea and it was here where the Wetland Convention was adopted in (1971).

¹¹⁴ Beazley M in association with IUCN- the World Conservation Union *Wetlands in Danger* (1993) 12.

This relatively broad definition also poses some difficulty.¹¹⁶ According the OECD Guidelines, this description of wetlands, their uses and threats, is considered to be more complex.¹¹⁷ It does not mention open coasts and coral reefs.¹¹⁸ It is clearly applicable to shallow marine coastal ecosystems, which includes estuaries, dunes, and mangrove swamps and seagrass beds.¹¹⁹

The sheer breadth of the Ramsar definition makes it possible for countries to adapt or 'flesh out' the definition in line with their particular biogeographic conditions.¹²⁰

This is to develop a more detailed classification system as a basis for their domestic legislation and wetland programmes.¹²¹ Some countries which have ratified the Ramsar Convention have no legally-backed definitions of wetlands.¹²² Other countries have incorporated the Ramsar definition into their national legislation without any modification.¹²³



¹¹⁵ Ramsar Convention on Wetlands of International Importance, Especially Waterfowl Habitat (1971) Article 1.1.

¹¹⁶ Shine C and de Klemme C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 3.

¹¹⁷ OECD Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropic and Sub-Tropic Wetlands .Guideline on Aid and Environment, No9 (1996) 9.

¹¹⁸ OECD Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropic and Sub-Tropic Wetlands .Guideline on Aid and Environment, No9 (1996) 9.

¹¹⁹ However Article 2.1 does specially provide that wetlands which are included in the list of Wetlands of International Importance established under the Convention 'may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within wetlands. Ramsar Convention Article 2.1.

¹²⁰ OECD Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropic and Sub-Tropic Wetlands .Guideline on Aid and Environment, No9 (1996) 9.

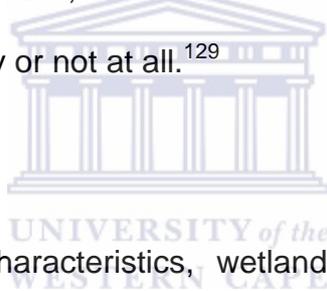
¹²¹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 4.

¹²² For example Spain and Uganda in Shine C and de Klemm *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 4.

¹²³ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 4.

On the other hand, some countries have retained their own long-standing wetland definitions, which are enshrined in legislation and wetland policy.¹²⁴ Such definitions are generally compatible with the broad Ramsar definition.¹²⁵ However, some may vary in respect of the full scope of what is included as a wetland, particularly with regard to coastal and marine systems.¹²⁶

More generally, wetlands are defined as areas where water is the primary factor controlling the environment and the associated plant and animal life.¹²⁷ Wetlands occur where the water table is near the surface of the land or where the land is covered by shallow water.¹²⁸ Also, wetlands do not drain the landscape and are areas where water flows slowly or not at all.¹²⁹



Due to their hydrological characteristics, wetlands provide a number of very important services¹³⁰ to the environment directly and to human beings indirectly.¹³¹ Mitsch and Gosselink¹³² wrote that wetlands exist 'at the interface between truly terrestrial ecosystems and aquatic systems, making them inherently different from

¹²⁴ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 4.

¹²⁵ Rubec C A *Framework for developing and Implementing National Wetland Policies* (1999) 2.

¹²⁶ Rubec C A *Framework for developing and Implementing National Wetland Policies* (1999) 2.

¹²⁷ Kidd Michael *Environmental Law* (2008) 20.

¹²⁸ Ramsar Information Paper No 1 available at <http://www.ramsar.org/about/about-infopack-le.htm> (accessed 14 April 2011).

¹²⁹ Brown C and Magoba R *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage* (2009) 27.

¹³⁰ Day J A in Fuggle, Rabie, Strydom H A & King N D (eds) 'Wetlands have been used for centuries as sources of good grazing for domestic stock and as a source of reeds for thatching, hut construction and basket weaving. They also provide other direct and indirect benefits such as fishing, hunting and the opportunity to observe wildlife, especially birds. Wetlands are appreciated for their beauty as open spaces and also for their educational value.' *Environmental Management in South Africa* (2009) 431

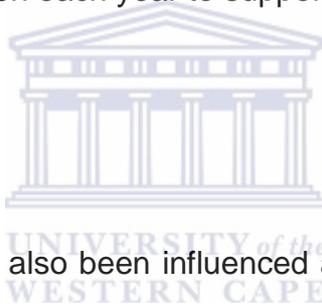
¹³¹ Davies B R and Day J A *Vanishing Waters* 2ed (1998) 2.

¹³² Mitsch W J & Gosselink J G *Wetlands* (2000) 2.

each other, yet highly dependent on both'.¹³³ For this reason, we need to consider the basic scientific definitions of wetlands.

2.2.1. Scientific definition of wetlands

Scientifically, wetlands have been categorized as biomes and ecosystems.¹³⁴ Water that accumulates in pools or ponds on the surfaces of the land would not be considered as a 'wetland', even though the land is wet.¹³⁵ This is because of the temporary nature thereof.¹³⁶ They are characterized as having a water table that stands for a long enough season each year to support aquatic plants,¹³⁷ that remains relatively constant.¹³⁸



The definition of wetlands has also been influenced according to the regions where they occur.¹³⁹ Therefore, these scientific definitions have undergone changes according to the region specific situation of wetlands.¹⁴⁰

¹³³ Mitsch W J & Gosselink J G *Wetlands* 4 ed (2007)2.

¹³⁴ 'Wetland Conservation' available at http://www.the_wildclassroom.com/biomes/wetlands.html (accessed 1 April 2011).

¹³⁵ 'Wetland Conservation' available at http://www.the_wildclassroom.com/biomes/wetlands.html (accessed 1 April 2011).

¹³⁶ *Wetlands* available at http://www.cvwd.net/water_glossary.html (accessed 1 April 2011). <http://bcb706.blogspot.com/2007/03/wetlands-conservation-in-south-africa> (accessed 17 March 2011).

¹³⁷ Scientific definition of wetlands available at <http://mapping2.orr.noaa.gov/portal/calclassieu/cale.html/resources/glossary.html> (accessed 18 March 2011).

¹³⁸ Wetlands Definitions' <http://www.alabamapower.com/hydro/glossary.asp> (accessed 8 March 2011).

¹³⁹ Scientific definition of wetlands available at <http://mapping2.orr.noaa.gov/portal/calclassieu/cale.html/resources/glossary.html> (accessed 18 March 2011).

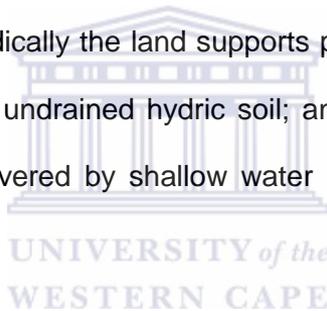
¹⁴⁰ 'Wetland Conservation' available at http://www.the_wildclassroom.com/biomes/wetlands.html (accessed 1 April 2011).

Examples are the following; in the United States of America (USA) in terms of section 404 of the Clean Water Act¹⁴¹ wetlands are define as follows:

'Wetlands are areas other than lakes and rivers that remain wet most of the year and generally include swamps, marshes, Bogs and similar areas.'¹⁴²

And the US Fish and Wildlife Service¹⁴³

'Wetlands are lands transitional between terrestrial and an aquatic system where the water table is usually at or near the surface or the land is covered by shallow water. For the purposes of this classification wetlands must have one of the following attributes (1) at least periodically the land supports predominantly hydrophytes (2) the substrate is predominantly undrained hydric soil; and the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season.'¹⁴⁴



In South Africa, wetlands are defined in the National Water Act as well as in the NEMA¹⁴⁵ as follows:¹⁴⁶

'land which is transitional between terrestrial an aquatic systems where the water table is usually at the surface, or the land is periodically covered with shallow water, and

¹⁴¹ Clean Water Act of (1972) s 404.

¹⁴² Clean Water Act of (1972) s 404.

¹⁴³ Walmsley R D A *Description of the Wetland Research Programme South African National Scientific Programme Report NO 145 The United States Fish and Wildlife Services (Cowardin et al)*.(1988) 4.

¹⁴⁴ Lewis M, Cowardin & Francis C G US Fish and Wildlife Service Wetland Classification: A Review (1979) 140.

¹⁴⁵ National Environmental Management Act 107 of 1998 s 2(1).

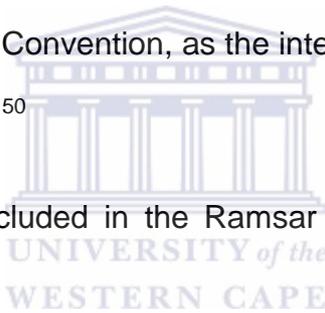
¹⁴⁶ National Water Act 38 of 1998.

which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.¹⁴⁷

Needless to say, all these differentiation in definitions of wetlands have certain links that defines wetlands.

According to Scott and Springer,¹⁴⁸ the most preferred and widely used definition of wetlands is the one provided by the Ramsar Convention.¹⁴⁹ And according to Shine and de Klemm, unless otherwise indicated, all reference to wetlands is based on the broad definition of the Ramsar Convention, as the international reference point in this area for nearly three decades.¹⁵⁰

The term 'estuary' is also included in the Ramsar Definition. The analysis of an estuary will now be discussed.



2.3. Definition of an Estuary

The term 'estuary' has been applied primarily to the lower tidal reaches of a river.¹⁵¹ However, for the proper management¹⁵² of an estuary, it is necessary to define the

¹⁴⁷ National Water Act 38 of 1998 Chapter 1(1 (xxix).

¹⁴⁸ Scott D.A and Springer *Classification and Inventory of Wetlands: A Global Overview* (1995) 1.

¹⁴⁹ Scott D.A and Springer *Classification and Inventory of Wetlands: A Global Overview* (1995) 1.

¹⁵⁰ Shine C and de Klemm *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 4.

¹⁵¹ Pritchard D.W *What is an Estuary: Physical View Point* (1967) 3.

¹⁵² 'The approach to managing estuaries is similar to most ecosystems, evaluate the conditions of the system and the pressures on it, and react to those conditions and pressures and to mitigate their impacts' *American Institute of Biological Science* (2009) available at editor@actionbioscience.org (accessed 22 March 2011).

special boundaries of the area to be managed.¹⁵³ This has been done from a scientific, legal or administrative perspective.¹⁵⁴

In deciding on a workable definition, the scientific definition of an estuary, which should inform legal and administrative decision-making, makes it often complex to define.¹⁵⁵ Also its operational implementation is technically too complicated to allow for clear unambiguous management boundaries.¹⁵⁶ The desire for precise and unambiguous terms is even more important as there may be substantial legal repercussion of poor definitions.¹⁵⁷

The predominant characteristic of an estuary is that it is usually a mixture of salt and freshwater in water bodies along coasts.¹⁵⁸ In estuaries the fresh river water is blocked from streaming into the open ocean by surrounding mainland, peninsulas, barrier islands and fringing salt marshes.¹⁵⁹ This mixing of fresh water and saltwater

¹⁵³ American Institute of Biological Science (2009) available at editor@actionbioscience.org (accessed 22 March 2011).

¹⁵⁴ Elliott M and Mclusky D.S *The Need for Definitions in Understanding Estuaries* (200) 1.

¹⁵⁵ Press Newsletter Reauthorized 'To further complicate the definition, often estuaries have considerable wetlands associated to them. Some wetlands exist within the body of the estuary and other wetlands are flooded with estuarine water.' *Estuary Restoration Act Aids Threatened Coast Habits* (2007) 2.

¹⁵⁶ *What is and Estuary The definition of an Estuary Restore America's Estuaries* available at <http://www.estuaries.org/what-is-an-estuary.html>. (accessed on 11March 2011).

¹⁵⁷ Elliott M and Mclusky D.S *The Need for Definitions in Understanding Estuaries* (2002) 1.

¹⁵⁸ *What is and Estuary The definition of an Estuary Restore America's Estuaries* available at <http://www.estuaries.org/what-is-an-estuary.html>. (accessed on 11March 2011).

¹⁵⁹ Walmsley R D *A Description of the Wetland Research Programme South African National Scientific Programme Report NO 145 The United States Fish and Wildlife Services (Cowardin et al).*(1988) 4.

creates a unique environment that brims with life of all kinds.¹⁶⁰ This environment also gathers nutrients from land and the ocean.¹⁶¹

From a physical perspective, the definition of an estuary should be recognized as follows:¹⁶²

‘An estuary is a semi enclosed coastal body of water which have a free connection with the open sea and within which sea water is measurably diluted with fresh water derived from land drainage.¹⁶³ According to Pritchards, this definition, which moves to a salinity based distinction, has been widely adopted in subsequent decades.¹⁶⁴

While the definitions focus on the water of estuaries, wetlands are generally considered as part of any estuary for both scientific and environmental management reasons.¹⁶⁵ The next discussion will be devoted to the scientific and legal definitions of estuaries.

¹⁶⁰ Elliott M and Mclusky D.S *The Need for Definitions in Understanding Estuaries* (2002)1.

¹⁶¹ Keddy P A ‘*Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 18.

¹⁶² *What is and Estuary The definition of an Estuary Restore America’s* available at <http://www.estuaries.org/what-is-an-estuary.html>. (accessed 11March 2011).

¹⁶³ Pritchard D W *What is an Estuary: Physical Viewpoint* (1967) 3.

¹⁶⁴ Pritcahrd (1967) in Elliott M and Mclusky D.S *The Need for Definitions in Understanding Estuaries* (2002) 2.

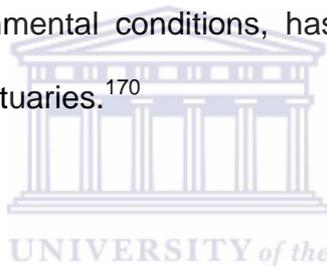
¹⁶⁵ Elliot M and Mclusky D S *The need for Definitions in Understanding Estuaries* (2002) 1.

2.3.1. A scientific definition of an Estuary

In international literature, an estuary is defined as,

'a semi-enclosed ¹⁶⁶coastal body of water which has a free connection with the open sea and within which sea water is measurably diluted with freshwater derived from land.'¹⁶⁷

South Africa's estuaries are relatively small.¹⁶⁸ This is as a result of the mean annual runoff of South African rivers.¹⁶⁹ This combination of small size and runoff, coupled with extreme environmental conditions, has led to a number of different definitions for South African estuaries.¹⁷⁰



A scientific definition in South Africa can be found in the South African National Report for the United Nations Conference on the Environment and Development.¹⁷¹

This definition reads as follows:

¹⁶⁶ Harvey J D Coon and Abouchar Fredericton Conservation Council of New Brunswick Inc 'Estuaries are semi enclosed bodies of water formed when fresh water from rivers and coastal streams flows into and mixes with salt water of the ocean.' *Habitat lost: Taking the pulse of estuaries in the Canadian Gulf of Maine The Importance of Estuaries* (1998) 1389- 1995.

¹⁶⁷ Harvey J D, Coon and Abouchar Fredericton Conservation Council of New Brunswick Inc *Habitat lost: Taking the pulse of estuaries in the Canadian Gulf of Maine The Importance of Estuaries* (1998) 1389- 1995.

¹⁶⁸ Morant P and Quin N 'South Africa's coast line is very rugged and has very few sheltered embayments and its dominated by the high wave regime and strong winds. These conditions have led to coastal pressures on estuaries.' *Influence of Man and Management of South African Estuaries, Estuaries of South Africa* (1999) 289.

¹⁶⁹ Morant P and Quin N *Influence of Man and Management of South African Estuaries*' (1999) 289.

¹⁷⁰ Allanson B R and Baird D 'In a water scarce South Africa, it have been recorded that during drought certain estuaries become hypersaline and certain catchments dry up during the dry seasons.' *Estuaries of South Africa* (1999) 7.

¹⁷¹ South African National Report (CSIR1992-43) for the United Nations Conference on the Environment and Development held in Rio de Janairo in June (1992).

'In South Africa an estuary is considered to be portion of a river system which has, or can from time to time have contact with the sea. Hence during floods an estuary can become a river mouth with no sea water entering the formerly estuarine area. Conversely , when there is little or no fluvial input an estuary can be isolated from the sea by a sandbar and become a lagoon which may become fresh or hypersaline , or even completely dry.'¹⁷²

2.3.2. Legal Definition of an Estuary

An estuary is defined as follows in the South Africa National Water Act¹⁷³

'Partially or fully enclosed water body that is open to the sea permanently or periodically, and within which the seawater can be diluted, to an extent that is measurable, with freshwater drained from land.'¹⁷⁴

In the Seashore Act it is defined as,¹⁷⁵

'a tidal lagoon means any lagoon in which a rise or fall of water level takes place as a results of the action of the tides and the tidal river means that part of any river which a rise or fall water level takes place as a result of the action of the tides.'¹⁷⁶

The Marine Living Resources Act (MLRA) does not specifically define it as an estuary but refers to it as a "*tidal River*" without explicitly stating the definition.¹⁷⁷ The

¹⁷² South African National Report (CSIR1992-43) for the United Nations Conference on the Environment and Development held in Rio de Janeiro in June (1992).

¹⁷³ National Water Act 36 of 1998.Chapter 1.

¹⁷⁴ The National Water Act 36 of 1998, Chapter 1.

¹⁷⁵ The Seashore Act 21 of 1935.

¹⁷⁶ The Sea shore Act 21 of 1935, Chapter 1.

¹⁷⁷ The Marine Living Resources Act

Regulation passed under the MLRA refers to the definition as provided in the Sea – shore Act.¹⁷⁸

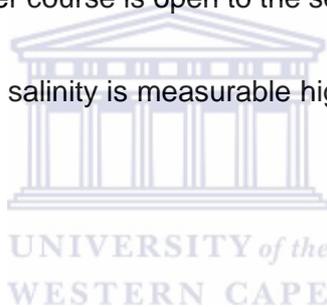
The National Environmental Management: Integrated Coastal Management Act 24 of 2008¹⁷⁹ defines an estuary as:

‘An estuary means a body of surface water

(a) that part of a water course that is permanently or periodically open to the sea;

(b) in which a rise or fall of the water level as a result of the tides is measurable at spring tides when the water course is open to the sea ; or

(c) in respect of which the salinity is measurable higher as a result of the influence of the sea.¹⁸⁰



Despite all these different definitions, Van Niekerk and Taljaard, are of the view that the South African National Water Act provides the most appropriate legal definition of an estuary.¹⁸¹ It makes provision for a number of South African estuarine conditions, such as, temporary closed estuaries or systems that are not tidal but do experience the mixing of saline and freshwater.¹⁸²

¹⁷⁸ Sea-shore Act 21 of 1935.

¹⁷⁹ Environmental Management: Integrated Coastal Management Act 24 of 2008.

¹⁸⁰ National Environmental Management: Integrated Coastal Management Act 24 of 2008.s1.

¹⁸¹ Van Niekerk and Taljaard Cape Estuaries Guideline 6: Monitoring Programmes for Implementation in South African Estuaries (2007) 6.

¹⁸² Van Niekerk and Taljaard Cape *Estuaries Guideline 6: Monitoring programmes for implementation in South African Estuaries* (2003) 7.

A uniform definition of an estuary is difficult to be achieved.¹⁸³ The reason for this is estuaries are transitional to both deltas and lagoons and the boundaries between the types are not clear cut.¹⁸⁴ Wetland and estuary definitions that will prove to be satisfactory to all users have not been developed.¹⁸⁵ Definitions of wetlands and estuaries depend on the objectives and the field of interest of the user.¹⁸⁶ Such users includes: geologist, soil scientist, hydrologist, biologist, ecologist, sociologist, economist, political scientist, public health scientist and lawyer.¹⁸⁷

The variance is a natural result of the differences of emphasis in the definer`s training and of the different ways in which the individual deals with wetlands and estuaries.¹⁸⁸ Applying a blanket definition in a uniform and fair way requires a generation of well-trained wetland and estuarine scientists, managers and legal practitioners.¹⁸⁹ They must be armed with a fundamental understanding of the processes that are important and unique to wetlands and estuaries.¹⁹⁰

¹⁸³ Gerardo M Perillo E 'A general view of geomorphological estuarine definitions was made by Schubel and Pritchard (1972). They analyzed more than 10 classical definitions by geologists, geomorphologists, geographers, physical oceanographers and biologists. Even though all of them address important characteristics of estuaries, the authors consider that all of these definitions are either too exclusive or too inclusive.' *Geomorphology and Sedimentology of Estuaries* (1996)19.

¹⁸⁴ Allanson B R and Baird D *Estuaries of South Africa* (1999) 6.

¹⁸⁵ Allanson B R and Baird D *Estuaries of South Africa* (1999) 6.

¹⁸⁶ Mitsch J Williams Gosselink J G *Wetlands* 4 Ed (2000) 40.

¹⁸⁷ What is an Estuary? available at <http://www.estuaries.org/what-is-an-estuary.html> (accessed 1 April 2011).

¹⁸⁸ What is an Estuary? available at <http://www.estuaries.org/what-is-an-estuary.html> (accessed 1 April 2011).

¹⁸⁹ Elliott M and Mclusky D S *The Need for Definitions in Understanding Estuaries* (2002) 1.

¹⁹⁰ Keddy P A *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* 'Like the frequency of water level fluctuations control the characteristics of wetlands. High water periods create wetlands by destroying any existing terrestrial plants and allowing wetland species to become established. Water level fluctuations may destroy existing vegetation, terrestrial or wetland and permit re-establishment from reserves of buried seeds.'(2000) 178.

2.4. The importance of wetlands

Wetlands have been described as 'biological supermarkets' and 'kidneys of the landscape.'¹⁹¹ This is because of their ability to support biodiversity through the provision of extensive nutritional webs.¹⁹² They are also important for the functions and services they perform in the hydrological and chemical cycles.¹⁹³ In addition to these products and ecological services, wetlands may be appreciated for their intrinsic value.¹⁹⁴

The difference between wetland functions and services are explained as follows:

- Services are the benefits and products that humans derive from the functions.¹⁹⁵
- Functions are the capacity of a wetland to provide products and services.¹⁹⁶

These groups of services (products) and functions are discussed below

2.4.1. Wetland products

Wetlands products include fish and timber; wildlife may be directly harvested or used indirectly for ecotourism , scientific research or film purposes;¹⁹⁷ housing materials

¹⁹¹ Mitsch W J and Gosselink J G *Wetlands* (2ed) Van Nostrand Reinhold (1993) 8.

¹⁹² Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 3.

¹⁹³ Mitsch W J and Gosselink J G *Wetlands* 2ed Van Nostrand Reinhold (1993), New York See also generally Skinner J and Zalewski *Functions and Values of Mediterranean Wetlands* (1993) 4.

¹⁹⁴ Babier, Acreman and Knowler *Economic Values of Wetlands: A Guide for Policy Makers and Planners* (1997) 110-116.

¹⁹⁵ Ababa A E *Wetlands and Natural Resources Association ,Proceeding of National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy Development in Ethiopia* (2008) 18.

¹⁹⁶ Ababa A E *Wetlands and Natural Resources Association ,Proceeding of National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy Development in Ethiopia* (2008) 18.

¹⁹⁷ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 7.

such as reeds for thatching, medical plants, the provision of fertile land for agriculture, water supply for domestic purposes, pastoral or industrial purposes and peat for fuel or commercial applications.¹⁹⁸ These products have direct and immediate benefits for local communities and indigenous people living in or close to wetlands.¹⁹⁹

By supporting diverse human activities, large wetlands play a particularly important role in human subsistence and development.²⁰⁰ Even in arid regions, wetlands provide important products for local communities because they are made up of a mixture of soils, water, plants and animals.²⁰¹ From a socio-economic point of view, wetlands consequently enable communities to maintain traditional forms of animal and plant resource exploitation and provide essential communication links through water transport.²⁰² Without the protection and food supply available in wetlands many commercial entities might collapse.²⁰³

¹⁹⁸ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 7.

¹⁹⁹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 7.

²⁰⁰ The huge African floodplain support very large populations through fisheries, cattle herding and recession culture farming on the wet nutrient-rich riverbanks. The middle valley of Senegal and the inner delta of Niger in Mali each support over 550,000 people. *Wetlands: the Community's Wealth* (1987) 10-11.

²⁰¹ Kennish M J 'Wetlands exhibit one or more of the following attributes water-loving vegetation and soils.' *Restoration and Maintenance, The National Estuary Programme* (2000) 53.

²⁰² Shine C and de Klemm *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 7.

²⁰³ OECD Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropical and Sub-tropical Wetlands. Guidelines on Aid and Environment. (1996) 9.

2.4.2. Wetland Functions

Wetlands provide the mechanisms for hydrological balance.²⁰⁴ Depending on the specific conditions of an individual wetland, it may perform one or more of the following functions: groundwater flow²⁰⁵ and surface flood control;²⁰⁶ stabilize shores and protection from storms, water purification²⁰⁷, sediments and nutrition stabilization²⁰⁸ and the maintenance of biological diversity. These functions will be briefly discussed below.

2.4.2.1. Groundwater and flood control

Wetlands that receive most of their water from groundwater discharge usually supports more stable biological communities, (communities that is situated close to wetlands) and organisms dependent on them.²⁰⁹ Water temperature and levels do not fluctuate as much as in wetlands that are dependent on surface flow.²¹⁰

²⁰⁴ Shine C and de Klemm *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

²⁰⁵ Shine C and de Klemm C 'Discharge of groundwater, whereby excess water is drained away into rivers and streams and prevents waterlogging of land.' *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

²⁰⁶ Brown C and Magoba R 'Wetlands tend to reduce the force of floodwaters because they absorb some of the water in their loose, organic, peaty soils. Storage of flood water in flood plains, which enable surplus waters to spread out during peak levels and thus reduce the force of flooding.' *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage.* (2009) 27

²⁰⁷ Braahekke and Marchand 'It has become clear that invertebrates and microorganisms perform critical functions within natural ecosystems, including water purification functions for wetlands.' *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage* (1987) 19.

²⁰⁸ Keddy P A *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 178.

²⁰⁹ Dungan P J *Wetland Conservation: a review of current issues and required action* (1990) 15-16.

²¹⁰ Beazley M -in association with the International Union of Conservation of Nature and Natural Resources(IUCN) The World Conservation Union *Wetlands in Danger* (1993) 12.

By storing rain water, melted snow and by slowly releasing runoff water, wetlands can diminish the destructive onslaught of floods downstream.²¹¹ Preserving natural storage can avoid the costly construction of dams and reservoirs.²¹² Retention of wetlands for flood control is now becoming a recognised conservation and management tool.²¹³

2.4.2.2. Stabilize shores and storm protection

Wetland vegetation makes an important contribution to erosion control.²¹⁴ Coastal wetlands, particularly mangrove forests contribute to shoreline stabilisation²¹⁵ and storm protection, at much lower costs than engineered structures.²¹⁶ They help to drive away the force and lessen the damage of wind and wave action in many low-lying areas.²¹⁷ At the same time the roots of wetland plants holds the bottom sediment in place, preventing erosion of valuable agricultural and residential land and property damage.²¹⁸ In some cases it may actually help build up land.²¹⁹ They can play an economically important role in natural hazard management.²²⁰

²¹¹ Dungan P J *Wetland Conservation: a review of current issues and required action* (1990) 16.

²¹² Braahekke and Marchand *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage* (1987) 19.

²¹³ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

²¹⁴ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

²¹⁵ Keddy P A *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 178.

²¹⁶ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

²¹⁷ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

²¹⁸ Brown C and Magoba R *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage* (2009) 27.

²¹⁹ Beazley M -in association with the International Union of Conservation of Nature and Natural Resources(IUCN) *The World Conservation Union Wetlands in Danger* (1993) 12.

²²⁰ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

2.4.2.3. Sediments and nutrients²²¹

Sediment is often a major factor in many rivers.²²² When these sediments are contained in excessive quantities they can become major pollutant contributors to water in the rivers, which deteriorate the quality of the water.²²³ If reeds and grass are present to slow a river's flow, the opportunity for sediment settling is increased.²²⁴ Conversely, retaining sediment in wetlands can lengthen the lifespan of downstream reservoirs and channels.²²⁵ The retention of sediment reduces the need for costly removal of accumulated sediment from dams, locks, power-stations and other man-made structures.²²⁶



2.4.2.4. Biological Diversity

The preservation of wetland habitats results in the increase of biodiversity and wildlife population.²²⁷ The preservation of wetlands further ensures the safeguarding

²²¹ Davies and Day Vanishing Waters (1998) in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'The substances commonly referred as nutrients are fertilizers, such as nitrogen, phosphorus and potassium, which are needed for plant growth. Nutrients enter into aquatic ecosystems mostly from agricultural and urban run-off, as well as in both untreated sewage and in purified, treated sewage effluent. Nutrients are considered to be pollutants because they encourage the growth of nuisance plants and algae, and system suffering from excessive additions of nutrients are said to be eutrophic.' *Environmental Management in South Africa* (2009) 853.

²²² Davis and Day, *Vanishing Waters* (1998) in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) *Environmental Management in South Africa* 'The Effects of Human Activities and Rivers and Wetlands, Rivers being eroding, are most effect be alterations to the amount that water they carry (i.e. by dams) and by Pollution.' (2009) 850.

²²³ Davis and Day *Vanishing Waters* (1998) in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) *Environmental Management in South Africa* (2009) 850.

²²⁴ Keddy P A 'Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology (2000) 18.

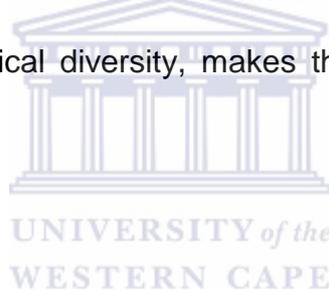
²²⁵ Kushiro As emphasized in the Ramsar1s *Additional Guidance for the Implementation of the Wise Use Concept* (Annex to Resolution 5.6 (1993).

²²⁶ Keddy P A *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 178.

²²⁷ Boon, Calow & Petts (eds), *River classification and Management* John Wiley & Sons (1992) ch2 in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'Wetlands, estuaries and Rivers are of value to human beings as sources of water, as means of purification of water and therefore improving water quality, as sometimes as means of transport. they also support a diverse array of plant, animals and

of commercial values derived from products exploited in wetlands.²²⁸ Many wetlands support huge concentrations of wildlife.²²⁹ While it is the concentration of individual species, rather than the diversity of species that has attracted most attention from conservation scientists, they do support a significant diversity of vertebrates and invertebrates.²³⁰ Many of them are endemic (unique in the area) or endangered.²³¹

Wetlands are also important as genetic 'reservoir' for certain species of plants.²³² Rice, a plant commonly cultivated in wetlands, is the staple diet of over half of the world's people.²³³ It is also used in developing disease resistance and other desirable traits.²³⁴ The combination of these functions and products, together with the value placed upon biological diversity, makes these ecosystems invaluable to people all over the world.²³⁵



micro-organisms that represent a significant proportion of the country's biodiversity.' *Essential Elements in the Case for River Conservation in Boon* (2009) 842.

²²⁸ See Joseph G Theis, *Wetland Loss and Agriculture: the Failed Federal Regulation of Farming Activities under section 404 of the Clean Water Act*, 9PACE ENVTL. L REV 1, 2 (1991) 1-2.

²²⁹ Day J A in Fuggle R F , Rabie M A, Strydom HA & King N D (eds) 'Loss of plants that makes up riparian wetlands removes wildlife refuges , while the riverine fauna is deprived of its primary energy source' *Environmental Management in South Africa* (2009) 852.

²³⁰ Marias et al *The Cleaning of Invasive Alien Plants in South Africa: A preliminary Assessment of Costs and Progress 2004(100) South African Journal of Science Report* available at <http://www.dwarf.gov.za/wfw/> (accessed 11 March 2011) in Fuggle and Rabie 'South African Wetlands have been invaded by a number of aquatic alien plants. All of these plants spread quickly.' (2009) 845.

²³¹ See Joseph G Theis, *Wetland Loss and Agriculture: the Failed Federal Regulation of Farming Activities under section 404 of the Clean Water Act*, 9PACE ENVTL. L REV 1, 2 (1991) 1-2.

²³² Day JA in Fuggle R F , Rabie M A , Strydom H A & King N D (eds) *Environmental Management in South Africa* (2009) 846.

²³³ Davies and Day *Vanishing Waters* (1998) in Fuggle R F , Rabie M A, Strydom H A & King N D (eds) 'Both rice paddies and tundra are essentially wetlands, although the tundra is mostly frozen and the other is artificial, being created by farmers *Environmental Management in South Africa*.' (2009) 846.

²³⁴ Beazley M in association with the IUCN – THE World Conservation Union (1993) 12.

²³⁵ An IGNOU initiative for our Sustainable Future , Appreciation Programme on "Sustainable Management of Wetlands", Chair for Sustainable Development , Indira Gandhi National Open University , Maidan Garhi, New Delhi-110068, India, pg 5 ,para 2. Wetlands are one of the most productive ecosystems and play a significant in ecological sustainability of a region. The values of wetlands on the cultural, economical and ecological factors are immense.

Given the growing recognition of the essential range of resources, functions and services provided by wetlands:²³⁶ the question that needs to be asked is why does wetland loss and degradation continue at this rate?²³⁷ The answer lies partly in the traditional image of 'wetlands as waste lands', which depicts wetlands as unproductive, unhealthy and uninhabitable places and as a source of diseases.²³⁸ This perpetuates the misunderstanding of the importance of wetland goods and services.²³⁹

Despite advances in scientific knowledge, political, institutional and socio-economic, priorities are often still conditioned by this perception.²⁴⁰ In the quest for economic growth, wetlands may be seen as dispensable, whereas they actually form an essential component of the natural infrastructure needed for sustainable development.²⁴¹ There is truly an urgent need to establish environmentally specific legislation which will conserve these fragile ecosystems.²⁴²

²³⁶ Day JA in Fuggle R F , Rabie M A , Strydom H A & King N D (eds) *Environmental Management in South Africa* 'wetlands, estuaries , lakes , rivers and reservoirs constitute the aquatic ecosystems that support freshwater organism. They also provide human beings with a number of goods and services, even though we are often unaware of their value.'(2009) 842.

²³⁷ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

²³⁸ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

²³⁹ Ninan Ninan K *Conserving and Valuing ecosystems and biodiversity: economic* (2009) 21.

²⁴⁰ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

²⁴¹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

²⁴² Ninan Ninan K 'However the further loss of protected and regulatory functions coral reef mangroves, lagoons and estuaries leave coastal communities more vulnerable to extreme climate events.' *Conserving and Valuing ecosystems and biodiversity: economic* (2009) 21.

2.5. The importance of Estuaries:

Estuaries rank amongst the most important ecosystems²⁴³ on earth in terms of ecological and economic value.²⁴⁴ The biotic productivity of these coastal ectones is extremely high, rivalling the most intense cultivated farmlands and several factors accounts for this.²⁴⁵

Fifty percent of the world fisheries harvest takes place in the near shore oceanic regions.²⁴⁶ This may include estuaries, although they comprise only eight percent of the total area covered by marine waters.²⁴⁷ Their yield is comparable to the most productive upwelling regions of the oceans.²⁴⁸ South African estuaries represent a specialized environment to an abundance of fish species occurring on the continental shelf.²⁴⁹ Therefore, the continued degradation of South African estuaries will result in a decline of the fish fauna and economic activities dependent upon this natural resource.²⁵⁰

²⁴³ Day J A in Fuggle R F , Rabie M A , Strydom M A & King N D (eds) 'Estuaries are particularly important to the health of coastal ecosystems and many are significantly degraded and threatened.' *Environmental Management in South Africa* (2009) 902.

²⁴⁴ Pinet P R Jones and Bartlett Publishers, Boston MA *Invitation to Oceanography* (1998) 1-2.

²⁴⁵ Day J A in Fuggle R F , Rabie M A , Strydom M A & King N D (eds) 'Estuaries are particularly important to the health of coastal ecosystems and many are significantly degraded and threatened.' *Environmental Management in South Africa* (2009) 902.

²⁴⁶ Macaskill C 'Estuaries are important nurseries and breeding grounds for many important economical sea fish that are captured at sea. Some 20 marine fish that are exploited commercially and recreationally depends on these ecosystems for secure sprawling sites and many other species are depended on estuaries for feeding and living habitat.' *The National Directory*(2009) 570

²⁴⁷ Macaskill C *The National Directory* '(2009) 570.

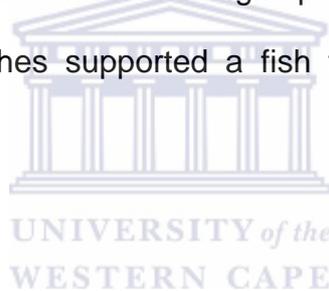
²⁴⁸ Valiela, I *Marine Ecology Process* Springer-Verlag New York 2 ed (1995) 1.

²⁴⁹ Wallace J H, Kok H M, Beckley L E, Bennett B & Blaber SJM *South African Estuaries and their Importance to fishes* (1984) 203-207.

²⁵⁰ Wallace J H, Kok H M, Beckley L E, Bennett B & Blaber SJM *South African Estuaries and their Importance to fishes* (1984) 203-207.

As a result of the large supplies of nutrient substances, estuaries also provide support to high densities and biomasses of organisms.²⁵¹ They also serve important chemical and physical functions, for example they trap, filter toxic pollutants and transform waste that enters from watersheds, into the near Shore Ocean and atmosphere.²⁵²

From an economic perspective,²⁵³ estuaries support commercial and recreational activities, including shipping, marine transportation, oil and gas exploitation, electrical power generation, marine biotechnology, aquaculture and mariculture, tourism and other human pursuits.²⁵⁴ Estuaries form an integral part of the vast wetlands systems that even in freshwater reaches supported a fish fauna that was predominantly estuarine in nature.²⁵⁵



The estuarine habitat in South Africa is considered to serve as an important fish nursery.²⁵⁶ The conservation and preservation of this estuarine environment in itself

²⁵¹ Pinet P R Jones and Bartlett Publishers, Boston MA 'Estuaries are physically controlled systems subject to the wide fluctuations in environmental conditions as well as multiple anthropogenic stresses. As a result, biotic communities living there are generally characterized as low species richness.' *Invitation to Oceanography* (1998) 1-2.

²⁵² Pinet P R Jones and Bartlett Publishers, Boston MA *Invitation to Oceanography* (1998) 1-2.

²⁵³ Day J A in Fuggle R F, Rabie M A , Strydom H A & King N D (eds) 'Estuaries are important contributors to the National economy in terms of the fisheries alone (which are anyway under severe pressure from overfishing). Special regulations are needed to maintain their ecological functioning in the face of increased competition for water.' *Environmental Management in South Africa* (2009) 1061.

²⁵⁴ Day J A in Fuggle R F, Rabie, M A ,Strydom H A & King N D (eds) *Environmental Management in South Africa* (2009) 1061.

²⁵⁵ Brown C and Magoba R *Rivers and Wetlands of Cape Town, Caring for our rich aquatic Heritage* (2009) 49.

²⁵⁶ Davies and Day *Vanishing Waters* (1998) in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'Estuaries are highly productive systems and serve as important nurseries for fish stocks in particular.' *Environmental Management in South Africa* (2009) 1061.

is of economic value.²⁵⁷ The realization of their economic value would result in the conservation of these systems.²⁵⁸ We can see this in the dramatic increase in the quality of estuarine habitat health and effective nursery function.²⁵⁹

The impact of human activity on the natural quality of these environments, results in negative impact,²⁶⁰ on the commercial and recreational uses dependent on them.²⁶¹ These negative human impacts commonly derive from²⁶² poor planning of coastal development, pollution, and modification and destruction of habitats.²⁶³



²⁵⁷ Day J A IN Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'Estuaries are highly productive systems and serve as important nurseries for fish stocks in particular. If we had to translate this into economic value ,if all the estuaries in Cape Town were healthy and fulfilling, their estuarine nursery function for fish would annually contribute at least 20 million to the value of the coastal commercial and recreational line fisheries.' *Environmental Management in South Africa* (2009) 1061.

²⁵⁸ Brown C and Magoba R *Rivers and Wetlands of Cape Town, Caring for our rich aquatic Heritage* (2009) 49.

²⁵⁹ Brown C and Magoba R *Rivers and Wetlands of Cape Town, Caring for our rich aquatic Heritage* (2009) 49.

²⁶⁰ Ninan, Ninan K 'Wetlands accounts for about 6 percent of the global land area and are amongst the most threatened ecosystems.' *Conserving and Valuing Services and Biodiversity: Economic* (2009) 17.

²⁶¹ Ninan, Ninan K *Conserving and Valuing Services and Biodiversity: Economic* (2009) 17.

²⁶² Day J A in Fuggle R F , Rabie M A ,Strydom H A & King N D (eds) 'Historically, the management of estuaries has been bedevilled by a lack of clarity regarding the respective responsibilities of the Department of Water Affairs on the one hand and DEAT on the other. This arises primarily from the fact that estuaries contains freshwater and fall within the definition of a 'water resource' in the National Water Act, but also contain salt water and marine living resources as defined in the MLRA. The ICM Act recognises that the physical nature of estuaries requires joint management and provides for the ministers responsible for Water Affairs and Environmental Affairs to agree jointly on a National Estuarine Management Protocol that will guide the development of estuarine management plans for each estuary. *Environmental Management in South Africa* (2009) 902.

²⁶³ Day J A in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) *Environmental Management in South Africa* (2009) 903.

2.6. The most significant impacts on and threats to wetlands and estuaries

Wetland and estuarine regions are at risks and often suffers from significant human impact,²⁶⁴ as a result of the perceptions about them.²⁶⁵ It is increasingly recognised that these perceptions are defensible and justifiable.²⁶⁶ This needs to change in order to give explicit recognition to the economic and social values of wetlands and estuaries.²⁶⁷ They are dynamic ecosystems that are in continual change through ongoing processes of like: natural disasters, subsidence, human impacts, climate change and global warming.²⁶⁸

Before these processes mentioned above are discussed, the terms 'loss' and 'degradation' should first be clarified.²⁶⁹



²⁶⁴ Davies and Day Vanishing Waters (1998) in Fuggle R F, Rabie, M A Strydom H A & King N D (eds) 'Although wetlands have major positive benefits for water resources management, many of them have been converted into alternative land uses such agriculture, dams, forestry , waste disposal sites and pastures. Many wetlands and estuaries have reclaimed for industry and the construction of airports, harbours and sewage treatment plants. Historically, wetlands have been drained in attempts to control malaria. *Environmental Management in South Africa* (2009) 431.

²⁶⁵ Ramsar Convention on Wetlands 'In the past, wetlands and estuaries have been conserved merely as an adjunct to the conservation of terrestrial areas. The isiMangaliso Wetland Park (formerly known as the Greater St Lucia Park) and the West Coast National Park are relatively recent additions to the list of South Africa`s National Parks and reflect the altered perception of wetlands not as 'waste lands' but as valuable features of the landscape.' available at [http://www.ramsar.org/profile/profiles-south Africa.htm](http://www.ramsar.org/profile/profiles-south%20Africa.htm) (accessed 17 Jun 2011).

²⁶⁶ Day J A in Fuggle R F, Rabie M A , Strydom H A & King N D (eds) *Environmental Management in South Africa* (2009) 902.

²⁶⁷ Bansal L, Bryant L , Wini C, Michael E, Tobias G, Katz J, Lypiridis C, Rogers H , Shepherd T, Somerville J, Winter C & Young H ' *The Clean Estuaries Act of 2010 Final Report* December (2008)3.

²⁶⁸ Bansal L, Bryant L , Wini C, Michael E, Tobias G, Katz J, Lypiridis C, Rogers H , Shepherd T, Somerville J, Winter C & Young H 'Principal environmental problems facing the nation's estuaries are water quality degradation, biodiversity loss, and impacts of global climate change.' *The Clean Estuaries Act of 2010 Final Report* December (2008) 3.

²⁶⁹ Moser M, Prentice C & Frazier S A *Global Overview of Wetland Loss and Degradation*, Proceedings of Ramsar COP6 (Brisbane) (1996) 21.

- Wetland and estuarine loss may be defined as ‘the loss of wetland and estuarine area due to the conversion of wetlands and estuarine areas to non-wetland and estuarine areas’.²⁷⁰
- Whereas, degradation is defined as ‘the impairment of wetland and estuarine functions as the result of human activity.’²⁷¹

2.6.1. Natural disasters:

Wetland and estuarine loss²⁷² can be the natural result owing to natural courses such as, sea-level rise, drought, hurricanes and storms, erosion and biotic effects.²⁷³

It has been estimated that if sea level were to rise by a 100 cm that half of the wetlands designated to the Ramsar Convention would be threaten.²⁷⁴ If the rise in sea level is not accompanied by equivalent vertical accretion of marsh sediments then coastal marshes will disintegrate as a result of increased inundation, erosion and saltwater intrusion.²⁷⁵

²⁷⁰ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 13.

²⁷¹ Moser M, Prentice C & Frazier S A *Global Overview of Wetland Loss and Degradation*, Proceedings of Ramsar COP6 (Brisbane) (1996) 21.

²⁷² Cowan (ed) (DEAT Pretoria 1995) in Fuggle R F and Rabie M A *Environmental Management in South Africa* ‘wetlands, being places where materials accumulate, often have rich soils and are attractive places to farm. They are there for commonly eliminated entirely, being replaced by croplands.’ *Wetlands of South Africa* (2009) 851.

²⁷³ Cowan (ed) (DEAT Pretoria 1995) in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) *Environmental Management in South Africa Wetlands of South Africa* (2009) 851.

²⁷⁴ McCarthy J and James J *Climate Change 2001: impacts adaptation and vulnerability and contribution* (2001) 567.

²⁷⁵ McCarthy J and James J ‘Tidal Rivers and estuaries will become more prone to salt water intrusion as result to projected sea-level rise.’ *Climate Change 2001: impacts adaptation and vulnerability and contribution* (2001) 567.

The effect of climate change on coastal wetlands,²⁷⁶ will probably affect the function and distribution of inland wetlands.²⁷⁷ Climate change would result in changing rainfall patterns and the melting of permafrost which could ultimately result in the loss of wetland and estuarine habitat.²⁷⁸

2.6.2. Human impact:

Some processes occur naturally, but those of the greatest concern in the context of wetlands and estuaries are human activities.²⁷⁹ This includes draining, dredging, filling, modifications of hydrologic regime, highway construction, mining and mineral extraction¹ and water pollution.²⁸⁰



Other activities cause's adverse effects only if collectively they exceed an appropriate threshold for the ecosystem concerned: examples include certain types of fishing, agriculture, recreation and tourism.²⁸¹ In such cases, it is not the activity itself that is 'damaging' but the scale on which it is carried out or the methods that are employed.²⁸² This makes it likely that many existing wetland and estuarine loss

²⁷⁶ Ninan Ninan K 'Climate Change is going to a major factor driving species extinctions and degradation of ecosystems.' *Conserving and valuing service and biodiversity: Economic* (2009) 20.

²⁷⁷ Ninan Ninan K *Conserving and valuing service and biodiversity: Economic* (2009) 20.

²⁷⁸ Keddy Paul a *Wetland Ecology Principles and Conservation, Cambridge Studies in Ecology* (2000) 178.

²⁷⁹ Shine C and de Klemm C 'The processes that may be generated by human activities are: draining, dredging, filling, modifications of hydrologic regime, highway construction, mining and mineral extraction²⁷⁹ and water pollution. *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

²⁸⁰ Ninan Ninan K *Conserving and valuing service and biodiversity: Economic* (2009) 20.

²⁸¹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

²⁸² Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

rates undervalue the true rate of ongoing degradation because they are limited to observation of physical changes.²⁸³

Until about the middle of the twentieth century, wetland and estuarine management usually meant wetland and estuarine drainage to many policy makers.²⁸⁴ Today, this has gradually changed to a management approach for wetlands and estuaries according to certain objectives depending on the priorities stated for wetland and estuarine management, current environmental regulations and wishes of myriad stakeholders who are usually involved.²⁸⁵

Wetland and estuarine conservation, even restoration and creation have accelerated, particular in the developed world in recent times.²⁸⁶ Today, there are an increasing number of regulatory restrictions on wetland and estuarine destruction and pollution in the developing parts of the world.²⁸⁷ Coastal wetlands are now included in coastal zone protection programmes for storm protection, sanctuaries and subsidies for estuarine fauna.²⁸⁸

²⁸³ Turner K and Jones T *Wetlands: Markets and Intervention Failures* (1991) 22.

²⁸⁴ Turner K and Jones T *Wetlands: Markets and Intervention Failures* (1991) 23.

²⁸⁵ Bansal L, Bryant L, Chen W, Michael E, Gagster T, Katz J, Lypiridis C, Rogers H, Shepherd T, Sommerville J, Winter C & Young H, Environmental science policies must be cost effective, based on sound scientific assessments and in partnership with all major stakeholders. Sound scientific research and assessment is increasingly important for good policy making (Europa). *The Clean Estuaries Act of 2010 Final* (2008) 2.

²⁸⁶ Butler L.L *Environmental Water Rights: An Evolving Concept of Public Property* (1990) 358.

²⁸⁷ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 22.

²⁸⁸ Ramsar Convention (1971) Article 2.1 provides for 'riparian a coastal zones adjacent to the wetlands, and islands or bodies of marine water.'

Wetland and estuarine protection continue to pose challenges because it is clear that their loss or degradation is still taking place at a possibly irreversible rate in many parts of the world.²⁸⁹

2.6.3. Climate Change and Global Warming

The conservation, preservation and sustainable use of wetlands and estuaries may play a pivotal role in mitigating the effects and impacts of climate change and global warming²⁹⁰ both on the environment and human beings.²⁹¹ And this is witnessed by higher atmospheric temperatures, decreased snow and ice cover and the increasing sea levels.²⁹²



Wetlands are significant, yet generally underappreciated in the global carbon cycle.²⁹³ Soil carbon in wetland is recognized as an important component of global carbon budgets and future climate change scenarios.²⁹⁴ Very little work has been

²⁸⁹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 15.

²⁹⁰ Department of Environmental Affairs and Tourism (DEAT) South Africa Environmental Outlook: A Report on the State of the Environment 2006, in Fuggle and Rabie 'An assessment of the vulnerability of the Western Cape to climate change has been conducted using a wide range of climate scenarios from sophisticated climate models and for a range of sectors. (2009) 4.

²⁹¹ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 17.

²⁹² Day J A in Fuggle R F, Rabie M A, Strydom H A & King N D (eds) 'The sea-level is rising through the expansion of the warming oceans and the melting of the glaciers and polar ice, and we already committed to up to 0,3m of further sea-level rise from ocean thermal expansion alone, even if greenhouse gas emissions were to cease with immediate effect. The impacts of sea-level rise are increased salt water intrusion on coastal aquifers, flooding in conjunction with extreme storm events and coastal erosion.' *Environmental Management in South Africa* (2009) 1061.

²⁹³ Beazley M in association with the IUCN – THE World Conservation Union *Wetland in Danger* (1993) 12.

²⁹⁴ Bansal L, Bryant L, Chen W, Michael E , Gaster T, Katz J & Lypiridis C 'According to the Climate Change Science Program, sea level is projected to rise between 0.18–0.59 meters by 2100 (Julius and West, 2008). Sea level increases could lead to land loss by inundation and erosion, removal of natural material from beaches, and increased flood events. Increased temperatures may lead to

done to consider the roles of wetlands, particular those in temperate and tropical regions of the world in managing carbon sequestration.²⁹⁵ The conservation and sustainable use of peatlands may contribute directly to global programmes to reduce global warming.²⁹⁶ Their value to greenhouse gas regulation has often been neglected.²⁹⁷ Peatlands through their ability and capacity can reduce carbon sequestration.²⁹⁸

The world's temperature is predicted to rise above the average of 1-2 Celsius by 2025, with temperature increasing in the polar zones between two-and-a-half and five times the global average.²⁹⁹ Rainfall patterns are likely to change.³⁰⁰ The precipitation is predicted to be considerably greater in northern high latitudes, and higher than average through much of the world.³⁰¹ This may result in increased surface floods and landslides.³⁰² Wetlands can contribute to mitigating these processes, because they slow down the floods.³⁰³

altered species distributions and interactions, increased microbial metabolic rates, and alternative reproductive and migration timing (Julius and West, 2008). *The Clean Estuaries Act of 2010, December Final Report* (2008) 2.

²⁹⁵ Carbon dioxide, methane CFC'S, nitrous oxide and tropospheric ozone.

²⁹⁶ *The Key Role of Wetlands in Addressing the Global Water Crisis* Diplomatic notification dated 19 February 1998 to Ramsar Contracting Parties; paper presented to International Conference on Water and Sustainable Development (1998) 42.

²⁹⁷ *The Key Role of Wetlands in Addressing the Global Water Crisis* Diplomatic notification dated 19 February 1998 to Ramsar Contracting Parties; paper presented to International Conference on Water and Sustainable Development (1998) 42.

²⁹⁸ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 8.

²⁹⁹ Houghton J.T, Jenkins J G & Ephramus J.J *Climate Change the IPCC Assessment* (1990) 1.

³⁰⁰ Houghton J.T, Jenkins J G & Ephramus J.J *Climate Change the IPCC Assessment* (1990) 1.

³⁰¹ Houghton J.T, Jenkins J G & Ephramus J.J *Climate Change the IPCC Assessment* (1990) 1.

³⁰² Butler L.L *Environmental Water Rights: An Evolving Concept of Public Property* (1990) 358.

³⁰³ Turner K and Jones T *Wetlands: Markets and Intervention Failures* (1991) 24.

Water extraction schemes have had devastating effects on floodplains and estuarine wetland systems, often depriving rural people of their livelihoods.³⁰⁴ Climate change will affect hydrological cycles.³⁰⁵ This increases the urgency for determining or limiting water extraction of river systems for irrigation and other purposes.³⁰⁶

The threat caused by coastal storms will be increased significantly by the widely accepted projected rise in sea levels by 2030.³⁰⁷ Global warming will result in detrimental consequences for coastal communities as well as coastal wetlands and estuaries.³⁰⁸ These possibilities raise a demand for proper mitigation and conservation programmes.³⁰⁹



³⁰⁴ Day & Davies *Vanishing Waters* in Fuggle R F, Rabie M A, Strydom & King N D (eds) *Environmental Management in South Africa*. (2009) 850.

³⁰⁵ Department of Environmental Affairs and Tourism (DEAT) *South Africa Environmental Outlook: A Report on the State of the Environment 2006*, in Fuggle and Rabie, (2009), Climate change in Western Cape is describe as 'a drying trend from west to east, with a weakening of winter rainfall, possibly slighter more than summer (mainly in the east of the province) , a shift to more irregular rainfall of possibly greater intensity , and rising mean , minimum and maximum temperatures everywhere in the Western Cape.(2006) 1.

³⁰⁶ Day & Davies *Vanishing Waters* in Fuggle R F , Rabie M A , Strydom & King N D (eds) *Environmental Management in South Africa* 'Abstraction normally refers to the removal of water directly from an aquatic ecosystem usually by pumping or gravity-feed. While abstraction of relatively small amounts of water is unlikely to be of major consequences for a river or wetland, farmers sometimes use large pumps and may virtually drain a river dry.(2009) 850.

³⁰⁷ Perillo Gerardo M E, Wolanski C D 'The declines of wetland areas worldwide and potential sensitivity to abrupt sea-level fluctuations highlight their global importance and call for a deeper understanding of their dynamics. *Coastal Wetlands: on Integrated ecosystem approach* (2009)159.

³⁰⁸ Bardi A 'Coastal lagoons are biologically zoned according to different concentrations or levels of salinity, acidity and temperature, each of which effects the distribution of nutrients, nitrites, phosphates and nitrates. Fish, molluscs and crustaceans are acutely sensitive to small changes in these environmental parameters: the migration of sea fish into coastal lagoons for reproduction is closely linked to salinity levels. I f the rise in sea levels reduce the sandy barriers between sea and coastal lagoons and salinity increase as a result of groundwater penetration, chemical and physical and biotic conditions of coastal wetlands would be modified, probably to the detriment of tropic chains, vegetation and fauna.' *Wetlands in Italy* (1996) 18.

³⁰⁹ Bardi A *Wetlands in Italy* (1996) 18.

2.7. Conclusion

Law and policy has afforded a different degree of status to wetlands and estuaries as ecosystems and natural habitats.³¹⁰ They are often more regulated by laws and policies applicable to landownership and use rather than environmental and ecosystem regulation.³¹¹ The inconsistent treatment of wetlands and estuaries in policy and law has often resulted in confusion and uncertainty about their legal status.³¹²

The inadequate recognition of the value and significance of these types of aquatic ecosystems has result in their poor protection and conservation in terms of policy and law.³¹³ This state of affairs requires a review and reform of policy and law. There is also a requirement for the development of appropriate policies and legislation that adequately recognise the economic and social values of these natural ecosystems.³¹⁴

Wetland and estuarine specific policy and legislation may be the appropriate tool through which these problems could be addressed.³¹⁵ Departing from the bases of the precautionary principle and the polluter pays principle, a supportive legislative

³¹⁰ Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 24.

³¹¹ Butler L L *Environmental Water Rights: An Evolving Concept of Public Property* (1990)35.

³¹² Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999) 24.

³¹³ The phrase is taken from Promotion of Cooperation on the Economic Valuation of Wetlands (Sixth Meeting of the Conference of the Parties, Rec 6.10(1996).

³¹⁴ Butler L L *Environmental Water Rights: An Evolving Concept of Public Property* (1990) 358.

³¹⁵ Bardi A *Wetlands in Italy* (1996)18.

framework or an act is needed.³¹⁶ It must be incorporated into sectoral policies to ensure that these ecosystems are appropriately and adequately conserved.³¹⁷

It is difficult to determine whether the destruction and degradation of the world's wetlands and estuaries has slowed down or decreased.³¹⁸ There is much greater international awareness³¹⁹ and appreciation of the importance of wetlands and estuaries than before.³²⁰ The next chapter will be devoted to a discussion of the conservation, protection and sustainable use of wetlands and estuaries provided for in international policy and law.³²¹



³¹⁶ Glazewski J Environmental Law in South Africa (2005)447.

³¹⁷ Shine C and de Klemm *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999)22.

³¹⁸ Beazley Mitchell in association with the IUCN – THE World Conservation Union *Wetlands in Danger* (1993)12.

³¹⁹ The Ramsar Convention on Wetlands of International Importance, Especially Waterfowl Habitat, 1971 (the Ramsar Convention) which also includes coastal estuaries.

³²⁰ Ramsar Convention (1971).

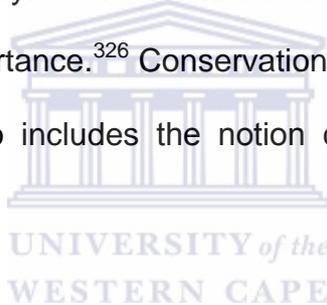
³²¹ Amezaga J M, Santamaria L & Green A J *Biotic Wetland Connectivity-Supporting a new approach for Wetland Policy* (2002)217-218.

CHAPTER 3

The Conservation of wetlands and estuaries in international context and perspective

3.1. Introduction

The nature of wetlands and estuaries dictates that conservation should be their main and most effective form of protection.³²² This follows from the use of the term 'conservation'³²³ in the text of the Ramsar Convention.³²⁴ The Convention is the central element of global policy.³²⁵ Its backbone is the list of wetlands, including estuaries of international importance.³²⁶ Conservation is the principle objective of the Ramsar convention.³²⁷ It also includes the notion of 'wise use' of wetlands and estuaries.³²⁸



The notion of 'wise use' may have only a very limited application in the field of environmental protection.³²⁹ According to Article 2 of the Ramsar Convention, wetland and estuarine conservation is envisaged as being parallel to 'wise use'.³³⁰ In

³²² Timoshenko A S *Protection of Wetlands by International Law* 5 Pace Envtl. L. Rev463 (1988) 463.

³²³ Williams W D *Conservation of Wetlands in Drylands: a key global issue* (1990) 1.

³²⁴ Timoshenko AN S *Protection of Wetlands by International Law* 5 Pace Envtl. L. Rev463 (1988) 463.

³²⁵ Amezaga J M, Santamaria L & Green A J *Biotic Wetland Connectivity-Supporting a new approach for Wetland Policy* (2002) 217.

³²⁶ Amezaga J M, Santamaria L & Green A J *Biotic Wetland Connectivity-Supporting a new approach for Wetland Policy* (2002) 217.

³²⁷ Bowman M 'the Ramsar objectives includes the integration of the conservation and wise use principle into domestic planning and decision-making processes , the conduct of environmental impact assessments and the training of appropriate personnel .' *The Ramsar Convention on Wetlands: Has it made a Difference.* (2002) 65.

³²⁸ Kolbasov M.P.O.O *International Legal Protection of the Environment* (1982)135-136.

³²⁹ Kolbasov M.P.O.O *International Legal Protection of the Environment* (1982)135-136.

³³⁰ Ramsar Convention (1972) Article 2.

recent years, the broader concept of wise use has become increasingly important.³³¹

The growing realization is that listed sites cannot be conserved in a vacuum, but are affected by decisions taken outside their boundaries.³³²

The crucial need is to integrate conservation and wise use of wetlands and estuaries into national³³³ land use, water management policies and law.³³⁴ This is to promote

the conservation and wise use of all wetlands and estuaries within their territories.³³⁵

In this context, the very possibility of coupling effective conservation of wetland and estuarine ecosystems with any intensive use,³³⁶ even if it is considered to be wise, seems doubtful.³³⁷

Initiatives which have begun in recent years will continue and expand, and this will serve as a basis for wetland and estuarine conservation on national level.³³⁸

Conservation will be enhanced by the effective exchange of information between

³³¹ Podolski and Michael J US *Wetland Policy, Legislation and Case Law as Applied to the wise use Concept of the Ramsar Convention* (2002) 631.

³³² Ramsar Convention on Wetlands Wetlands, *Biodiversity and the Ramsar Convention* (2000) 13.

³³³ Podolski and Michael J US *Wetland Policy, Legislation and Case Law as Applied to the wise use Concept of the Ramsar Convention* (2002) 631.

³³⁴ Ramsar Convention on Wetlands Wetlands, *Biodiversity and the Ramsar Convention* (2000) 13.

³³⁵ Amezaga J M, Santamaria L & Green A J *Biotic Wetland Connectivity-Supporting a new approach for Wetland Policy* (2002) 217-218.

³³⁶ The Ramsar Convention (1972) Article 2.

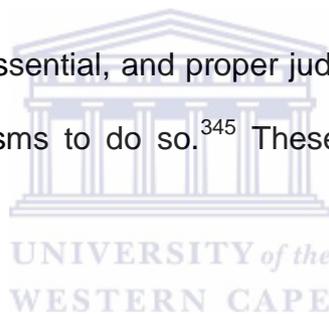
³³⁷ Timoshenko A S *Protection of Wetlands by International Law* 5 Pace Envtl. L. Rev 463 (1988) 463.

³³⁸ Timoshenko A S 'The nature of wetland dictates that conservation should be their main and most effective form of protection. This follows from the use of the term "conservation" in the text of the Ramsar Convention. Conservation is the principle objective of the Ramsar Convention. According to Article 2 of the Ramsar Convention, wetland and estuarine conservation is envisaged as being parallel to "wise use" *Protection of Wetlands by International Law* 5 Pace Envtl. L. Rev 463 available at <http://digitalcommons.pace.edu/pelr/vol5/iss2/7> (accessed 17 March 2011).

Member States to the Convention.³³⁹ National institutions created in terms of the Convention will play a significant role in this regard.³⁴⁰

Close collaboration³⁴¹ by Member States will be essential in addressing any problems in this regard.³⁴² Some States have already set up mechanisms for these purposes, many of which are functioning effectively.³⁴³ However, in some regions cooperative mechanisms are weak and ineffective and in others still completely absent.³⁴⁴

International cooperation is essential, and proper judgement should be exercised in the selection of the mechanisms to do so.³⁴⁵ These mechanisms must be based



³³⁹ *Declaration of the Programme of Action on the Establishment of a New International Economic Order (A Res 3201(s-VIO) and 3202(s-VI) and the Charter of Economic Rights and Duties of States (A Res 3281) (XXIX) Article 30'* (1975) 1070.

³⁴⁰ 'The effects of developing countries to change the international economic system in their favour culminated in the adoption of the Declaration of the Programme of Action on the Establishment of a New International Economic Order and that all states shall try to establish their own environmental development policies in conformity with their responsibility to protect the environment.' *Declaration of the Programme of Action on the Establishment of a New International Economic Order (A Res 3201(s-VIO) and 3202(s-VI) and the Charter of Economic Rights and Duties of States (A Res 3281) (XXIX) Article 30'* (1975) 1070.

³⁴¹ Caponera Dante A 'A principle inferred from the water community concept is that basin or system states promote cooperation for the purposes of long-term systematically planning of the used and shared water resources' *Patterns of Cooperation in International Water Law: Principles and Institutions.*(1985) 596.

³⁴² Caponera , Dante, A, 'States sharing water resources should in the establishment programmes, machinery and institutions necessary for coordinated development of such resources' A, *Patterns of Cooperation in International Water Law: Principles and Institutions* (1985) 573.

³⁴³ Beazley M in Association with IUCN –The World Conservation Union 'Wetlands in danger (1993) 186.

³⁴⁴ Beazley M in Association with IUCN –The World Conservation Union 'The cooperation between the Netherlands, Germany and Denmark over the Wadden Sea and between Canada, United States and Mexico over the North American Waterfowl Management Plan have already made use of this framework and emphasized the obligations for cooperation between contracting parties' *Wetlands in danger* (1993) 186.

³⁴⁵ Beazley M in Association with IUCN –The World Conservation Union 'Wetlands in danger (1993) 186.

upon flexibility and effectiveness.³⁴⁶ The mechanisms could include the transfer of technology and financial assistance.³⁴⁷ The global dimensions of the policy and law pertaining the conservation and protection of wetlands and estuaries will be discussed in the following paragraphs.

3.2. The Global Level

There is only one convention specifically devoted to the conservation of wetlands and estuaries which is the Ramsar Convention.³⁴⁸ There is a sizable body of international law and policy which may contribute to the conservation of wetlands and estuaries, from the point of view of them being ecosystems and more specifically aquatic ecosystems.³⁴⁹



3.2.1. The Ramsar Convention

The Ramsar Convention plays a unique role in the field of international environmental law.³⁵⁰ It is the only and first modern global nature conservation treaty' but also the only one which is dedicated to the conservation of selected ecosystem types (for example wetlands and estuaries) and the species dependent upon them.³⁵¹ The Convention is premises on conservation in the time it was

³⁴⁶ Beazley Mitchell, in Association with IUCN –The World Conservation Union *Wetlands in danger* (1993) 186.

³⁴⁷ Beazley Mitchell, in Association with IUCN –The World Conservation Union *Wetlands in danger* (1993) 186.

³⁴⁸ Timoshenko A S *Protection of Wetlands by International Law* 5 Pace Env'tl. L. Rev 463 (1988) 472.

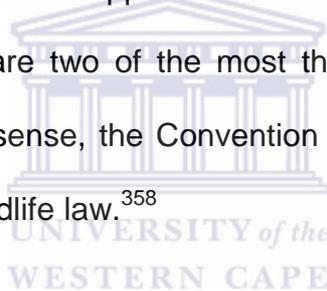
³⁴⁹ These will be discussed in paragraphs 3.2.2--3.2.6.

³⁵⁰ Timoshenko A S *Protection of Wetlands by International Law* 5 Pace Env'tl. L. Rev 463 (1988) 472.

³⁵¹ Timoshenko A S *Protection of Wetlands by International Law* 5 Pace Env'tl. L. Rev 463 (1988) 472.

conceived.³⁵² This was the time of the Stockholm Declaration which is much more conservatory and protective.³⁵³ It is aimed at conservation and protection and not so much on sustainable use.³⁵⁴ The Convention was conceptualized in that time frame, within the spirit of the time where the impacts of human beings on the natural world were reflected in international policies and documents.³⁵⁵ It is really a product of its time.³⁵⁶

It must be read against the background and in the light of the Stockholm Declaration. The Stockholm Declaration is for the protection of the human environment and the responsibilities of states. Such an approach is natural, given the widely held view that wetlands and estuaries are two of the most threatened ecosystems types in global terms.³⁵⁷ In a narrow sense, the Convention is one of more important legal instruments of international wildlife law.³⁵⁸



Under the Convention, the Contracting Parties, while considering their international responsibility for the conservation, management and wise use of migratory stocks of waterfowl, must designate suitable wetlands and estuaries within their territories.³⁵⁹

³⁵² Ramsar Convention on Wetlands *Wetlands, Biodiversity and the Ramsar Convention* (2000) 13

³⁵³ Kolbasov M.P.O.O *International Legal Protection of the Environment* (1982) 135-136

³⁵⁴ Kidd M *Environmental Law* 2ed (2011) 20.

³⁵⁵ Ramsar Convention on Wetlands *Wetlands, Biodiversity and the Ramsar Convention* (2000) 13

³⁵⁶ Timoshenko A S *Protection of Wetlands by International Law* 5 *Pace Envtl. L. Rev* 463(1988) 472

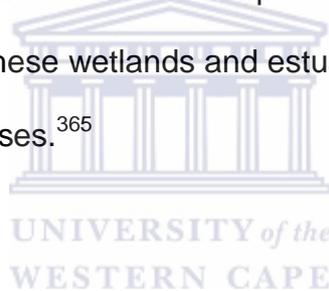
³⁵⁷ Ramsar Convention on Wetlands *Wetlands, Biodiversity and the Ramsar Convention* (2000) 12.

³⁵⁸ Kolbasov M.P.O.O *International Legal Protection of the Environment* (1982) 135-136; Johnson B *International Environmental Law* (1976) 62-63; see also Kiss A *Survey of Current Developments in International Environmental Law* (1976) 86-87.

³⁵⁹ Kolbasov M.P.O.O *International Legal Protection of the Environment* (1982) 135-136; Johnson B *International Environmental Law* (1976)62-63; Kiss A *Survey of Current Developments in International Environmental Law* (1976) 86-87.

This is for the inclusion in the list of Wetlands of International Importance.³⁶⁰ The economic and cultural dimensions³⁶¹ of the conservation of wetlands and estuaries on the health and well-being of human kind have come to be more and more relevant in recent times.³⁶²

The fact that wetlands and estuaries are major resources of freshwater supplies will contribute to the intensification of the issues.³⁶³ In the face of global warming and climate change the concern of wetlands and estuaries as major resources of freshwater, will undoubtedly contribute to the intensifying of the debate.³⁶⁴ In the view of the aforementioned international co-operation is all the more essential, especially given the fact that these wetlands and estuaries are sometimes situated in international shared watercourses.³⁶⁵



3.2.1.1. The need for international cooperation

The purpose of the Ramsar Convention is to promote international cooperation with respect to the conservation and protection of wetlands and estuaries.³⁶⁶ This is an important point of departure for all international environmental laws.³⁶⁷ The

³⁶⁰ Timoshenko A S *Protection of Wetlands by International Law* 5 Pace Envtl. L. Rev 463 (1988) 464.

³⁶¹ Junk W J Long-term Environmental trends and the future of Tropical Wetlands (2002) 417.

³⁶² Ramsar Convention on Wetlands *Wetlands, Biodiversity and the Ramsar Convention* (2000) 12.

³⁶³ Van Niekerk L *A Framework for regional Estuarine Management: A South African Case Study* (2007) 96

³⁶⁴ Ramsar Convention on Wetlands *Wetlands, Biodiversity and the Ramsar Convention* (2000) 12.

³⁶⁵ Navid D *The International on Migratory Species: The Ramsar Convention* (1989) 1.

³⁶⁶ Van Niekerk L *A Framework for regional Estuarine Management: A South African Case Study* (2007) 96.

³⁶⁷ The official text of the Stockholm Declaration is contained in the Report of the U.N Conference on The Human Environment. U.N Doc A/Conf 48/14 at2-65 and Corr Principle 21 of the Stockholm Declaration states: *States have in accordance with charter of the United Nations and the principles of International Law , the sovereign right to exploit their own natural resources pursuant to their own environmental policies and the responsibilities to that the activities within their jurisdiction or control*

Stockholm Declaration also provides for international cooperation.³⁶⁸ However, twenty years later the Rio Declaration reinforced the need for international cooperation in achieving effective international nature conservation.³⁶⁹ This was not achieved by the Stockholm Declaration.³⁷⁰ The Rio Declaration emphasizes the link between state's sovereign rights to their natural resources and responsibility for environmental protection.³⁷¹

In some cases, it is impossible for individual countries to effectively conserve and protect wetlands and estuaries.³⁷² In addition to promoting cooperation for purposes of conservation and protection of wetlands, the Convention has increased global interest and awareness.³⁷³ After all, its objective is to stem the aggressive encroachment on and loss of wetlands and estuaries.³⁷⁴ Human degradation of wetlands and estuaries occurs all around the world and it is truly an international problem.³⁷⁵

do not cause damage to the environment of other states or of areas beyond their limits of national jurisdiction. The official text of the Stockholm Declaration is contained in the Report of the U.N Conference on The Human Environment. U.N Doc A/Conf 48/14 at2-65 and Corr Principle 21 of the Stockholm Declaration states: States have in accordance with charter of the United Nations and the principles of International Law , the sovereign right to exploit their own natural resources pursuant to their own environmental policies and the responsibilities to that the activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond their limits of national jurisdiction.(1972)1jurisdiction.(1972) 1.

³⁶⁸ Report of the U.N Conference on The Human Environment. U.N Doc A/Conf 48/14 at2-65 and Corr Principle 21 of the Stockholm Declaration states: (1972) 1.

³⁶⁹ The Rio Declaration Principle 7.

³⁷⁰ Timoshenko A.S *Protection of Wetlands by International Law* 5Pace Env'tl.L.Rev.463 (1988) 466.

³⁷¹ Timoshenko A.S *Protection of Wetlands by International Law* 5Pace Env'tl.L.Rev.463 (1988) 466.

³⁷² Natural Resources Journal available at <http://heinonline.org/HOL/Page?handle=hein.journals/narj>. (accessed 29 July 2011).

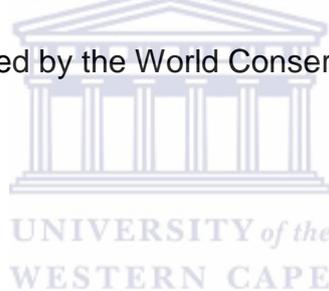
³⁷³ Natural Resources Journal available at <http://heinonline.org/HOL/Page?handle=hein.journals/narj>. (accessed 29 July 2011).

³⁷⁴ Natural Resources Journal <http://heinonline.org/HOL/Page?handle=hein.journals/narj>. (accessed 29 July 2011).

³⁷⁵ Navid D *The International Law of Migratory Species: The Ramsar Convention* available at <<http://heinonline.org/HOL/Page?handle=hein.journal/narj>>. (accessed 29 July 2011).

Although there are advantages included in the Convention to protect wetlands and estuaries, human activity³⁷⁶ still threaten most of the earth's remaining wetlands.³⁷⁷ Because of the inherently international character of both the degradation and utilisation of wetlands and estuaries, the problems of the conservation must be viewed in an equally global³⁷⁸ light.³⁷⁹

States in formulating their wetland and estuarine policies must consider the effects of those policies that will have an effect on the wetlands and estuaries on other nations.³⁸⁰ According to Principle 21 of the Stockholm Declaration³⁸¹ the best way to protect the world's wetlands and estuaries is to develop an integrated international plan.³⁸² This notion is supported by the World Conservation Strategy.³⁸³



³⁷⁶ Houis G E Department of Geography University College London 26 Bedford Way London WC1H OAP UK Abstract 'The Ramsar Bureau (1988a) showed that 22 of the world's most important wetlands were at risk from a change of ecological character. The problems particularly prevalent in dry countries were highlighted as reductions in the water supply to wetlands because of water resources schemes and intensive aquaculture. The threats from drainage and over-exploitation of groundwater, and from pollution by agricultural chemicals, whilst found in dry countries, were most commonly seen in humid environments.' *Environmental impacts of development on wetlands in arid and semi-arid lands.* (1989) 416.

³⁷⁷ Beazley M, in Association with IUCN –The World Conservation Union '10,000 to 15,000 wetlands' *Wetlands in danger* (1993) 186.

³⁷⁸ 'The Ramsar Convention was the first modern global nature conservation treaty. The Convention on Wetlands of International Importance (1971).

³⁷⁹ Navid D 'in most cases, it is not possible for one country alone to take the steps required to conserve wetland and estuarine habitats and wetlands and estuarine species, and hence cooperation amongst states is a necessity for effective wetland and estuarine conservation.' *The International Law of Migratory Species: The Ramsar Convention* (1989) 1001.

³⁸⁰ Navid D *The International on Migratory Species: The Ramsar Convention* (1989) 1005.

³⁸¹ The Stockholm Declaration Principle 21.

³⁸² Recommendation 1.5 of the First Meeting of the Conference of the Contracting Parties. Proceedings of the Conference on the Conservation of Wetlands of International Importance especially as Waterfowl Habitat (Nov 24-29) (Cagliari, Italy) (1980) 96.

³⁸³ Beyond the Ramsar Convention: A Proposal for the International Protection Wetlands, Wetlands Through Binding Agreements (1992) 364.

The implementation of such a plan could be difficult, because nations are reluctant to integrate the concept of shared resources into international law.³⁸⁴ This would have a possible impact on important domestic economic and social interest.³⁸⁵ International cooperation and coordination is important to avoid conflicts between the spheres of governments in the implementation of the Ramsar Convention.³⁸⁶ The Convention state international cooperation is an ideal rather than a procedural requirement in international law.³⁸⁷ In other words, it is rather an ideal than a legal obligation.³⁸⁸

The effectiveness of the real impact of international agreements is determined at the level of state practice, in other words, what happens nationally, determines the effectiveness of international agreements.³⁸⁹ Hope for the future conservation of wetlands and estuaries lies in wetland and estuarine specific legislation.³⁹⁰ It must embody the principles and framework of the Ramsar Convention.³⁹¹ The Convention,

³⁸⁴ 'The Ramsar Convention provides that Contracting Parties shall formulate and implement their planning so as to promote, as far as possible the wise use of wetlands in their territory'. The Ramsar, Convention, 1971. Article (1).

³⁸⁵ De Klemm Migratory Species in International Law (1989) 934-954.

³⁸⁶ Jank J , Governder D & Claasen B Legal Scan Underpinning the Development and Conservation Planning for Orange River Mouth (2006) 6.

³⁸⁷ Indeed the provisions of the Ramsar Convention do not mandate that a nation *shall* do something. It merely recommends that a nation *should* something.

³⁸⁸ Beyond the Ramsar Convention: 'The Ramsar Convention, although couched in terms odd international cooperation, also fails to directly address the issues of developing countries. A Proposal for International Protection through Binding Regional Agreement' (1971) 372.

³⁸⁹ See the discussion of the South African situation in Chapter 4.

³⁹⁰ Hollis Simpson G E *Wetland Policies in Action* (1985) 424.

³⁹¹ Hollis Simpson G E 'At present no nation has a National Wetland Policy which incorporates all of the above aspects but some elements are well developed in some places. In New Zealand, the Wetlands of Ecological and Representative Importance (WERI), undertaken by the New Zealand Commission and the Environment focus on wetland classification and values. It identifies representative wetlands as an urgent response to protect wetlands. Using the WERI methodology each wetland can be classified in an ecological hierarchy according to hydrological character, landforms, biological communities and the dominant plants. The objective of WERI is to compile existing information on wetlands and to transform these data into a form suitable for assessing wetland values *Wetland Policies in Action* (1985) 424.

like any international treaty based on the compromise of different state interest, is not free of drawbacks.³⁹²

3.2.1.2. Criticism of the Ramsar Convention

Although it falls short of completely protecting wetlands and estuaries on an international level, the Ramsar Convention is a benchmark for understanding the multiple values of wetlands and estuaries.³⁹³ The Convention is the starting point for efforts to curtail the destructions of wetlands and estuaries through international cooperation.³⁹⁴



Moreover, because of implementation and enforcement deficiencies in the Ramsar Convention, many of the wetlands and estuaries it currently protects are still at risk.³⁹⁵ The original version of the Ramsar Convention offers little guidance to member states as to the implementation mechanisms provided by the convention.³⁹⁶ Article 2 of the original convention³⁹⁷ required contracting parties to include at least one wetland on the list.³⁹⁸ More troubling than the deficiency in the guideline for

³⁹² Timoshenko A.S *Protection of Wetlands by International Law* 5Pace Env'tl.L.Rev.463 (1988) 472.

³⁹³ Verschuuren J 'While similar principles as integrated river basin management , transboundary cooperation and sustainable use govern environmental conventions and their accompanying soft law at international and regional levels the greatest complexities in this genre of legal practice lies at a national level' *Case of Transboundary Wetlands under the Ramsar Convention: Keep the Lawyers* (2008) 49.

³⁹⁴ Natural Resources Journal available at <http://heinonline.org/HOL/Page?handle=hein.journals/nari>. (accessed 29 July 2011).

³⁹⁵ *G E Hollis Simpson Wetland Policies in Action* (1985) 424.

³⁹⁶ Navid D 'Despite the way in which national legislation has been used to implement site conservation under the Ramsar Convention , and despite some limited progress in transboundary cooperation for wetland conservation under the Ramsar Convention , more innovative and legal mechanisms are required to give full effect at national level to the convention. Vol19 *The International Law of Migratory Species: The Ramsar Convention*' (1989) 1012.

³⁹⁷ The Ramsar Convention (1971) Article 2.

³⁹⁸ The Ramsar Convention (1971) Article 2.

compiling the list, was the failure of the Convention in its original form to guide the contracting parties in land-use management required by the wise use.³⁹⁹

However, since then the term “wise use” has been redefined several times, with the latest revision during the 9th meeting of the Parties (COP) in 2005.⁴⁰⁰ The following definition was adopted:

[W]ise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development’.⁴⁰¹

In addition, the 9th COP defined “ecological character” as ‘the combination of the ecosystem components, processes and benefits/services that characterize the wetland at a given point in time, for listed wetlands being the time of designation of the wetland for the Ramsar list.’⁴⁰² With these new definitions, the Ramsar Convention⁴⁰³ terminology aligns more closely with language used under other important international conventions. This includes the Convention on Biodiversity⁴⁰⁴ and several water agreements.⁴⁰⁵

³⁹⁹ A global network of wetlands for sustaining people and our environment available at [http://www.ramsar.org/cda/en/ramsar-home/main/ramsar.\(accessed](http://www.ramsar.org/cda/en/ramsar-home/main/ramsar.(accessed) 29 July 2011).

⁴⁰⁰ 9th Convention of the Parties (COP) (2005).

⁴⁰¹ 9th Convention of the Parties (COP) (2005).

⁴⁰² Ramsar COP9 DOC .24 ‘The Convention Wetland Risk Assessment Framework provides a mechanism for predicting and assessing change in the ecological character of the sites included in the list of wetlands of International Importance. The Framework comprises a standardised model for wetland risk assessment, modified from a generalised ecological risk assessment paradigm.’ Information Paper 9th meeting of the Conference of the parties to the Convention of Wetlands (Ramsar, Iran, 1971) (2005) 24.

⁴⁰³ Ramsar COP9 DOC24 9th meeting of the Conference of the parties to the Convention of Wetlands (Ramsar, Iran, 1971) (2005) 24.

⁴⁰⁴ The United Nations Convention on Biological Diversity (1992.)

⁴⁰⁵ Helsinki Convention. International Rules for integrated water resources management, An international environmental convention such as the Ramsar Convention (1971) and the Helsinki Convention require state to cooperate in order to achieve integrated management of an area. (1992).

The contracting parties strengthen the Convention on this ground by adopting the recommendations that set out more stringent guidelines for the wise use of wetlands and estuaries.⁴⁰⁶ These guidelines comply with the World Conservation Strategy for land use management of shared resources.⁴⁰⁷

The guidelines include national listing of wetlands employment of environmental impact statements, use of development funds for the conservation of wetlands and estuaries.⁴⁰⁸ It also includes a mandate that create legislation that enhances wetland and estuarine conservation.⁴⁰⁹ Another problem with the Convention is that it did not include the procedure for amendment.⁴¹⁰ Given the dynamic nature of international environmental law, an essential ingredient for achieving the goals of a convention is that the convention's ability to adjust to changes in knowledge, technology and politics.⁴¹¹ Despite notable acclaim, the Ramsar Convention's effectiveness is limited as a result of problems relating to implementation and enforcement.⁴¹²

⁴⁰⁶ Verschuuren J *Case of Transboundry Wetlands under the Ramsar Convention: Keep out lawyers* (2007) 50.

⁴⁰⁷ Navid D 'Present there are many contracting parties throughout the world and many more states are expected to join. The Secretariat as it referred to in Article 8 of the convention is provided by the (IUCN) which has long been assisted by the International Waterfowl and Wetlands Research Bureau(IWRB) Vol 19 *The International Law of Migratory Species: The Ramsar Convention* (1989) 1004.

⁴⁰⁸ Article 2 of the Ramsar Convention provides for designation , addition, modification and deletion of wetlands from the list of Wetlands of International Importance .Ramsar Convention Article 1&2 ,996 U.N.T.S.245,247 reprinted in I.L.M (1972) 963-970.

⁴⁰⁹ Osterwaldt R " *Implementation and Enforcement Issues in Protection of Migratory Species.*'(1989) 1017-1020.

⁴¹⁰ Timoshenko A.S *Protection of Wetlands by International Law* 5*Pace Env'tl.L.Rev.*463 (1988). Available at <http://digitalcommons.pace.edu/pelr/vol5/iss2/7>. (accessed 15 June 2011).

⁴¹¹ Timoshenko A S 9th meeting of the Conference of the parties to the Convention of Wetlands *Protection of Wetlands by International Law* 5*Pace Env'tl.L.Rev.*463 available at <http://digitalcommons.pace.edu/pelr/vol5/iss2/7>. (accessed 15 June 2011).

⁴¹² Osterwaldt R 'Although Osterwaldt, a Canadian Lawyer who served with the UNEP, did not address the Ramsar Convention directly, his discussion is helpful in a general sense.' *Implementation and Enforcement Issues in Protection of Migratory Species.*'(1989) 1017-1020.

3.2.1.3. Implementation and Enforcement of the Ramsar Convention

Achieving Ramsar's aims is dependent upon a successful blend and balance between action at national and international levels.⁴¹³ The obligations are of a relatively soft nature.⁴¹⁴ Governments are encouraged to adopt appropriate policies for the conservation of wetlands and estuaries.⁴¹⁵ The measurement of actual effectiveness of wetland and estuarine policies is, of course, a more complex and problematic matter.⁴¹⁶

One of the problematic issues for the effective implementation and enforcement of the Convention is that its framework fails to integrate the shared resources concept.⁴¹⁷ It provides no support for developing countries wishing to protect wetlands and estuaries.⁴¹⁸ The effectiveness of the Convention is measured by each government's interest in creating a national administration for the implementation and enforcement of national policies which is aligned with the convention's mandate.⁴¹⁹ Implicit in the framework of the Convention is the need

⁴¹³ Bowman M *The Ramsar Convention On Wetlands: Has it Made a Difference?* (2002) 63.

⁴¹⁴ Beyond the Ramsar 'A Proposal for International Protection Through Binding Regional Agreement (1971) 372.

⁴¹⁵ Bowman J *Ramsar Convention Comes of Age Netherlands International Law Review* (1995) 42.

⁴¹⁶ Bowman M *The Ramsar Convention On Wetlands: Has it Made a Difference?* (2002) 65.

⁴¹⁷ Beyond the Ramsar 'The Ramsar Convention is exacerbated by two other problems that cannot be solving easily: how to incorporate the shared resources concept and how to assist developing countries in their endeavour to balance economic production with ecological conservation.' *A Proposal for International Protection Through Binding Regional Agreement* (1971) 372.

⁴¹⁸ Van Niekerk L *A Framework for regional Estuarine Management: A South African Case Study* (2007) 96.

⁴¹⁹ Osterwaldt R *Implementation and Enforcement Issues in Protection of Migratory Species* (1989)1017-1020.

for national programmes to effectively put into place mechanisms for implementation and enforcement.⁴²⁰

The recommendations for improving the list of wise use provisions have done much to bring about actual implementation of the Convention at national level.⁴²¹ However, if a State does not have a strong domestic policy for wetland and estuarine conservation, the guidelines are voluntary, in other words they are non-binding.⁴²² Therefore, in view of their non-binding nature the effective implementation, protection and practice of wise use will depend on the strength of the policies and legislation.⁴²³



An area that has received limited attention under the framework of the Ramsar Convention is development assistance and its impact upon wetland and estuarine

⁴²⁰ Beyond the Ramsar Convention: *A Proposal for International Protection Through Binding Regional Agreement* (1971) 370.

⁴²¹ Navid D 'Examples of national experience under the Ramsar Convention are also provided'. *International Law on Migratory Species: The Ramsar Convention.*'(1989).

⁴²² Bowman M *The Ramsar Convention On Wetlands: Has it Made a Difference?* (2002) 63.

⁴²³ The Ramsar Convention 1971, at art 3(1).there is general obligation on contracting parties to include wetland conservation considerations within their national planning. The Convention provides that "the Contracting Parties shall formulate and implement their planning so as to promote as far as possible the wise use of wetlands in their territories.

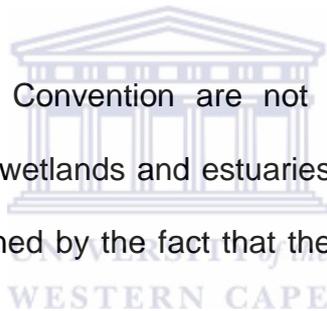
ecosystems.⁴²⁴ The impact of this policy has been limited.⁴²⁵ The mechanisms to allow the widespread of its application are also lacking.⁴²⁶

The Convention does not exhaustively stipulate the legal status of wetlands and estuaries nor does it provide for the necessary degree of unified state action for wetland and estuarine conservation.⁴²⁷ Furthermore, it also contains a number of gaps in its clauses which will now be discussed.⁴²⁸

3.2.1.4. The gaps in the Ramsar Convention

The gaps⁴²⁹ of the Ramsar Convention are not confined to the insufficient⁴³⁰ determination of the status of wetlands and estuaries of international importance.⁴³¹

The deficiency may be explained by the fact that the Convention took place before



⁴²⁴ Problems relating to the protection of wetlands of international importance still exist. These problems have both juridical and political characteristics and include. Groningen Conference, *supra* note 10, at 9-10.[Vol. 5<http://digitalcommons.pace.edu/pelr/vol5/iss2/7> 10 1988]; - an achievement of maximum uniformity of the activities according to the Convention provisions; - a more precise definition of criteria of the wetlands of international importance, of their status and regime both under national and international law;- a more precise definition of the regime of the wetlands falling under the category of shared natural resources;- the need for ensuring the protection of the wetlands of international importance from significant negative transboundary impact; and - strengthening the conservation of wetlands as an important resource of biological diversity.' *Protection of Wetlands- the need for an increase in the number of the Ramsar Convention participants* (1988) 473.

⁴²⁵ World Commission on Environment and Development environmental Protection *and Sustainable Development Legal Principles and Recommendations* (1987) 5.

⁴²⁶ Bowman M *The Ramsar Convention On Wetlands: Has it Made a Difference?* (2002) 63.

⁴²⁷ Timoshenko A.S *Protection of Wetlands by International Law* 5*Pace Env'tl.L.Rev.*463 (1988) 465.

⁴²⁸ Timoshenko A.S *Protection of Wetlands by International Law* 5*Pace Env'tl.L.Rev.*463 (1988) 466.

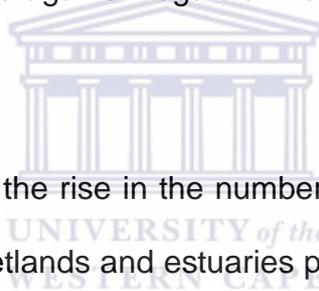
⁴²⁹ Farrier D and Tucker G T 'This could be argued that the more holistic approaches towards environmental management that characterised the Biodiversity Convention have rendered the Ramsar Convention outmoded. If this is the case, it is in no small way due to the failure to develop more effectively the wise management concept.' *Wise use of wetlands under the Ramsar Convention 'A challenge for meaningful implementation of international law.'*(1965) 412.

⁴³⁰ Timoshenko A S 5 *Pace Env'tl.L.Rev.* 463. 'The deficiency may be explained by the fact that the Ramsar Convention took place before the concepts of shared resources, world heritage or biosphere reserves were developed.' *Protection of Wetlands by International Law* *Protection of Wetlands by International Law* (1988) 463.

⁴³¹ Timoshenko A.S *Protection of Wetlands by International Law* 5*Pace Env'tl.L.Rev.*463 (1988) 467.

development of the concepts of shared resources,⁴³² world heritage or biosphere reserves were developed.⁴³³ Given the present level of international environmental law,⁴³⁴ the international quality of wetlands and estuaries included in the Ramsar list might be formulated more clearly.⁴³⁵

It is necessary to stipulate the exact obligations of all nations on whose territories or under whose control an activity significantly affecting the ecological quality of wetlands and estuaries takes place.⁴³⁶ In other words, international legal assurance of the effective conservation of wetlands and estuaries having international importance must be guaranteed against negative interferences.⁴³⁷



After decades of existence,⁴³⁸ the rise in the number of Contracting Parties and the expansion of the territory of wetlands and estuaries protected in accordance with the Ramsar list provide a convincing demonstration of great practical value of this international treaty.⁴³⁹ Juridical and political improvement of the Ramsar Convention is generally positive in character.⁴⁴⁰ The basis of these processes should be the understanding that the efficacy of the conservation of wetlands and estuaries can be

⁴³² Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep the Lawyers* (2008) 49.

⁴³³ World Commission on Environment and Development *environmental Protection and Sustainable Development Legal Principles and Recommendations* (1987) 5.

⁴³⁴ Navid D *The International Law of Migratory Species The International Law of Migratory Species: The Ramsar Convention* (1989) 1012.

⁴³⁵ Timoshenko A.S *Protection of Wetlands by International Law* 5 *Pace Envtl.L.Rev.*463 (1988) 468.

⁴³⁶ Timoshenko A.S *Protection of Wetlands by International Law* 5 *Pace Envtl.L.Rev.*463 (1988) 468.

⁴³⁷ Davis J and Brock M *Detecting unacceptable change in the ecological character of Ramsar wetlands* (2008) 1.

⁴³⁸ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000)1.

⁴³⁹ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000)1.

⁴⁴⁰ Timoshenko A S *Protection of Wetlands by International Law* 5 *Pace Envt.L.Rev* 463 (1988) 472.

secured by maximum participation of the majority of states.⁴⁴¹ However, problems⁴⁴² relating to wetland and estuarine conservation still exist.⁴⁴³

Relevant international law and policy which also contributes to the conservation of wetlands and estuaries will now be discussed.

3.2.2. The United Nations Convention on Biological Diversity (1992).

The United Nations Convention on Biological Diversity 1992 (Hereinafter Convention on Biological Diversity),⁴⁴⁴ which acts very much as an overarching structure, to which other conventions, with their own more precise focus can, must relate and contribute?⁴⁴⁵ Many specific points of common concern between the Ramsar Convention and the Convention on Biological diversity can be highlighted.⁴⁴⁶ Collaboration between the two conventions could promote overviews of the world's biodiversity;⁴⁴⁷ hitherto Ramsar's has tended to reflect national concerns.

⁴⁴¹ Timoshenko A S *Protection of Wetlands by International Law* 5Pace Env't.L.Rev 463 (1988) 468.

⁴⁴² Davis J and Brock M 'Detecting unacceptable change in the ecological character of Ramsar wetlands' (2008) 2.

⁴⁴³ Davis J and Brock M 'Detecting unacceptable change in the ecological character of Ramsar wetlands' (2008) 2.

⁴⁴⁴ Tinker C 'The United Nations Convention on Biological Diversity (Treaty or Convention) entered into force on December 1993. One of the unique of this Convention is the speed at which it was negotiated, which was a record due to desire to produce a document for signing at the United Nations Conference on Environment and Development in Rio de Janeiro in Brazil. The new legal obligations created by the Convention on Biological Diversity involve both principles of international law and a commitment to adopt national legislation' *New Breed of Treaty: The United Nations Convention on Biological Diversity, A The Rio Environmental Treaties Colloquium* (1993) 191.

⁴⁴⁵ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000) 2.

⁴⁴⁶ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000) 2.

⁴⁴⁷ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000) 2.

There is a tendency to illustrate wetland and estuarine values at national level as a contribution to the conservation of global wetland and estuarine species and habitat diversity.⁴⁴⁸ This is provided for in Article 8(f) of the Convention which states that:

‘each contracting party shall, as far as possible appropriate, rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development of implementation plans or other management strategies.’⁴⁴⁹

South Africa has incorporated other international Convention such as the Convention on Biological Diversity and the world Heritage Convention etc. South Africa is expected to take action on its ratification of the Convention on Biological diversity,⁴⁵⁰ and furthermore on its signature to Agenda 21. The interface between these Conventions might afford protection to wetlands and estuaries.



3.2.3. The significance of Agenda 21(1992).

Although it is a soft law document it contains section 15(3) which reads as follows:

‘biological resources constitute a capital asset with great potential for yielding sustainable benefits, urgent and decisive action is needed to maintain and conserve ecosystems, which included wetlands and estuaries.’⁴⁵¹

To build on this, section 18(8) states that:

⁴⁴⁸ Department of Environmental Affairs and Tourism *Working for Wetlands* (2003) 42.

⁴⁴⁹ United Nations Convention on Biological Diversity (1992) Article 8 (f).

⁴⁵⁰ Adams W M and Mulligan M *Decolonizing Nature: Sharing South African National Parks; Community Land and Conservation in a Democratic South Africa* Chapter 5 (2003) 108.

⁴⁵¹ Agenda 21 s15 (3).

‘in the developing of water resources, priority has to be given to the satisfaction of basic needs and the safeguarding of ecosystems.’⁴⁵² This means that South Africa should give effect to sections 15(3) and 18(8) of Agenda 21, in that it should conserve its ecosystems the present and the future. Agenda 21 is a plan for use by governments, local authorities and individuals to implement the principles of sustainable development.⁴⁵³ This includes include ecosystems.

3.2.4. The Global Programme of Action for the Protection of the Marine Environment from land-based Activities (GPA) (1995)

South Africa upholds the principles of GPA. The GPA is designed to assist states in taking action individually and jointly within their respective policies, priorities and resources will lead to the prevention of, reduction, control and elimination of degradation of the marine environment. This will obvious include the conservation of coastal wetlands and estuaries, although not specifically mentioned in the programme.⁴⁵⁴

3.2.5. The United Nations Convention on the Law of the Sea (UNCLOS) (1982)

The 1982 United Nations Convention on the Law of the Sea (UNCLOS)⁴⁵⁵ requires states to preserve and protect the marine environment and to prevent, reduce and

⁴⁵² Agenda 21 s18 (8).

⁴⁵³ Environmental Stewardship for a prosperous New Zealand, Multilateral Environmental Agreements ‘This 40-chapter document has significant status as a consensus document adopted by about 180 countries. Some of its main themes includes, reforming policies, controlling wasteful consumption and production, improving technologies and integrating trade and environment’ available at <http://www.mfe.govt.nz/law/meas>. (accessed 11March 2011).

⁴⁵⁴ Van Niekerk L A *Framework for regional Estuarine Management: A South African Case Study* (2007) 96.

⁴⁵⁵ Adopted at Montego Bay (1982) in force since (1994).

control pollution from land-based sources including estuaries.⁴⁵⁶ From a global perspective, regional treaty coverage remains patchy.⁴⁵⁷

3.2.6. The Convention on the Law of Non- Navigational Uses of International Watercourses (1997)

However, to afford more protection to wetlands and estuaries the 1997 Convention on the Law of Non- Navigational Uses of International Watercourses contains a series of globally applicable obligations for the protection, management and conservation of ecosystems.⁴⁵⁸



3.2.7. The Convention of Migratory Species of Wild Animals (Bonn Convention) (1979).

The convention⁴⁵⁹ was a response to the need for nations to cooperate in the conservation of animals that migrate across borders, including terrestrial animals, reptile's marine species and birds.⁴⁶⁰ Special attention is paid to endangered species

⁴⁵⁶ United Nations Convention on the Law of the Sea (UNCLOS) (1982) Articles 192,207 and 194.5 respectively.

⁴⁵⁷ Shine C and de Klemm Wetlands, *Water and the Law: using law to advance wetland conservation and wise use* (1999) 36.

⁴⁵⁸ Shine C and de Klemm Wetlands, *Water and the Law: using law to advance wetland conservation and wise use* (1999) 36.

⁴⁵⁹ 'It is intended to provide strict protection for certain endangered migratory species and by seeking to persuade states which are host to certain migratory species (which may not always be endangered) to conclude agreements' The Bonn Convention aims to protect migratory species'. The Convention on the Conservation of Migratory Species and Wild Animals, (The Bonn Convention (1979) 1.

⁴⁶⁰ The Convention on the Conservation of Migratory Species and Wild Animals, (The Bonn Convention) (1979).

within the framework of the Bonn Convention and it is also relevant for the management of wetlands.⁴⁶¹

Annex 2 of the Bonn Convention lists a large group of species and families for which co-ordination action is important to maintain populations.⁴⁶² This is mainly achieved through agreements between the states in which species occur.⁴⁶³ Good examples for birds are the African Eurasian Waterbird Agreement (Hereinafter AEWA Agreement) and the Agreement on the Conservation of Albatross and Petrel (Hereinafter ACAP)⁴⁶⁴ In general terms, AEWA and ACAP require the parties to take measures to protect migratory water birds.

Thirty-six Eurasian States and twenty-four African States have signed the AEWA Agreement⁴⁶⁵ and the ACAP Agreement,⁴⁶⁶ focusing on migratory water birds that breed in Europe and Asia and then migrate to Africa in the winter. The 2003–2005 Action Plan under the AEWA explicitly mentioned the need to control human activities within wetlands.⁴⁶⁷ It enabled wise and sustainable use⁴⁶⁸ of the wetlands;

⁴⁶¹ Van Niekerk L A *Framework for regional Estuarine Management: A South African Case Study* (2007) 96.

⁴⁶² The Convention on the Conservation of Migratory Species and Wild Animals, (The Bonn Convention) (1979 Annex 2).

⁴⁶³ Boere G C Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach (2003) 98.

⁴⁶⁴ Boere G C Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach (2003) 98.

⁴⁶⁵ African Eurasian Waterbird Agreement (AEWA) (1999).

⁴⁶⁶ Agreement on the Conservation of Albatross and Petrel (ACAP) Cape Town (2001).

⁴⁶⁷ Van Niekerk L A *Framework for regional Estuarine Management: A South African Case Study* (2007) 96.

⁴⁶⁸ Davis T J *Towards the Wise Use of Wetlands* (Gland: Ramsar Convention Bureau) (1993) 1.

giving special attention to the use of agricultural chemicals,⁴⁶⁹ disposal of wastewater, hunting, and eco-tourism.⁴⁷⁰

However, documents published under the Ramsar Convention framework include much greater detail concerning the management of protected sites.⁴⁷¹ There is obviously potential for cooperation⁴⁷² between Ramsar, (which is concerned with the habitat of species linked to wetlands and estuaries and particularly waterfowl) and the 1979 Bonn Convention on migratory species (which is concerned with the migratory species themselves).⁴⁷³

The adoption under the Bonn Convention of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds⁴⁷⁴ opens the door for even broader cooperation, which creates prospects of similar agreements in other regions.⁴⁷⁵ The interconnection between South Africa, the Bonn Convention and the Agreements should be the management, wise and sustainable use of wetlands and estuaries as a result of South Africa's accession to the Bonn Convention in 1991.⁴⁷⁶

3.2.8. The Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) (1972).

⁴⁶⁹

⁴⁷⁰ Van Niekerk L A *Framework for regional Estuarine Management: A South African Case Study* (2007) 96.

⁴⁷¹ Van Niekerk L A *Framework for regional Estuarine Management: A South African Case Study* (2007) 96.

⁴⁷² Jank J , Governder D & Claasen B *Legal Scan Underpinning the Development and Conservation Planning for Orange River Mouth* (2006) 6.

⁴⁷³ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000) 3.

⁴⁷⁴ De Klemm C *Migratory Species in International Law* (1989) 934-954.

⁴⁷⁵ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000) 3.

⁴⁷⁶ Henderson in Glazewski J *Environmental Law in South Africa* (2005) 51.

The Convention⁴⁷⁷ states that each state party recognizes the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of cultural and natural heritage situated in its territory.⁴⁷⁸

Natural heritage is defined as natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view.⁴⁷⁹

South Africa acceded to the World Heritage Convention and enacted the World Heritage Convention Act 49 of 1999.⁴⁸⁰ The purpose of the World Heritage Act was to incorporate the World Heritage Convention into South African Law,⁴⁸¹ which it



⁴⁷⁷ Titchen S M 'A number of imbalances in the implementation of the World Heritage Convention and in the composition of the World Heritage List have recently been noted. This paper restates the intention of the Convention to establish a select list of cultural and natural heritage of 'outstanding universal value'. Criteria established to assist in the assessment of this World Heritage value are noted here as being indistinct in their articulation of type and level of value and their wording is assessed as having made it difficult to ensure the recognition of interactions between people and the environment of 'outstanding universal value'. In a recent initiative cultural landscapes of World Heritage value are now beginning to be inscribed in the World Heritage List and are interpreted as being just one part of the whole range of interactions between nature and culture. At its 20th session in December 1996 the World Heritage Committee will consider the development of an overarching Global Strategy for a representative World Heritage List and a single common set of criteria and conditions of integrity to be applied when assessing and evaluating both cultural and natural heritage as recommended by the 'Expert Meeting on Evaluation of general principles and criteria for nominations of natural World Heritage sites'. On the construction of 'outstanding universal value: *Some comments on the implementation of the 1972 UNESCO World Heritage Convention* (1972) 1.

⁴⁷⁸ Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) (1972).

⁴⁷⁹ Van Niekerk L A *Framework for regional Estuarine Management: A South African Case Study* (2007) 94.

⁴⁸⁰ Glazewski J *Environmental Law in South Africa* (2005) 54.

⁴⁸¹ Glazewski J *Environmental Law in South Africa* (2005) 351.

does by the band statement that 'the Convention is enacted into law in the Republic.⁴⁸² It is further attended to in the next chapter.⁴⁸³

With the increasing number of environmental conventions now in existence, the most significant concepts must be partnership and cooperation.⁴⁸⁴ Of course links already exist between the Ramsar and other international environmental conventions.⁴⁸⁵ Some famed wetlands and estuaries are included in the lists of both Ramsar and the 1979 World Heritage Convention.⁴⁸⁶

Today, many international legal instruments assist in setting priorities for direct conservation of wetlands and estuaries through regional agreements which will be now examined.



3.3. Conservation of Wetlands and Estuaries through Regional Agreements

Treaties adopted during the 1970`s were essentially concerned with the regulation of environmental sectors.⁴⁸⁷ This has been implemented at regional level for different groups of wetland and estuarine species.⁴⁸⁸ Also, a large number of environmental

⁴⁸² Glazewski J *Environmental Law in South Africa* (2005) 351.

⁴⁸³ The South African context Chapter 4 paragraph 4.7

⁴⁸⁴ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000) 1.

⁴⁸⁵ Hails A J *Wetlands, Biodiversity and the Ramsar Convention* (2000) 1.

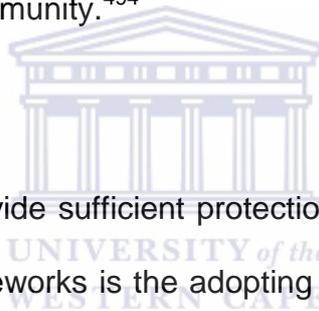
⁴⁸⁶ Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) (1972).

⁴⁸⁷ Convention for the Protection of the World Cultural and Natural Heritage (1972) 8.

⁴⁸⁸ Convention on the Convention of Migratory Species of Wild Animals (Bonn Convention) (1979).

agreements have been concluded between states or under the auspice regional⁴⁸⁹ economic integration organizations such as the Southern African Development Community (SADC).⁴⁹⁰

Regional instruments make it possible to tailor the implementation of environmental objectives.⁴⁹¹ It is directed to the particular characteristics and capacities of a given region to build on commonalities between relative small groups of countries.⁴⁹² In the context of wetlands and estuaries, verifiable obligations related to the conservation of migratory species⁴⁹³ and habitats have been established under two directives adopted by the European Community.⁴⁹⁴



The action to be taken to provide sufficient protection for wetlands and estuaries in national policy and legal frameworks is the adopting of international instruments.⁴⁹⁵ This can facilitate their conservation into regional agreements.⁴⁹⁶ Many of the Contracting Parties` policies, legal and strategy documents do not directly mention

⁴⁸⁹ Boere G C *Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach* (2003) 97.

⁴⁹⁰ Council Directive 79/409/EEC (1979) ON THE Conservation of Wild Birds OJL 103.25 April 1979 as amended: Council Directive 92/43EECof 21 May (1992) on the Conservation of Natural Habitats, and Wild Fauna and Flora (1992).

⁴⁹¹ Boere G C *Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach* (2003) 97

⁴⁹² Shine C and de Klemm *Wetlands, Water and the Law: using law to advance wetland conservation and wise use* (1999) 35.

⁴⁹³ Convention on the Migratory Species and Wild Animals (1979).

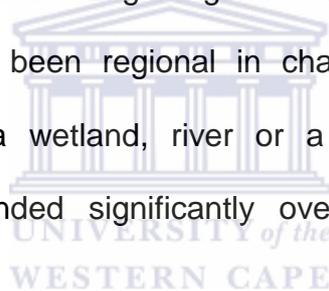
⁴⁹⁴ Council Directive 79/409/EEC (1979) ON THE Conservation of Wild Birds OJL 103.25 April 1979 as amended: Council Directive 92/43EECof 21 May (1992) on the Conservation of Natural Habitats, and Wild Fauna and Flora (1992).

⁴⁹⁵ Damite M *Policies, law and strategies documents in Protecting Wetlands in Ethiopia and the need to ratify the Ramsar Convention in Ababa A Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia.*(2008) 39

⁴⁹⁶ Boere G C *Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach* (2003) 97.

wetlands and estuaries.⁴⁹⁷ Conservation and management of these ecosystems has not been touch by certain legal documents.⁴⁹⁸ Documents like the constitutions of certain countries, for example South Africa do not make direct reference to wetlands and estuaries.⁴⁹⁹ Since wetlands and estuaries are part and parcel of natural resources, it would be appropriate to consider constitutional provisions that deal with the conservation of wetlands and estuaries.⁵⁰⁰

Some parts of the world have no conventions at all.⁵⁰¹ South Africa is covered by older treaties which do not provide for institutional mechanisms to review and facilitate national implementation.⁵⁰² Legal regimes for the protection of inland waters (inland wetlands) have long been regional in character, dominated by treaties between countries sharing a wetland, river or a lake.⁵⁰³ The scope of such agreements has been extended significantly over the last three decades.⁵⁰⁴



⁴⁹⁷ Ababa A *Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia.* (2008) 39.

⁴⁹⁸ Ababa A *Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia.* (2008)3 9.

⁴⁹⁹ Damite M *Policies, law and strategies documents in Protecting Wetlands in Ethiopia and the need to ratify the Ramsar Convention in Ababa A Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia.*(2008) 41.

⁵⁰⁰ Damite M *Policies, law and strategies documents in Protecting Wetlands in Ethiopia and the need to ratify the Ramsar Convention in Ababa A Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia.*(2008) 41.

⁵⁰¹ Respectively the Convention on Nature Protection and Wildlife Preservation in Western Hemisphere(1942).and African Convention on the Conservation on Natural AND Natural Resources(1969) 1.

⁵⁰² Respectively the Convention on Nature Protection and Wildlife Preservation in Western Hemisphere(1942).and African Convention on the Conservation on Natural AND Natural Resources(1969) 2.

⁵⁰³ Shine C and de Klemm *Wetlands, Water and the Law: using law to advance wetland conservation and wise use* (1999) 35.

⁵⁰⁴ Boere G C *Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach* (2003) 97.

International legal frameworks have sought to reflect this link between management and conservation of water resources, including wetlands and estuaries.⁵⁰⁵

Some authors are of the view that to overcome the problems inherent in the implementation the Ramsar Convention, it needs to be amended.⁵⁰⁶ This will require Contracting Parties to enter into binding agreements.⁵⁰⁷ A state may be reluctant to enter into binding agreements that infringe on sovereignty, but wetlands and estuaries are unique resources that offer an economic incentive⁵⁰⁸ for a state to do so.⁵⁰⁹

If countries do not act within or across their boundaries to implement their obligations to safeguard wetland and estuarine functions and values, treaty institutions can do little more than apply moral and political pressure.⁵¹⁰ The purpose of regional strategies is to stimulate national action where is most needed to help solve common

⁵⁰⁵ Shine C and de Klemm Wetlands, *Water and the Law: using law to advance wetland conservation and wise use* (1999) 35.

⁵⁰⁶ Timoshenko A.S *Protection of Wetlands by International Law* 5*Pace Env'tl.L.Rev.*463 (1988) 468.

⁵⁰⁷ Spreading the Ramsar 40th messages , "A global network of wetlands for sustaining people and our environment, A key commitment of Ramsar Contracting Parties is to identify and place suitable wetlands onto the List of Wetlands of International Importance (also called 'Ramsar Sites'). Parties have made a further commitment to ensure the conservation and wise use of these Ramsar Sites so as to maintain the full range of benefits that the wetland can provide for people (e.g., livelihoods, health, culture) and the environment (e.g., in supporting biodiversity).

⁵⁰⁸ Council Directive 79/409/EEC (1979) ON THE Conservation of Wild Birds OJL 103.25 April 1979 as amended: Council Directive 92/43/EEC of 21 May (1992) on the Conservation of Natural Habitats, and Wild Fauna and Flora (1992).

⁵⁰⁹ . Verschuuren J *Case of Transboundry Wetlands under the Ramsar Convention: Keep out lawyers* (2007) 54.

⁵¹⁰ *Issues of Compliance and Enforcement Chapter21 in Shine C and de Klemm Wetlands , Water and the Law: using law to advance wetland conservation and wise use* (1999) 41

problems.⁵¹¹ Of paramount importance is to advance the conservation of wetlands and estuaries.⁵¹²

Wetlands and estuaries have not been neglected by international law.⁵¹³ Today, there is relatively extensive treaty framework relating directly or indirectly to wetland and estuarine biodiversity.⁵¹⁴ The ultimate goal of the Ramsar Convention was the conservation and wise use of wetlands and estuaries through regional,⁵¹⁵ national and local instruments to achieve sustainable development throughout the world.⁵¹⁶ Membership in the Ramsar Convention entails an endorsement and commitment to the principles that the Convention represents.⁵¹⁷ Facilitating the development at national level of policies and actions,⁵¹⁸ including legislation can help nations to make the best possible use of their wetland and estuarine resources.⁵¹⁹

The Ramsar Convention Bureau and the Secretariat of the Convention on Biodiversity have joined hands for the integration of wetland management and

⁵¹¹ Boere G C and Lenten B *The African-Eurasian Waterbird Agreement: a technical agreement under the Bonn Convention International Wader Studies* (1998)45-50.

⁵¹² Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep out lawyers* (2007) 54.

⁵¹³ Ramsar Convention Manual: a Guide to the Convention on Wetlands (2004) 9.

⁵¹⁴ Shine C and de Klemm *Wetlands, Water and the Law: using law to advance wetland conservation and wise use* (1999) 41.

⁵¹⁵ Boere G C and Lenten B *The African-Eurasian Waterbird Agreement: a technical agreement under the Bonn Convention International Wader Studies* (1998) 45-50.

⁵¹⁶ Training Manual (United Nations Environmental Programme) 178.

⁵¹⁷ Ababa A *Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia*. (2008) 50.

⁵¹⁸ Ababa A *Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia*. (2008) 50.

⁵¹⁹ The Ramsar Convention Manual: a Guide to the Convention on Wetlands (2004) 9.

conservation.⁵²⁰ In 2005; the 9th COP adopted a resolution that laid down practical guidelines for the integration of wetland management and conservation.⁵²¹ The guidelines focus upon: (1) improving the communication between the wetland management sector and the water management sector; (2) improving the cooperation between the water sector and the wetlands sector through cooperative governance,⁵²² for instance, by formulating harmonizing policy and legislation or by other, less far-reaching forms of cross-sectoral cooperation; and (3) upgrading wetlands management to the river basin level.⁵²³

These three areas have been worked out in the “critical path” approach, originally developed in South Africa.⁵²⁴ According to which nine subsequent steps are to be taken, including:⁵²⁵ participating with the stakeholders, setting the priorities and objectives for wetlands in the basin, and integrating the land and water management plans for the basin.⁵²⁶ The first step in this critical process involves reviewing and, if necessary, revising the policy, regulatory, and institutional arrangements.⁵²⁷ This is to support efforts to integrate wetland management into river basin⁵²⁸ management.⁵²⁹ The Annex to the COP resolution acknowledges that this can be a

⁵²⁰ River Basin Initiative Portal, <http://www.riverbasin.org>. (accessed 9 March 2011).

⁵²¹ Ramsar Convention, Ninth Conference of the Parties, Resolution on River Basin Management, Additional Guidance and a Framework for the Analysis of the Case Studies, Resolution IX,I, Annex C(i) (2005) available at http://www.ramsar.org/key_guide-river_basins-e-pdf.(accessed 19 March 2011).

⁵²² Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep out lawyers* (2007)60.

⁵²³ Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep out lawyers* (2007) 60.

⁵²⁴ Dickens C *International Agreements and South African Law* (2004) available at <http://www.wrc.org.za>(accessed on 1 March 2011).

⁵²⁵ Dickens, C *International Agreements and South African Law* (2004) 97.

⁵²⁶ Dickens, C *International Agreements and South African Law* (2004) 97.

⁵²⁷ River Basin Initiative Portal, <http://www.riverbasin.org>. (accessed 9 March 2011).

⁵²⁸ River Basin Initiative Portal, <http://www.riverbasin.org>. (accessed 9 March 2011)

⁵²⁹ Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep out lawyers*, (2007) 60.

lengthy process and that full harmonization may be impossible due to lack of political support.⁵³⁰

An additional aspect of the Ramsar Convention, that is the Montreux Record, warrants discussion.⁵³¹ Wetlands and estuaries that become degraded, or are likely to become degraded, are listed in the Montreux Record.⁵³² The Record aims to gain recognition of the Parties which will be discussed at the next COP.⁵³³ Since the Record has been made public, non-governmental organizations, have the option to become involve as well.⁵³⁴

The Contracting Party in whose territory the site is located must take swift and effective action to prevent and/or remedy the ecological changes.⁵³⁵ The Montreux Record is based upon Articles 3(2) and 8(2) of the Ramsar Convention.⁵³⁶ Article 3(2) states that each contracting state has the duty to inform the Convention Bureau of any changes to the ecological character⁵³⁷ of a protected wetland and estuary due to technological developments, pollutions or other human interference.⁵³⁸ Article 8(2) stipulates that the Convention Bureau is informed of such changes, notifies all contracting parties, and arranges the matter to be discussed at the next COP.⁵³⁹ In terms of the Montreux Record more protection is afforded to wetlands and estuaries.

⁵³⁰ Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep out lawyers* (2007) 60.

⁵³¹ Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep out lawyers* (2007) 61.

⁵³² Montreux Record

⁵³³ Ramsar Convention Montreux Record (1972).

⁵³⁴ Ramsar Convention on Wetlands. *The STRP Expert Working group on Wetlands Restoration* (2008) 15.

⁵³⁵ Ramsar Convention 1971.

⁵³⁶ Ramsar Convention 1971.

⁵³⁷ Keddy P A *Wetland Ecology, Principles and Conservation Cambridge Study in Ecology* (2000) 34.

⁵³⁸ Ramsar Convention Article 3(2).

⁵³⁹ Ramsar Convention Article 8(2).

3.4. Conclusion

While wetlands and estuaries traditionally have declined in numbers and quality because of human influence,⁵⁴⁰ efforts are being made to alter this course.⁵⁴¹

At the cornerstone of this effort lies with the Ramsar Convention.⁵⁴² The Convention has come a long way since its inception in 1971.⁵⁴³ Through later conferences, recommendation and amendments the Ramsar Convention has grown into a compelling framework⁵⁴⁴ for the protection and conservation of wetlands and estuaries. Despite, the refinements of the Ramsar Convention, several problems⁵⁴⁵ still exists for international protection of wetlands and estuaries. In particular, the developing countries of the world do not have the economic flexibility to effectively arrest the degradation of wetlands and estuaries caused by farming, industry and overexploitation of their resources.⁵⁴⁶ It is up the developed nations⁵⁴⁷ to offer the

⁵⁴⁰ 'Population of the world is increasing day by day but resource is limited. Human have been using resource, environmental or natural resource from the beginning of their life history. But the excessive uses of these resources have coursed a lot of natural and environmental problems.' *Multilateral Environmental Agreements legal Aspect of Environmental Resource Management* available at <http://www.mfe.govt.nz/laws/meas/>. (accessed 18 March 2011).

⁵⁴¹ Boere G C Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach (2003) 97.

⁵⁴² 'The Ramsar Convention , which now includes 121 countries take steps to preserve wetlands of international importance and to find ways to use this resource wisely and sustainable.' *International Organizations, Legislation, International Organizations and Agreements*, available at <http://canadianbiodiversity.mcgill.ca/english/legislation/international.htm>. (accessed 18 March 2011).

⁵⁴³ The Ramsar Convention available at <http://canadianbiodiversity.mcgill.ca/english/legislation/international.htm>. (accessed 18 March 2011).

⁵⁴⁴ 'The Ramsar Convention First Strategy plan was negotiated by a wide array of stakeholders. It was a groundbreaking document, the first plan of its kind for a global environmental convention, and it was seen as a model for emulation by the other major environmental instruments.' *The Ramsar Strategy Plan 2009 -2015, (adopted by Resolution X.10)*, Changwon (2008) 1.

⁵⁴⁵ Timoshenko.S A 'The starting point for strengthening wetland protection by means of international law is the critical analysis of the content and application of international now enforce.' *Protection of Wetlands by International Law* (1988) 465.

⁵⁴⁶ McCurdy K M 'Wetlands throughout the world are threatened with degradation and destruction from a variety of sources. *Public Trust Doctrine for Wetlands.*' (1988) 364.

financial, technical and programmatic assistance necessary for developing countries to conserve their wetlands and estuaries.

The Ramsar Convention is also limited by its failure to incorporate the concept of shared resources⁵⁴⁸ into its binding provisions. Although the Ramsar Convention is founded upon the principle of international cooperation,⁵⁴⁹ the obligation provides few international duties or methods of enforcement.

A possible solution for these deficiencies is to amend the Ramsar Convention to require members to enter into regional agreements. The ASEAN⁵⁵⁰ and NAWMP⁵⁵¹ stands as examples of regional agreements that embody the concept of shared resources and the principles of the Ramsar Convention.



The Ramsar Convention must be implemented at the national, regional and local levels.⁵⁵² Clearly, the Ramsar Convention, standing alone, is not strong enough to

⁵⁴⁷ Many international forums have developed significant time and effect, goals, objectives and targets for water resources management.' United Nations Programme, Environment for Development available at <http://www.unep.org/civil-society/GCSF8/water-env-asp>. (accessed 19 March 201).

⁵⁴⁸ Golding L.T Staunton 'The Ramsar Convention attempts to protect at least two shared resources: migratory fowl and the wetlands themselves. A watershed is rarely a discrete entity, but should be regarded in the context of its entire watershed. Watershed degradation, industrial development and environmental pollution hundreds of kilometres and often several countries away from a wetland may have significant effects on its integrity and viability.' *Shared Resources and Developing Countries, Beyond the Ramsar Convention: A Proposal for International Protection of Wetlands Through Binding Regional Agreements* (2007) 372.

⁵⁴⁹ The Ramsar Convention, Preamble. The Ramsar Convention is a benchmark for understanding the multiple values of wetlands, as well as the starting point of efforts to curtail the destruction of wetlands through international cooperation.

⁵⁵⁰ ASEAN AGREEMENT, Stands as examples of regional agreements that embodied the concept of shared resources and the principles of the Ramsar Convention.

⁵⁵¹ North American Waterfowl Management Plan (NAWMP AGREEMENT) (1994).

⁵⁵² 'By combining limits on hunting, the increase on wetland productivity, monetary incentives for farmers to resist degrading wetlands and financial assistance from both the government and private

protect and conserve wetlands and estuaries fully. The next chapter will deal with incorporation of international instruments into South African domestic law concerning the conservation of wetlands and estuaries.



sectors the NAWMP is a landmark effort toward a wetland policy for the utilization of sustainable resources.' *Beyond the Ramsar Convention: A Proposal for International Protection of Wetlands Through Binding Regional* (2007) 380.

CHAPTER 4

The conservation of wetlands and estuaries in the present South African legal regime

4.1. Introduction

This chapter will explore the South African legal framework within which wetlands and estuaries ought to be protected and conserved. To this end relevant national legislation will be analysed. My point of departure is the Constitution.

4.2. The Constitution of the Republic of South Africa 1996

Section 24 of the 1996 Constitution provides for an environmental right which applies to everyone. It reads:

(a) everyone has a right to an environment that is not harmful to their health and well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.⁵⁵³

⁵⁵³ Constitution of the Republic of South Africa of 1996 s24.

Section 24(b) is more in the nature of a directive principle.⁵⁵⁴ This constitutional provision obligates the state to take positive steps towards the attainment of this environmental right⁵⁵⁵ by taking reasonable legislative and other measures.⁵⁵⁶ The state thus has an unequivocal duty in this regard.⁵⁵⁷ Whilst only the state may take legislative measures to give effect to the right, non-state actors are permitted to take other measures in pursuance of the fulfilment of section 24(b).⁵⁵⁸

What would amount to reasonable legislative measures were considered in another non-environmental context by the Constitutional Court in *Government of RSA and Others v Grootboom and Others*.⁵⁵⁹ The Constitutional Court held that:

‘the state is required to take reasonable legislative and other measures. Legislative measures by themselves are not likely to constitute constitutional compliance. Mere legislation is not enough. The State is obliged to act to achieve the intended result, and the legislative measures will invariably have to be supported by appropriate, well-directed policies and programmes implemented by the Executive. These policies and programmes must be reasonable both in their conception and implementation. The formulation of a program is only the first stage in meeting the State’s obligations. The programme must also be reasonably implemented. An otherwise reasonable program that is not implemented reasonably will not constitute compliance with the State’s obligations.’⁵⁶⁰

⁵⁵⁴ Kidd M *Environmental Law* 2 ed (2011) 35.

⁵⁵⁵ Kidd M *Environmental Law* 2ed (2011) 22.

⁵⁵⁶ Report on proceedings of the workshop on the Constitution and the Environment (1996)3 SAJELP.

⁵⁵⁷ Kidd M *Environmental Law* 2ed (2011) 24.

⁵⁵⁸ Report on proceedings of the workshop on the Constitution and the Environment(1996)3 SAJELP.

⁵⁵⁹ *Government of RSA and Others v Grootboom and Others* 2001 (1) SA 46(CC).

⁵⁶⁰ *Government of RSA and Others v Grootboom and Others* 2001 (1) SA 46 (CC) 31.

The putting into effect of these rights is also dependent on the executive and the administrative structures of the state.⁵⁶¹ And this is provided for in the Constitution by means of the establishment of the three spheres of government.⁵⁶² They are required to cooperate in promoting the public interest. For example,⁵⁶³ by the taking of reasonable executive and administrative measures which will in this context include the protection of the environment.⁵⁶⁴ This also includes wetlands and estuaries as aspects of the environment.

The adoption and administration of legislation with respect to nature conservation and protection are concurrent as well as exclusive competences.⁵⁶⁵ It is noteworthy that legislation in respect to water is nowhere included in either Schedule 4⁵⁶⁶ or Schedule 5.⁵⁶⁷ This is the way in which executive and administrative action give effect to the Constitution and legislation.⁵⁶⁸ It has a significant impact on the effective protection and conservation of wetlands and estuaries in South Africa, as will be demonstrated further on in this chapter.

⁵⁶¹ Kidd M *Environmental Law* 2ed (2011)24.

⁵⁶² Report on proceedings of the workshop on the Constitution and the Environment (1996)3 *SAJELP* 12.

⁵⁶³ Report on proceedings of the workshop on the Constitution and the Environment (1996)3 *SAJELP* 12.

⁵⁶⁴ Brown W E *Our Rights and obligations to future generations for the Environment* (1990)84 *AJIL* 199.

⁵⁶⁵ Kidd M *Environmental Law* 2ed (2011) 24.

⁵⁶⁶ Schedule 4 sets out the functional areas of concurrent national and provincial legislative competences.

⁵⁶⁷ Schedule 5 sets out the functional areas of exclusive provincial legislative competences.

⁵⁶⁸ Brown W E *Our Rights and obligations to future generations for the Environment* (1990) 84 *AJIL* 199.

The purpose of the following paragraphs is to investigate what reasonable legislative measures have been taken by the state with respect to the conservation and protection of wetlands and estuaries in South Africa.

4.3. Legislation relevant the conservation of wetlands an estuaries

In order to establish what protection wetlands and estuaries currently enjoy, will require a legal analysis of existing relevant legislation pertaining to environmental conservation and protection.

Wetlands and estuaries are protected to a certain degree by various pieces of legislation, no uniform act exists.⁵⁶⁹ This has led to fragmentation as a result of the multitude of legislative instruments, as well as from a multitude of enforcement and implementation authorities.⁵⁷⁰ In the ensuing paragraphs an analysis of these pieces of legislation will be done. This will demonstrate the way in which each of them protects and conserves wetlands and estuaries. The starting point will be the National Environmental Management Act 107 of 1998 (NEMA).

⁵⁶⁹ See chapter 1 para 10 above.

⁵⁷⁰ See chapter 1 para 1.3 above.

4.3.1. The National Environmental Management Act 107 of 1998 (NEMA)

Framework legislation aims to define overarching and generic principles in terms of which sectoral-specific legislation is embedded.⁵⁷¹ It also enhanced the cooperative environmental governance amongst fragmented line ministries.⁵⁷² The legislation which most conforms to this idea is the National Environmental management Act 107 of 1998 (NEMA).⁵⁷³ The preamble of the Act expressly refers to the environmental right in section 24, and it is clear from the preamble that NEMA is aimed at giving effect to the right at a framework level.⁵⁷⁴ NEMA translates the environmental principles and rights contained in the constitution into legal provisions.⁵⁷⁵ It's very purpose is to be a reasonable legislative measure.⁵⁷⁶

The Act also gives effect to the overarching principles of cooperative government which is contained in Chapter 3 of the Constitution.⁵⁷⁷ This is significant since the 'environment' is designated in the Constitution is an area of concurrent national and provincial legislative competences.⁵⁷⁸ The reason for is that both national and provincial authorities are responsible for the administration of laws protecting the environment.⁵⁷⁹ More specifically, to coordinate and harmonise the environmental

⁵⁷¹ Kidd M *Environmental Law 2ed* (2011) 35

⁵⁷² Allanson B R & Baird D *Estuaries of South Africa* (1999) 303.

⁵⁷³ The national Environmental Management Act 107 of 1998.

⁵⁷⁴ Kidd M *Environmental Law 2ed* (2011) 35.

⁵⁷⁵ Kidd M *Environmental Law 2ed* (2011) 35.

⁵⁷⁶ Du Plessis W & NEL J An evaluation of NEMA based on generic framework for the environmental framework legislation (2001)8 *SAJELP* 1-2.

⁵⁷⁷ The Constitution of the Republic of South Africa of 1996 Chapter 3.

⁵⁷⁸ Kidd M *Environmental Law 2ed* (2011) 35.

⁵⁷⁹ Sunde J & Isaacs M *Marine Conservation and Coastal Communities: Who carries the costs?* (2008) 7.

policies, plans, programmes and decisions of various national departments that exercise functions which may affect the environment.⁵⁸⁰

These national departments are entrusted with the powers and duties aimed at achievement, promotion and protection of a sustainable environment and of provincial and local spheres of government.⁵⁸¹ Of particular importance to any development initiatives based on natural resources are the provisions relating to cooperative governance and the inclusion of civil society in environmental management.⁵⁸²

NEMA also provides for mechanisms to put into practice the Environmental Impact Assessments (EIA`s) and operationalize the management principles through section 24.⁵⁸³ The minister may publish regulations with respect to practical management of possibly significant negative impact on the environment.⁵⁸⁴

The following paragraphs will be devoted to the new 2010 NEMA Environmental Impact Assessments (EIA) Regulations and Integrated Environmental Management.

⁵⁸⁰ Kidd M *Environmental Law* 2ed (2011) 35

⁵⁸¹ The Three Pillars of Sustainable Development in South African Environmental Law (2008) 15 *SAJELP*.

⁵⁸² Sunde J and Isaacs M *Marine Conservation and Coastal Communities: Who carries the costs?* (2008) 7.

⁵⁸³ Kidd M *Environmental Law* 2ed (2011) 250.

⁵⁸⁴ Kidd M *Environmental Law* 2 ed (2011) 42.

4.3.1.1 The New 2010 NEMA Environmental Impact Assessments (EIA) Regulations.

The purpose of these regulations is to regulate the procedures in order to avoid detrimental impacts on the environment.⁵⁸⁵ Where it cannot be avoided, mitigation and management must be ensured.⁵⁸⁶ South Africa's new Environmental Impact Assessments is a pro-active and systematic process where potential environmental impacts associated with certain activities are assessed, investigated and reported.⁵⁸⁷

A competent authority must consider and decide upon application in respect of a specific activity.⁵⁸⁸ The Minister, MEC or the Minister of Resources must take into account all relevant factors affecting the environment.⁵⁸⁹ The Minister, MEC or the Minister of Mineral Resources must also consult with every State department that administers a law relating to a matter affecting the environment.⁵⁹⁰ This must be relevant to that application for environmental authorisation.⁵⁹¹ The list of activities requiring environmental authorisation prior to the commencement have been revised.⁵⁹²

⁵⁸⁵ Environmental Impact Assessment EIA Regulations GNR 543 Government Gazette 33306 of 18 June 2010 s2.

⁵⁸⁶ Kidd M *Environmental law* 2ed (2011) 250.

⁵⁸⁷ Environmental Impact Assessments laws South Africa available at <http://www.environment.co.za/legislation-law/eia-environmental-impacts>. (assessed 13 November 2011)

⁵⁸⁸ Environmental Impact Assessment EIA Regulations GNR 543 Government Gazette 33306 18 June Chapter 2 3(2).

⁵⁸⁹ National Environmental Management Act 107 of 1998 s2.

⁵⁹⁰ Environmental Impact Assessment EIA GNR 543 Government Gazette 33306 18 June Chapter 2 3(2).

⁵⁹¹ National Environmental Management Act 107 of 1998 s2 (6) (2).

⁵⁹² Listing Notice 1 GNR 544 Government Gazette 33306 of 18 June 2010 s3(1).

Three very important listings notices have been published in conjunction with the new EIA regulations.⁵⁹³ The listings are:

- Listing notice one: stipulates the activities requiring a basic assessment report. These are typical activities that have the potential to impact negative on the environment due to the nature and scale of such activities.⁵⁹⁴
- Listing notice two: identifies the activities requiring both scoping and Environmental Impact Report (EIR).⁵⁹⁵ These are large scale or highly polluting activities. Therefore the full range of potential impacts needs to be established. This is done through a scoping exercise prior to it being assessed.⁵⁹⁶
- Listing notice three: contains activities that will only require an environmental authorisation through a basic assessment process. This will happen only when the activity is undertaken in one of the specified geographical areas indicated in that listing notice.⁵⁹⁷

4.3.1.2 Integrated Environmental Management (IEM)

This new 2010 EIA regulations also contributes to the objectives of integrated environmental management as decision makers are informed of such activities and

⁵⁹³ Environmental Impact Assessments laws South Africa available at <http://www.environment.co.za/legislation-law/eia-environmental-impacts>. (assessed 13 November 2011).

⁵⁹⁴ Environment EIA Environmental Impact Assessment Regulations Laws South Africa (2011) 1.

⁵⁹⁵ Environment EIA Environmental Impact Assessment Regulations Laws South Africa (2011) 1.

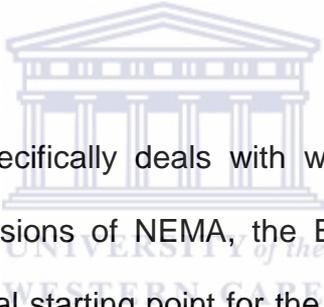
⁵⁹⁶ Environment EIA Environmental Impact Assessment Regulations Laws South Africa (2011) 1.

⁵⁹⁷ Environment EIA Environmental Impact Assessment Regulations Laws South Africa (2011) 1.

on the conditions which authorisation of the activity should be subject to.⁵⁹⁸ In the context of these new EIA regulations and listing notices a considerable amount of protection is afforded to wetlands and estuaries

The most significant section provided by NEMA is s 2(4) (r). It provides that

‘sensitive , vulnerable , highly dynamic or stressed ecosystems, such as coastal shores estuaries , wetlands and similar systems requires specific attention in management and planning procedures , especially where they are subject to significant human resource usage and development pressures.’⁵⁹⁹



Section 2(4) (r) of NEMA specifically deals with wetlands and estuaries.⁶⁰⁰ The interface between these provisions of NEMA, the EIA regulations and integrated management is a fundamental starting point for the protection and conservation of wetlands and estuaries. NEMA forms a strong connection with other Acts applicable to ecosystems, which will now be discussed.

4.3.2. The National Water Act 36 of 1998

The purpose of the Act according to its preamble is the following:

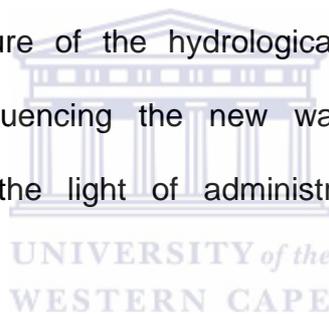
⁵⁹⁸ Environmental Impact Assessments laws South Africa available at <http://www.environment.co.za/legislation-law/eia-environmental-impacts>. (assessed 13 November 2011)

⁵⁹⁹ National Environmental Management Act 107 of 1998 s (2) (4) (r).

⁶⁰⁰ Environmental Impact Assessments laws South Africa available at <http://www.environment.co.za/legislation-law/eia-environmental-impacts>. (assessed 13 November 2011).

'to ensure that South Africa`s water resources are protected, used, developed, conserved managed and controlled with due cognisance of the factors such as basic human needs, the protection of aquatic and associated ecosystems and their biodiversity, the facilitation of social and economic development, the promotion of the efficient, sustainable and beneficial use of water, the reduction and prevention of pollution, the meeting of international obligations, the redress past discriminations and the management of floods and droughts'

The new National Water act is based on the set of principles and objectives contained in the White Paper on a National Water Policy for South Africa.⁶⁰¹ It emphasizes the holistic nature of the hydrological water cycle.⁶⁰² One of the important considerations influencing the new water policy development was administrative efficiency in the light of administrative resource and capacity constraints.⁶⁰³



The Constitution is also relevant as far as legislative and administrative competence in the field of water is concerned.⁶⁰⁴ Water, like any other functional area, appears on neither of Schedules 4 and 5, meaning that it is of exclusive national legislative competence.⁶⁰⁵ This reflects the national importance of water in a water-scarce country which requires water for human and economic development.⁶⁰⁶ It has important implications for the conservation and protection of wetlands and estuaries.

⁶⁰¹ Department of Water Affairs and forestry (1997).

⁶⁰² Kidd M *Environmental Law* 2ed (2011) 68.

⁶⁰³ Allanson B R & Baird D *Estuaries of South Africa* 303.

⁶⁰⁴ Kidd M *Environmental Law* 2 ed (2011) 73.

⁶⁰⁵ The Constitution of the Republic of South Africa of 1996, Schedule 4-5.

⁶⁰⁶ Kidd M *Environmental Law* 2 ed (2011) 73.

The Act does not define water as such but it defines watercourses and water resources.⁶⁰⁷ Wetlands and estuaries are thus an integral part of a water resource and are fully covered by law.⁶⁰⁸ In this context the Act affords protection to wetlands and estuaries.⁶⁰⁹

The management of South Africa's water resources is done in a specific structure laid down by the Act.⁶¹⁰ Water is an exclusive national legislative competence, and therefore provincial and local spheres of government are not involved in the management of the nation's water resources.⁶¹¹ The Act is both a centralising and a decentralising Act.⁶¹² It retains certain powers and functions at national level and other powers and functions are devolved down to regional levels.⁶¹³

With the initial enactment of the Act, national departments and its regional offices were involved.⁶¹⁴ National government makes policy and oversees the execution of the constitutional mandate with respect to the environment and human right of access to water resources.⁶¹⁵ It also retained certain powers and functions with respect to accountability to Parliament and international relations of South Africa with

⁶⁰⁷ National Water Act 36 of 1998 Chapter 14 s137 (2) (g).

⁶⁰⁸ National Water Act 36 of 1998 Chapter 14 s137 (2) (g).

⁶⁰⁹ *Project Guidelines and Decision Support for Sustainable Use, Cultivation and Construction of Wetlands* (2000) 6.

⁶¹⁰ Dickens C, Kotz D, Mashigo S, Mackay H & Gramham M in 'Guideline for Integrating the Protection, Conservation and Management of Wetlands into Catchment Management Planning' WRC Report No TT 220/03' (2003) 35.

⁶¹¹ Dickens C, Kotz D, Mashigo S, Mackay H & Gramham M in 'Guideline for Integrating the Protection, Conservation and Management of Wetlands into Catchment Management Planning' WRC Report No TT 220/03' (2003) 35.

⁶¹² *Project Guidelines and Decision Support for Sustainable Use, Cultivation and Construction of Wetlands* (2000) 6.

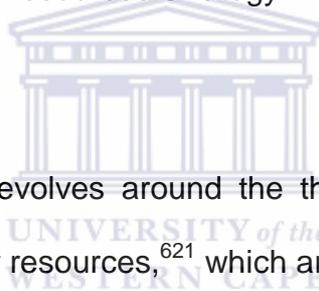
⁶¹³ Kidd M *Environmental Law* 2 ed (2011) 75.

⁶¹⁴ Sunde J and Isaacs M *Marine Conservation and Coastal Communities: Who carries the costs?* (2008) 7.

⁶¹⁵ Kidd M *Environmental Law* 2 ed (2011) 83-84.

respect to water, for example in the Southern African Development Community (SADC) region.⁶¹⁶

The rest of the powers and functions devolved gradually to the catchment management level. The Act has to be put into effect through the adoption of a number of initiatives.⁶¹⁷ The first one would be the National Water Resources Strategy (Hereinafter NWRS)⁶¹⁸ and secondly, the Integrated Water Resources Management (Hereinafter IWRM). As these catchment agencies come into being, each of them must in turn adopt a catchment management strategy⁶¹⁹ which must conform to the National Water Resources Strategy.⁶²⁰



The purpose of the NWRS revolves around the three fundamental objectives of managing South Africa`s water resources,⁶²¹ which are:

‘To achieve equitable access to water, that is, equity of access to water services, to the use of water services, and to the benefits from the use of water resources.

To achieve sustainable use of water by making progressive adjustments to water use with the objective of striking a balance of between water availability and legislative water requirements, and by implementing measures to protect water resources.

To achieve efficient and effective water use for optimum social and economic benefit⁶²²

⁶¹⁶ The Treaty of the South African Development Community (SADC) (1993).

⁶¹⁷ National Water Act 36 of 1998

⁶¹⁸ Established in terms of Section 5. s 6 sets out what the contents of the strategy should be.

⁶¹⁹ The National Water Act 36 of 1998 Chapter 5.

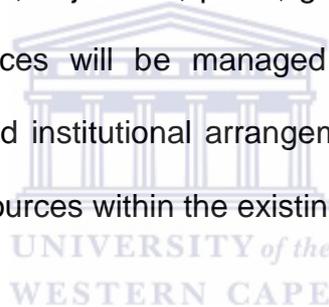
⁶²⁰ The National Water Act 36 of 1998 Chapter 5.

⁶²¹ The National Water Resources Strategy (NWRS) (2004) s7.

And in the introduction to the NWRS, it is also stated that the strategy is based on the concept of integrated water resources management strategy (IWRMS)⁶²³ it may be define as;

‘a process which promotes the co-ordinated development of management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.’⁶²⁴

NWRS must provide strategies, objectives, plans, guidelines and procedures about ways in which water resources will be managed and how institutions will be established to the Minister and institutional arrangements relating to the protection and conservation of water resources within the existing government policy.⁶²⁵



As far as the protection of water resources is concerned, the NWRS indicates that a combination of resource-directed measures and resource-directed controls is used.⁶²⁶ The Act, envisages a national water classification system, which will classify water resources according to their degree of degradation.⁶²⁷ This will tie in closely with the determination of the Reserve and resource quality objectives⁶²⁸. In the context of the classification system, protection is afforded to wetlands and

⁶²² Kidd M *Environmental Law* 2ed (2011) 83.

⁶²³ Kidd M *Environmental Law* 2ed (2011) 84.

⁶²⁴ The Integrated Water Resources Management in Kidd *Environmental Law* 2ed(2011) 84.

⁶²⁵ National Water Act 36 of 1998 Section 6(1) (a).

⁶²⁶ National Water Resources Strategy (NWRS) (2004).

⁶²⁷ National Water Act 36 of 1998 Chapter 3 Part 1 s12(1).

⁶²⁸ National Water Act 36 of 1998 Chapter 3 Part 3 s16-18.

estuaries. The central feature of the Act is the Reserve.⁶²⁹ It provides for a basic human needs component and an ecological needs component⁶³⁰. It has to be attended to in terms of the National Water Resources Strategies and the catchment management strategies.⁶³¹ It is through appropriate measures of the ecological needs component that wetlands and estuaries are protected.⁶³²

The Reserve will have to be determined for individual water resources in respect of both quantity and quality of water required.⁶³³ This entails administrative decision-making.⁶³⁴ The decision as to the Reserve will in turn determine the relevant resource water quality objectives, and decision relating to water use will be determine with reference to the Reserve, which will be a priority use.⁶³⁵ The full quantity of water in a particular water resource may be required for the Reserve, which means that no additional abstractions could be from that resource.⁶³⁶ Quantity and quality measures are affected in various ways in the Act.⁶³⁷ I

⁶²⁹ Kidd M *Environmental Law* (2011) 72.

⁶³⁰ National Water Act 36 of 1998 s16.

⁶³¹ Poisoning the right to water in South Africa what can the law do? *The International Journal of Rural Law and Policy* (2011).

⁶³² Poisoning the right to water in South Africa What can the law do? *The International Journal of Rural Law and Policy* (2011).

⁶³³ Kidd M *Environmental Law* (2011) 76.

⁶³⁴ Poisoning the right to water in South Africa what can the law do? *The International Journal of Rural Law and Policy* (2011).

⁶³⁵ Kidd M *Environmental Law* (2011) 76.

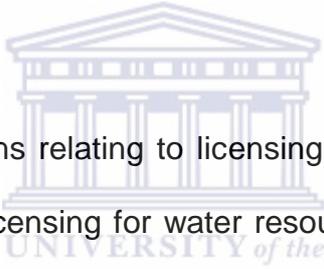
⁶³⁶ Day J A Rivers and Wetlands in Strydom H A & King N D(eds) Fuggle & Rabie *Environmental Management in South Africa* 2ed (2009) 236-245.

⁶³⁷ National Water Resources Strategy (NWRS)(2004) s24.

Section 19 of the Act provides for:

‘the prevention and remediation of water pollution by imposing a duty on landowners or persons in control of land on which water pollution threats arise to take reasonable measures to prevent any such pollution.’⁶³⁸

And in turn, section 20 sets out the responsibilities in the case of emergency incidents likely to cause water pollution. It is through the prevention of pollution and the regulation of emergency incidents in terms of sections 19 and 20 that wetlands and estuaries are protected.



Amongst the detailed provisions relating to licensing and licensing procedures, the Act provides for compulsory licensing for water resources identified as being under stress.⁶³⁹ Human impacts are also regulated through the licensing system.⁶⁴⁰ In this context the regulation of the construction and operation of dams which might under certain circumstances pose risks to wetlands and estuarine conservation is regulated.⁶⁴¹

4.3.3. The National Environmental Management: Biodiversity Act 10 of 2004

The National Environmental Management: Biodiversity Act is based on the *White Paper on the Conservation and Sustainable Use of South Africa's Biological*

⁶³⁸ National Water Act 36 of 1998 s19.

⁶³⁹ National Water Act 36 of 1998 s 43.

⁶⁴⁰ Kidd M Environmental Law 2ed (2011) 94.

⁶⁴¹ Kidd M Environmental 2 ed (2011) 81.

Diversity.⁶⁴² According to the long title of the Act, its objectives are to provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act: The objectives reads as follows

'the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources, the establishment and a South African National Biological Institute and for matters connected therewith.'⁶⁴³

The primary objectives in section 2(a) are essentially the objectives of the Convention on Biological Diversity, to which this Act is supposed to give domestic effect.⁶⁴⁴ Objectives are also stated to include giving effect to ratified international agreements relating to biodiversity which binds South Africa.⁶⁴⁵ It also makes provision for co-operative governance in biodiversity management, conservation and the protection of species and ecosystems.⁶⁴⁶

⁶⁴² Department of Environmental Affairs and Tourism *White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity* (1997).

⁶⁴³ The National Environmental Management: Biodiversity Act 10 of 2004 s2 (a-d).

⁶⁴⁴ The National Environmental Management: Biodiversity Act 10 of 2004 s2.

⁶⁴⁵ Van Niekerk' *A Framework for Regional Estuarine Management, A South African Case Study* (2007) 11.

⁶⁴⁶ Van Niekerk L 'the Act also provides for cooperative governance in biodiversity management and conservation and the establishment of the South African National Biodiversity Institute (SANBI). The Act also confirms the state as custodian of South Africa's Biological Diversity, committed to respecting, protecting, promoting, and fulfilling the constitutional rights of its citizens, The lead agent is DEAT' *A Framework for Regional Estuarine Management, A South African Case Study* (2007) 11.

The Act further implements aspects of the Convention of International Trade in Endangered Species of Flora and Fauna (CITES),⁶⁴⁷ and the Convention on Wetlands of International Importance, Especially Waterfowl Habitat (Ramsar Convention).⁶⁴⁸ Chapter 1 also situates this Act within the suite of environmental legislation that includes NEMA and the specific environmental management Acts.⁶⁴⁹ This means it includes those environmental management principles and the enforcement and compliance mechanisms in NEMA, which applies to the Biodiversity Act.⁶⁵⁰

Chapter 5 of the Act deals alien and invasive species which poses a threat to biodiversity.⁶⁵¹ The combating of alien and invasive species is raised as a state responsibility in terms of the Convention on Biological Diversity,⁶⁵² and this is a problem in South Africa. Protection of both ecosystems and species is provided for by a listing mechanism, whereby the Minister lists those ecosystems and species that are threatened in different categories: critically endangered,⁶⁵³ endangered,⁶⁵⁴

⁶⁴⁷ Reeve 'the CITES, which controls trade in wildlife (animal and plants) and wild products such as hides, fur skins, ivory, timber and other derivatives, is relevant not only internationally but particularly so in the Southern African region' *Policing International Trade in Endangered Species: The CITES Treaty and Compliance* 2002.

⁶⁴⁸ The Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971 (Ramsar Convention).

⁶⁴⁹ The National Environmental Management: Biodiversity Act 10 of 2004 Chapter 1.

⁶⁵⁰ Kidd M *Environmental Law* (2010) 94.

⁶⁵¹ Kidd M *Environmental Law* (2011) 110.

⁶⁵² United Nations Convention on Biological Diversity Article 8(h).

⁶⁵³ A critically endangered ecosystem is a ecosystem that has undergone severe degradation of ecological structure, function or composition as result of human intervention and is subject to an extremely high risks of irreversible transformation (s52 (2) (a)) and a critically endangered species is an indigenous species facing an extreme high risk of extinction in the wild and in the immediate future (s56 (1) (a)).

⁶⁵⁴ Endangered ecosystems are ecosystem that has undergone severe degradation of ecological structure, function or composition as result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems (s52(2)(c)) and endangered species facing an extreme high risk of extinction in the wild in the near future, although they are not critically endangered species (s56(1)(b)).

vulnerable⁶⁵⁵ and protected.⁶⁵⁶ The Minister may also identify processes which may threaten ecosystems, which will be regarded as a *specified activity* in term of section 24 of NEMA.⁶⁵⁷ It cannot be carried out without authorisation.⁶⁵⁸ Therefore, plans are required to take into account listed ecosystems.⁶⁵⁹

The Act provides for a listing system which is relevant to the conservation of wetlands and estuaries.⁶⁶⁰ An alien species is,

‘a species that is not an indigenous species, or indigenous species translocated or intended to be translocated to place outside the natural distribution range in nature, but not as an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention.’⁶⁶¹

Whereas invasive species is,

‘any species whose establishment and spread outside of its natural distribution range threatened ecosystems, habitats or other species or have demonstrable potential to threatened ecosystems, habitats or other species and may result in economic or environmental harm or harm to human health’.⁶⁶²

⁶⁵⁵ Vulnerable ecosystems are ecosystems that has undergone significant degradation of ecological structure, function or composition as result of human intervention although they are not critically endangered ecosystems or endangered ecosystems (s52 (2) (c) and vulnerable species facing an extreme high risk of extinction in the wild in the medium-term future although they are not critically endangered species or endangered species (s56 (1) (c)).

⁶⁵⁶ Protected ecosystems are ecosystems that are of high conservation or high national or provincial importance, although they are listed under the three categories above (s52 (2) (d)) a protected species are any species that are such high conservation value or national importance that they require national protection, although they are listed in the above categories (s56 (1) (d)).

⁶⁵⁷ National Environmental Management Act 107 of 1998 s24.

⁶⁵⁸ This should refer to listed activity, which is the term used in NEMA as amended, but the Biodiversity Act was not change to take into account of the amendment. The effect is the same.

⁶⁵⁹ Kidd M *Environmental Law* (2010) 96.

⁶⁶⁰ Kidd M *Environmental Law* (2010) 97.

⁶⁶¹ Biodiversity Act 10 of 2004 s1.

⁶⁶² Biodiversity Act 10 of 2004 s1.

The listed ecosystems are also relevant in the context of biodiversity planning and monitoring.⁶⁶³ The ultimate purpose of listing ecosystems is to reduce the rate of ecosystem and species extinction.⁶⁶⁴ It is crucial that ecosystems are generally protected and not just those that are found within the formally protected areas.⁶⁶⁵ Because of these relevant provisions in the Act even more protection is afforded to wetlands and estuaries in the South African context.

4.3.4 The National Environmental Management: Protected Areas Act 57 of 2003

The Act was part of the same legislative development process as the Biodiversity Act.⁶⁶⁶ It could be considered as similar to the Biodiversity Act and as an extension thereof.⁶⁶⁷ In short, it aimed to consolidate and rationalise all the protected areas legislation in South Africa.⁶⁶⁸ The protected Areas Act together with the Biodiversity Act affords protection for all ecosystems, biomes, habitats and waterfowl in South Africa.⁶⁶⁹ The interface between these two acts is extremely important. Where the ecosystems and biomes coincide with aquatic ecosystems like wetlands and estuaries, double protection is afforded.⁶⁷⁰ In the absence of a wetland specific act this interaction may be considered to be an appropriate measure.

⁶⁶³ Biodiversity Act 10 of 2004 s57 (1).

⁶⁶⁴ GN 151 in Government Gazette 29657 of 23(2007).

⁶⁶⁵ Kidd M *Environmental Law* 2ed (2011) 109.

⁶⁶⁶ The National Environmental Management: Protected Areas Act 57 of 2003.

⁶⁶⁷ . Millennium Ecosystem Assessment *Ecosystems and Human Well-being: Biodiversity Synthesis* (2005) 1-2

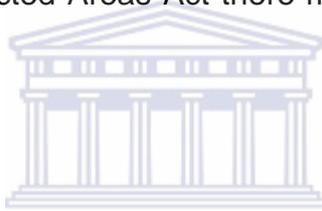
⁶⁶⁸ Kidd M *Environmental Law* 2ed (2011) 102.

⁶⁶⁹ Protected Areas Act 57 of 2003 s 17(d).

⁶⁷⁰ Millennium Ecosystem Assessment *Ecosystems and Human Well-being: Biodiversity Synthesis* (2005) 1-2.

4.3.5 The World Heritage Convention Act 49 of 1999

The Act provides for the incorporation of the World Heritage Convention into South African Law. The preamble of the Act provides for that the loss through deterioration, disappearance or damage through inappropriate development of the most prized possessions constitute a impoverishment of heritage of all the people in the world , in particular the people of South Africa.⁶⁷¹ The natural heritage of South Africa currently includes wetlands and estuaries like the Greater St Lucia Park Wetland and the Orange River Mouth.⁶⁷² This Act is an excellent legal instrument to protect wetlands and estuaries, where it coincides with the protection through the National Water Act, Biodiversity Act and the Protected Areas Act there might be a quadruple protection for wetlands and estuaries.



4.3.6 The Conservation of Agricultural Resources Act 43 of 1983 (CARA)

WESTERN CAPE

The Conservation of Agriculture Resources Act 43 of 1983 (CARA)⁶⁷³ also covers wetlands.⁶⁷⁴ CARA does not apply to land situated in urban areas, where many threatened wetlands are located.⁶⁷⁵ The main focus of the Act is land-use in a cultural context.

CARA provides the following:

⁶⁷¹ The World Heritage Convention Act 49 of 1999.

⁶⁷² Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep the Lawyers* (2008) 49.

⁶⁷³ The Conservation of Agricultural Resources Act 43 of 1983.

⁶⁷⁴ The Conservation of Agricultural Resources Act 43 of 1983 s 1(xxix).

⁶⁷⁵ The Conservation of Agricultural Resources Act 43 of 1983 s 2(1) (b).

'A landowner may not use the vegetation in a wetland in such a manner that it causes deterioration; cultivation and drainage of wetlands.⁶⁷⁶ Land users are also forbidden (without successfully obtaining the necessary permission) to drain or cultivate any vlei, marsh or water sponge or any portion thereof on their land or to cultivate any land within a flood area of a watercourse.'⁶⁷⁷

In this context limited protection is afforded to wetlands and estuaries, in terms of the Act.⁶⁷⁸

4.3.7 The Mineral and Petroleum Resources Development Act 28 of 2002(MPRDA)

One the most serious consequences of mining is the impact on the country's water resources.⁶⁷⁹ All mining activities⁶⁸⁰ may affect the land surface, vegetation, wildlife, underground water systems as well as sensitive ecosystems and marine ecosystems.⁶⁸¹

Mining development can result in a reduction in water quantity, changes in water quality such as groundwater, surface water, wetlands or the sea.⁶⁸² The Act provides for circumstances where prospecting on certain land is restricted or prohibited.⁶⁸³

This include land: which comprises a township or urban areas, a public , a railway or

⁶⁷⁶*Project Guidelines and Decision Support for Sustainable use, Cultivation and Construction of Wetlands (2000) A13.*

⁶⁷⁷ The Conservation of Agricultural Resources Act 43 of 1983.

⁶⁷⁸ The Conservation of Agricultural Resources Act 43 of 183 Section 15c (3) See also Kotze D *Wetland Use, South African Wetland Conservation Programme (2000)17.*

⁶⁷⁹ Eberhard and van Horen *Poverty and Power* UCT Press 1995.

⁶⁸⁰ Glazewski J *Environmental Law in South Africa* 2 ed (2005) 455.

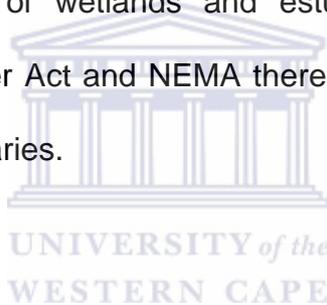
⁶⁸¹ Gurney *et al* fn 6 at 404.

⁶⁸² Glazewski J ' due to acidic mine drainage , the leaching of heavy metals, toxic leaks and overflows and sedimentation and erosion, noise air pollution from dust and other human development disturbances of ecosystems' *Environmental Law in South Africa* 2ed (2005) 457.

⁶⁸³ The Mineral and Petroleum Resources Development Act 28 of 2002.

cemetery, land used or reserved or which may be deemed for government or public purposes unless the written consent of the Minister has been obtained.⁶⁸⁴ No mention is made of the conservation wetlands and estuaries in the Act.

Mining is often highly dependent on water resources.⁶⁸⁵ Therefore, a water license is needed subject to the NEMA environmental impact assessments (EIA) and Integrated Environmental Management (IEM).⁶⁸⁶ Some of the mining activities specifically coal mining activities are often situated in areas where there is an abundance of wetlands.⁶⁸⁷ Therefore the regulation of mining has an impact on the conservation and protection of wetlands and estuaries.⁶⁸⁸ The interconnection between the Mining Act, Water Act and NEMA there is an abundance of protection afforded to wetlands and estuaries.



4.3.8 The National Environmental Management: Integrated Coastal Management Act 24 of 2008 (NEMICMA)

Chapter 4 of the Act makes provision for the management of the Republic estuaries in a coordinated and efficient way.⁶⁸⁹ This provision of the Act must be read with the National Water Act, the Ramsar Convention; and the National Estuarine Protocol. This system, because it overlaps and it interfaces, it provides an effective system of

⁶⁸⁴ Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA) s20.

⁶⁸⁵ Kidd M *Environmental Law* 2ed (2011) 208.

⁶⁸⁶ Kidd M *Environmental Law* 2ed (2011) 208.

⁶⁸⁷ Wetland Conservation Bill 1990.

⁶⁸⁸ Mineral and Petroleum Resources Development Act 28 of 2002.

⁶⁸⁹ National Environmental Management: Integrated Coastal Management Act 24 of 2008 Chapter 4.

protection. Chapter 4, in addition, provides that an estuarine plan is an integral part of a municipal coastal management programme.⁶⁹⁰

The NEMICMA also requires that an estuarine management plan and the development process be consistent with the national estuarine management protocol national, provincial and municipal coastal management programme.⁶⁹¹ Through the adoption of the national estuarine protocol considerable protection is afforded estuaries.

4.3.9. The Wetland Conservation Bill 1990

For the purposes of wetland conservation, a Wetland Conservation Bill was prepared for submission to Parliament in 1990.⁶⁹² Although the Bill was later discarded it is significant to take cognisance of its most important features.⁶⁹³

The long title of the Bill expressly provides for.

‘the incorporation of the Ramsar Convention into South Africa’s domestic legislation, the prohibition of prospecting or mining in listed wetlands, the prohibition of detrimental activities in wetlands and listed wetlands and the prohibition of detrimental activities to

⁶⁹⁰ National Environmental Management: Integrated Coastal Management Act 24 of 2008 Chapter 4 s34(2).

⁶⁹¹ National Environmental Management: Integrated Coastal Management Act 24 of 2008 Chapter 4 s34(1)(b).

⁶⁹² Wetland Conservation Programme (1990) 1.

⁶⁹³ Wetland Conservation Programme (1990) 1.

catchment areas.⁶⁹⁴ The definition of wetlands contained in the Bill is similar to the one in the Ramsar Convention.⁶⁹⁵

The Bill also provides that Minister may by notice of the Government Gazette give effect to any extension or restriction of the boundaries of listed wetlands.⁶⁹⁶ The Minister may also designate an area as a wetland under the name to be designated.⁶⁹⁷ The Bill further requires that no prospecting or mining shall take place in any listed Wetland. It also prohibits the detrimental activities⁶⁹⁸ in wetlands, listed wetlands and catchment areas.⁶⁹⁹

The significant feature of this Bill was the incorporation of the Ramsar Convention⁷⁰⁰ This interface between the Bill and the Convention would have been the ultimate protection for wetlands and estuaries. Unfortunately, this did not happen.

4.4. Conclusion

Although, there is some legislation that affords protection to wetlands and estuaries, they have to be read together in order to really make the system effective. This

⁶⁹⁴ South African Wetland Conservation Bill (1990) 1.

⁶⁹⁵ See Chapter 2, para 2.2.

⁶⁹⁶ Wetland Conservation Bill (1990) 2.

⁶⁹⁷ Wetland Conservation Bill (1990) 2.

⁶⁹⁸ The Minister may by notice in the Government Gazette prohibit any activity in any wetland or listed wetland which in his or her opinion is likely to affect adversely the ecological character of such wetland or listed wetland.

⁶⁹⁹ Wetland Conservation Bill (1990) 2.

⁷⁰⁰ Wetland Conservation Bill (1990) 2.

requires the involvement of a variety of authorities and pieces of legislation. This can lead to defragmentation of existing legislation and government authorities.

In order to overcome these problems, I propose that a wetland and estuaries specific act is reconsidered, possibly along the lines of the discarded Wetland Conservation Bill of 1990. In my view, the essential features of this act should contain the following elements: the legislative incorporation of the Ramsar Convention, into South African domestic legislation. The Act should also contain the new 2011 Environmental Impact Assessments and the additional listing notices to afford adequate and appropriate protection. These conclusions and recommendations will be discussed in the next chapter of this paper.



CHAPTER 5

Conclusions and Recommendations

5.1 Introduction

To assist considerations of various possible legislation, policies and law, the thesis closes with a series of general conclusions and recommendations designed to encourage action by national, provincial and local institutions to create wetland and estuarine specific legislation.

5.2. Conclusions

Wetlands and estuaries have not been neglected by international⁷⁰¹ as will be seen in the ensuing paragraphs.



5.2 .1The international level with respect to the conservation wetlands and estuaries

5.2.1.1 The United Nations Convention on Biological Diversity (1992)

In terms of section 8(f) of the Convention provision is made for the protection of ecosystems. In the context of this section protection is afforded to wetlands and estuaries under the broad auspice of ecosystems.⁷⁰²

⁷⁰¹ See Chapter 3, para 3.3 above *see footnote* 513.

⁷⁰² See Chapter 3, para 3.2.2 above.

5.2.1.2 Agenda 21

Although this is a soft law document, protection is afforded to wetlands and estuaries in terms of section 15(3) of agenda 21.⁷⁰³

5.2.1.3 The Global Programme of Action for Protection of the Marine Environment from Land-Based Activities (GPA) (1995)

Wetlands and estuaries are not specifically mentioned, however, the GPA affords protection to coastal wetlands and estuaries.⁷⁰⁴

5.2.1.4 The Convention of Migratory Species of Wild Animals (Bonn Convention) (1979)



Special attention is paid to endangered species within the framework of the Bonn Convention, and it is also relevant to the management of wetlands. In this context wetlands are protected.⁷⁰⁵

5.2.1.5 The Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention) (1972).

Famed wetlands and estuaries are included in both the Ramsar and the World Heritage Convention lists. Through this interface wetlands and estuaries are afforded protection.⁷⁰⁶

⁷⁰³ See Chapter 3 para 3.2.3 above.

⁷⁰⁴ See Chapter 3, para 3.2.5 above.

⁷⁰⁵ See Chapter 3, para 3.2.7 above.

5.2.1.6 Conservation of Wetlands and Estuaries through Regional Agreements

The purpose Regional Agreements is to stimulate national action where most needed, and in turn this will enhance the conservation of wetlands and estuaries.

The two successful regional agreements are, the ASEAN and NAWMP.⁷⁰⁷

5.2.1.7 The Ramsar Convention (1971)

The Convention is specifically devoted to wetlands and estuaries. The interconnection between the Ramsar Convention and other international conventions mentioned above, affords ultimate protection to wetlands and estuaries on international level.⁷⁰⁸



5.3 South Africa in relation to wetland and estuarine Conservation

The potential wealth for biodiversity is not safeguarded in South Africa.⁷⁰⁹ Wetlands and estuaries are of significant value to the country. According to the United Nations 90% of South Africa falls within desertification risk area.⁷¹⁰ Approximately 25% of this land is severely degraded with 5% of South African land being so badly over-cultivated, overgrazed and eroded that it shows up as bedrock in satellite pictures.⁷¹¹

The following paragraphs will demonstrate the fragmentation and inadequacy of wetland and estuarine legislation. My starting point will be the Constitution.

⁷⁰⁶ See Chapter 3 para 3.2.8 above.

⁷⁰⁷ See Chapter 3, para 3.3 above.

⁷⁰⁸ See Chapter 3 para 3.2-3.2.1.4 above.

⁷⁰⁹ See Chapter 1, para 1, above.

⁷¹⁰ See Chapter 1, para 1.above.

⁷¹¹ Government Gazette 23232 Notice No 354 (2002) s 1(5) (2).

5.3.1 The Constitution

The South African Constitution contains the environmental right in section 24. Section 24 deals with the general protection of the environment. Therefore, wetlands and estuaries are not specifically afforded protected under this section.⁷¹²

The following paragraphs will devoted to legislation applicable to the conservation of wetlands and estuaries.

5.3.2. The National Environmental Management Act 107 of 1998 (NEMA)

Section 2(4)(r) of NEMA is the most significant section with respect to the conservation of wetlands and estuaries.⁷¹³ The NEMA provisions and regulations is a fundamental starting point for the protection and conservation of wetlands and estuaries.⁷¹⁴

5.3.3. The National Water Act 36 of 1998 (NWA)

The Act defines water as a watercourse. Wetlands and estuaries form an integral part of watercourses. And through this definition wetlands and estuaries are protected.⁷¹⁵

⁷¹² See Chapter 4, para 4.1 above.

⁷¹³ National Environmental Management Act 107 of 1998 s2 (4) (r).

⁷¹⁴ See Chapter 4, para 4.31 above.

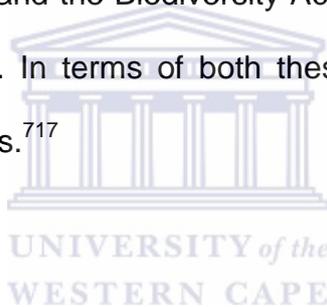
⁷¹⁵ See Chapter 4 para 4.3.2 above.

5.3.4 The National Environmental Management: Biodiversity Act 10 of 2004

In terms of the Act protection to wetlands and estuaries are afforded under the broad auspice of ecosystems. This does not afford adequate protection to wetlands and estuaries. The reason for this is they are not specifically mentioned in terms of the Act.⁷¹⁶

5.3.5 The National Environment Management: Protected Areas Act 57 of 2003 (PAA)

Both the Protected Areas Act and the Biodiversity Act affords protection to wetlands and estuaries as ecosystems. In terms of both these Acts no much protection is given to wetlands and estuaries.⁷¹⁷



5.3.6 The World Heritage Convention Act 49 of 1999

Where this Act coincides with the National Water Act, Biodiversity Act and the Protected Areas Act, more protection is being given to wetlands and estuaries. This would not be adequate, because the protection is fragmented.⁷¹⁸

⁷¹⁶ See Chapter 4, para 4.3.3 above.

⁷¹⁷ See Chapter 4, para 4.6

⁷¹⁸ See Chapter 4, para 4.7 above.

5.3.7 The Conservation of Agricultural Resources Act 43 of 1983(CARA)

This act does not apply to land situated in urban areas and this is where many threatened wetlands are located. Moreover, CARA `s main focus is land-use, therefore not much protection is afforded to wetlands and estuaries in terms of the Act.⁷¹⁹

5.3.8 The Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA)

No mention is made of conservation to wetlands and estuaries in terms of the Act.⁷²⁰

5.3.9 The National Environmental Management; Integrated Coastal Management Act 24 of 2008 (NEMICMA)

This Act only contributes to the protection of estuaries and not inland wetlands.⁷²¹

5.3.10 Wetland Conservation Bill 1990

This Bill would have been the ultimate protection for wetlands and estuaries in the South African context. However, it was discarded; therefore no protection is afforded to wetlands and estuaries in terms of the Bill.⁷²²

⁷¹⁹ See Chapter 4, para 4.8 above.

⁷²⁰ See Chapter 4, para 4.9.

⁷²¹ See Chapter 4, para 4.10.

⁷²² See Chapter 4, para 4.11.

While the importance of the conservation and protection of natural resources are widely acknowledged, very limited protection is given to the conservation of wetlands and estuaries in South Africa.⁷²³ At present the management, protection and conservation of South Africa's wetlands and estuaries is undertaken on an *ad hoc* basis.⁷²⁴

Reasons for this include: firstly, no sufficient definitions exist to define wetlands and estuaries nationally,⁷²⁵ as mentioned above, it plays a very important role in the decision-making process.⁷²⁶ Secondly, the implementation and enforcement measures of those provisions already existing to conserve wetland and estuaries have become finite. An added complication with respect to the conservation of wetlands and estuaries is numerous overlapping and often conflicting laws that define and regulate wetlands and estuaries, thus making it difficult to manage, protect and conserve them appropriately and adequately.⁷²⁷

Notwithstanding the fact that South Africa has listed wetlands under the Ramsar Convention, it lacks a dedicated wetland and estuarine conservation act.⁷²⁸ If no appropriate and adequate wetland and estuarine specific legislation or act is created, wetlands and estuaries, once in abundance will cease to exist.

⁷²³ See Chapter 4, para 4.3, above.

⁷²⁴ See Chapter 1, para 9, above.

⁷²⁵ See Chapter 2, para 2.2, above.

⁷²⁶ See Chapter 2, para 2.2, above.

⁷²⁷ See Chapter 2, para 2.3, above.

⁷²⁸ Glazewski J Environmental Law in South Africa 2ed (2005)447.

5.4. Recommendations for wetland and estuarine conservation in South Africa

Recommendations to enable the achievement of adequate and appropriate wetland and estuarine specific legislation are presented in this part of this chapter. A number of interventions to succeed in the approach to conserve wetlands and estuaries in South Africa are listed and it includes:

5.4.1. The Global Level with respect to the conservation of wetlands and estuaries

The Ramsar Convention should be incorporated into South African Domestic law. This could be done through the discarded Wetland Conservation Bill 1990 or the enactment of a new act which includes the main features of the Ramsar Convention. This is imperative to ensure the conservation of wetlands and estuaries.

5.4.2. The South African Level with respect to wetlands and estuaries

- South Africa is currently in the process of revisiting and redrafting its environmental legislation which present an excellent opportunity to realign existing legislation and institutional arrangements and to influence legislation presently being drawn up.
- South Africa is in serious need of wetland and estuarine specific legislation; therefore, it is important that a wetland and estuarine act must be drafted.
- Moreover, the main features of the Wetland Conservation Bill that had been discarded must be incorporate into a wetland and estuarine act or wetland

and estuarine specific legislation, to give full effect to the conservation of these vulnerable ecosystems.⁷²⁹

At local level issues regarding conservation, shared responsibilities, limited resources and accountability would be identified and dealt with during drafting of formal wetland and estuarine specific-legislation or an act.

- The new 2010 NEMA Environmental Impact Assessments and Integrated Environmental Management that stressed the importance of the negative impacts on the environment could also be incorporated into wetland and estuarine specific legislation or the act.
- The three additional listing notices in conjunction with the new Environmental Impact Assessments would also affords protection to wetlands and estuaries ,if they were in to included in wetland and estuarine specific legislation.
- Clarification and formalisation of the definitions of wetlands and estuaries:
The issues that need the urgent clarification are the scientific, legal and operational definition of wetlands and estuaries. The ambiguity round the definitions creates overlaps in jurisdiction and allows for gaps in the conservation of wetlands and estuaries. The clarification of wetlands and estuaries is very important for the law makers.
- The establishment of effective, appropriate and adequate wetland and estuarine monitoring programmes:
Data necessary to understand, manage, protect and to conserve South African wetlands and estuaries effectively, are completely inappropriate and inadequate. Monitoring therefore is a priority for effective conservation

⁷²⁹ See Chapter 5, para 5.2.1, above.

programmes to be established and sustained. It is therefore, strongly recommended that the Wetland Conservation Bill be enacted into South Africa`s national law which must include the provisions of effective monitoring provisions.

- Quantification of the environmental goods and services provided by wetlands and estuaries:

Wetlands and estuaries provide a host of goods and services to their surrounding areas (such as water purification, a reduction in flood impacts and nursery areas for fish). The full costs of reducing or destroying these ecosystems abilities to deliver any of these goods or services is not included in the costs-benefit appraisal for new developments, even if potential damage or destruction are obvious. In order for development to be sustainable, the environmental costs and benefits cannot be ignored.

- Any use of these environments will have to comply with legislative requirements applicable to such areas, and will have to be preceded by obtaining the necessary authorisations. Any use must comply with any conditions imposed by the authorities.

5.5. Closing Remarks

Wetland and estuarine conservation should be undertaken within legislation that highlights the principles of sustainable development, biodiversity conservation, precautionary principle; polluter pays principle, integrated management, self regulation and sensitivity to local circumstances. Particular emphasis should be placed on the need for the various actors, agencies and levels of government to

work together to seek an agreement aimed at the continued conservation of South Africa`s wetlands and estuaries.

Successful management, protection and conservation of wetland and estuarine life requires the political will, cooperation amongst government departments at all levels, and a regional approach. Management, protection and conservation should be supported by a sound understanding of various physical, chemical and ecological interactions at national, provincial and local level. Wetland and estuarine conservation will only be achieved by designing action adequate and appropriate specific legislation or an act to the specific conditions of each region in the country and institution.



BIBLIOGRAPHY

Books

Ababa A *Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia* (2008) University, Ethiopian Health and Nutrition Research Institute, Ethiopia

Allanson B.R. & Baird D. *The estuaries of South Africa*. (1999) Cambridge University Press, Cambridge

Bate, R. & Tren, R. *The cost of Free Water, The Global Problem of Water Misallocation and the Case of South Africa* (2006). University of Pretoria

Beazley, M. in association with IUCN-The World Conservation Union. *WETLANDS IN DANGER* (1993) Oxford University Press

Bellamy D J *The Conservation Foundation* (2005) London New YORK and London

Blackwell Wiley *The Human Impact on the Environment*, (2006) Blackwell Publishing, Oxford

Boere G C *Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach* (2003) Wetlands International AI Wageningen Netherlands

Bowman M *The Ramsar Convention On Wetlands: Has it Made a Difference?* (2002) Cape Town

Brierle G J *River Features: An Integrative Scientific Approach to River Repair*. Washington DC (2008) Island Press, Quarto, laminated boards

Brown C & Magoba R *Rivers and Wetlands of Cape Town, Caring for our rich aquatic heritage. Water Research Commission. (2009) The Republic of South Africa*

Caponera Dante A *Patterns of Cooperation in International Water Law: Principles and Institutions. (1985) Publish by Kluwer Law International The Hague Netherlands*

Conservation Council of New Brunswick Inc

Cousins , Tessa, Pollard Sharon & du Toit Derrick *Legislation in relation to land, water and natural resources governance in communal land in South Africa, (2007)*

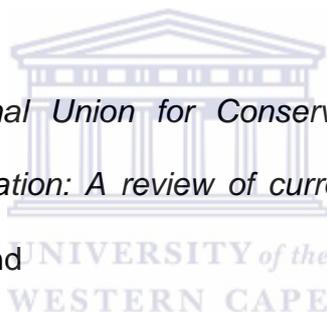
Working Report for the Craigieburn Wetlands Governance Project Craigieburn. Day,

J.H. Balkema *Estuarine ecology with particular reference to southern Africa. (1981)*

Cape Town

Dungan PJ 1990 *International Union for Conservation of Nature and Natural Resources. Wetland Conservation: A review of current issues and required action*

(1990) IUCN Gland, Switzerland



Fillion F *Wetlands International Selangor, (1995) Malaysia*

French W P *Coastal and Estuarine Management, Routledge Environmental Management Series. (1997) London and New York*

Fuggle R F, Rabie M A, Strydom H A & King N D, *Second Environmental Management in South Africa (2009) Cape Town: Juta*

Fuggle R.F & Rabie M A *Environmental Management in South Africa, (1999) Cape Town: Juta*

Glazewski J *Environmental Law in South Africa (2005) Butterworths Durban*

Hails J Wetlands, *Biodiversity and the Ramsar Convention*. (2000) United States of America

Harvey J D Coon and Abouchar *The Importance of Estuaries* (1998) Fredericton:

Houghton J.T, Jenkins J G & Ephramus J.J Climate Change the IPCC Assessment (1990) London: Earthscan Cambridge CUP IPCC

Jank J, Governder D & Claasen B *Legal Scan Underpinning the Development and Conservation Planning for Orange River Mouth*.(2006).Swaziland

Junk W J *Long-term environmental trends and the future of tropical Max-Planck-Institute for Limnology, Working Group Tropical Ecology* (2002) 24306 Plön, pb 165, Germany

Keddy P.A *Wetland Ecology, Principles and Conservation Cambridge Study in Ecology* (2000) Cambridge University Press, New York

Kennish Michael J Estuary *Restoration and Maintenance, The National Estuary Programme* (2000) CRC Press, Boca Raton London New York Washington DC.

Kidd M *Environmental Law* (2011) Cape Town South Africa: Juta

Kidd M *Environmental Law*, Cape Town (2008) South Africa: Juta

Kotze W L, du Plessis W, Feris L & Oliver M *South African Environmental Law through Cases* (2008) University of Cape Town.

Max-Planck-Institute for Limnology, Working Group Tropical Ecology, 24306 Plön, pb 165, Germany. Netherlands Institute of Ecology (NIOO-KNAW), PO Box 1299, 3600 BG Maarssen, The Netherlands

McCarthy J & James J *Climate Change 2001: impacts adaptation and vulnerability and contribution* (2001)

Mclusky D & Michael E *The Estuarine System ecology, threats and management*, (2004) Oxford Biology

Meremet L *Guidelines on Global and Regional Aspects of the Development and Protection of Marine and coastal Environment* (1996) France

Mitsch William J & James G Gooselink *Wetlands* (2007) New Jersey and Canada

Moser M Prentice C & Frazier S A *Global Overview of Wetland Loss and Degradation*, Proceedings of Ramsar COP6 (1996) Brisbane

Osterwaldt R UNEP *Implementation and Enforcement Issues in Protection of Migratory Species*. (1989) United Nations New York

Perillo Gerardo M E & Wolanski C D *Geomorphology and Sedimentology of Estuaries*. (1996) Oxford UK

Pritchard D.W *What is an Estuary: Physical View Point* (1967) Publication # 83 AAAS Washington

Rubec C *A framework for developing and Implementing National Wetland Policies, Wetlands, Water and the Law. Using Law to advance wetland Conservation and wise us* (1999) IUCN Gland Switzerland Cambridge UK and Bonn, Germany

Sands P *Principles of International Law* (1995) Manchester University Press, New York, USA.

Scott D.A & Springer *Classification and Inventory of Wetlands: A Global Overview* (1995) Publisher: Springer

Shine C & de Klemme C *Wetlands, Water and the Law: Using Law to advance wetland Conservation and wise use*. IUCN Gland Switzerland (1999) Cambridge, UK and Bonn Germany

Turner K & Jones T *Wetlands: Markets and Intervention Failures* (1991) Earthscan Publications Limited Londres

Turner K & Jones T *Wetlands: Markets and Intervention Failures* (1991) Earthscan. Publications Ltd London

Verschuuren J *Case of Transboundary Wetlands under the Ramsar Convention: Keep the Lawyers* (2008) published by Kluwer Law International. The Netherlands

Vymazal J, *Natural and Constructed Wetlands, Nutrients, Metals and Management* (2005) Backhuys publishers, Cape Town.

Wetlands (2002) Springer Dordrecht Heidelberg London New York

Whitten S M & Jeff B *Managing Wetlands for Private and Social Good, Theory, Policy and cases from Australia* (2005) New Horizons in Environmental Economics, Series Editors, Wallace E, Oates Henk Folmer

Williams W D *Conservation of Wetlands in Drylands: a key global issue* (1990) Australia

Chapters in Books

Adams W M, Mulligan M & Adams W *Decolonizing Nature: Sharing South African National Parks; Community Land and Conservation in a Democratic South Africa. Chapter 5 South Africa* (eds) (2003) 258-371.

Bardi A Wetlands *in Italy* in *Wetlands, Water and the Law. Using Law to advance wetland Conservation and wise use* IUCN, Gland, Switzerland, Cambridge, UK and Bonn, Germany(1996) 330.

Boere G C *Global activities on the conservation, management and sustainable use of migratory birds: an integrated flyway/ecosystem approach*. Wetlands International AI Wageningen Netherlands (2003)33.

Boon , Calow & Petts *River classification and Management* John Wiley & Sons (1992) ch2 in Fuggle R F , Rabie M A , Strydom H A & King N D 'Wetlands, estuaries and.' *Essential Elements in the Case for River Conservation in Boon*.(eds)(2009)

Braahekke and Marchand in *Water and the Law Using Law to advance wetland Conservation and wise use* IUCN, Gland, Switzerland, Cambridge, UK and Bonn, Germany(1987) 148.

Damite M '*Policies, law and strategies documents in Protecting Wetlands in Ethiopia and the need to ratify the Ramsar Convention* in Ababa A *Proceedings on the National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy In Ethiopia* (2008)247.

Davies and Day *Vanishing Waters* (1998) in Fuggle R F , Rabie M A, Strydom H A & King N D '*Environmental Management in South Africa* Cape Town Juta (2009).

Elliott M and Mclusky D.S *The Need for Definitions in Understanding Estuaries* (eds) Henderson in Glazewski J *Environmental Law in South Africa* Cape Juta 2ed (2005) 222.

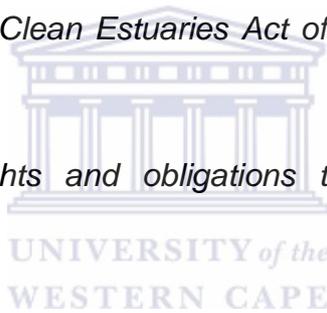
Plumstead, E.E, Prinsloo, J.F. & Schoonbee, H.J. '*A survey of fish fauna of Morant P and Quin* 1999 in *Influence of Man and Management of South African Estuaries, Estuaries of South Africa*'(1991) 289-320.

Journal Articles

Amezaga J M , Santamaría & Green A J a Centre for Land Use and Water Resources Research, Porter Building, University of Newcastle, Newcastle upon Tyne, NE1 7RU, UK Amezaga J.M, Santamaria ,L and Greece A.S ,Article ,*Biotic wetland connectivity—supporting a new approach for wetland policy*, Acta Oecologica 2(2002) Law Journal 3 213-222.

Bansal L, Bryant L , Wini C, Michael E, Tobias G, Katz J, Lypiridis C, Rogers H , Shepherd T, Somerville J, Winter C & Young H ‘*The Clean Estuaries Act of 2010 Final Report* December *The Clean Estuaries Act of 2010 Final Report* December. (2010) 3 AJIL321

Brown W E 1990 *Our Rights and obligations to future generations for the Environment* (1990) 1AJIL 23.



Butler L.L *Environmental Water Rights: An Evolving Concept of Public Property* Virginia International Law Journal (1990) 323327.

Davis J and Brock ‘M Detecting *unacceptable change in the ecological character of Ramsar wetlands*” Article first published online: DOI: 10.1111/j.1442-8903.2008.00384.x © 2008 Ecological Society of Australia. (2008)

De Klemm Migratory Species in International Law in Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999)*Transkei estuaries. Part 4: The Mntafufu and Mzamba River estuaries.* South African Journal of Zoology, (1989) 26:153-163.

Du Plessis W & NEL J An evaluation of NEMA based on generic framework for the environmental framework legislation (2001)8 SAJELP 1-2.

Harini Sринi and Yuko Nakagawa, *Journal of Environmental Management*, Volume 89, Issue 1, October (2008) 89. 11 *Journals of Mammary Gland Biology and Neoplasia*: 1 89-99.

Hollis Simpson G E WERI New Zealand Commission and the Environment focus on wetland classification and values. *Wetland Policies in Action*. This article highlights the functions and values of wetlands WERI (1985).

Joseph G Theis, *Wetland Loss and Agriculture: the Failed Federal Regulation of Farming Activities under section 404 of the Clean Water Act*, 9PACE ENVTL. L REV 1, 2 1991 14. Belgium.

Marais C and Wannenburga , *Restoration of water resources (natural capital) through the clearing of invasive alien plants from riparian areas in South Africa — Costs and water benefits*, South African Journal of Botany, [Volume 74, Issue 3](#), July Riparian Vegetation Management in Landscapes Invaded by Alien Plants: Insights from South Africa.(2008)3 SALJ 73..526-537.

McCurdy K M '. *Public Trust Doctrine for Wetlands*. 19 *Envtl. L.* 683 (1988-1989) 364.

Ninan Ninan K *Conserving and Valuing ecosystems and biodiversity: economic.*

Shine C and de Klemm C *Wetlands, Water and the law. Using law to advance wetland Conservation and wise use.* (1999)*Transkei estuaries. Part 4: The Mntafufu and Mzamba River estuaries.* South African Journal of Zoology, 21 (2009)26:153-163.

Pinet P R Jones and Bartlett Publishers, Boston MA *Invitation to Oceanography* (1998) 6 3 *SAJELP*.

Poisoning the right to water in South Africa What can the law do? The International Journal of Rural Law and Policy (2011). Report on proceedings of the workshop on the Constitution and the Environment (1999).

Teclaff L A and Teclaff E 1985 *Transboundary Toxic Pollution and the Drainage Basin Concept* Journal (Water Pollution Control Federation) Published by Water Environment Federation ISSN: 00431303.

The three pillars of sustainable development in South Afrin environmental Law (2008)15 *SAJELP* 85.

Timoshenko A S, *Protection of Wetlands by International Law*, 5 Pace Article 7, Volume 5, Issue 2 spring 1988, Pace Environmental Law Review Env'tl.L.Rev.463.

Wallace J H, Kok H M, Beckley L E, Bennett B & Blaber SJM *South African Estuaries and their Importance to fishes* (1989) South African Journal.

Legislation and Regulations

National Environmental Management Act 107 of 1998. (NEMA)

Environment EIA Environmental Impact Assessment Regulations Laws South Africa (2011)

National Water Act 36 of 1998. (NWA)

National Environmental Management: Biodiversity Act 10 of 2004.

National Environmental Management: Protected Areas Act 57 of 2003.

World Heritage Convention Act 49 of 1999.

Conservation of Agricultural Resources Act 43 of 1983(CARA).

Mineral and Petroleum Resources Development Act 28 of 2002(MPRA).

National Environmental Management: Integrated Coastal Management Act 24 of 2008. (NEMICMA).

Wetland Conservation Bill 1990.

The Constitution



The Constitution of the Republic of South Africa 1996.

Case law

Government of RSA and Others v Grootboom and Others 2001 SA 46(CC.)

Minister of Public Works and Others v Kyalami Ridge Environmental Association and Another 2001 (3) SA 115 (CC).

State Publications

African Eurasian Waterbird Agreement (AEWA) 1999

Agreement on the Conservation of Albatross and Petrel (ACAP) Cape Town (2001).

Monitoring South African Committees Parliamentary Monitoring Group (1996).

White Paper for Sustainable Coastal Development in South Africa (2000).

White Paper on Environmental Management Policy (1997) for South Africa.

White Paper on National Water Policy in South Africa (1997).

White Paper on Spatial Planning and Land Use Management (2001).

White Paper on Sustainable Use of South Africa's Biological Diversity (1997).

White Paper: A Minerals and Mining Policy for South Africa (1998).



International Instruments

United Nations Convention on Biological Diversity (1992)

Agenda 21

United Nations Framework Convention on Climate Change (1992)

United Nations Conference on the Law of the Sea (UNCLOS) 1982

International Convention for the Prevention of Pollution from Ships (MARPOL)
(1973/1978)

Convention Concerning the Protection of the World Cultural and Natural Heritage
(World Heritage Convention) 1972

Convention on Wetlands of International Importance Especially Waterfowl Habitat
(Ramsar Convention) 1971

Declaration of the United Nations Conference on the Human Environment
(Stockholm) 1972

Declaration on the United Nations Conference on Environment and Development
(the Rio Earth Summit) 1992.

Helsinki Convention. 1966

Ramsar Convention Montreux Record 1972

Kolbasov M.P.O.O International *Legal Protection of the Environment* (1982) United
Nations Conference on the Law of the Sea (UNCLOS) 1982.

United Nations Clean Water Act 1972.

The Association of Southeast Asian Nations (ASEAN AGREEMENT) 1985.

The North American Waterfowl Management Plan (NAWMP AGREEMENT) 1994.



Papers and Reports

Ababa A E 2008 Wetlands and Natural Resources Association ,*Proceeding of National Stakeholders Workshop on Creating National Commitment for Wetland Policy and Strategy Development in Ethiopia*

African National Scientific Programme, Report NO 145.

Armstrong Aldine, Series Editors: Breen Charles, Dini John, Ellery William, Mitchell Steven and Uys Mandy. Wetland Management Series, WET-LEGAL, Wetland Rehabilitation and the law in South Africa,-TT338/09.

Avada M L Department of Conservation Biology, Doñana Biological Station (2006) a/n, 41013 Sevilla, Spain.

Babier, Acreman and Knowler 1997 Economic Values of Wetlands: A Guide for Policy Makers and Planners.

Davis T J 1993 *Towards the Wise Use of Wetlands* (Gland: Ramsar Convention Bureau).

Declaration of the Programme of Action on the Establishment of a New International Economic Order (A Res 3201(s-VIO) and 3202(s-VI) and the Charter of Economic Rights and Duties of States (A Res 3281) (XXIX) Article 30'.

Eberhard and van Horen *Poverty and Power* UCT Press 1995.

Houghton J.T, Jenkins J.G & Ephramus L.L *Climate Change: the IPCC Assessment* (1990) University of Cambridge Press, Cambridge, UK

Houis G E *Environmental impacts of development on wetlands in arid and semi-arid lands*. (1989) Department of Geography University College London 26 Bedford Way London WC1H OAP UK

Lewis M, Cowardin & Francis C G *US Fish and Wildlife Service Wetland Classification: A Review* Belgium (1979)1.

Macaskill C *The National Directory* (2009).

Millennium Ecosystem Assessment *Ecosystems and Human Well-being: Biodiversity Synthesis* (2005)

OECD 1996, *Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropic and Sub-Tropic Wetlands .Guideline on Ai and Environment, No 9*. Paris



Podolski and Michael J US 2002 *Wetland Policy, Legislation and Case Law as Applied to the wise use Concept of the Ramsar Convention*.

Press Newsletter Reauthorized ‘.’ *Estuary Restoration Act Aids Threatened Coast Habits* (2007).

Ramsar COP9 DOC24 9th meeting of the Conference of the parties to the Convention of Wetlands (Ramsar, Iran, 1971) (2005) 24

Ramsar COP9 DOC24 9th meeting of the Conference of the parties to the Convention of Wetlands (Ramsar, Iran, 1971) (2005) 24

Sunde J and Isaacs M 2008 *Marine Conservation and Coastal Communities: Who Carries the Costs?*

Titchen S M 1972 'Some comments on the implementation of the 1972 UNESCO World Heritage Convention.

Valiela, I 1995 *Marine Ecology Process* Springer-Verlag New York 2 ed.

Van Niekerk and Taljaard 2007 Cape Estuaries Guideline 6: Monitoring Programmes for Implementation in South African Estuaries

Walmsley RD, 1988, A Description of the Wetlands Research Programme, South African Research Programme.

Thesis and Dissertations

Van Niekerk L A *Framework for Regional Estuarine Management: A South African Case study* (unpublished LLM thesis, University of Stellenbosch, (2007) (11052376).



Internet Sources

Homes >>Hobbies>>&Science >> Earth and Space Science >>.What are Estuaries? available at <http://drake.marin.k12.ca.us/stuwork/rockwater/ESTUARIES> (accessed 25 March 2011).

2009, American Institute of Biological Science available at editor@actionbioscience.org (accessed 22 March 2011).

Christian Robert, R An Action Bioscience original article, The Value of Healthy Estuaries, 2009, para 7 available at

<http://www.actionbioscience.org/environment/christian.html>(accessed 18 March 2011).

Conservation Biology, Wetlands Conservation in South Africa, 2007, available at [http://bcb706.blogspot.com/2007/03/wetlands-conservation-in-south Africa](http://bcb706.blogspot.com/2007/03/wetlands-conservation-in-south-Africa) (accessed 17 March 2011).

Government Affairs Programme American Geological Institute, Most Recent Action, Action in 10th Congress, Wetland Legislation (10-11-01) available at <http://www.agiweb.org/gap/legis107/wetlands.html> (accessed 18 March 2011).

HOUIS G E Department of Geography University College London 26 Bedford Way London WC1H OAP UK *Environmental impacts of development on wetlands in arid and semi-arid lands*' (1989) 416.

Navid D *The International Law of Migratory Species: The Ramsar Convention* available at <http://heinonline.org/HOL/Page?handle=hein>. (accessed 29 July 2011).

Technical definition of wetlands available at <http://mapping2.orr.noaa.gov/portal/calclassieu/cale-html/resources/glossary.html> (accessed 18 March 2011). Simply put Wetlands are made up of hydric soil.

Votteler T H , Muir TA 'National Water Summary on Wetlands , Wetland Management and Research, Wetland Protection Legislation, available at <http://water.usgs.gov/nwsum/WSP2425/legislation.html> (accessed 24 March 2011).

Wetland Conservation available at <http://www.the-wildclassroom.com/biomes/wetlands.html> (accessed 1 April 2011).

Wetlands Definitions available at <http://www.alabamapower.com/hydro/glassary.asp> (accessed 8 March 2011).

Why is Estuaries Important to an Ecosystem? Available at <http://www.ehow.com/facts-5887364-estuaries-important-ecosystems>. (accessed 24 March 2011).

Wikipedia, the free encyclopaedia, Wetland Conservation available at <http://wikipedia.org/wiki/wetland-conservation> (accessed 17 March 2011).

Timoshenko A, S, Protection of Wetlands by International Law, 5 Pace Envtl.L.Rev 463(1988) available at <http://digitalcommons.pace.edu/pelr/vol5/iss2/7> (accessed 17 March 2011).

Environmental Stewardship for a prosperous New Zealand, Multilateral Environmental Agreements available at <http://www.mfe.govt.nz/laws.meas/>. (accessed 11 March 2011).

Beyond the Ramsar Convention: A Proposal for International Protection of Wetlands a Thorough Binding Regional Agreements available at <http://heinonline.org/HOL/Page?handle=hein.journals/colenvlp3&div>

African Convention on the Conservation of Nature and Natural Resources, Article XII, June 11, (2003), available at <http://www.africaunion.org/root/AU/Document/Treaties/Text/nature%20and%20naturalrecesource.pdf> (accessed 18 May 2011).

African Eurasian Waterbird Agreement, November, 1999, available at <http://www.uenp-aewa.org/documents/agreements/text/eng/agree/agree-full.htm>. (accessed on April 2011).

Wetland Conservation' available at <http://www.the-wildclassroom.com/biomes/wetlands.html> (accessed 1 April 2011).

What is and Estuary The definition of an Estuary Restore America`s available at <http://www.estuaries.org/what-is-an-estuary.html>. (accessed 11 March 2011).

A global network of wetlands for sustaining people and our environment available at <http://www.ramsar.org/cda/en/ramsar-home/main/ramsar>.(accessed 29 July 2011).

Environmental Stewardship for a prosperous New Zealand, Multilateral Environmental Agreements 'available at <http://www.mfe.govt.nz/law/meas>. (accessed 11March 2011).

River Basin Initiative Portal, <http://www.riverbasin.org>. (accessed 9 March 2011)

Multilateral Environmental Agreements legal Aspect of Environmental Resource Management available at <http://www.mfe.govt.nz/laws/meas/>. (accessed 18 March 2011).

Organizations, Legislation, International Organizations and Agreements, available at <http://canadianbiodiversity.mcgill.ca/english/legislation/international.htm>. (accessed 18 March 2011).

United Nations Programme, Environment for Development available at <http://www.unep.org/civil-society/GCSF8/water-env-asp>. (accessed 19 March 201).

Environmental Impact Assessments laws South Africa available at <http://www.environment.co.za/legislation-law/eia-environmental-impacts>. (assessed 13 November 2011).