

The generous funding for this project by the following institutions
is gratefully acknowledged:

**the Ministry of Foreign Affairs of Sweden
and the Department of Development Cooperation of the
Ministry of Foreign Affairs of the Netherlands**

© 2003, African Water Issues Research Unit (AWIRU) and
Green Cross International (GCI)
© Cover photograph, December 2002, courtesy Peter Ashton

Copyright in this volume as a whole is vested in the African Water Issues Research Unit (AWIRU)
and Green Cross International (GCI), and no part may be reproduced in whole or in
part without the express permission, in writing, of the publishers.

ISBN: 0-620-30497-9

First published by

African Water Issues Research Unit
Centre for International Political Studies (CIPS)
University of Pretoria
Pretoria 0002
South Africa

Green Cross International
160a route de Florissant
1231 Geneva
Switzerland

Tel: +27-12-420-4486
Fax: +27-12-420-3527
Email: awiru@postino.up.ac.za
art@icon.co.za
www.up.za/academic/libarts/polsci/awiru

Tel: +41-22-789-1662
Fax: +41-22-789-1695
Email: waterforpeace@gci.ch
www.greencrossinternational.net

Copy-editing, design and layout: Euníce Reyneke +27-11-469-3029
Reproduction: PrePress Images +27-12-346-2168
Printing: Cedilla +27-12-683-1302

Transboundary rivers, sovereignty and development:

*Hydropolitical drivers
in the Okavango River basin*

**Anthony Turton, Peter Ashton & Eugene Cloete
(editors)**

COVER PHOTO

Aerial view of a portion of the Okavango River approximately 10 kilometres downstream of the small village of Bagani, Namibia, showing a typical sand island in a bend of the river. The island is located near the northern boundary of the Mahango Game Reserve, and has been formed by successive deposits of sediments laid down during periods of high flow. A series of vegetated scroll bars are clearly visible on the island. During periods of low flow (such as those shown here), the low water levels allow local residents to walk across the half-exposed sandbanks onto the island where they collect reeds for thatching and allow their livestock to graze on lush growths of grasses and sedges. Immediately downstream of the island (foreground of photograph), falling water levels have exposed a large area of sandbank, with other sandbanks clearly visible in the very shallow water. Furrow-like 'troughs' in these submerged sandbanks (foreground) trap large volumes of detritus particles, and provide a suitable substrate for a wide variety of microorganisms, invertebrates and small aquatic plants to grow. Exposed sandbanks, such as those shown in the photograph, provide important seasonal nesting sites for the endangered African skimmer (*Rhynchops flavirostris*). However, because of the low water levels and ease of access, the skimmers are vulnerable to predation from local residents and their dogs, as well as disturbance and trampling by livestock. During exceptionally high flows, the Okavango River overflows its banks and floods out across the flat landscape, inundating large areas of floodplain (visible as grassland in upper left of photograph). This photograph was taken in December when water levels were at their lowest.

CONTENTS

FOREWORD	1
Southern Africa and the international water problematique <i>Aaron T Wolf</i>	
SPECIAL MESSAGE	3
Equitable and sustainable use of the water resources of the Okavango River basin <i>Ketumile Masire</i>	
SPECIAL MESSAGE	7
Namibia and cooperation on the Okavango River basin <i>H K Angula</i>	
CHAPTER 1	9
An introduction to the hydropolitical drivers in the Okavango River basin <i>Anthony R Turton, Peter Ashton and Eugene Cloete</i>	
CHAPTER 2	31
An overview of key strategic issues in the Okavango basin <i>Peter Ashton and Marian Neal</i>	
CHAPTER 3	65
The peace dividend in Angola: Strategic implications for Okavango basin cooperation <i>Joao Gomes Porto and Jenny Clover</i>	
CHAPTER 4	83
The hydropolitical dynamics of cooperation in Southern Africa: A strategic perspective on institutional development in international river basins <i>Anthony R Turton</i>	
CHAPTER 5	105
Cooperation in the Okavango River basin: The OKACOM perspective <i>Isidro Pinheiro, Gabaake Gabaake and Piet Heyns</i>	
CHAPTER 6	119
Kant and should: Strategic thoughts about 'wise use' of the Okavango Delta system <i>Larry A Swatuk</i>	
CHAPTER 7	141
The Okavango Delta Management Plan project: The need for environmental partnerships <i>Ruud Jansen and Masego Madzwamuse</i>	

Contents

CHAPTER 8	167
The dynamics of river basin cooperation: The Nile and Okavango basins <i>Alan Nicol</i>	
CHAPTER 9	187
Ephemeral and endoreic river systems: Relevance and management challenges <i>Mary Seely, Judith Henderson, Piet Heyns, Peter Jacobson, Tufikifa Nakale, Komeine Nantanga and Klaudia Schachtschneider</i>	
CHAPTER 10	213
Changing perspectives in the management of international watercourses: An international law perspective <i>Laurence Boisson de Chazournes</i>	
CHAPTER 11	229
Watersheds and problemsheds: A strategic perspective on the water/food/trade nexus in Southern Africa <i>Anton Earle</i>	
CHAPTER 12	251
Shared freshwater resources: Management or governance? <i>Bastien Affeltranger and Alexander Otte</i>	
CHAPTER 13	275
The importance of instream flow requirements for decision-making in the Okavango River basin <i>Heather MacKay and Brian Moloi</i>	
CHAPTER 14	303
Policy-making in the Okavango River basin <i>Petrus Brynard</i>	
CHAPTER 15	329
Decision support systems for equitable water-sharing: Suggestions for consideration in the <i>Water for peace Okavango pilot project</i> <i>Craig Schultz</i>	
CHAPTER 16	353
Hydropolitical drivers and policy challenges in the Okavango River basin <i>Anthony R Turton, Peter Ashton and Eugene Cloete</i>	

FOREWORD

Southern Africa and the international water problematique

Few regions offer as much contrast in the field of international water as Southern Africa. On the one hand, there is a vast and growing literature that cites water as a likely cause of wars in the 21st century, and the 15 international basins in the Southern African Development Community (SADC) are regularly named as points of tension, second only to the arid and hostile Middle East. On the other hand, the region now has more experience in negotiating water treaties and implementing joint management bodies than any other region on earth, save the European Union. Furthermore, South Africa's new water law, with its guarantees of water for human consumption, ecosystem health and obligations under international agreements, is quite literally on the cutting edge of water jurisprudence.

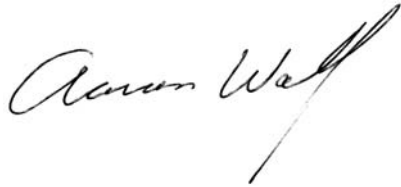
Southern Africa, in general, and the Okavango River basin, in particular, have much to teach the world in the management of international water, and this book is a most welcome tool to this end. There are 261 international basins of which only 55 include treaty mechanisms to guide joint management. The Okavango is representative of much of the world of international water, including a certain level of tension, a lack of some of the most basic data and development plans that may be contradictory to others' aims. It is also representative in the underlying assumption that cooperation is an imperative, not only because more development options result, but because of the implicit understanding that it is the right way to proceed.

This important book helps to bring these experiences to the world and, in doing so, also helps to fill some critical gaps in both the academic and applied literatures. For one, it will provide useful ammunition to argue against those who see war over water resources as inevitable. With every cooperative framework negotiated and every joint study concluded, the concept of water as an inducement to international cooperation rather than violence becomes more imbedded in the global psyche.

Another gap being filled here is the almost total lack of theory about the problematique of international water. With the exceptions of Allan and his colleague at the London School of Oriental and African Studies (SOAS), Turton, who continued to be a lone voice in the theoretical wilderness for years, and a small smattering of literature (especially Blatter and Ingram's *Reflections on water*), the dialogue has been almost devoid of any theoretical underpinnings.

Finally, this book will bring a greater understanding of the Okavango itself – a useful and fascinating case study on its own. For many of us outside of the region, the 'jewel of the Kalahari' is a bit of an enigma. We know about its lush ecosystem, its

centrality to the area and, possibly, something of its hydropolitics. But there have been few places to look for the level of detail found in this publication – detail exquisitely wrapped in the language of those who so obviously care deeply for the basin and all it brings to the region.



Aaron T Wolf
Associate Professor of Geography
Department of Geosciences
Oregon State University, United States

SPECIAL MESSAGE

Equitable and sustainable use of the water resources of the Okavango River basin

It is a great honour that the Okavango River basin, which Botswana shares with Angola and Namibia, is among the six basins chosen by Green Cross International for the *Water for peace* programme. The aims of the programme, which include the prevention of conflicts and the promotion of cooperation over water resources, are ideals deeply cherished in Botswana. I am delighted to have the opportunity to contribute to the ongoing debate on the equitable and sustainable use of the water resources of the Okavango, which is an essential policy aspect of environmental protection.

For many of us, the Okavango River basin means water. The importance of this water can be explained in a few simple, but terrifying statements:

- The population of the Southern African region is currently estimated at 190 million, and is expected to double by 2025.
- More than 40% of the population in the region lack access to safe water for basic human needs.
- Avoidable water-related diseases are still prevalent in the region, resulting in high mortality rates and reduced productivity levels.
- Within the Southern African Development Community (SADC), more than 60 million people lack access to safe drinking water.

As a result of expanding population and economic pressures throughout the world, interest in water resources has correspondingly increased. This interest has stimulated an expansion of investigative facilities and programmes by governments, universities and other organisations such as Green Cross International. Rapid advances have been made in data collection, the modelling of hydrologic processes, and development planning and management of water resource systems.

Like in most developing countries, Botswana faces the challenge of resolving the problem of getting adequate affordable supplies of water on a sustainable basis. This challenge is fortunately also high on the agenda of the World Commission on Water for the 21st century.

The National Water Master Plan of Botswana provides a basis for water sector planning, development, management and legislation. It also provides the framework for regional cooperation. The plan has shown that, after 2020, all of Botswana's internal water resources will be fully committed. Under such circumstances, the country will have no option but to resort to international water resources to augment local supplies.

In this context, the Okavango River basin is regarded as an important life support system for all those residing in it. It is also a unique wetland environment that supports

a fragile ecosystem – the Okavango Delta. The delta continues to attract interest both within Botswana and, indeed, worldwide. As such, all possible efforts are focused on making wise use of the resources it provides. ‘Wise use’ means that the resources of the system are utilised in a sustainable manner to derive maximum benefit from it. It is for this universal goal that Angola, Botswana and Namibia cooperate in the management of the common resource under the Permanent Okavango River Basin Water Commission (OKACOM). Worldwide, 261 river basins are shared between two or more countries. The initiative of Green Cross International is therefore a valued and important aspect of the management of this shared, fragile resource.

People have been tampering with the environment for a very long time. The great transformation from primitive hunting and gathering to settled civilisation occurred when people began to convert swamps, forests and savannahs into farms to cultivate domesticated varieties of plants and animals. This has been the most radical change in the environment that mankind has made until this very day. Over the course of time, this transformation altered the ecology of entire continents. There is good reason to believe that ancient civilisations rose and fell as a result of this process. I believe that we have learned from the experience of past generations. We cannot avoid working together for our collective prosperity. This is an essential milestone in our relationship as human beings.

In this respect, it is gratifying to note that leaders throughout the world increasingly recognise that no country can exist in isolation, and that there can be no sustainable development of the economies of the world without international cooperation. The value of crossborder collaboration in trade, politics, diplomacy, arts and culture, as well as of environmental management is now established beyond doubt in regional economic integration as a basis for economic globalisation.

We live in a world where the information superhighway has created a global village with interesting implications for its residents. Life in a global village implies a shared future, peaceful coexistence, interdependence, mutually beneficial exploitation of resources, and increased production efficiency due to factor mobility and expanding markets.

Undoubtedly, some people will be aware that, in certain highly developed countries, economic growth has been achieved in recent decades in no small measure at the expense of the commonly shared environment. The profits have been phenomenal, but some of the resultant damage is irreversible. Extinction of some species is inevitable.

The debate on how to deal with the problem continues apace. Some argue that the solution lies in private ownership of the common resource, emphasising the likelihood that public ownership of natural resources would lead to overexploitation. They share the view that rising prices will retard the rate of exploitation of the resource and thus conserve it.

I believe that one aspect of this book is to unravel these economic and administrative complexities that are often a source of great conflict in the utilisation

of commonly shared resources. Some of us have observed, over a long period of time, why ordinary economic market arrangements, which are most often considered to be efficient guides for the use of private resources, do not necessarily lead to the efficient use of environmental resources. New instruments have to be devised to deal with this management problem.

OKACOM is looked upon to help in establishing standards, in stating the goals of the programme of action, and in providing a yardstick to evaluate performance in the management of this common and shared resource.

Green Cross International and its cooperating agencies are commended for their support of initiatives in the Okavango River basin. Greater challenges still lie ahead with regard to the implementation of the strategies that emerged from the workshop and which are captured in this book. I would therefore like to express the wish that the conclusions and recommendations would be sufficiently robust to prepare us well for the future.



*Sir Ketumile Masire
Former President of Botswana
Maun, Botswana*

SPECIAL MESSAGE

Namibia and cooperation on the Okavango River basin

Namibia has the most arid climate of all member states of the Southern African Development Community (SADC). In order to give effect to the principles of regional economic integration, development and cooperation as advocated in the SADC treaty, the country has to rely on extremely scarce and unreliable water resources to support socioeconomic development.

In view of this situation, the Namibian government identified the need to gain access to the water of the perennial rivers on the northern and southern borders of the country. This called for close collaboration with the other sovereign states that are riparian to these border rivers as the development of the water resources of common interest cannot be done unilaterally and in isolation. An approach that creates an environment for cooperation is crucial to ensure that the water resources of shared rivers would significantly contribute towards the peace, security, welfare, mutual benefit and prosperity of the people of the riparian states.

Namibia has been developing its Eastern National Water Carrier in phases as the managed water demand increased over time since the late 1960s eventually to link the ephemeral water sources in the interior of the country to the Okavango River. When this project is completed, it will increase the sustainable, assured safe yield of the existing ephemeral water resources and stabilise the security of the water supply. Namibia is also interested in harnessing the hydropower and sharing in the irrigation potential of the Okavango River.

The Namibian government ratified and therefore embraced the modern principles reflected in international and regional water law respectively embodied in both the Convention on the Law of the Non-Navigational Uses of International Watercourses adopted by the United Nations General Assembly and the Revised Protocol on Shared Watercourses in the SADC Region.

The Ministry of Agriculture, Water and Rural Development is presently engaged with the water institutions in the other Okavango basin states to execute a project, funded by the Global Environmental Facility, that will prepare a strategic action programme for investigating the potential of the Okavango watercourse system. This will entail a basin-wide environmental assessment that will lead to the development of an integrated management plan for the basin.

The Namibian government is firmly committed to joint cooperation between the riparian states on shared watercourses, the concept of integrated water resource management, sustainable resource utilisation and the preservation of the natural environment. In its desire to achieve these objectives, Namibia is party to the Permanent Okavango River Basin Water Commission (OKACOM) and wishes to extend and consolidate the existing good neighbourliness, friendly relations and close

Special message

cooperation between the parties to promote the coordinated and sustainable development of all the natural resources of the Okavango basin.

A handwritten signature in black ink, appearing to read 'H K Angula', with a stylized flourish at the end.

*H K Angula
Minister of Agriculture, Water and Rural Development
Namibia*