

The Shared River Initiative on the Incomati

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By

AR Turton

African Water Issues Research Unit (AWIRU)
Centre for International Political Studies (CIPS)
Pretoria University

And

Nevil Quinn

Senior Research Fellow
Centre for Environment & Development
University of Natal, Pietermaritzburg

Introduction

There are a number of dynamics currently at work in Southern Africa, some of which make it a rather unique place in a sense. These dynamic processes are impacting at various levels of our society, from the local through provincial to national and regional; and are having a variety of outcomes. This paper will track some of those dynamics, and in particular, those that are at work in the water sector, in an attempt to contextualize some of these processes in a way that is understandable to policy-makers.

Background

The Southern African region of a little more than a decade ago was a very different place when compared to what it is today. The whole region was wracked by conflict, ranging from full-blown civil war in Angola and Mozambique, to simmering unrest and what may be termed a low-intensity civil war in South Africa and Namibia. Very few countries were spared the impact of this political instability, even those that were inherently politically stable in their own right. South African commando raids into Botswana and Zimbabwe, along with military actions into Swaziland and Lesotho, projected the political instability into the entire region.

And then an amazing thing happened. It started first as a tentative challenge to the integrity of the Iron Curtain, with various refugees probing its erstwhile impenetrability. This tentative flow of human beings turned into a veritable flood, and before our eyes the Iron Curtain collapsed and the Cold War came to a spectacular end, sparking off a

plethora of transformations in eastern Europe, ranging from the velvet revolution under the leadership of Vaclav Havel, to the defiant but ultimately futile resistance of Nicolai Ceaucescu. In the wake of this massive political tidal wave, the Berlin Wall crumbled, Germany was united once again, and the mighty Soviet Union disintegrated into a plethora of smaller independent states.

With the demise of the Cold War peace broke out in Southern Africa and the unthinkable occurred. Cuban troops withdrew from Angola, making it possible for South African negotiators to strike a deal and implement Resolution 435 in Namibia. South African troops were withdrawn and sent home. The South African government, flushed with enthusiasm, gave Namibia the northern bank of the Orange River and wrote off all foreign debt owed to itself. Renamo spoke peace with Frelimo, and the civil war came to an end in Mozambique. The hard-line South African government underwent a fundamental internal transformation and the various liberation movements were unbanned, setting the scene for the historic process of CODESA (Esman, 1994:107) and ultimately democracy.

The rest, they say, is history. But oh, what a tumultuous decade it had been!

South African Water Sector

With this as a background, the South African water sector came under the spotlight. At the time of the first democratic elections, a dismal picture became evident. Due to the ravages of apartheid, there was no national water service delivery platform in place. The Water Act (54/1956), along with around 100 other pieces of water-related legislation, had appropriated almost all of the readily available water and allocated it to the so-called first-world component of South Africa. These pipelines of power (Turton, 2000) had become a distinguishing feature of the fledgling democracy. By 1994, 75% of the total South African Population lived on just 13% of the land (Abrams, 1996). The consequences of this are far-reaching. Not only were there an estimated 12-14 million people in South Africa without access to potable water, but an additional 20 million human beings lacked adequate sanitation services as well (Turton & Meissner, 2000). The impact of these factors are manifest today as serious deforestation, desiccation, widespread diffuse pollution and invasive species of exotic vegetation which together reduce aquifer recharge, increase siltation in our respective watercourses, and increase the risk of periodic flooding (Abrams, 1996) as occurred during the first quarter of 2000.

Two pieces of data are therefore relevant if one is to place this in perspective. The first is Prof. Peter Ashton's data set showing projected water demand in South Africa over time, which is shown as Figure 1. In the South African case, institutionalized resource capture had become a reality by the time that the democratic transition occurred in 1994. In fact, by that time, almost all of the readily available water that could be appropriated had been appropriated, and all that was left was the water that was difficult (and therefore costly) to mobilize. The democratic transition was really about equity and fairness however, so it was no surprise that water became one of the central issues in this process. Figure 1 makes reference to the equitable redistribution of hydrological privilege in South

African society as a form of counterbalance to the long-term effects of institutionalized resource capture. Equity is a contested issue however, and it is no different in this case. Because it would have been too politically damaging to reduce water allocations to the historically advantaged South Africans, a tacit decision was made to extend that same level of privilege to the historically disadvantaged community. In other words, rather than reduce the slice of the pie that the hydrologically privileged would enjoy and give that away, the redistributive process seems to have been developed on a rationale akin to making the pie larger insteadⁱ. This means that the historically privileged will not have to face the consequences of reduced water availability, at least in the short-term. It is an erroneous assumption of course, as water resources are unfortunately finite, and as the data set shows, rapidly approaching the point of full mobilization.

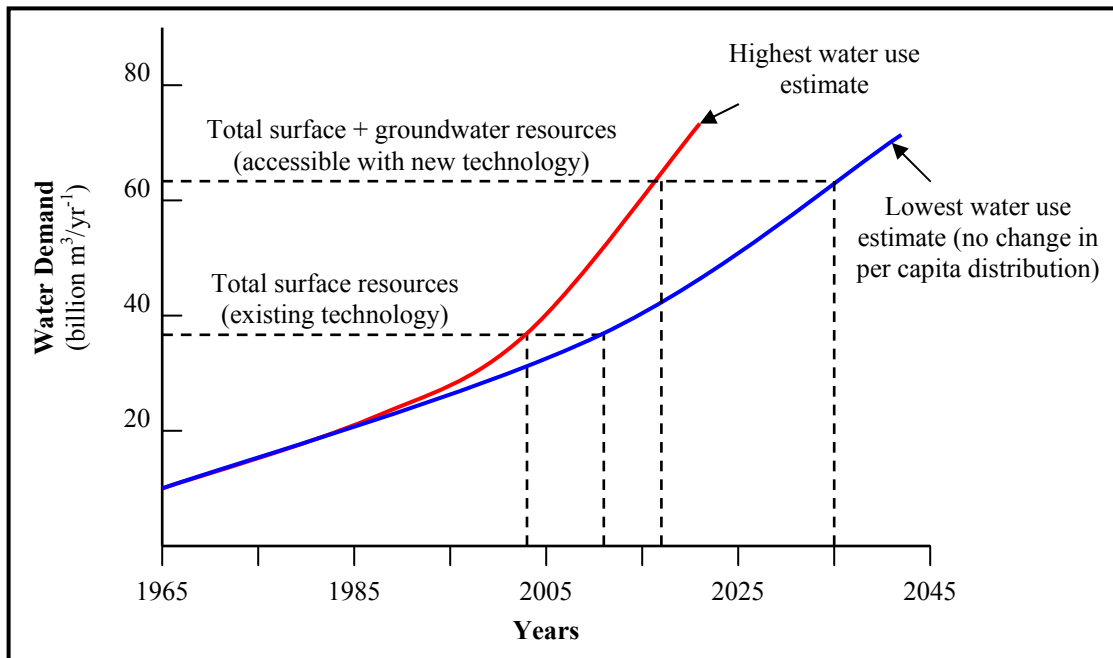


Figure 1. The water supply dilemma in South Africa (after Ashton, 2000).

This is not unique to South Africa however. In this regard Allan (2000) notes that,

"Politicians faced with the challenge of reallocating limited water resources always construct the idea that there is more water than there actually is. This is because it is easier to get people to believe that there is more water than to get them to give up water. The case studies confirming this are numerous in the Middle East North Africa (MENA) region, and now it is manifest in South Africa too. It also has an international dimension when riparians are in contention. Although in the international case the upstream riparian may be tempted to conjure a lower volume for availability in that this means there will be a smaller share allocated downstream".

From this one can deduce that an almost universal element of hydropolitics is the construction of knowledge, particularly regarding numbers or volumes, almost always

leading to the fact that data becomes contested. It therefore becomes illuminating to see what impact this has had on water consumption patterns. Figure 1 shows the rather dramatic effects of this redistribution of hydropolitical privilege in South Africa.

The highest water use estimate is the result of the reversal of Apartheid-induced resource capture. By redistributing the balance of hydropolitical privilege in South African society in a more equitable way, a dramatic increase in water demand is occurring. As such, should the high water use trajectory be maintained, then all surface water resources will be appropriated by around 2003, with the total known surface and groundwater resources being fully harnessed by around 2017ⁱⁱ. The democratically elected government is thus sitting on the proverbial horns of a dilemma. If government meets public aspirations in the short-term, the risk of environmental collapse is thus a very real one, despite the legal protection of aquatic ecosystems by means of the "Reserve". This is relevant in light of the fact that the highest priority for almost all rural citizens, constituting half of the total population, is water supply and sanitation (Abrams, 1996). If government choose instead to avoid the consequences of environmental collapse, they stand the risk of alienating voter support in the medium-term.

Planning for DWAF that was concluded in 1996/7 supports this rather alarming data set. Figure 2 is a reproduction of one of the possible DWAF scenarios for future South African surface water use in 2030. This planning is currently under consideration with the development of a new National Water Resource Strategy (NWRS) as required by the National Water Act (36/98) (DWAF, 2000), so the official view may change, but it certainly presents a picture worthy of concern nonetheless.

Attention is drawn to the existence of major IBTs in this scenario, the vast majority of which focus on augmenting water supply to the Gauteng area, and from there on to the drier northern reaches of South Africa. The reader should also note that seven of the important hubs, ranging from Cape Town in the South through to Gauteng and Pietersburg in the North, are designated as having future water utilization being beyond locally available supply. This represents a classic example of water scarcity. In fact, the overall situation at the national level is clearly one of water deficit, with sustainability being a key issue. The pie chart corresponding with the Lesotho Highlands and Thukela River Basin is particularly revealing in that virtually all of that water will be transferred outside of those basins. This can be regarded as being a classic case of resource capture. This implies that a very real upper-limit exists in those basins when it comes to using their own water for future economic growth. **The Incomati and Maputo River Basins are also characterized by significant transfers in this scenario, focussing attention on interstate relations between South Africa, Swaziland and Mozambique in future.** The needs of downstream users in Mozambique and Swaziland have also been ignored in these calculations. This suggests the development of what has been defined as a hydropolitical security complexⁱⁱⁱ (Schulz, 1995:97) in Southern Africa, as water allocation in these basins start to reach their sustainable limit. **The legal requirement under the National Water Act (36/98), which prioritizes water designated in terms of international agreements with riparian states above that of domestic**

consumption, will be severely tested under these conditions. Institutions and regimes will have to be robust in order to withstand these rigors.

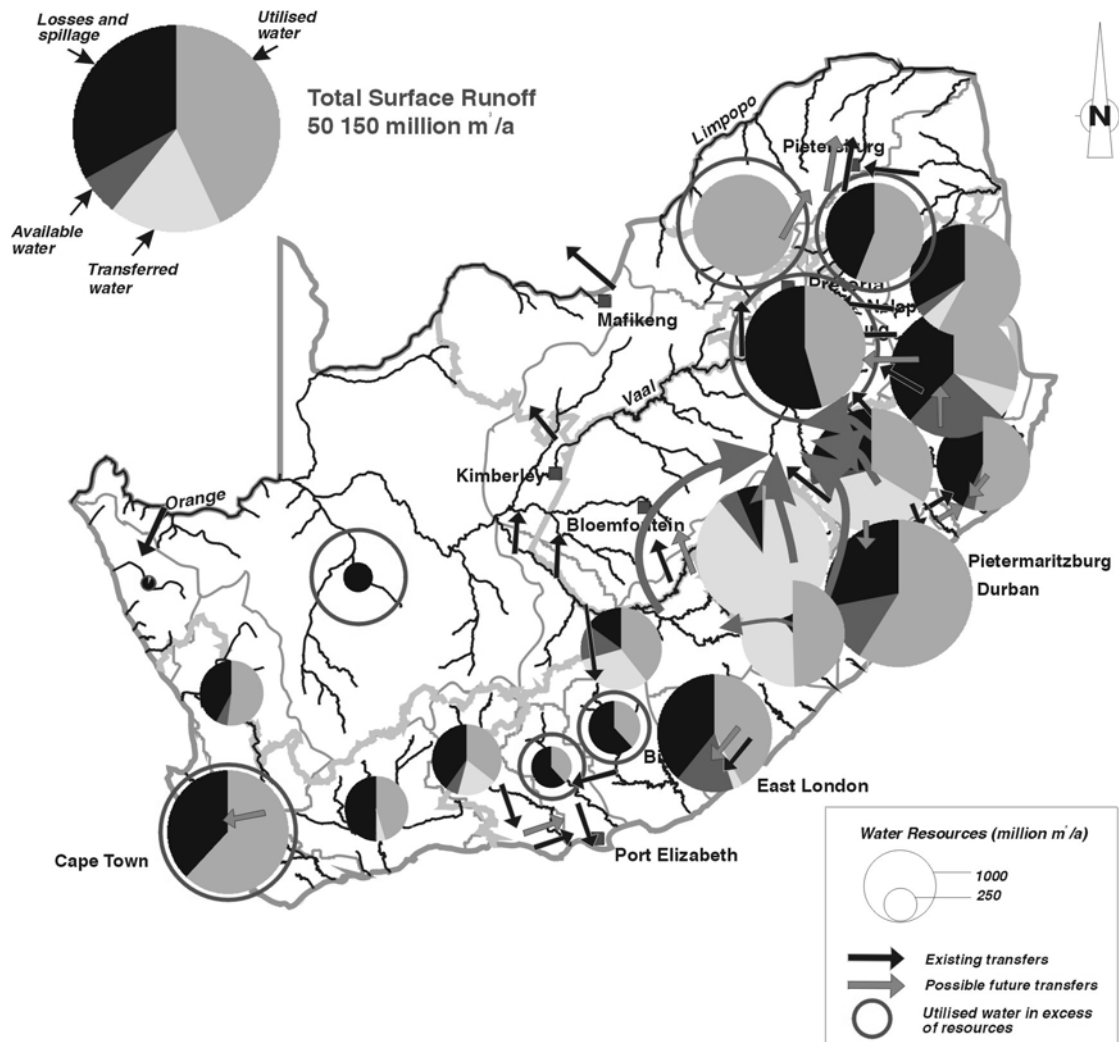


Figure 2. One scenario for the future utilization of surface water resources in South Africa by the year 2030 (Basson *et al.*, 1997:62). Note the general lack of available water countrywide and the number of hubs where utilized water is in excess of resource availability. Available water in the Incomati Basin is limited and does not take future Mozambican needs into consideration.

Shared Rivers Initiative

It is against the hydropolitical background sketched above that the relevance of the Shared Rivers Initiative on the Incomati River can be evaluated. During the tumultuous political transitions of the 90s, two seemingly unrelated events occurred.

Firstly, in August 1995, SADC Member States signed the **Protocol on Shared Watercourse Systems**, a legally binding document aimed at addressing the equitable

sharing of water and ensuring the efficient conservation of water resources in future (Quinn, 2000). This has become the fundamental enabling instrument for all future water-related cooperation in Southern Africa.

Article 1, comprising the General Principles includes:

- Undertaking to respect and apply the existing rules of general or customary international law with respect to the utilisation and management of shared watercourse systems.
- Maintaining a proper balance between resource development for a higher standard of living for their peoples and conservation and enhancement of the environment to promote sustainable development.
- **Undertaking to pursue and establish close cooperation with regard to the study and execution of all projects likely to have an effect on shared watercourses.**
- **Commitment to the exchange of available information and data regarding the hydrological, hydrogeological, water quality, meteorological and ecological condition of shared systems.**
- Utilisation of shared watercourses in an equitable manner, with a view to obtaining optimum utilisation, taking into account;
 - geographical, hydrographical, hydrological, climatic and other natural factors.
 - social and economic needs of member States.
 - effects of use in one State on another watercourse State.
 - existing and potential uses of the shared watercourse system.
 - guidelines and agreed standards to be adopted.
- All uses other than domestic, including waste discharge to be permitted by the respective State concerned, and will only be granted in the absence of detrimental effects.
- Notification of other potentially affected States in the event of an emergency.
- Prevention of the introduction of alien aquatic species.
- Maintenance of watercourses, installations and facilities to prevent pollution or degradation.
- **Shared watercourse systems only to be used for peaceful purposes.**

Article 2 provides for the establishment of **river basin management institutions**, including a monitoring unit based at the SADC Environment and Land Management Sector (ELMS), **River Basin Commissions** between basin States, as well as river authorities or boards in respect of each drainage basin.

Article 3 specifies the objectives of river basin management institutions that include; monitoring, **promotion of equitable utilisation and the formulation of strategies for the development of shared watercourse systems**. Functions of river basin management include; the harmonisation of national water resources policies and legislation, compliance monitoring, research, information and data handling. Specific functions in respect of water control and utilisation include regulation of flow and drainage, implementation of flood and drought mitigation measures, prevention of soil erosion and sedimentation and the monitoring of the establishment and generation of hydropower.

Article 4 also specifies measures aimed at environmental protection, including:

- Promoting measures for the protection of the environment and all forms of environmental degradation arising from utilisation of the resources of shared watercourse systems.
- Establishing a list of substances, which must be prevented from entering watercourses.
- **Promoting environmental impact assessments of development projects within shared watercourse systems.**
- Monitoring effects of navigational activities on water quality and the environment.

A final aspect of Article 4 focuses on the promotion of a hydrometeorological monitoring programme in consultation with all other SADC sectors.

Secondly, the **Kruger National Park Rivers Research Programme (KNPRRP)** started to yield high quality scientific data and the fruits of cooperative multidisciplinary research became abundantly clear. This had a direct impact on decision-making processes, which in turn started to impact on issues related to ecological and political sustainability. The KNPRRP had shown that multidisciplinary research work was possible (and in fact extremely valuable for decision-making purposes), and that the river basin was the natural unit of study (in keeping with emerging international opinion on the subject). The problem was that the Kruger Park lies in the middle of a basin, being neither at the headwaters nor at the estuary, but this could not be overcome because of the very real national border that prevented the work from being cascaded further downstream into Mozambique.

It was at this time that **the Swedish International Development Agency (SIDA) came into the picture**. SIDA seemed to be impressed with the quality of research that was coming from the KNPRRP, and in joint consultation with the main drivers of that programme, decided to fund a basin-wide project. This was entirely in keeping with the SADC Water Protocol, and it seemed that the political timing was impeccably correct too! **This turning-point decision saw the Shared Rivers Initiative on the Incomati River being born.** The basic idea was that scientists should work across disciplines and across political borders by focusing on shared problems. The following guiding philosophy was developed in one of the workshops:

- To use water as a mechanism for peace, equity and cooperation between the three riparian countries. In this regard a fundamental shift started to take place from a rights-based approach (based on the now outdated notion of absolute territorial sovereignty) towards a needs-based approach (based on the emerging co-governance model).
- The focus will be on international river basins guided by the SADC Protocol on Shared Watercourse Systems and other developments in the international water sector regarding entire catchments as being a unit of management and analysis.

- Participation, capacity building and training are recognized as being key issues. Specific to this is the feminization of water because it is seen as being the key to long-term sustainability.
- Equity is a key issue, with a number of relevant aspects such as inter-generational equity, inter-gender equity, institutional equity, interdisciplinary equity, inter-sectoral equity and international equity becoming manifest in the process of scientific exploration.
- Central to the overall process is the need to redefine the role of existing institutions within the context of a rapidly changing socioeconomic environment, impacted on in turn by both sub-national and international water sector dynamics.
- Existing trade patterns reinforce existing structures, and have been their original *raison d'être*. For this reason an understanding needs to be obtained of these dynamics before inequity can be effectively addressed^{iv}.

The Shared Rivers Initiative (SRI) was structurally broken down into the following functional Task Teams:

- Core Team - responsible for the overall management of the project.
- River Health Task Team - responsible for gathering data from all reaches of the river and collating their findings on the overall health of the system in the form of a baseline study.
- Socio-Economic Task Team - responsible for a baseline study of the population dynamics and in particular, how individuals value water in different reaches of the river. Swaziland headed this Task Team.
- Decision Support Task Team - responsible for database development in order that the ten major dams and more than 300 smaller dams can be integrated into an overall management model capable of functioning across international borders within the new institutions that may emerge.
- Institutional Support Task Team - responsible for developing an understanding of the frameworks and protocols that can be used for cooperation in and between the three riparian countries in order to guide future institutional development processes. Mozambique headed this Task Team.

Achievements to Date

The Shared Rivers Initiative on the Incomati has been functioning for just over a year (although planning has existed for much longer), so the developments have been rapid. In order to make a meaningful analysis of the achievements to date, two conceptual differences need to be established in the mind of the reader. Firstly, we need to distinguish process as an end in itself. Secondly, we need to distinguish product as an output of a series of processes.

Regarding process, the following is relevant:

- The fact that scientists were chosen is significant, because they were relatively free from political baggage that could have hampered the project. In other words,

government functionaries were not directly involved as Task Team members, but a close liaison was maintained between the respective bureaucracies and the project.

- The fact that a multidisciplinary approach was chosen is significant, because for the first time scientists from disciplines other than the mainstream of the natural sciences could become involved. This broadened the context of the research and enriched the overall findings.
- The fact that all three riparian countries had an equal footing meant that the playing field was truly leveled. Each participating country led at least one Task Team, and at all times the Task Team composition was balanced with equal numbers of scientists from the respective riparian countries.
- The fact that a third party was driving the process meant that political suspicions were effectively neutralized. This is one of the major causes of success in keeping with hydropolitical experiences elsewhere in the world.
- **The overall process of harmoniously working together as equals and building bridges simultaneously is probably the greatest achievement to date.**

Regarding product, the following is relevant:

- Scientists from all three riparian countries could get a closer view of what conditions are within various reaches of the Incomati River. This has served to sensitize upstream users about downstream impacts and vice versa. This is significant in its own right.
- A series of baseline studies have been performed, some of which are relatively unique. This will guide future programs.
- **A coherent research agenda has been established for the future.** This agenda is not driven by any one country, and may even be different from a given national research agenda. The fact that the new research agenda is basin-wide in orientation gives it a legitimacy and credibility over national-level research frameworks and enables the latter to be streamlined. This is a significant achievement in the relatively short time frame used.
- A standard has been set between participating institutions with respect to quality of report writing. This is a major achievement in terms of capacity building.
- **A network of scientists has been established, with many of them meeting for the first time in this specific project.** This network of professional contact allows the exchange of personnel and a transfer of skills to occur in a sustainable way. An example is the invitation by Eduardo Mondlane University to Prof. Peter Ashton of the CSIR/UP Alliance to spend some time training local Mozambicans in water sampling techniques.
- Research reports have been written in various languages, and in some cases, reports have been generated in Portuguese for the first time^v. This in turn has established the nucleus for future literature that is highly specific to the Incomati River Basin, and therefore relevant to decision-making on the ground.

Where to From Here

The successes of the Shared Rivers Initiative on the Incomati have taught us a number of lessons. Not least of these is the value of cooperation across disciplines, language divides

and ecologically artificial but politically real national borders. From here on, the research within the Incomati River Basin can be more focussed, with the emphasis on generating legitimate data that is transparent and therefore politically acceptable. If the process is given the necessary support from decision-makers, third-party donor agencies and national governments, then the project will go from strength to strength. **This can truly become an indicator of the value of beating swords into ploughshares, and as such is an excellent example of the African Renaissance at work.** Given the fact that around 70% of SADC lies in shared river basins, the lessons that are being learned from the Shared Rivers Initiative on the Incomati can be applied to other more complex basins in the region, with a greater chance of success. In this case, African solutions are being developed for African problems, thereby greatly enhancing their chances of long-term success.

Acknowledgements

The authors wish to acknowledge SIDA for their valuable support in bringing this project together. They would also like to formally acknowledge GLOBE for their leading role in disseminating ideas and information to decision-makers. Finally, the nameless and faceless participants in the various Task Teams of the Shared Rivers Initiative on the Incomati are recognized in this report. It is as a result of their integrity and professionalism that the success has been possible. The authors alone take responsibility for this paper however and opinions expressed herein are theirs alone.

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ⁱ The decision to allow existing lawful use to continue *pro tem* was a tacit acknowledgement that DWAF simply did not have the capacity to address all existing uses at once. In the longer-term, there will be a need to reduce existing allocations, on a priority basis, under the loose banner of water stress. There are sufficient mechanisms in the National Water Act to do this. In the long-term, the intention is to make the pie bigger by means of WDM, so these measures should be seen as being short-term strategies only (Rowlston, 2000).

ⁱⁱ As with most hydropolitical issues, these data are contested. The heavy rains that fell over the entire Southern African region during the first quarter of 2000 have probably also served to stave off the inevitable for a bit longer, because they filled most large storage dams and recharged groundwater aquifers significantly. The dates should not be seen as absolutes, but can best be regarded as being one possible scenario.

ⁱⁱⁱ A hydropolitical security complex is defined as including those states that are geographically part 'owners' and technically 'users' of shared rivers, and as a consequence, they all consider the rivers as a major national security issue (Schulz, 1995:97). This happens under conditions of water deficit at the level of the international river basin. This condition of water deficit already exists in the Incomati, Limpopo and Maputo River Basins, and is rapidly approaching in the Orange River Basin.

^{iv} In this regard, attention is drawn to the recently completed IUCN-funded study on Virtual Water in Southern Africa (Turton *et al.*, 2000) as an example of additional research.

^v Refer to the relevant document on the African Water Issues Research Unit's Website <http://www.up.ac.za/academic/libarts/polsci/awiru>

Appendix "A"
List of Participating Institutions

Mozambique

Direcção Nacional de Águas - Eng. Rui Gonzalez, Jose Matola.
Universidade Eduardo Mondlane - UNESCO Chair on Man and the Environment in Southern Africa Dra. Joanne Leestemaker, Francisco Taucale, Rosaque Guale, Custodio Boane, UNESCO Chair on Marine Resources Dr. Antonio Hoguane.
IUCN - Dr. Ebenizario Chonguica.

Swaziland

Government Department of Natural Resources - Mr. Sidney Dhlamini, Mr. Dumsani Mndzebele.
University of Swaziland - Prof. Jonathan Matondo, Dr. Absalom Manyatsi, Dr. Grace Peter, Dr. Patience Fakudze, Prof. Hezekiel Mushala.

South Africa

University of Natal Pietermaritzburg - Prof. Charles Breen, Dr. Nevil Quinn.
Farmers Support Group - Monique Salomon.
Water Research Commission - Dr. Steve Mitchell.
Pretoria University - Anthony Turton, Richard Meissner.
J.L.B. Smith Institute of Ichthyology - Dr. Angus Paterson.
CSIR - Dr. Dirk Roux.

Sweden

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