

Conflict Prevention and Peace Dividends through Cooperation on Transboundary Water Management in SADC



Achieving Peace Dividends through the Prevention of Water Conflicts



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Prof. Jon Martin Trondalen
Geneva, August 2011



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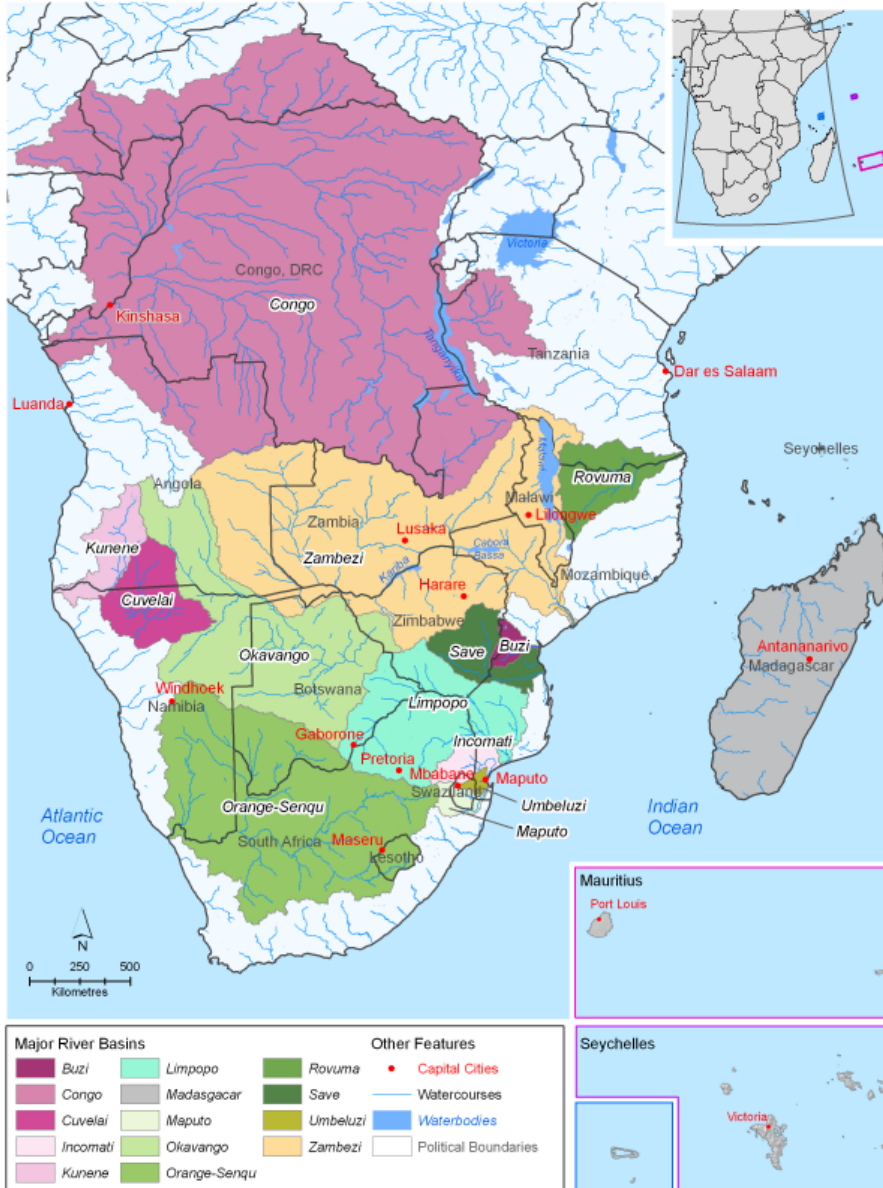
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SADC Political Boundaries and Major River Basins



Target audience of this report

This report was commissioned by the SADC Secretariat through GIZ, which is implementing a transboundary water-management programme with SADC on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), and in delegated cooperation with the UK Department for International Development (DFID) and the Australian Agency for International Development (AusAID).

The purpose of the report is to discuss and highlight the benefits of investing in cooperative international water management in SADC as opposed to the inevitable costs and security risks attached to a lack of cooperation, and to present the information in an informative way for policy-makers.

With this in mind, as far as possible, the report is free of jargon and sparing in its use of technical vocabulary.

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All the people mentioned above are part of any success achieved by this report, but are not responsible for any failure, unintended misrepresentation or errors in it.

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Geneva, August 2011



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Summary

The recommendation of the 2010 Mid-Term *Review¹ of the GIZ-implemented Transboundary Water Management Programme in SADC* stated: ‘... there is another positive benefit of the programme, which so far has not been fully recognised, namely that **cooperation on international water resources is important in order to prevent conflicts in the SADC region**’. This report is therefore intended to outline briefly the reasoning behind:

- *why cooperation on transboundary water resources needs to be viewed as a conflict-prevention initiative; and*
- *why the programme potentially yields high peace dividends as opposed to the high costs and security risks attached to a lack of cooperation.*

Consequently, the report is divided into the following six chapters: (1) Peace dividends and conflict prevention: a key benefit of regional water cooperation; (2) Main drivers behind international water disputes; (3) Relationships between intra- and international water disputes; (4) Important aspects of the peace dividends of this programme; (5) The role of SADC in the prevention of international water disputes; and (6) Recommendations to SADC and its International Cooperating Partners (ICPs). As the SADC-GIZ programme is already engaged in several aspects of the recommendations, they are merely an affirmation of a path already chosen.

The report builds on findings from the academic community in the SADC region, particularly regarding the *conflict-security-development-water nexus*, and uses these as a basis for discussing the *benefits of transboundary water cooperation* both in terms of *conflict prevention* and in terms of outlining the ‘costs of doing nothing’ as opposed to ‘the benefits of water cooperation’. The essence of the findings is expressed through the following four key messages and recommendations:

1st key message: The intention of this report is to lay the foundation for converging views on conflict and instability versus regional stability and opportunities. The challenge is to foster sustainable transboundary water cooperation.

2nd key message: International cooperation is not only ‘good’ for the sound stewardship of transboundary water resources, but also an important conflict-prevention tool.

3rd key message: The SADC-GIZ multi-level water cooperation is not only significant at international level, but is also extremely important in terms of preventing spill-over effects locally across borders.

4th key message: The effectiveness quotient and benefits associated with investment in the SADC-GIZ Transboundary Water Management Programme are presumed to be extraordinarily high, the programme costs’ being minimal compared to the potentially high costs of ‘hostilities’ as a result of no cooperation at all.

Recommendation: The negotiation and conflict-resolution capacity related to shared water resources in the SADC region should be permanently nursed and enhanced through a systematic approach, and specifically through an **action plan** aimed at *enhancing the negotiation and conflict-prevention ability* of SADC and its member states in order to maintain the peaceful and joint management of shared water resources.

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List of acronyms and abbreviations

AfDB	African Development Bank
AusAID	Australian Agency for International Development
BMU	German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BMZ	German Federal Ministry for Economic Cooperation and Development
CPPD	Conflict Prevention and Peace Dividends
DANIDA	Danish International Development Agency
DFID	UK Department for International Development
EC	European Commission
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNP	Gross National Product
ICP	International Cooperating Partner
IWRM	Integrated Water Resources Management
KfW	German Development Bank
OD	Organisational Development
ORASECOM	Orange-Senqu River Commission
OKACOM	Okavango River Basin Commission
PMU	Programme Management Unit
RBO	River Basin Organisation
RISDP	Regional Indicative Strategic Development Plan
RSAP	Regional Strategic Action Plan
SADC	Southern African Development Community
SD	Systems/Institutional Development
SIDA	Swedish International Development Cooperation Agency
TA	Technical Assistance
TWR	Transboundary Water Resources
TOR	Terms of Reference
WSRG	Water Strategy Reference Group
WD	Water Division of SADC

Raison d'être

Cooperation on *transboundary water management* is a priority and focal area of the German², British and Australian development partnership with the SADC Secretariat in Gaborone, Botswana.³

The German Ministry for Economic Cooperation and Development (BMZ) has explicitly established the links between *water and security* (*The Water Security Nexus – Challenges and Opportunities for Development Cooperation*⁴).

Similarly, DFID has explicitly stated that a goal of SADC-GIZ Transboundary Water Management Programme is to '...reduce the number of conflicts in the region...'⁵

This report highlights the *conflict, security and development nexus* within a *transboundary water context* in the SADC region (cf. World Bank's newly released *World Development Report 2011*⁶). The purpose is therefore to draw together existing worldwide and regional knowledge-based information and understanding on **additional conflict-prevention and peace-dividend benefits that are the result of investment in collaborative international water management in SADC**.

In the context of SADC, it is quite surprising that this *nexus* has only been raised by a few water-management scholars⁷. Most of the academic think-tanks⁸ have – even from a long-term perspective - not fully taken into account the *peace, conflict, security and development nexus* in the *transboundary water context*, preferring to highlight the conflict potential of climate change.⁹

This situation is quite similar to what happened in the Middle East 20-25 years ago, where the main academic and policy discourses were focused on the major and acute political–conflict fault lines.¹⁰ At the beginning of the nineties, however, water professionals and security analysts were able to penetrate the communicative layer

between them and the political establishment.¹¹

In the Middle East today, water scarcity is indeed accepted as being intertwined with security and conflict - even among the public.¹²

A relevant question is therefore to what extent it is possible to argue that it is only a question of time before the countries in the SADC region will face *transboundary water-conflict-security challenges* similar to those in today's Caucasus, Central Asia, South-East Asia, and the Middle East.

This paper argues that in the SADC region, there are *drivers* and *trends* so similar to the above-mentioned regions, that they must not be underestimated, let alone discarded. There is empirical evidence to argue in favour of the *desire for hydro-political security in southern Africa becoming a significant 'driver' of future regional integration*.¹³ The question, therefore, is: if not, then what?

The *Mid-Term Review 2010*¹⁴ of the SADC-GIZ programme both outlined the direction for the next phase and specified recommendations. One of these recommendations dealt with the need to view this programme beyond the scope of 'international water management': for obvious reasons, the programme has achieved, and is currently achieving, important milestones in terms of project implementation that aim to foster cooperation on shared water resources and enhanced, integrated water-resources management. Of more relevance to the matter at hand, however, was the *Mid-Term Review's* accentuation of a **value-added aspect** of the programme, not yet been explicitly highlighted either by SADC or its ICPs¹⁵: the importance of the programme from a **conflict-prevention perspective**, that is to say yielding high **peace dividends**¹⁶.

More specifically, the recommendations of the *Review*¹⁷ stated the following (cf. textbox on page 10): 'In simplistic terms, ... there is another positive implication of the

programme, which so far has not been fully accounted for, namely that **cooperation on international water resources is important in order to prevent conflict s in the SADC region.**

This report aims to outline briefly the reasoning behind:

- *why cooperation on transboundary water resources* must also be viewed as a conflict prevention initiative; and

- *why, potentially, the programme yields high peace dividends.*

Consequently, the report is divided into the following six chapters:

1. Peace dividends and conflict prevention: a key benefit of regional water cooperation;
2. Main drivers behind international water disputes;
3. Relationships between intra- and international water disputes;
4. Important aspects of the peace dividends of this programme;
5. The role of SADC in the prevention of international water disputes; and
6. Recommendations to SADC and its International Cooperating Partners (ICPs).

It is worth noting that the findings of this report are only based on the author's personal experience, the analysis of academic studies, and several consultations in the SADC region^{18&19}. Hence, the report does not aim to be presented as a scientific paper.²⁰

Why is it relevant to discuss the nexus between transboundary waters, conflict, security and development in the context of SADC?

Some experts do answer this question in the form of arguments that state that all the rhetoric around instability, conflict, and lost opportunities sound more like propaganda than science-based reasoning, and that focus should be on **opportunities rather than constraints**. Instead, it is

argued, one should '... highlight the practical benefits of cooperation through some regional examples...'²¹

This report supports such an 'opportunistic approach'; in fact, it emphasises that there are many opportunities, particularly taking into account the huge amounts of available

water in Angola, DR Congo, Zambia and Mozambique.²² This reasoning underpins the argument that the *peace dividends* are huge – if, as outlined by Dr Muller and listed below, the implementable opportunities of regional cooperation are turned into reality:²³

- ' Lesotho: sale of (gravity) water and lease of land (not only water as it is today), which could amount to 15% of government budget;
- Swaziland: cooperation treaty; aid for agricultural prize;
- Mozambique: the Cahora Bassa project; funding electrification of the country and the region; and
- Zimbabwe & Zambia: ... still getting power from the Kariba hydro-power scheme.'

In the debate on which development paths the region will

Effectiveness seen from a *peace-dividends* perspective:

If a 'peace-dividends analysis' is performed - that is to say by measuring the 'cost of doing nothing' (with possible hostilities) against the 'cost of the programme' – then, surely, the *effectiveness quotient* would have to be assessed as extraordinarily high. Also, seen from such a perspective, the programme costs are minimal compared to the potentially high costs of 'hostilities'.

take ... regarding 'water cooperation *versus* conflict', some scholars argue that the academic communities should not explicitly discuss *transboundary waters as a source of conflict in the region* because that could turn into a self-fulfilling prophecy!²⁴

This was exactly the argument in the Middle East (ME) 20 years ago. As some protested: '*... we already have sufficiently high "conflict tension" in the region, so please do not insert an additional element into an already complex and polarised conflict situation...!*' The situation in the ME became even more polarised, however, because of the lack of use of international preventive tools such as comprehensive transboundary water cooperation.²⁵

Today, the SADC region is in a unique situation because transboundary water cooperation as practised in the region has *de facto* removed some of the root causes of '*... conflicts over water ...*'. The author argues that there are strong reasons to conclude that '*... competing water-*

resources interests are an opportunity for cooperation ...'.²⁶ The academic community should therefore accentuate the need for 'deep' cooperation as counterproductive drivers exist that could potentially create major conflicts of interests both intra- and internationally.

At the same time, it is important to underline that an understanding of *conflict, stability* and *peace* must be understood in relation to political power structures and institutions: how they develop; how they adapt to meet new challenges; and how they impact decision-making at different levels of society.²⁷

Some scholars argue that importantly, these political-level interactions also take place

within a legal framework – either internationally in a multilateral or a bilateral context, or at national or sub-national level.²⁸

In other words, national and local institution-building is crucial, as is the strength and role of SADC.

1st key message:

The intention of this report is to lay the foundation for converging views on conflict and instability versus regional stability and opportunities. The challenge is to foster sustainable transboundary water cooperation.

High-level discussions at a SADC multi-stakeholder dialogue conference in Swaziland, June 2011



1. Peace dividends and conflict prevention: a key benefit of regional water cooperation

The academic community seems to have a common understanding that cooperation on transboundary water resources is necessary and crucial for the sustainable management of water resources.²⁹ This understanding is also firmly embedded in all recent water and environmental treaties and conventions.

What is not acknowledged publicly to the same extent, however, is that *cooperation on scarce natural resources*, whether they are hydrocarbons or water resources, prevents conflicts and increases geo-political stability.³⁰ In

other words, they are keys to accruing the benefits derived from regional cooperation.

A crucial question therefore is this: to what extent is the SADC-GIZ programme not only a professional transboundary water-management programme, but also a successful international 'tool' for the prevention of conflicts between and among the SADC member countries.

Brief background of the SADC region

Although southern Africa abounds in opportunities for transformation and growth, historically, the SADC countries and their people have been subject to many dramatic events such as droughts and floods, food shortages,

macroeconomic crises, HIV/AIDS, malaria and other diseases, as well as hostilities and conflicts. These 'events' by themselves have caused vast amounts of human suffering and lowered the standard of living of the majority of people in this region.

Primarily, political conflict and hostilities have had several adverse effects at household, national, and at international level. As economic activity falters or grinds to a halt, the countries suffer from inflation, debt and reduced investment, while their people suffer from unemployment, a lack of public services, and even trauma. Mismanagement of environmental and water resources is eventually the end result.

The SADC member countries have taken bold steps to reduce their vulnerability and build resilience against these 'events'. One such step is the still-incipient, yet unique cooperation on transboundary water management involving 15 nations - the *SADC-GIZ Transboundary Water Management Programme (TWMP)*, based on SADC's regional priorities as set out in the *Regional Strategic Action Plan (RSAP)*, and on the implementation of the *SADC Protocol on Shared Water Courses*.

One may argue that there are two mutually opposed development 'paths' that the SADC countries could choose. In simplistic terms, one is **international cooperation** and the other is **no cooperation, hostility**, or even war. The task at hand is to outline generally accepted findings of the impact of both 'paths' in relation to *actual and potential 'benefits' of international cooperation in the context of transboundary water management, and to compare them to the costs and negative consequences of non-cooperation and hostilities* (and even wars). Such an 'equation' may look obvious, but past experience, as well as experience gained by other international basins in

contentious regions such as the Middle East, has shown that the *cessation of hostilities without concomitant cooperation* has increased the tension over water utilisation in some instances.³¹

These arguments lead towards a basic assumption that *conflict prevention* and *peace dividends* can only be achieved under certain conditions, and identifying some of the conditions that are necessary to achieve *conflict prevention* and *peace dividends* for the member countries in the SADC region is therefore important. The interplay of

other types of cooperative instruments within sectors such as trade, security, energy or transportation with transboundary water cooperation is also of relevance, however.

Water cooperation as conflict prevention

It can hardly be argued that disputes in the SADC region over national and transboundary water resources have triggered hostilities and wars, but this may happen in the future if cooperation on transboundary resources is not nurtured and possibly further enhanced.³² At present, international observers appear to have a common understanding that *water scarcity* has not yet reached levels that are likely to cause international conflicts. There are, however, intra-national water disputes that might *fuel such conflict*.³³

A looming threat concerns the accelerated increase in water demand and the growing deterioration in water quality in some parts of the SADC region and certain transboundary river basins. The contribution and role of transboundary waters in meeting growing water demands is bound to increase further in future to a significant extent. This is going to lead to increased competition over these potentially contentious resources.

2nd key message: International cooperation is not only 'good' for the sound stewardship of transboundary water resources, but also an important conflict-prevention tool.



Cooperation with respect to the vast water resources in the region is not only a necessity for sound shared management, but also an important measure for preventing conflict.

A critical question is this: to what extent could local water scarcity, in combination with marginalised societies, the migration of fragile communities, and weak governance have 'spill-over effects' internationally?

As the trends of *water scarcity* evolve, the risks and uncertainties related to changes to national and transboundary water resources are increasing the demand for governments to develop adaptive policies and strategies.³⁴ Furthermore, the SADC member states would need to prevent and/or resolve local and regional disputes

related to the right and access to water resources, as well as the use, control and allocation thereof.³⁵

In addition, the anticipated adverse effects of global climate change could raise the potential for conflict in the management of *national* and *transboundary waters significantly*.³⁶

The future *cooperation potential* is not only crucial from a *conflict-prevention* point of view, but is also most critical with regard to the sound water management of all relevant transboundary resources in

the region: national, institutional, legislative, technical, negotiating, monitoring, communicating, coordinating and administrating capacities for the effective joint management of transboundary water resources are crucial for ensuring the peaceful, equitable and effective use of the vital transboundary water resources in the region.

Another interlinked perspective is that of outlining so-called **peace dividends**, defined as the release

of funds for investment in social and economic sectors as a result of the cessation of hostilities and wars and resultant military retraction. Such an outline involves comparing a hostility/war situation with cooperation and stability. In this context, this means highlighting the benefits of cooperation versus hostilities.

Conflict Prevention and Peace Dividends (CPPD)

CPPD shows that *investment in transboundary water cooperation in SADC is not only beneficial from a sound water-management perspective, but that it also makes sense from a conflict-prevention and an economic point of view – particularly in terms of military retrenchment and avoiding the loss of social and economic development owing to war and hostilities.*

Key focus

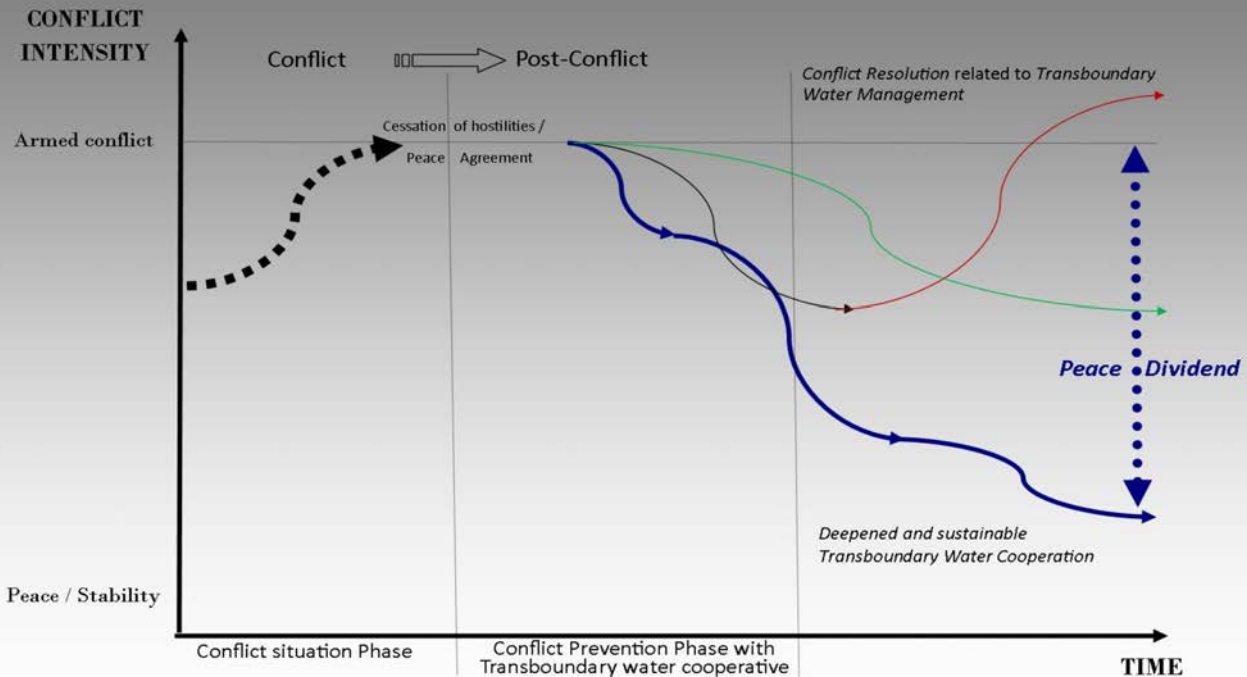
The main task at hand is to outline some of the actual and potential ‘benefits’ of international cooperation from a conflict-prevention and a conflict-resolution perspective.

Furthermore, CPPD expresses a frequent perception that *resource savings owing to the absence of hostilities and subsequent military retrenchment have the potential to be invested in social, economic and sound water management, for example.* This is particularly valid in relation to projected developments, as the region may face disagreements and disputes unless there is continued successful cooperation on transboundary waters.

These aspects are illustrated in the figure on the next page. The key message of this figure is that possible **peace dividends are achieved by means of transboundary water cooperation in SADC through the blue trajectory.** It almost goes without saying that this is necessary, but not sufficient to achieve *peace dividends* (illustrated through the vertical blue line). There are sets of factors that have to be strengthened and supported by the countries themselves and possibly by the international community.³⁷

This report focuses on the main drivers behind international water disputes that are relevant for SADC.

Peace Dividend is achieved by Transboundary Water Cooperation in SADC through the Blue Trajectory



2. Main drivers behind international water disputes

Unstable and conflict-prone regions are the result of complex sets of specific geo-political situations and geographical conditions. One of the most up-to-date publications relevant in this context is the *World Bank Development Report 2011: Conflict, Security and Development*.³⁸ At a general level, it argues that *fragile states are disproportionately susceptible to globally driven*

resource shocks. Unlike other low-income countries, fragile states depend heavily on food imports and are vulnerable to globally driven increases in commodity prices and scarcities of essential resources.

It argues further that the pressures are mounting as economic growth in low-income countries adopts middle-income countries' consumption patterns, and as the latter group adopts OECD food patterns as well as increased energy and water use. The predicted impacts of *climate change* – and the search for adaptive measures – are likely to amplify these pressures. Substantial research³⁹

has analysed the links between water availability, fragility, and the potential for riparian conflicts in Africa.

Of special relevance is, of course, the SADC region, and several experts argue that the localised water fragility and conflicts are not shown at an aggregated level since the present unstable and/or fragile situations are playing themselves out at intra-national level.⁴⁰

These instabilities are reinforced as fresh-water supplies decline owing to resource depletion and pollution, coupled with rapid urbanisation and industrialisation. The prevalence of drought, poverty, hunger, and diseases are leading to increased fragility.

As most of the major rivers are shared by two or more riparian states, a summary of the drivers of potential water disputes is relevant.

There is general consensus among experts that there are some overall (global trends) and specific *drivers* of intra- and international water disputes, which again fuel instability and fragility.⁴¹ The combination of weak and unstable political leadership and poor water governance, coupled with the following physical and quantifiable drivers, are important process ingredients:⁴²

1. Human population growth and thus steadily growing water demands are likely to increase further.⁴³

2. In addition, and despite the obvious inequalities caused by a variety of social, economic and political dispensations, the demand for water **increases as the standard of socio-economic living** grows.⁴⁴ Worldwide, countries face the challenge of providing sufficient quantities of quality water to meet their growing domestic, industrial and agricultural needs.

3. Deterioration of the water quality (pollution) owing to agricultural chemicals and polluting industries, particularly in the energy and mining sectors.

4. Increased consumption of groundwater resources and a concomitant decrease in groundwater recharge as a result of increased urbanisation.

5. Increased competition over water allocation for environmental protection (such as wetlands) versus water allocation for consumption (urban, industrial and agricultural sector).

6. Changes in water use as migration continues owing to several factors, including fragile states.

7. Changes in land use and therefore water usage owing to changes in the socio-economic environments and as a result of inequalities and instabilities.

8. Unstable and fragile agricultural and water-based societies⁴⁵, which are often exposed to sometimes extreme flood events, drought, a high variability of rainfall, and a low local and central institutional capacity to deal with such risks and uncertainties.⁴⁶

9. Over the recent 5-10 years, several international companies and 'investment funds' have more or less systematically begun to **lease, and in some instances have purchased, land in the SADC region primarily for agricultural production.**⁴⁷ In addition to several 'land-management challenges' regarding this type of international leasing, the question is to what extent this is 'tying the hands' of governments with regard to water management (since they are commercial leases that may obligate water allocations on behalf of the local and national authorities).

10. In addition to these *drivers*, the impacts of **climate change are potentially a very serious amplifier** of the above-mentioned *drivers*.⁴⁸

According to Peter Ashton, *several African countries have already reached or passed the point of severe water stress or water deficit, where the scarcity of water supplies hampers further development.*⁴⁹

The previously mentioned 2006 BMZ Report on *Water and Security* concurs with Ashton's conclusions, observing the following:

- 'a strong socio-economic dependency on the resource, where scarcity or floods threaten economies and livelihoods (for example, the agricultural sector);
- low adaptive capacities of institutions and individuals, including ineffective responses to conflicts and inadequate technical, human or financial resources;
- politicised water-management structures, reflecting asymmetrical power relations and inequalities;
- limitations in access to water are perceived as a threat to sovereignty or security;
- previous conflicts, dividing population groups or states along political, religious, cultural, ethnic or other lines, which may be 'reactivated' in the context of disagreements over water management; and
- lack of data and information and/or insufficient capacities for data generation and interpretation, leading to different assumptions of parties regarding the characteristics of a resource.'

These findings indicate that a 'business-as-usual' approach would be unhelpful at best and extremely counter-productive at worst. Such an approach would therefore be unlikely to work now or in the future, and could even accentuate polarisation between countries.⁵⁰

Yet, quite a few of these drivers are present in the SADC region. This conclusion is affirmed by Ashton's research:

Based on current population trends and patterns of change in water use, more African countries will exceed the limits of their economically usable, land-based water resources before 2025. These statistics emphasise the scale of the challenge each country faces in its attempt to achieve its national and regional water security goals.

Importantly, the national boundaries of African countries are seldom aligned with the natural boundaries of river catchments or aquifers. This is part of the legacy of earlier colonial administrations that drew up the national boundaries of African countries in an apparently arbitrary fashion⁵¹.

Consequently, the extent to which the larger river systems are now transboundary by more than one country has often led to rivalry between countries, as each strives to derive maximum benefits from the available water resources within its sovereign territory.⁵²

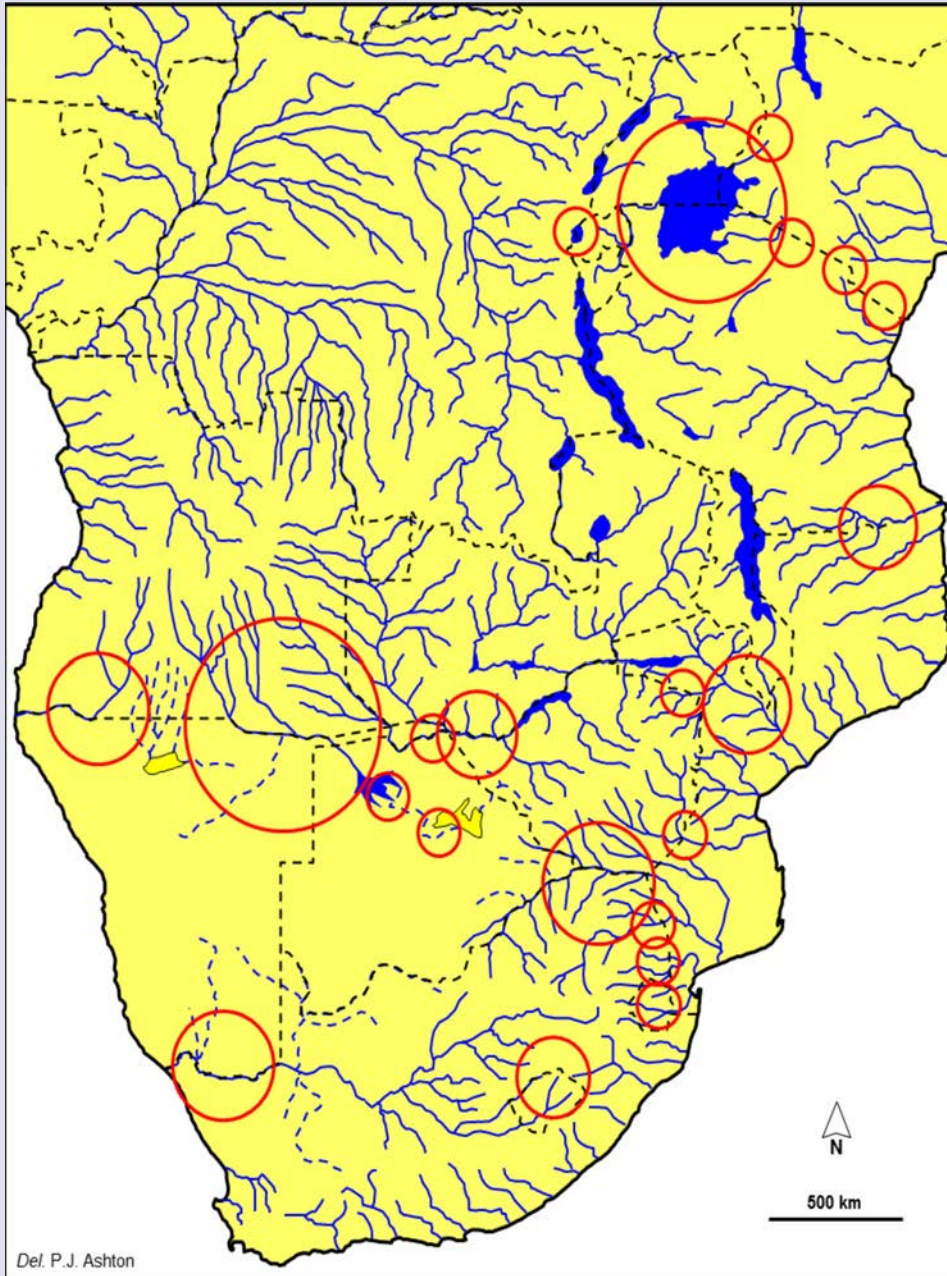
In such situations, 'downstream' countries are more vulnerable than their 'upstream' neighbours and therefore derive the least benefit.⁵³

This situation has been accentuated in those cases where a downstream country is economically 'poorer' or politically and militarily 'weaker' than its upstream neighbours.⁵⁴

The locations of these sites of water conflict correspond closely to the absence or scarcity of perennial rivers and lakes, and to the transition zones where perennial river-flows become ephemeral or episodic. This is clearly visible from the (revised) figure⁵⁵ on the following page, which shows that water conflicts have occurred in the dry, south-western part of southern Africa.

Disputes over water have also occurred in some of the more humid regions in Africa, such as around Lake Victoria and the middle and lower Zambezi River, though these have usually occurred during periods of drought.

In those cases where a conflict is linked to a specific river (such as the Incomati, Limpopo, Nile, Orange, Pagani, Senegal and Zambezi) or to a portion of that river, the river is a 'transboundary' or transboundary river system and the dispute relates most frequently to accusations that the water and other benefits derived



Major rivers and lakes as well as sites across Southern Africa where disputes over water have occurred (circles). The size of the circle reflects the relative spatial extent influence of the dispute.

Source: Ashton, 2007

by upstream countries are not equitable when compared to the benefits derived by downstream countries.’

These lines of reasoning and empirical findings correspond well to worldwide experience, particularly in already water-scarce regions. Thus, for this report, the following conclusions, as stated by Ashton⁵⁶ and which are supported by other findings⁵⁷, may be summarised as follows:

‘At a strategic level, five key geographical and geo-political characteristics influence the ease with which water can become a source of strategic rivalry or confrontation between neighbouring states:⁵⁸

- the degree of water scarcity that already exists in the region;
- the extent to which a water supply is transboundary by one or more states or regions;
- the relative power relationships that exist between water-sharing states;
- the availability of alternative water sources and their accessibility; and
- the degree or extent to which a particular country's international boundaries are aligned with, or located along, transboundary river systems.

A wide variety of more local, inter- and intra-community conflicts over water that occur within the boundaries of a single community or country can be added to these

international dimensions of the causes of disputes over water in Africa.⁵⁹

Perhaps the most frequently encountered of these smaller-scale conflicts relates to water-quality problems that result from upstream activities within a single country, followed in importance by disputed local access to a single water source during critical periods such as droughts.⁶⁰

An additional source of dispute on both a local and national scale can occur where insufficient provision is made to engage members of the public in decision-making processes around water-related issues that affect their lives and livelihoods.⁶¹

Failure to provide opportunities for appropriate levels of public participation has led to several instances where the general public has openly expressed its dissatisfaction and, in some cases, rejected proposals for water-infrastructure projects.

These transboundary water resources are potential sources of political tension and conflict with neighbouring countries.

Furthermore, national technical, institutional, legislative, negotiating, monitoring, communicating, coordinating and administrative capacities for the effective joint management of transboundary water resources are crucial for ensuring peaceful, equitable and effective use of the dwindling water resources of the region.



Public participation among 'water users' through dialogue is important where water projects are concerned.

3. Relationships between intra- and international water disputes

It is important to understand the relationships between intra- and international disputes in order to make affirmative statements about regional water cooperation as a conflict-prevention tool.

For a long time, the academic community has studied the inter-relationships between various geographical levels and how *spill-over* effects from local to international water disputes (and vice versa) determine national and regional stability. It has, however, not fully unveiled 'absolute interrelationships' between water-related conflicts at local

level and water-related conflicts at international level, and how international disputes may have a *spill-over* effect intra-nationally.

Nonetheless, it seems safe to say that at local level, water management is an inherent political issue involving many societal structures, groups of actors, and even external stakeholders.⁶²

In addition, sound water-management practice may prove pivotal in stabilising societies, securing livelihoods and in preserving social and political livelihoods. Conversely, a lack of sound water governance is a direct driver towards social tensions, instability and insecurity.⁶³ In any event, sound water management within states is closely linked

to governance at international level as well, since upstream water usage may determine water situations downstream.

Ashton⁶⁴ argues that the spatial (geographical) and temporal scales of disputes over water can exert a great influence on decision-makers in cases where individuals, communities and governments are searching for appropriate solutions.⁶⁵

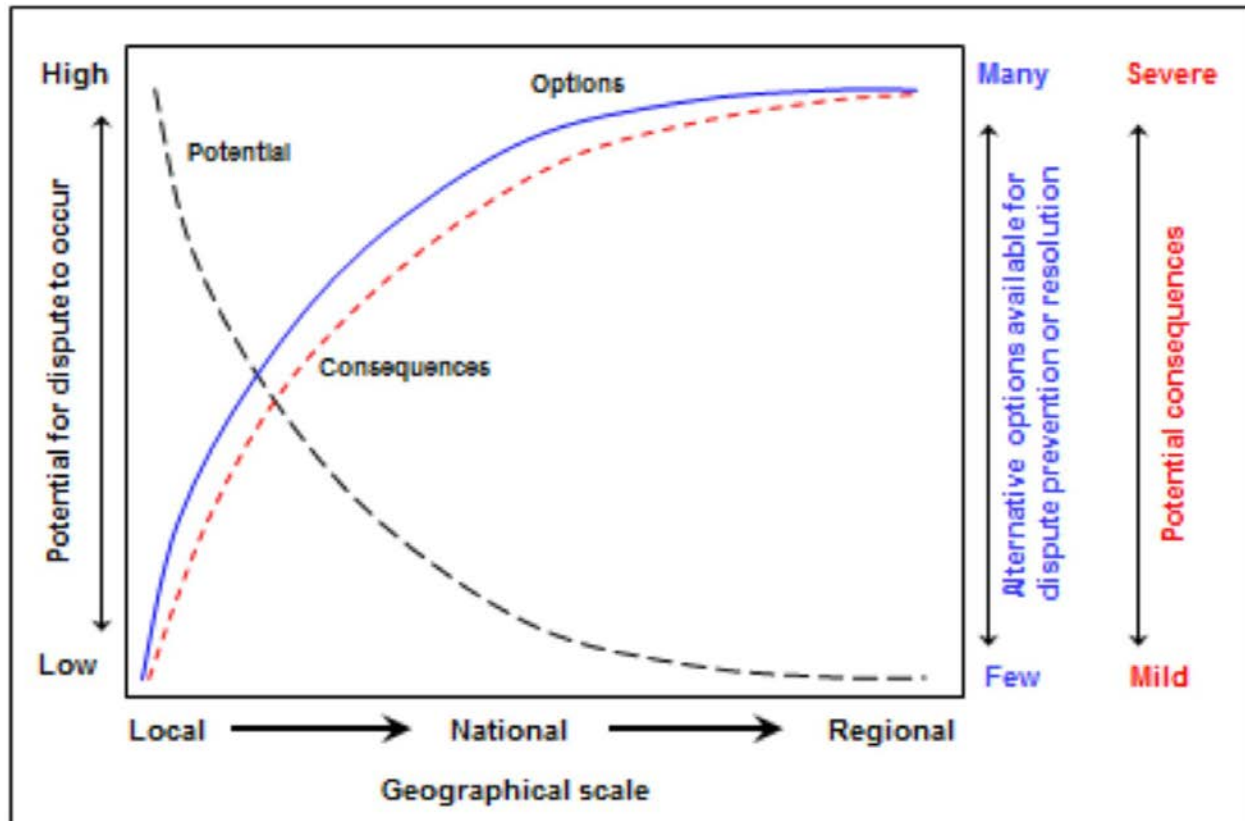
The spill-over effects from the smaller, local-scale conflicts - that can escalate very rapidly - are difficult to predict. International disputes, however, tend to develop more

slowly or gradually, and responses to these situations are different from the local ones.⁶⁶

This observation is particularly interesting in relation to the role of SADC and its cooperation on water resources. SADC's mandate is first and foremost at multilateral level, but **the interplay between the local and the international levels underlines the importance of working at all three geographical intervention levels** (*macro, meso, and micro*).

Peace Dividends are more than simply cessation of hostilities and gains from decommissioning armies and military expenditures





Influence of geographical scale (at local, national and regional level) on the potential for a dispute to occur, the range of dispute prevention and available resolution options, and the potential consequences of a dispute. Source: Ashton, 2007.

In other words, some of the SADC-GIZ **projects at local level may be strong conflict-prevention tools** - the Kunene Water Supply Project, for example.

These interconnections are illustrated in Ashton's figure⁶⁷ above. The figure also illustrates clearly that different actions should be taken on the smallest scale, where

individuals and communities have relatively few options at their disposal, to prevent conflicts from occurring – unless they are supported by institutions such as SADC.

This is somewhat different to the situation at international level, where countries can apply different forms of diplomatic instruments.

Both the BMZ report⁶⁸ and Ashton⁶⁹ argue that in terms of geographical scale, four separate groupings of water conflicts can be identified:

- 'the intra-community grouping, where conflict over some aspect of water may occur over a very small area between members of the same community;
- the inter-community grouping, representing a slightly larger scale, where the individuals within each community present a united front in their dispute or conflict with a neighbouring community;
- the national grouping, where groups of communities or authorities within a single country may dispute the rights of neighbouring communities or authorities in the same country to water that is not located within their geographical area of jurisdiction. This is typical of inter-basin water transfers, where adequate compensation is seldom received for 'donor' catchments and where 'recipient' catchments reap almost all the benefits; and
- the international grouping, where one country may contest the rights of a neighbouring country to use water from an aquatic system that it shares.'

Geo-political conditions will, under any circumstances, interact with the various scales of geographical conflict

whether they are in an upstream or downstream context or purely in the context of a water-allocation dispute with dividing lines – **which is exactly why the SADC-GIZ programme's three-level intervention approach is both correct and appropriate.**

3rd key message:

The SADC-GIZ multi-level water cooperation is not only significant at international level, but is also extremely important in terms of preventing spill-over effects locally across borders.

The water-management practices of the various countries involved will therefore determine the dispute trajectory (see illustration on page 16) at different geographical and geo-political levels.

In other words, there seems to be some kind of commonly accepted academic under-

standing that the **interrelationships between the geographical levels makes the SADC region additionally exposed to the risk of instability and conflict generation because of the many intra-national sources of conflict.**

The role of SADC-GIZ in fostering *multi-level water cooperation in terms of conflict prevention* at international level is indisputable; however, based on the interrelationships between the geographical levels, SADC-GIZ's multi-level approach has a significant conflict-prevention effect at local level in order to reduce cross-border *spill-over effects*.

4. Important aspects of the peace dividends of this programme

It is tempting to argue that the *peace dividends* of regional water cooperation in SADC are tangible and quantifiable. Unfortunately, this does not seem to be scientifically feasible. What is possible, however, is an outline of the current thinking and findings in relation to how peace dividends may be estimated. Owing to a lack of empirical studies, the reasoning that follows is based on academic studies.

Economists and political scientists, or both⁷⁰, generally argue that economic objectives, resources, and instruments of foreign policy have always been significant elements in the struggle between political groups. At the same time, many scholars admit that they have ignored the trans-disciplinary question of how and why there is a relationship between international (water) conflicts and economic growth.⁷¹

Much attention has been paid to economic growth and the desire of nations to expand and conquer, as well as to the economic implications of such conflicts. In contrast, contemporary research has contributed little to the *nexus of transboundary water cooperation* and its *resultant peace dividends*.

The same applies to the SADC region, where there are only general references to site-specific contentious issues such as the Okavango Basin.⁷²

Because of the limited scope of this paper, only basic concepts will be outlined – as an impetus for scientists to qualify and quantify the various elements in an ‘axiomatic line of reasoning’ as it were, and leading to various kinds of peace dividends.

Based on the axiom that a ‘*lack of cooperation on transboundary water management is a driver of conflicts*’, a *peace-dividends analysis* could, in general terms, measure the ‘costs of doing nothing’ (with possible hostilities) against ‘the costs of the SADC-GIZ’s Transboundary Water Management Programme’, including the benefits that could be expected (see textbox on next page).

It is assumed that the relationship between the costs and benefits related to cooperation (that is to say, stability) *versus* non-cooperation (that is to say, hostility) is non-linear, which means that **the benefits of cooperation will have multiple effects when measured against the cost of non-cooperation**.⁷³ According to current thinking (such as the cited World Bank 2011 Development Report), this statement is based on the fact that sustainable socio-economic growth requires stable socio-political and economic conditions. The relationship between economic growth (in terms of an increase in the *Gross National Product, GNP*)⁷⁴ and conflict is, however, complex, and has been the subject of many economic theories.

What is of importance in this context, however, is that the opposite of a lack of conflict prevention, such as ‘non-cooperation’, may cause instability and hostilities. The costs of instability and hostilities, or ‘the costs of conflict’ could be multiple compared to those of

‘cooperation and stability’. The difference between those opposing situations will be non-linear, as outlined in the formula in the next page.⁷⁵

It falls outside the scope of this report to outline the formidable economic theories related to economic growth and conflict; however, contemporary research, such as the World Bank’s *Conflict, Security, and Development*

A *peace-dividends analysis* related to water disputes could measure the ‘the costs of doing nothing’ (with possible hostilities) against ‘the costs of SADC-GIZ’s Transboundary Water Management Programme’ plus the expected benefits.

PEACE DIVIDENDS =

- Costs of Investing in (Transboundary Water) Cooperation (Q^{+1})
- + Expected benefits of stability
- Costs of Non-Cooperation (Q^{-1}) including hostilities

More specifically, what are the costs and benefits related to cooperation *versus* non-cooperation?

The costs and benefits of regional cooperation:

Q^{+n} = costs of the SADC-GIZ programme⁻¹ + regional benefits (infrastructure, water, energy, trade) + added value of spin-off effects (to each member country's economy)^a + (hydro-environmental benefits)^b + (social and humanitarian benefits)^c

The costs of non-cooperation:

Q^{-m} = cost of socio-economic instability/risks + (increased military costs)^x +(hydro-environmental degradation)^y + (social and humanitarian suffering)^z

x, y, and z represent exponential negative values depending on the circumstances (under conflict and instability)

a, b, and c represent exponential, potentially positive values depending on the circumstances (under more stability and lack of conflicts)

The relationship between the costs and benefits related to cooperation in contrast to non-cooperation could, under certain circumstances, be exponential.

Report 2011 and Peter Collier's work (Oxford University), univocally concludes that conflict and social-economic costs are dichotomised variables in the sense that sustainable growth can only be achieved in times of peace and stability.

One should, therefore, be on solid ground when arguing that the basic principles of the above-mentioned basic cost-benefit methodology are correct: the *effectiveness* and *benefits* of investment in the SADC-GIZ Transboundary Water Management Programme should be extraordinarily high, and not only from an economic point of view.⁷⁶

With such a perspective in mind, it would be correct to state that the programme costs are minimal compared to the potentially high costs caused by 'hostilities' or a lack of stable social and political conditions.

A pragmatic view

There are national leaders and scholars who strongly promote regional cooperation and integration, particularly in relation to 'transboundary' sectors such as energy, infrastructure, communication, tourism, trade, and of course, in relation to water resources. Few, however, advocate such cooperation and integration for transboundary waters with a potentially large, non-linear gap between the *costs of doing nothing* (non-cooperation) and *cooperation*.

This leads us to a legitimate question:

If the 'mutual gain' through cooperation is so high, why is it so difficult to identify and particularly to implement⁷⁷ regional water projects, which easily could be 'twinning' with energy-related and other infrastructural initiatives

(such as the Lesotho Highland Water Project between Lesotho and South Africa)?

Some policy-makers and political scientists would explain this impasse by saying that the *political climate is not conducive to such programmes, as the national challenges are still so overwhelming, that even large benefits from regional cooperation are far-fetched.*

With reference to worldwide experience⁷⁸ in investing in transboundary water cooperation, a pragmatic view would be to promote regional strategies, policies, and projects that add value to each participating member country in terms of monetary, social, security and environmental benefits and, of course, in terms of water management.⁷⁹

In the SADC context, the regional *Kunene Water Supply Project* in the Kunene River Basin (between Angola and Namibia) is one such joint project that yields obvious net benefits to each country as well as to the adjacent Cuvelai Basin to which water is being transferred from the Kunene River.⁸⁰

It would be interesting to analyse the concretisation of the peace dividends of this project as well as the benefits at

all three geographical levels (that SADC-GIZ is involved in), and compare these with non-cooperation, instability, and possible hostilities. The principles of such an exercise are illustrated using the illustration in the next page.

Opportunities versus constraints

The notion of *benefit-sharing*⁸¹ was introduced⁸² some years back and policy-makers were able to conceptualise what many of them had experienced: cooperation on transboundary water management creates win-win solutions.

What is both timely and significant is a **change of attitude** among key decision- and policy-makers regarding cooperative water initiatives (see textbox on this page). What might be required most of all is the move from rhetoric towards action⁸³.

Focus on Opportunities

Thinking beyond borders & sectors

Opens opportunities

- for better lives and livelihoods; and
- for products and profits.

Poses challenges

- to companies to think beyond the balance sheet;
- to governments to address constraints; and
- to civil society to go beyond opposition.

Climate change is an opportunity to rethink

- Initiation – and funding? – of new approaches (but only if climate funding is designed to support water)
- The water sector must talk development, not water.

Professor Mike Muller's presentation at SADC's 5th Multi-Stakeholder Water Dialogue, Swaziland, 27 June 2011.

4th key message:

The effectiveness and benefits associated with investment in the SADC-GIZ Transboundary Water Management Programme are presumed to be extraordinarily high, the programme costs' being minimal compared to the potentially high costs of 'hostilities' as a result of no cooperation at all .

An illustration of an estimation of the *peace dividends* for the *Kunene Water Supply Project* with Namibia and Angola

Costs and benefits of SADC regional cooperation

Q^{*n} = costs of the SADC programme – including water infrastructure

+ Regional benefits (fostering political stability and viable water infrastructure)

+ Added value of spin-off effects (to Angola's and Namibia's economy compared to unilateral actions)

+ Social and humanitarian benefits for each country – not only for the people in the project area, but also for the larger population

GB = Gross Benefits in monetary terms = \$ X m./y

Costs of non-cooperation:

Q^m = costs of socio-economic instability/risks

+ Increase in military/police costs

+ Arms

+ Destruction of infrastructure

+ Loss of productive capacity (both in terms of human and land capital)

+ Hydro-environmental degradation

+ Social and humanitarian suffering

+ Compensation of other large-scale water-transfer schemes – or even desalination (at least for Namibia)

NC = Net Costs in monetary terms= \$ Y m./y

Peace Dividends for the Kunene Water Supply Project = NC (saved) + GB (\$ Z m./y)

=====

- Most likely in the range of \$ 50-75 m./y (depending on which values are given)

According to most experts engaged in the identification and implementation of joint regional water projects in the SADC region, the experience is that there are very few successful examples of joint projects that apply the highly regarded 'formula' of *public-private partnership* (PPP). This is indeed a paradox.

There are a few notable examples within the SADC context, however. One is the unique, local water-saving programme with a regional impact on the Orange–Senqu River Basin

- the recently signed PPP involving the river commission ORASECOM (between the governments of Botswana, Lesotho, Namibia and South Africa), and cofounded between *Sasol New Energy* and GIZ.⁸⁴

Some would argue that the level of 'pain resulting from water scarcity' and lack of cooperation - or even conflict polarisation - has not yet reached a stage which will trigger substantive cooperation (as described in Chapter 1).

5. The role of SADC in the prevention of international water disputes

SADC is already engaged in important conflict-prevention measures. This chapter does, however, attempt to specify the links between how disputes evolve and how they can be prevented from escalating.

For years, the international academic community has been engaged in unveiling the key issues involved in preventing and resolving international water disputes.

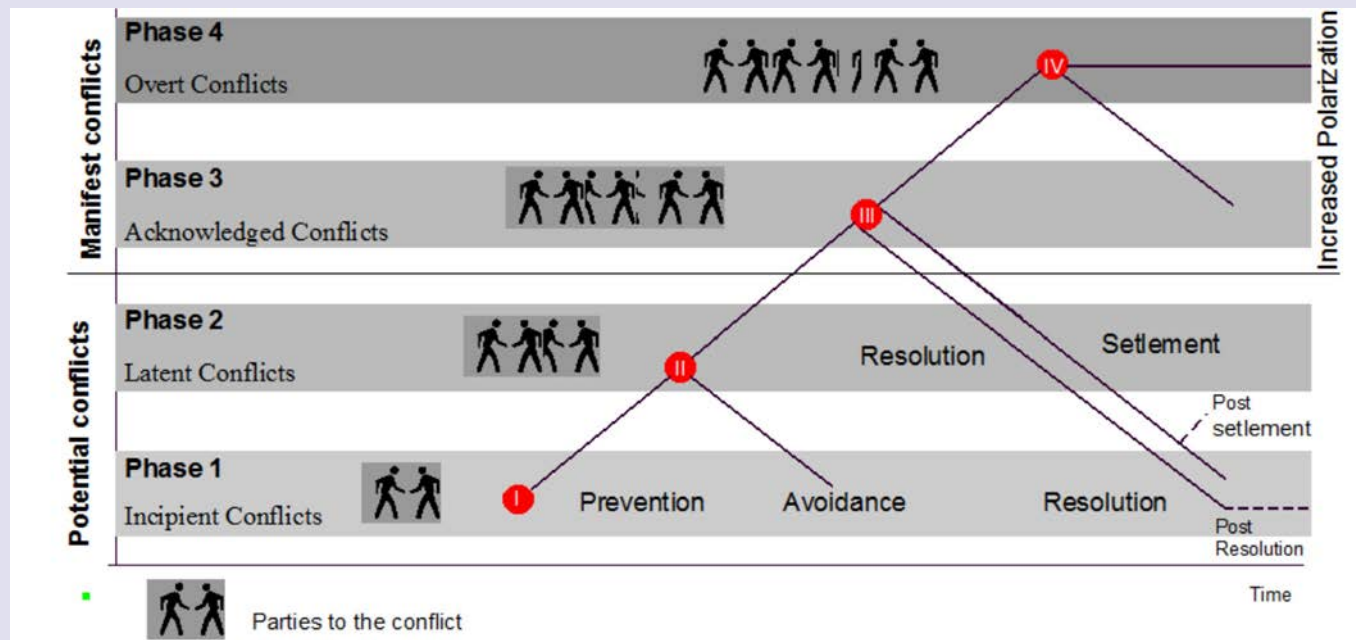
As outlined before, the interrelationship between the local and international scales is important. The SADC-GIZ *Transboundary Water Management Programme* addresses this crucial need, as it is guided by a multi-dimensional approach of capacity development at three

geographical levels of intervention, namely: *macro*, *meso* and *micro*. Furthermore, the programme engages in the development of enabling environments, the strengthening of institutional frameworks, and the development and application of management instruments.⁸⁵

As the focus of this paper is on international disputes, a key question is this: *which success factors are keys to preventing and resolving such conflicts?*

There are few simple answers to this, and findings from the region have been blended with experience from other regions across the world where water scarcities are fuelling disputes or have even triggered conflicts.

Firstly, it is important to understand how water-related disputes usually evolve from an *incipient* conflict-intensity level up to an overt and even armed conflict level. The escalation scenario of such a conflict is illustrated in the figure below.⁸⁶



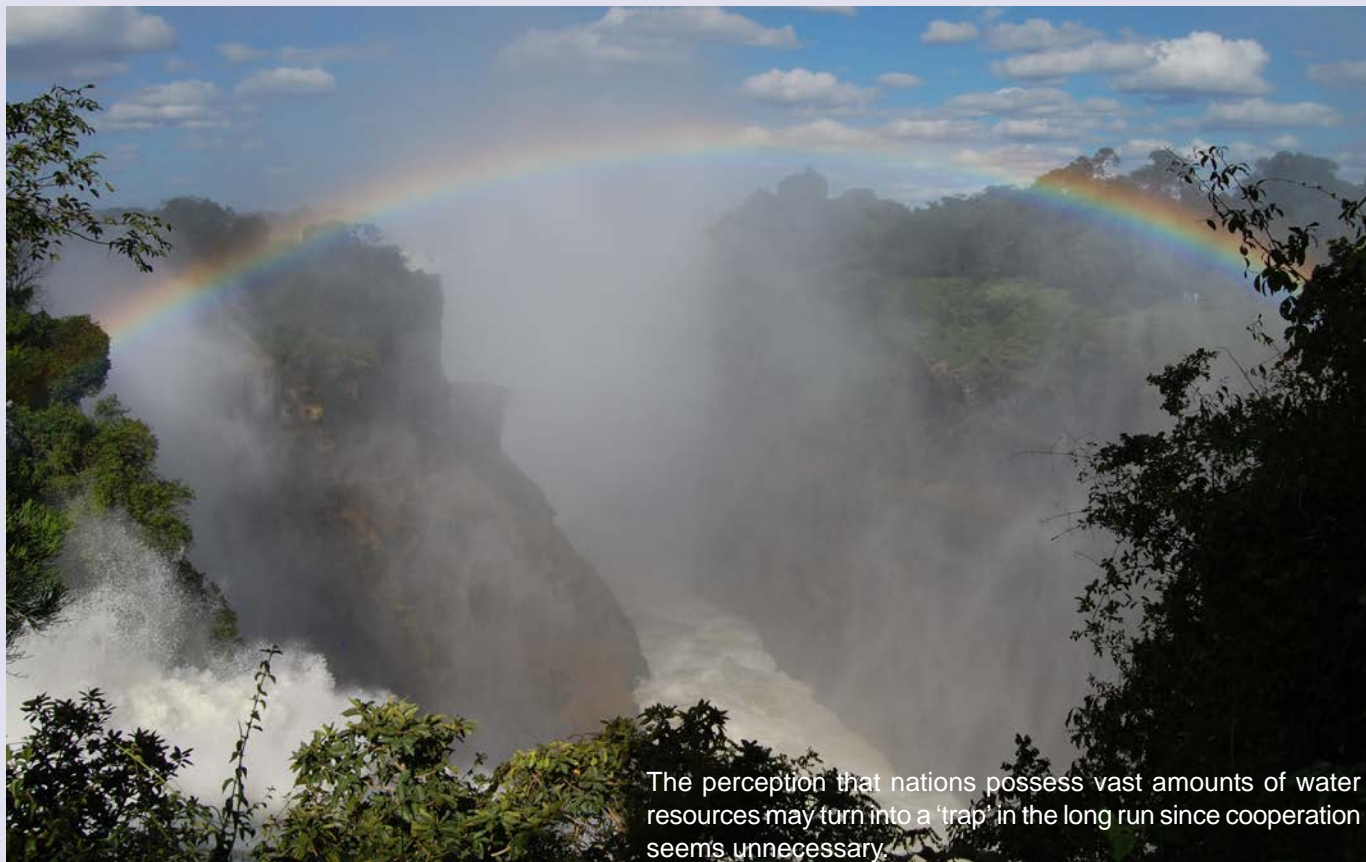
Source: Trolldalen [Trondalen], 1992

There are several striking features of this illustration, but one of them is of particular interest in a SADC context, namely that as a *conflict escalates (from phase 1 to 4), more stakeholders get involved*. In other words, as conflicts escalate, the more difficult it becomes to resolve them. The bottom line of this simple, but essential finding is that conflict prevention is not only significant but also a necessity in the SADC region because there are many unstable socio-economic and political conditions that could quickly escalate into a conflict and become 'unmanageable' at multilateral level.

Prerequisites for the successful prevention of water disputes by SADC

One has to accept that the road towards a *sustainable transboundary water-management* situation – which, in this context, is seen as a *conflict-prevention tool* - is a long and difficult one for the countries concerned as well as for SADC.

Past experience⁸⁷ has shown that unless some premises⁸⁸ for successful intervention by regional economic communities such as SADC are fully recognised, the chances of SADC-GIZ's transboundary programme having sustainable impacts are significantly reduced.



The perception that nations possess vast amounts of water resources may turn into a 'trap' in the long run since cooperation seems unnecessary.

An outline of the various prerequisites for successful conflict prevention, as an integral part of a sustainable regional programme, follows:⁸⁹

- 1) If transboundary water resources are not managed jointly, the resources are likely to be more unsustainable and sudden, and negative changes may occur.
- 2) Lack of transboundary water-management arrangements increases the conflict potential in the long run.
- 3) Transboundary water management is first and foremost a political decision.
- 4) Decisions will not be made unless awareness is raised among national leaders about the necessity and benefits of transboundary water management, as well as the consequences of doing nothing.
- 5) Transboundary water management in the SADC region is an extraordinarily complex challenge – and *ready-made models* cannot be applied directly.
- 6) Reform decisions are inherently political. Hence, reforms will need political as well as technical ‘promoters’.
- 7) Non-water policies are crucial to the *water sector*. Consequently, there is a need to involve non-water decision-makers in water-policy reforms.
- 8) Improve the accountability of government agencies to the public. National leaders must see clear consequences for ‘action’ and ‘inaction’ on transboundary water management. To achieve this, transparency is essential so that the **public knows why decisions are made and specifically by which authority**, what **outcomes they can expect**, and **what is actually achieved**.

It seems clear that international organisations have many important institutional resources that could be called upon to prevent and resolve such disputes. Some international organisations, such as SADC, are suited to the prevention

and avoidance of disputes, rather than to the settlement and resolution of them.

There appear to be several criteria for ‘success’ and although some of the following play a key role at just one particular stage, others are important for every stage of the process:⁹⁰

- *Legitimacy* is an important criterion for success at all stages. SADC is considered to have high legitimacy among its member nations.
- *Credibility*, which is closely related to legitimacy, has been achieved by having multiple ICPs and by maintaining a neutral forum for discussing matters within SADC’s jurisdiction.
- A *clear, specific mandate*, which explicitly stresses water management, can assist in problem-solving with regard to water; however, organisations with broad mandates often function as vehicles for political expression rather than as effective mechanisms for conflict resolution (for example, SADC and OAU).
- *Membership commitment* is important, particularly in southern Africa, and member states must realise that they have the most to gain when the organisations function effectively, and when agreements are reached and implemented.
- *Access to sound scientific water information and expertise* is crucial for the prevention of water disputes, as well as for the pre-negotiation stage. Accurate, up-to-date information is necessary for determining both the scope of the problem and the direction of the solution.
- Standard setting and co-ordination are important for long-lasting solutions. At a time when global frameworks are in their infancy, national and regional organisations frequently devise their own standards, which may conflict with other regional and national standards.⁹¹

- Research and experience has shown that **compliance** is crucial to the implementation of any water agreement and to the lasting resolution of a conflict:⁹²
- Smaller organisations may reach solutions based on scientific evidence and negotiation processes, but often lack the authority to implement them.
- Larger organisations may be able to encourage compliance through economic sanctions, penalties, or expulsion (for example, the OAU).
- The ability to generate funding may also be a determining factor for the ultimate outcome of the implementation of an agreement (as in the case of the World Bank's and UNDP's Nile Basin Initiative).

An often overlooked fact is that in cases where water data and information are insufficient to resolve the specific issues, countries could agree to joint investigation to obtain new information. Such collaborative efforts are important milestones in confidence-building as well as during negotiations – which also demonstrate the transparency of the process.

Some lessons learned in building national capacity in the context of transboundary water management

Over the years, quite a few riparian countries outside the SADC region have meticulously been building institutions to enhance the efficiency and effectiveness of the management of transboundary waters. Some of the lessons that have been learned are as follows:⁹³

- *Trust*, as reflected in data sharing and joint planning, is a hallmark of any sustainable water-sharing arrangement: building trust is a fundamental issue, which must be interwoven into any cooperative effort.
- Once international institutions are in place, they are tremendously resilient over time, even between otherwise hostile riparian nations, and even as conflict is waged over other issues.

- The creation of institutions to share the benefits of water in a basin, rather than focus on allocating the limited water resources, is proving useful in some cases (for example, in the Nile Basin⁹⁴ and the Mekong Basin⁹⁵) and offers hope for the future.

The significance of building regional institutions such as SADC, both in effective transboundary water management and in preventive hydro-diplomacy, cannot be over-emphasised. The following lessons may help shape future policy and institution-building programmes in the SADC region:

- *Long-term planning in building institutions*: countries should build national institutions with a long-term perspective that are also tailored to transboundary water-resource management.⁹⁶
- *Adaptable management structure*: effective institutional management structures incorporate a certain level of flexibility, allowing for public input, changing basin priorities, and new information and monitoring technologies. The adaptability of management structures must also extend to non-signatory riparian states by incorporating provisions addressing their needs, rights and potential accession. The International Joint Commission (United States – Canada) has been particularly successful in dealing with such an evolving agenda of issues.
- *Clear and flexible criteria for water allocations and quality*: allocations, which are at the heart of most water disputes, are a function of water quantity and quality as well as a political fiat. Thus, effective institutions must identify clear allocation schedules and water-quality standards that simultaneously provide for extreme hydrological events, new understanding of basin dynamics, and changing societal values. Additionally, riparian states may consider prioritising various uses of water throughout the basin. Establishing catchment-wide water precedents may help not only to avert inter-

riparian conflicts over water use, but also protect the environmental health of the basin as a whole.

- Sharing can be perceived as a threat to sovereignty, so mechanisms which include trade-offs and which respect a nation's right to manage its own water are needed.⁹⁷

- *Detailed conflict-resolution mechanisms: Many basins continue to experience disputes* even after a treaty has been negotiated and signed. Thus, incorporating clear mechanisms for resolving conflicts is a prerequisite for effective, long-term basin management. The Rhine River Basin is a good case in point, where treaties are in place but disputes still arise from time to time. SADC has the

Tribunal as a dispute resolution framework to which the SADC Treaty and its subsidiary instruments that is the Protocols refer. As SADC further matures politically (particularly in terms of the *credibility* of its member states), one could envision strengthening such conflict-resolution mechanisms as part of tailor-made institutional capacity development.

As most examples of hydro-diplomacy involve support from the international community, one may have to conclude that encouragement and participation by this community is an essential ingredient for success – and in this context, a stimulus for SADC for active engagement.

It is indeed worth noting that SADC represents a positive example of commitment by member states and ICPs.



'Building bridges over troubled waters' requires meticulous focus over a long period of time.

6. Recommendations to SADC and its International Cooperating Partners (ICPs)

Transboundary water cooperation must be viewed in a broader context than simply an 'integrated water-management' context as the water resources in the region are strategically far too important at national and regional level to be left to unilateral action. The reasons for this have already been acknowledged and accepted by SADC, its member countries and its ICPs; however, since water-related conflicts need to be prevented, the following *axioms* require acknowledgement at the highest political level:⁹⁸

- **Water resources in SADC are *de facto* strategic goals:**

access to and the control of precious water resources are vital for every country, including from a security and strategic perspective, both now and even more so in the future.

- **Water resources in SADC are *de facto* strategic tools:**

under certain conditions, water resources are powerful strategic tools. An example is an upstream country's ability to confine the water flow to downstream nations in order to achieve other vital interests or trade, and even energy supply. Water, energy, and security are all interlinked.

- **Inequalities in water resources are *de facto* some of the potential root causes of conflict and insecurity in the SADC region:** geographical and growing disparities between water-rich and resource-poor areas and countries in terms of access to, and control of, the resources has created constant tension in other regions, particularly in

areas that are heavily dependent on either rainfall or irrigation for food security.

Recent research has revealed that there is a close relationship between the *risk of conflicts* and *poverty*.⁹⁹ In the case of SADC, for those member states facing fragile food security, water availability will become even more important in the future as a means of improving general food security as well as strengthening social and economic development. Lack of such progress would have political and even military security implications in the near future.

The recent sharp increase in food prices has serious consequences, particularly for impoverished people in the region. The *water-food-security* nexus becomes not only relevant, but also acutely necessary, in many parts of the world. It is, in turn, directly linked to food security at community level and at national level in the form of security concerns.

The SADC-GIZ Transboundary Water Management Programme aims to address this entangled nexus directly and constructively – but further tailoring of the programme in terms of conflict prevention will reflect these aspects in greater detail.

It is recommended that SADC, together with its ICPs, develop some sort of '**action plan**' to **enhance negotiation and conflict-resolution capacities at national and regional** level.

This will necessarily entail the training of diplomats, water and legal experts, as well as other decision-makers, to enhance SADC's and its respective member states' water-negotiation capacity.

Recommendation: The negotiation and conflict-resolution capacity related to shared water resources in the SADC region should be permanently nursed and enhanced through a systematic approach, and specifically through an **action plan** aimed at *enhancing the negotiation and conflict-prevention ability* of SADC and its member states in order to maintain the peaceful and joint management of shared water resources.

The ultimate objective of such a capacity-development initiative should be to foster cooperation as a conflict-prevention tool, as well as to lay the foundation for

sustainable multi- and bilateral water arrangements that yield multiple benefits.

Endnotes

¹ See *Summary of the Review* (endnote 13) and p 27

² Germany is currently also the leading *International Cooperating Partner* (ICP) in the SADC water sector in charge of the realisation of the international harmonisation agenda.

³ In its current third phase, the programme consists of three components: 1) capacity development of the SADC Water Division; (2) capacity development of River Basin Organisations (RBOs); and (3) capacity development of local water governance incl. transboundary infrastructure. So far, a water-infrastructure project pertaining to the third component is located in the Kunene region in southern Angola/northern Namibia and is implemented in cooperation with the German KfW Development Bank.

⁴ GTZ & BMZ, 2006: *The Water Security Nexus – Challenges and Opportunities for Development Cooperation*, Eschborn and Bonn.

⁵ As one of the operational indicators in their log-frame project manual.

⁶ See the newly released World Bank's *World Development Report 2011: Conflict, Security and Development*, IBRD, Washington DC.

⁷ Dr Peter Ashton (CSIR) and Dr Anthony Turton (both from SA), for example.

⁸ Such as the renowned *Institute for Security Studies* (IIS, SA).

⁹ See the newly released *African Futures 2050* by Cilliers, J., Hughes, B., and Moyer, J., 2011, ISS, Pretoria. ISS is, of course, aware of these issues, but according to them, the focus is on other more pressing issues. One example of such focus is: Lind, J., Sturman, K., (eds.) 2002: *Scarcity and Surfeit – The Ecology of Africa's Conflicts*, African Centre for Technology Studies & ISS, ISS, Pretoria.

¹⁰ Such as Lebanon-Israel / Iraq-Iran / Israel-PLO / Israel-Syria etc.

¹¹ The author began his work on water/conflict/cooperation in the early nineties and has, since then, been actively engaged in all concerned countries in the ME (except for some Gulf States). See also his book in Arabic and English: Trondalen, J.M., 2008: *Water and Peace for the People – Possible Solutions to Water Disputes in the Middle East*, UNESCO.

¹² It is worth noting, however, that Israel was already acutely aware of its hydro-political challenges at the time of the establishment of the State of Israel in 1948. This focus was also underlined in the 1967 war with Syria, and the annexation of the Golan Heights where the line of cessation follows the eastern line of the utterly important Jordan River basin (see Trondalen 2008) precisely. Similarly, for years South Africa has paid attention to its hydro-political challenges and developed some of the most sophisticated water-management systems worldwide.

¹³ As argued compellingly by Turton, A., 2007: *The Hydro-politics of Cooperation: South Africa during the Cold War*, in Grover, V.I.: *Water – A Source of Conflict or*

Cooperation?, Science Publishers, Enfield (EH).

¹⁴ Project Progress Review (PPR), Second Phase: 2008-2011 – Technical Cooperation Programme – GIZ Transboundary Water Management in SADC.

¹⁵ See endnote 4.

¹⁶ Some define peace dividends as ‘*an amount of money taken from a defence budget and appropriated elsewhere in times of peace when less money is required for defence than in times of hostility or war*’ (Government, Politics & Diplomacy).

The author argues, however, that the *dividends* could be: *additional funds and benefits available to a government and population from cuts in defence expenditure because of the end of a period of hostilities. If the destruction of natural resources, infrastructure, and human suffering are made to be accounted for, the dividends would potentially be multiplied.*

¹⁷ See *Summary of the Review* (endnote 13) and p27

¹⁸ From 21 June through 1 July 2011.

¹⁹ Effectively 12 days – including 6 days in the field.

²⁰ The author’s own academic and conflict-resolution experience from water-conflict-prone regions form the basis of the assessment.

²¹ See, for example, Professor Mike Muller’s presentation at SADC’s 5th Multi-Stakeholder Water Dialogue, Swaziland, 28 June, entitled: *Water, climate and development – thinking beyond borders*. Wits University, Global Water Partnership, and SA National Planning Commission, South Africa.

²² In Zambia, Angola and Mozambique equivalent to 9630, 10510, and 11320 m³/p/yr, respectively.

²³ See endnote 21.

²⁴ The author met some scholars during the consultative process in June 2011 who stated this.

²⁵ Based on the author’s own experience in the Middle East: he was among other tasks, instrumental in brokering the first trilateral transboundary water agreement in the Middle East, which was signed in 1996 between Jordan, the Palestinian Authority, and Israel.

²⁶ The basic argument in Trondalen’s book *Water and Peace for the People* (2008).

²⁷ Cf. Turton, A., Earle, A., Malzbender, D., and Ashton, P., 2006: *Hydro-political Vulnerability and Resilience along Africa’s International Waters*, Chapter 2, UNEP, Nairobi.

²⁸ Ibid. p19.

²⁹ See, for example, highly relevant literature in UNESCO’s PCCP programme (From *Potential Conflicts to Cooperation Potential*): <http://webworld.unesco.org/water/wwap/pccp/>.

³⁰ Ibid.

³¹ See Trondalen, 2008.

³² See extensive research conducted by Peter Ashton, such as: ‘Are Southern Africa Water Conflicts inevitable or preventable?’ in Solomon, H. & Turton, A.R., eds, 2000: *Water Waters: An Enduring Myth or an Impending Reality?* ACCORD Publisher, Durban.

³³ Ibid.

³⁴ See the newly released World Bank’s *World Development Report 2011: Conflict, Security and Development*, IBRD, Washington DC, particularly Chapter 8.

³⁵ See, for example, Ashton, P., 2002: *Avoiding Conflicts of Africa’s Water Resources*, in Royal Swedish Academy of Science, Stockholm.

³⁶ Cf., for example, World Water Development Report (3) by UNESCO/WWAP+++, 2009: *The 3rd United Nations World Water Development Report: Water in a Changing World*, Chapter 5: <http://www.unesco.org/water/wwap/wwdr/wwdr3/tableofcontents.shtml>.

³⁷ Cf. World Bank, 2011; particularly Part 3.

³⁸ Ibid. pp 229-232.

³⁹ See endnote 32.

⁴⁰ Ibid.

⁴¹ *Fragility* and *instability* are used synonymously and in this context mean (adopted after World Bank, 2011): situations where states or institutions lack the capacity, accountability or legitimacy to mediate relations between citizen groups and between citizens and the state, making them vulnerable to violence. Research from the World Bank Development Report 2011 reinforces the close link between institutional fragility and the risk of conflicts.

More specifically, 'drivers' of water disputes are generally extensively researched and quoted in Trondalen, 2008.

⁴² Please note that in order to make the report accessible to the reader, the cited 'drivers' are not quantified since it can be assumed that the statistics are known to the *subject-matter reader* only.

⁴³ See, for example, Ashton, P. and Ramasar, V., 2002: Water and HIV/AIDS: Some strategic considerations for southern Africa. In: *Hydropolitics in the Developing World: A Southern African Perspective*, Turton, A.R. and Henwood, R. (Eds), African Water Issues Research Unit (AWIRU), Pretoria, pp 217-235.

⁴⁴ Ashton, P., 2007: Disputes and Conflicts over Water in Africa. In: Mlambo, N. (ed.): *Violent Conflicts, Fragile*

Peace: Perspectives on Africa's Security Problem, Adonis & Abbey, London, as well as Falkenmark, M., 1989: The massive water scarcity now threatening Africa: why isn't it being addressed? *Ambio*, 18(2): 112-118, and Gleick, P.H., 1993 'Water and conflict: Fresh water resources and international security' in: *International Security*, 18(1): 84-117.

⁴⁵ The term 'water-based society' refers to the fact that a society's economy is generating income owing to the use of water (in agriculture, industry, or HP).

⁴⁶ Ashton, P., 2007 and World Bank, 2011.

⁴⁷ See, for example, Hall, R., 2011: *The Many Faces of the Investor Rush in Southern Africa: Towards a Typology of Commercial Land Deals*, Institute for Poverty, Land, and Agrarian Change, South Africa (forthcoming).

⁴⁸ See, for example, Ngigi, Stephen. N., 2010: *Adaptation Strategies – Water Resources Management Options for Smallholder Farming System in Sub-Saharan Africa*, MDG Centre - East and Southern Africa & Earth Institute at Colombia University, New York: <http://www.icp-confluence-sadc.org/documents>.

⁴⁹ Ashton, P., 2007.

⁵⁰ This interpretation was confirmed in communication with Dr Ashton during the writing of this report.

⁵¹ Prescott, JRV, 1979: Africa's boundary problems. *Optima*, 28(1): 2-21 and Packenham, T. 1991: *The Scramble for Africa*. Doubleday Publishers, London.

⁵² Ashton, P.J. and Turton, A.R. (2009). Water and security in Sub-Saharan Africa: Emerging concepts and their implications for effective water resource management in the southern African region. Chapter 55. In: H.G. Brauch, U.O. Spring, J., Grin, C., Mesjasz, P., Kameri-Mboti, N.C., Behera, B., Chourou and Krummenacher, H. (eds), *Facing Global Environmental*

Change: Environmental, Human, Energy, Food, Health and Water Security Concepts. Hexagon Series on Human and Environmental Security and Peace, Volume IV. Berlin: Springer-Verlag, pp 661-674.

⁵³ Pallett, J., 1997: *Sharing Water In Southern Africa*. Desert Research Foundation of Namibia, Windhoek, Namibia.

⁵⁴ Turton, A.R., 1999: Water and conflict in an African context. *Conflict Trends*, 5: 24-27 and Ashton, P.J. and Turton A.R. (2009) (see endnote 51 above).

⁵⁵ The figure is a revised one (from Dr Ashton) by the author of this paper, Trondalen.

⁵⁶ Ashton, P., 2009.

⁵⁷ Cf. the 2006 report by GIZ & BMZ (footnote 3) as summarised in pp 10-11, and Gleick, P.H., 1993: Water and conflict: fresh water resources and international security.

International Security, 18(1): 84-117.

⁵⁸ Ashton, P., 2002.

⁵⁹ Ashton, P., 2000 and 2002.

⁶⁰ Turton, A., 1999.

⁶¹ Ashton, P., 2002 and Turton, A. et al 2006.

⁶² As outlined in the 2006 report by GIZ & BMZ: Houdret, A., 2008: *Scarce Water, Plenty of Conflicts? Local Water Conflicts and the Role of Development Cooperation*. In *INEF Policy Brief 03*. Duisburg: Institute for Development and Peace (INEF) and Mollinga, P., 2008: Water, politics and development: Framing a political sociology of water resources management. In: *Water Alternatives*, 2008, Vol. 1, Issue 1, 7–23.

⁶³ Ibid.

⁶⁴ Ashton, 2000.

⁶⁵ Ashton, 2002: A local-scale conflict between two adjacent landowners over access to water requires far less strategic (government-level) intervention than another water-access problem that may be confounded by a dispute between countries over the precise location of an international boundary.

⁶⁶ Wolf, A.T., 1996: *Middle East Water Conflicts and Directions for Conflict Resolution*. 2020 Brief No. 31, April 1996. <http://www.cgiar.org/ifpri/2020/briefs/number31.htm>, Turton, 1999 and Ashton, 2002.

⁶⁷ Ashton, 2007.

⁶⁸ GIZ & BMZ, 2006: *The Water Security Nexus – Challenges and Opportunities for Development Cooperation*, Eschborn and Bonn.

⁶⁹ Ibid.

⁷⁰ Mott IV, W.H., 1997: *The Economic Basis of Peace – Linkages Between Economic Growth and International Conflicts*, Greenwood Press, Westport, Connecticut and London.

⁷¹ Ibid, p 1.

⁷² Such as Porto, J.G. & Clover, J., 2002: *The Peace Dividends in Angola: Strategic implications for Okavango basin cooperation*. ISS, Pretoria.

⁷³ Cf., for example, one of the renowned economists regarding conflict/growth, Prof. Peter Collier, Oxford University, Economics Department: ‘*The benefits resulting from a reduction in the incidence of civil war accrue at three distinct levels: national, regional and global. Taking the national level first, one clear cost of civil war is a reduction in economic growth. Using a conservative estimate, one year of conflict reduces a country’s growth rate by 2.2%. Since, on average, each civil conflict lasts for seven years, the economy will be 15% smaller at the end of the war than if the war had not taken place. During the post-war recovery, even*

though the economy on average grows at an annual rate of more than 1% above the norm, it will take roughly ten years to return to its pre-war growth rates (that is, 17 years after the conflict started). 21 years after the start of the original war, the GDP has returned to the level it would have achieved if no war had occurred. The total economic cost, expressed as a present value at the start of the war is 105% of the GDP at that point. The welfare of a country's population is further reduced because of increased military spending during and after the war. The additional cost is estimated at 18% of GDP.' <http://users.ox.ac.uk/~econpco/research/conflict.htm>

See also World Bank, 2011, pp 36-37.

⁷⁴ http://en.wikipedia.org/wiki/Gross_national_product

⁷⁵ A further distinction to the *growth–conflict nexus* should be made in relation to *per-capita* versus *national growth*, and how those benefits are distributed among the populations. In developing countries in general, such distribution is generally low, and even lower under hostilities and unstable social and political situations - which adds to the potential exponential relationship of the peace dividends. An additional complication is that *GNP* may even increase during hostilities and wars, such as occurred during the 18 years of civil war in Lebanon, but this is owing to unsustainable factors. See also *Ibid.*

⁷⁶ Cf. OECD, 2011: *Benefits of Investing in Water and Sanitation – An OECD Perspective*, OECD, Paris.

⁷⁷ Cf. conversations with several ICP experts, including from the German Development Bank, KfW.

⁷⁸ See, for example, the worldwide trust fund, *Global Environmental Facility*, set up 20 years ago between IBRD, UNEP and UNDP regarding 'international water management: http://www.thegef.org/gef/Areas_work.

⁷⁹ See also Robinson, P. & Assoc., 2009: *The Transboundary Water Opportunity Analysis as a Tool for RBOs*, D.H.J. Phillips, CSIR, Pretoria as well as Meinier, B., 2010: *Benefit sharing in SADC: Making bigger and thicker transboundary watercourses*, GIZ, Gaborone.

⁸⁰ Cf. several technical documents at the GIZ Transwater SADC offices in Gaborone.

⁸¹ Defined as follows: 'In the context of transboundary watercourses, benefit-sharing may be defined as the process where riparians cooperate in optimising and equitably dividing the goods, products, and services connected directly or indirectly to the watercourse, or arising from the use of its waters' – see Phillips and Woodhouse, 2011 (in press): *SADC Concept Paper on Benefit Sharing and Transboundary Water Management and Development, SADC*.

⁸² See one of the first authoritative papers of Sadoff, C. and Grey, D., 2002: Beyond the river: The benefits of cooperation in international rivers; in *Water Policy 2* (2002) pp 389-403.

⁸³ Prof. Muller's presentation at the 5th Multi-Stakeholder Dialogue in Swaziland in June 2011.

⁸⁴ A budget of •1 m.

⁸⁵ Often called the 'three dimensions of IWRM'.

⁸⁶ See Trolldalen [Trondalen], 1992: *International Environmental Conflict Resolution – The Role of the United Nations*, UNITAR; NIDR, New York and Washington DC.

⁸⁷ See Trondalen, 2008 and World Bank, 2007.

⁸⁸ See Annex 4: *Some relevant lessons learned from successful management of transboundary resources*, of the Project Progress Review (PPR), Second Phase: 2008- 2011 – Technical Cooperation Programme – GIZ Transboundary Water Management in SADC.

⁸⁹ See Trondalen, 2010: *Support for the Arab States 2011- 2013, Enhancing Management of Transboundary Water Resources*, UNDP, Cairo – findings derived from Trondalen, 2008.

⁹⁰ Trollaldalen [Trondalen], J.M. 1997.

⁹¹ As in the case of those set by the UN Economic Commission of Europe.

⁹² Trondalen, 2008.

⁹³ *This section is based on the UNESCO-IHP, PCCP Series volumes Water security and peace - A synthesis of studies prepared under the PCCP-Water for Peace process, William J. Cosgrove; and Conflict and Cooperation in the Management of International Freshwater Resources: A Global Review, Erik Mostertin: http://waterwiki.net/index.php/Water_Conflict_and_Cooperation/Lessons_Learned.*

⁹⁴http://waterwiki.net/index.php/Water_Conflict_and_Cooperation/Nile_River_Basin

⁹⁵http://waterwiki.net/index.php/Water_Conflict_and_Cooperation/Mekong_River_Basin

⁹⁶The riparian countries of the Rhine River Basin comprise such an example: http://waterwiki.net/index.php/Water_Conflict_and_Cooperation/Rhine_River_Basin.

⁹⁷ Cf. http://www.danishwaterforum.dk/events/Transboundary_2007/Workshop%20Paper%20-%201-2%20March%20-%20final.pdf.

Furthermore, the still vague notion of the equitable distribution of benefits is behind some of the world's most successful institutions. The idea concerns the distribution of benefits from water use – whether from hydropower, agriculture, economic development - through a 'basket' of benefits. The Colombia River Basin Treaty (United States–Canada) provides an example of such an approach, which involves aesthetics or the preservation of healthy aquatic ecosystems – not the raw resource of water itself. Distributing water-use benefits allows for 'positive-sum' agreements, whereas dividing the water itself may create winners and losers. Multi-resource linkages may offer more opportunities for creative solutions to be generated, allowing for greater economic efficiency.

⁹⁸ See also the arguments outlined in the above-mentioned Project Progress Review (PPR), Second Phase: 2008- 2011 – Technical Cooperation Programme – GIZ Transboundary Water Management in SADC (BMZ, DFID, AusAID); see *Summary* as well as p 27.

⁹⁹ World Bank's recent report *Conflict, Security and Development 2011*.



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