

## **Contribution of cooperative management of water resources to regional integration in SADC**

This paper reports on the results of an investigation into the contribution of cooperative management of water resources to regional integration in SADC. The study found that, while a few bilateral projects had contributed to economic development, there was little evidence of a systemic contribution to formal integration. An evaluation of the opportunities and constraints suggests that more effective inter-sectoral coordination at national level to make better use of resources to stimulate industrial development is the first priority. A more general conclusion is that a functional approach to integration that seeks and supports practical opportunities for mutually beneficial cooperation is more likely to succeed than a focus on generic regional institution building.

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## **Introduction**

This paper reports on the results of an investigation into whether cooperation in the management of shared water resources has contributed or could contribute in the future to regional development and integration in SADC. It then briefly considers the implications of this for the promotion of SADC's regional industrialization, development and integration agenda.

There is a widely held belief that cooperation in the management and development of the shared rivers of Southern Africa can make a substantive contribution to regional integration in Southern Africa (African Union 2009). This belief is of long standing and is reflected in the approach taken to shared river issues in SADC.

Cooperation in water management was addressed in the initial programme of the SADCC, SADC's precursor, (SADCC 1980). At that time, it was explicitly identified as a potential source of cheap energy to support the economic development of the SADCC countries as well as offering the potential for agricultural development.

The first technical protocol of SADC, after its transition from the SADCC, was an agreement to govern cooperation between SADC countries in the management of shared rivers (SADC 1995). It was substantially rewritten five years later after a number of countries had raised concerns and refused to ratify it (SADC 2000). Subsequently, considerable effort has gone into building regional institutions for the purpose with permanent river basin organisations (RBOs) established for the Orange-Senqu (ORASECOM), Zambezi (ZAMCOM), Okavango (OKACOM) and Limpopo (LIMCOM) rivers. (SADC 2015)

The study concludes that the focus on regional river-basin focused water management institutions has not promoted development or integration. On the contrary, the evidence suggests that it has contributed to a failure to mobilise some of the development opportunities that water resource development offers in the region.

These conclusions were confirmed at a larger scale during a review undertaken for the African Development Bank which tasked to consider the future prospects for regional cooperation in water resource development and management (Muller and Wright 2014).

The Southern African study sought to understand in greater detail the origins and validity of the underlying assumptions about the links between cooperative water management and regional development and integration. It also aimed to review the outcomes of regional cooperation in water resource management to date and to consider how best cooperative water resource development and management contribute to these overarching goals.

The study was supported and complemented by a related stream of work on the emergence in Europe in the 1990s of an environmentally focused paradigm for water resource management and its promotion through development assistance channels (Muller 2008, 2015).

## Study and findings

The study found that, although there were significant examples of cooperation between SADC countries on specific projects that contributed to economic development, these arose to address specific development needs and were not supported by the river-wide or region-wide institutions that are currently being promoted.

Such projects include the various phases of the bilateral Lesotho Highlands Water Project (Lesotho – South Africa); the Komati Basin Water Authority programme (Swaziland–South Africa); the Ruacana hydropower project (Namibia-Angola); and the Kariba dam hydropower project (Zambia-Zimbabwe). What these projects and programmes have in common is that, with the exception of the Ruacana project, they are based on cooperation between some (but invariably not all) of the countries that share the rivers concerned.

While each of these cooperative projects contributed to the achievement of specific objectives (urban and industrial water supply, irrigation development and hydropower generation), there was little evidence of a systemic contribution to formal integration or of any specific contribution to regional industrialization. It is also relevant that in all four cases, they derived from colonial or apartheid era initiatives.

More recently, one example of regional cooperation with a positive outcome has been the signing of a water-sharing treaty between Mozambique, South Africa and Swaziland on the use of the water of the Komati and Pongola/Maputo rivers (Van der Zaag and Vaz 2003). However, this agreement did not lead to joint development action but rather provided a framework within which **local** development could take place in each country. It facilitated investment in an irrigation project in Swaziland, assured a future source of water for the city of Maputo in Mozambique and provided South Africa, as the upstream country, with an agreed limit to its use of the rivers' waters.

In order to assess the potential for joint water resource development projects, a high level estimate was made to identify and make a rough estimate of regional trade that could be regarded as water-related. The sectors identified lay primarily in the areas of hydropower and agriculture. In this context, the 1500MW of power supplied from Cahora Bassa in Mozambique to South Africa (with a smaller amount to other countries in the region) is already a small but useful contribution to the region's overall demand for power (over 50 000MW). An important issue, that was not considered but should be noted, is that hydropower provides a valuable contribution to the energy mix by virtue of its flexibility and rapid response time which will become increasingly important if a growing proportion of variable renewable sources is incorporated.

In agriculture, while irrigated agriculture makes an important contribution to overall agricultural production in the region, not a great deal of this is traded within the region and its development is less dependent on cooperative activities on shared rivers. One reason for this is that there is limited agricultural specialization with most countries producing the same range of basic commodity crops (Pratt et al 2009).

One exception is sugar, which South African domiciled companies are producing throughout the region. But their production is not integrated into a regional industrialisation process; indeed, the countries compete with each other for market access and companies take a portfolio approach to maximize opportunities and minimize risks. Meanwhile, opportunities for downstream development, notably in the field of bio-energy have not been taken, largely (according to sources within the companies) because of a failure of regional cooperation which has not provided a framework for such cooperation.

Again, one advantage of regional cooperation in agricultural planning and production is that irrigation offers greater stability of production than rainfed farming. Beyond this, regional diversification of production (both rainfed and irrigated) provides greater protection against climatic variability and change which is important from the perspective of regional food security.

There is limited navigation in Southern African rivers and lakes; what there is, notably on Lake Malawi, is primarily of local and national rather than regional importance. Regional navigation indeed provided an example of a notable failures of regional cooperation in Southern Africa after Malawi's failed attempt to persuade Mozambique to cooperate in opening the Zambezi river as a route to the sea.

Beyond this, there is little potential for cooperation in water management to make a significant direct contribution to the regional industrialization and regional economic integration agenda.

These findings are similar to those found in the continent-wide review undertaken for the African Development Bank. The exception is the well-known case of the OMVS scheme on the Senegal river, developed by a river basin authority to meet a range of development needs for most (but not all) of the riparians; the specific circumstances of its evolution are described in Alam (2012). In general, however, the conclusion was that most water resource development will continue to be based on projects at a local or national or national level even where they are implemented in river systems that are shared between a number of countries.

## **Discussion**

### **Generic determinants of limited outcomes**

There are a number of technical factors that account for the limited potential contribution of water and its management to regional integration and development.

First, unlike other network infrastructure (transport, energy, communications) water does not need a regional infrastructure for the first order purpose of transporting the resource from one place to another. In most cases, the shared rivers themselves provide the primary "linkages" between countries across the region.

Second, although there is a widespread perception of SADC as a water scarce region, there is not, as yet, wide-spread water shortage in SADC countries, measured in terms of water available per capita (although if populations continue to grow, availability will decline). The primary determinant of

apparent “water scarcity” is the lack of funds for infrastructure which means that many countries cannot afford the investments needed to access the water that is potentially available to them at a local level. The concept of “economic water scarcity” is now well recognised and is used to characterize the general challenges of sub-Saharan Africa where the proportion of available water actually used is very low (Seckler et al 1999).

Third, water is a very bulky commodity of low value (in terms of value per mass) which means that local scarcity is cannot economically be addressed by the physical import of large volumes over long distances. As economies grow and become more productive, the cost of abstracting and transporting large volumes of water (or, in coastal regions, the alternative of seawater desalination) becomes more affordable; until that point, water availability is a constraint to economic activity.

### **Environmental regionalism and its impact**

A further factor that accounts for the limited contribution that water resource development has actually made to regional integration and development in SADC is that the regional water agenda has been skewed in favour of environmental protection rather than social and economic development. As a result, some of the limited opportunities for cooperation have been missed, notably in the realm of hydropower, weakening the contribution to integration.

Unfortunately SADC’s establishment coincided with a period of green/blue activism in Europe. Since water is seen as a soft social and environmental policy area, it was attractive for donors and SADC governments could divert their limited funds to less popular sectors – such as security. As a result donors provided a large proportion of the sector’s finance and the local sector professionals often paid more attention to their priorities than to those of national stakeholders; at the least, policies were often not the result of the careful domestic reflection and negotiation that determined local budget allocations.

The environmental focus of water management in the region over this period thus came to reflect approaches that emerged in Europe over the past two decades (Muller 2015). These were a response to the emergence of environmental movements as an organized political force, which sought to raise the priority of environmental protection and conservation. Underpinned by theoretical analyses of environmental governance, these groups sought to promote management systems that enabled environmental priorities to be operationalized.

The idea that environmental features such as river basins should delineate the boundaries of political regions has a long provenance. This is associated with the belief that river basins offer a logical framework for regional economic development. A widely-cited example is the Tennessee Valley Authority (TVA) development in the USA in the 1930s (Schaffer 1984).

Reinforcing this view was the fact that navigation was indeed an important driver of economic development during Europe’s industrial revolution in the 18<sup>th</sup> and 19<sup>th</sup> century; similarly, the

construction of cascades of hydropower dams powered industrial development in regions of the USA and elsewhere during the 20<sup>th</sup> century. But the economic opportunities provided by water are limited and have to compete with other mechanisms - inland navigation, for instance, is generally declining in importance while many alternative technologies are now available for power generation.

For these reasons, the use of environmental boundaries regions to delineate economic development regions is not generally supported on theoretical grounds or by a review of the evidence. Indeed, the record now shows that even the flagship TVA project was not developed because it focused on a river basin - rather, the river-basin focus enabled then-President Theodore Roosevelt to escape the constraints on federal government action to promote economic activity in individual US states (Meyer and Foster 2002). More recently, European governments rejected attempts to place water resource management in shared rivers in the hands of RBOs when the Water Framework Directive was promulgated in 2000 (European Union 2000).

One consequence of the environmental focus has been that the region's hydropower potential, long identified and envisaged as a priority for regional cooperation, has not been developed. This reflected the antagonism towards dams and related hydraulic projects that is prevalent in Northern Europe and the USA, both societies which already benefit from major structural investments that, over the past two centuries, have built water security. The resultant obstruction of infrastructure development in Southern Africa has aggravated the regional energy crisis that began in the early 2000s and has, if anything, reinforced a determination of countries to focus on energy self sufficiency and develop national rather than regional capacity (CRIDF 2014).

### **Institutional issues – single sector focus, externally driven**

If the environmental focus of regional water resource management cooperation was one reason that hydropower investments did not materialize, another was that the sectoral approach of SADC did not enable the regional demand for increased power generation to be coordinated with the development of the water resource that could provide it.

This was a corollary of the environmental governance approach that was promoted in Southern Africa through SADC's programmes, which were almost entirely donor-financed (Muller 2013). A specific focus of this assistance was the establishment of river basin management institutions with supranational powers, as provided for in the original Protocol (1995).

The provision which would have delegated supra-national powers to RBOs was diluted in 2000 by revisions to the Protocol which substantially reduced this institutional prescription, reflecting the unwillingness of some of the member states to accept the loss of sovereignty inherent in the original vision of operational RBOs. However, even after the revision of the Protocol, the focus on the establishment and development of the RBOs continued. SADC still claims that the RBOs are actually managing the shared basins (SADC 2015) although they have at best advisory functions. Yet the propaganda for them has been effective. South Africa's then-Minister of Water Affairs was sufficiently

influenced by the RBO propaganda to tell an international audience that ORASECOM deserved a special mention “as the midwife of the world renowned Lesotho Highlands Water Project” (REF Stockholm WWF 2012) although it had no role which was overseen by a bilateral Joint Commission between the two countries. And SADC’s RBOs have been supported to produce strategic plans for development in their basins despite their poor articulation with the national development planning processes of the countries concerned.

It is increasingly widely recognized that this approach is inappropriate (Muller 2015). This is because the economic and social sectors that are the key stakeholders in water management and development are organized within national and local political boundaries and that it is at these levels that the primary economic planning and management activities should be focused (Herrfahrtd-Pähle 2010).

This focus threatened to distract from the important but limited role for shared river institutions. They can perform a valuable function in ensuring that there is effective communication and coordination between national water management institutions and, occasionally, may be able to facilitate the development of specific opportunities for active cooperation between some (rarely all) riparian states. This was demonstrated in the Incomati basin where there is, as yet, no autonomous basin organization but rather a structure for cooperation between national water agencies.

Basin organisations can also coordinate the management of hydrological information, provide flood warnings and help to develop appropriate environmental management approaches since these are functions that are best performed within the natural boundaries of the river basin.

## **Conclusions**

### **Water and its management’s indirect contribution to integration and development**

An evaluation of the opportunities and constraints presented by water resource availability suggests that a focus on functional cooperation rather than on generic institutional development is more likely to make a practical contribution to regional development and integration. This would be enabled by more effective coordination between water managers and other sectors at the level of each country, rather than regional level engagements between those national water managers in isolation.

From the perspective of the water sector, there are opportunities for cooperation and mutually complementary development primarily in the fields of energy, agriculture and food security. To mobilise such opportunities, the challenge is not to promote greater cooperation between the region’s water managers but rather to encourage greater coordination with the relevant sectors - energy and water on the one hand; trade, agriculture, social development and water on the other.

However, the primary contribution that water management can make to regional integration is to demonstrate the potential for mutual benefit that can be derived from simple communication and information-sharing. The example of the Incomaputo Agreement (see above) showed that exchanges of information and an agreement on the extent and nature of each party’s water use was sufficient to

allow each party to meet their local objectives. The benefits derived from Lesotho's cooperation with South Africa on the Highlands Water Project and to Zimbabwe and Zambia through their cooperation on the Zambezi river were the result of the identification of specific opportunities for cooperation between the relevant authorities of the states concerned.

It is also perhaps relevant that most of the cooperative water resource projects in Southern Africa were initiated in the colonial or apartheid era. The reason for this is that such practical programmes of cooperation were a response to the strategic pressures on the colonial and apartheid regimes, which responded with warped developmental state of a special type. The conclusion that may be drawn from this is that the opportunities for cooperation currently existent are not yet considered to be of sufficient strategic importance to justify the effort of promoting as joint projects.

### **Some reflections on the wider implications for regional integration**

These conclusions have parallels in the efforts of SADC over the past 15 years to promote regional development and integration. SADC has seen an intensive focus on the development of its institutions and the pursuit of generic institutional milestones, primarily in the economic and financial domains. This has failed to achieve its targets as has been acknowledged by the organisation's own internal reviews (see, for instance SADC 2012)

Drawing from the water sector, the conclusion could be drawn that cooperation is more likely to succeed – and to produce the desired outcomes - when it is targeted at specific interventions with clearly identified partners and visible short-term benefit streams. Indeed, this is how the European Union was started, with its focus on the integration of coal and steel industries.

It is suggested that, in industrialization as in the more limited scope of water resource management, a functional approach to integration that seeks and supports practical opportunities for mutually beneficial cooperation is more likely to succeed than a focus on generic institution building and efforts to create a “supportive environment”. And the focus for inter-state coordination would more usefully be inter-sectoral – perhaps at the level of national planning commissions, than intra-sectoral, as presently occurs.

Part of the problem is that much of the drive and support for SADC's regional programmes has come from donor agencies. A consequence of this is that there has been limited incentive for member states to rigorously interrogate their priorities. European support has, for obvious reasons, been guided by European experience which, with the benefit of hindsight has not been particularly appropriate – and indeed has often not even reflected accurately the history of the European integration process.

The lesson from this, as well as from the apartheid and colonial history, is that the drive for more effective regional industrialization and integration is unlikely to have a significant impact unless it becomes an issue of strategic priority for the relevant governments in the region. The factors that might allow this must be the subject of a wider study of the region's political economy.

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