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# Regional food security and water in SADC

## The potential for sectoral-synergies within CAADP for the implementation of the SADC Regional Agricultural Policy

**Francesco Rampa and Lesley-Anne van Wyk**

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### Key messages

Improved Agricultural Water Management (AWM) is crucial for regional food security and it would in particular benefit from the alignment of development agendas among water, agriculture and trade sectors.

The SADC Regional Agricultural Policy (RAP) implementation can also be supported by analysis of complex interactions across geographical levels (local, national and regional) that affect the contribution of water management to regional food security.

Bridging different sectors and geographical levels will be key for connecting regional agricultural frameworks with actions from national and local AWM networks and initiatives in SADC.

This paper provides suggestions for such potential synergies for improved Transboundary Water Resources Management (TWRM) in SADC, especially in the context of the Regional CAADP Investment Plan derived from the RAP.

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# Acknowledgements

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# Acronyms

| | |
|---|---|
| ADF | Agricultural Development Fund |
| AfDB | African Development Bank |
| AgWA | Partnership for Agricultural Water for Africa |
| AMCOW | African Ministers' Council on Water |
| AU | African Union |
| AWF | African Water Facility |
| AWM | Agricultural Water Management |
| CAADP | Comprehensive Africa Agricultural Development Programme |
| COMESA | Common Market for Eastern and Southern Africa |
| DBSA | Development Bank of Southern Africa |
| DFID | Department for International Development of the United Kingdom |
| EAC | East African Community |
| ECDPM | European Centre for Development Policy Management |
| ECOWAP | Economic Community of West African States' Agricultural Policy |
| FAO | Food and Agriculture Organisation of the United Nations |
| FTA | Free Trade Agreement |
| GiZ | *Gesellschaft für Internationale Zusammenarbeit* |
| ICT | Information and Communication Technology |
| ICP | International Cooperation Partners |
| IFAD | International Fund for Agricultural Development |
| IWMI | International Water Management Institute |
| IWRM | Integrated Water Resource Management |
| LBDC | Limpopo Basin Development Challenge |
| LHWP | Lesotho Highlands Water Project |
| LUSIP | Lower Usuthu Smallholder Irrigation Programme |
| NEPAD | New Partnership for Africa's Development |
| NPCA | NEPAD Planning and Coordinating Agency |
| NGO | Non-Governmental Organisations |
| MDTF | Multi-Donor Trust Fund |
| MNC | Multinational Corporations |
| MS | Member States |
| MUS | Multiple Use water Schemes |
| NPCA | NEPAD Planning and Coordination Agency |
| OKACOM | Okavango River Basin Water Commission |
| PEA | Political Economy Approach |
| PERISA | Political Economy of Regional Integration in Southern Africa |
| RAP | Regional Agricultural Policy |
| RBO | River Basin Organisation |
| REC | Regional Economic Community |
| RISDP | Regional Indicative Strategic Development Plan |
| SADC | Southern African Development Community |
| SADC EAW | SADC Secretariat Economic Accounting of Water Use Project |
| SADC FANR | SADC Secretariat Food, Agriculture and Natural Resources Division |
| SADC I&S | SADC Secretariat Infrastructure and Services |
| SADC TIFI | SADC Secretariat Trade, Industry, Finance and Investment |
| SLWM | Sustainable Land and Water Management |
| SWADE | Swaziland Water and Agricultural Development |
| TWRM | Transboundary Water Resources Management |

| | |
|---|---|
| UNCCD | United Nations Convention to Combat Desertification |
| USAID | United States Agency for International Development |
| WaterNet | Southern African Network for capacity development in IWRM |
| WEL | Water Energy Land Nexus |
| WSRG | Water Strategy Reference Group |

# Executive Summary

## About this study

**The Comprehensive Africa Agriculture Development Programme (CAADP)** was established by the Assembly of the African Union (AU) in 2003. The Programme's main aim is to raise agricultural productivity by at least 6% per year while increasing public investment in agriculture to 10% of the annual national budgets. Following an initial focus on interventions at the national level, there is growing awareness of the need to work more on the regional dimensions of the CAADP.

In this context, the European Centre for Development Policy Management (ECDPM) undertakes, with its African partners, relevant policy-oriented analysis and multi-stakeholder dialogue facilitation around the regional CAADP issues and processes as well as on their linkages with the broader regional integration dynamics, in various African regions. This paper focuses on **regional water management and cooperation in the Southern African Development Community (SADC)** and its Regional Agricultural Policy (RAP), with the objective to stimulate further discussions among involved stakeholders, to contribute to the consultative processes and implementation of CAADP at regional level, as well as contribute to lessons-sharing across Africa on regional approaches to water for agricultural production.

Whereas global, regional, national, and local **realities of water management** are fundamental to consider in the preparation and implementation of the RAP - essentially the CAADP Regional Compact in Southern Africa - water issues do not feature prominently in CAADP processes in the SADC region. This is despite the Region's strong efforts to address water resource management through transboundary frameworks and organisations. Water has played a unifying role to spearhead cooperation in the Region with the Protocol on Shared Watercourses being the first treaty to be ratified at the level of SADC. As a result of this historical and political standing of water governance in the machinery of SADC regional cooperation, the Region presents interesting cases of Transboundary Water Resources Management (TWRM).

**Linking TWRM processes with CAADP objectives has remained minimal in SADC.** As a result of recent regional planning processes however, the SADC RAP, adopted by the SADC Ministers in June 2013, acknowledges this crucial link between the agriculture and water sectors. The RAP emphasises in this sense that integrating water management concerns into agricultural policy and investment could generate considerable economic and social gains for the region and its member states.

**Food security is very much a regional issue and requires transnational trade and agricultural cooperation.** This paper therefore focuses on regional food security issues while linking to the national as well as the household levels where food is produced, distributed and consumed. Likewise, any analysis of water resources management cannot exclude local realities, as water remains, to a large extent, a local resource. This is particularly relevant for the biggest water consumer in Southern Africa: agriculture.

To ensure focus and relevance, the following **guiding questions** were used to assess the potential for sectoral and geographical synergies in the implementation of the SADC RAP:

1. Why is better management of shared water resources in SADC important for improving regional agriculture?
2. What are the complexities related to multi-sectoral (water, agriculture and trade) interactions and geographical (local, national and regional) interactions that affect the contribution of water management to regional food security?
3. In what ways can the RAP be translated into better policy, coordination and investment for using such synergies to improve regional food security?

**Three sectoral interactions across three sectors**, all key in support of regional food security, are explored in greater detail (as illustrated in Figure 1): (i) water and agriculture, (ii) water and trade, and (iii) trade and agriculture. These relationships underpin this paper's recommendations for implementing the RAP policy statements on improved management of agricultural water, taking into account the realities of local, national and transboundary water management in SADC. Such "triangular" conceptualisation is proposed as a means to illustrate the complex aspects of cross-sectoral and transboundary cooperation for improved agricultural water management (AWM) for food security in the SADC region.

There is considerable scope to improve the **capture, storage and utilisation of water** for agriculture and food security in SADC. Agriculture is the largest consumer of water in the region and the majority of the SADC population depends on agriculture for their food and livelihoods. Despite this high water consumption and reliance on agriculture, less than 5% of croplands in SADC are irrigated, making improved AWM a crucial precondition to raise agricultural productivity. Transboundary water resource management in SADC is also significant as over 70% of the water in the region is shared by two or more member states.

As such, **opportunities exist** for operationalizing the RAP by focusing on the 'horizontal' relationships between sectors crucial for improved food security (such as agriculture, water and trade) and across the 'vertical' local, national and regional levels for regional cooperation. Water is a highly political issue and discussions about scarce water resources often taint cooperation between the region's diverse water users. Improving water efficiency through technical and policy interventions, which also mean more availability of water, thus present opportunities for solving conflicts that arise from water scarcity.

**In terms of methodology,** this non-exhaustive study is based on desk-research and interviews with key stakeholders from Southern African institutions and initiatives working on agriculture as well as water issues.

## Findings and conclusions

The main findings are divided according to the three broad areas of focus of the paper.

**I. The big picture: water resources management for regional food security**

1. **The greatest potential for both improved AWM and economic growth in the SADC region lies in irrigating its land**. As such, urgent action is needed at both national and regional levels to address both the overdependence on rain-fed crop production (which is exacerbated by climate change-induced natural hazards such as droughts and floods) and the inadequate water control and irrigation infrastructure. These are important features that constrain the efforts for enhancing productivity and competitiveness of the region's farmers.

2. **The role of regional governance is very important in managing shared resources** because hydrological and climatic zones do not correspond with the political and administrative boundaries of individual states. These natural systems and national boundaries also do not match the sectoral delimitations of regional cooperation frameworks, such as CAADP.

3. Water features prominently in the policies and Protocols adopted at regional level but **water resource management principles for the shared waters of the region (70% of all water in SADC) are not consistently incorporated into the design of projects and behaviours of key stakeholders** at national and local level.

*Water for agriculture in existing cross-sectoral and transboundary approaches:*

4. The RAP addresses climate change as a cross-sectoral issue for reducing the economic and social vulnerabilities of the region's population. Therefore, **tackling climate change also presents opportunities for improving food security,** including by strengthening cross-sectoral regional frameworks for food production and management of shared water resources.

5. Investing in water infrastructure, especially for water storage, is indeed a buffer against climate change related rainfall variability. But even without the threat of climate-induced phenomena, such investments require the institutional apparatus for effective water storage, distribution and management. **A strengthened water sector would by default address numerous climate change-related concerns for agriculture especially**.

6. The SADC RAP acknowledges that water use and management, in particular at regional level, require an integrated **approach that takes into account water, energy and land issues.** To implement the RAP, it is key that its investment plan takes into account the need for improved dialogue across national and regional levels and between sectors key for food security. The Water, Energy, Land (WEL) Nexus is an example of such an integrated approach and could be used during RAP implementation for improved transboundary cooperation and cross-sectoral dialogue.

*Water for agricultural trade in water footprint and virtual water trade mechanisms:*

7. SADC regional water policies have long since acknowledged the importance of **water for agricultural production and the promotion of intra-regional trade**. This has taken the form of the conceptualisation of water in terms of 'comparative advantage in water availability' between countries or of the 'embedded' water content in various stages of the production chain for traded agricultural and other commodities, goods and services.

8. This recognition in SADC water policies (including the SADC Revised Protocol on Shared Watercourses, the SADC Water Policy and Regional Water Strategy) and the RAP of water as key to potentially promoting intra-regional agricultural trade is central to the arguments of this paper. This recognition highlights the present and forecasted challenges regarding water availability in the region and that **water resource governance immediately impacts regional food security and agricultural trade.**

9. In SADC, the water footprint and virtual water trade concepts have the benefit of bringing together i) the potential for increased regional trade, ii) the prospects for agricultural growth and iii) the increasing water stress of several SADC economies. Simultaneously considering these issues, regional cooperation for food security may centre on **establishing a regional policy, coordination and investment framework aimed at food security and linking regional agricultural trade with the availability in each SADC member state of the water to produce such traded goods.** This would include mechanisms for member states to trade more food within SADC in cases when one of the states faces a water shortage crisis (e.g. due to droughts).

*Bottlenecks to link improved water governance and agricultural trade in SADC:*

10. **Decisions regarding water, energy and land that impact all or most states sharing the same river are frequently made unilaterally, outside regional platforms specifically set-up/mandated to coordinate such decision-making processes.** This is an example of a challenge for the domestication of all SADC policies and approaches into national frameworks and programmes.

11. Another bottleneck for improved water governance in the region is that **the majority of farmers in SADC are smallholder or subsistence farmers and account for most of the region's agricultural production but very often do not have access to the policy-formulation processes for water governance**.

**II. The need to bridge different sectors and geographical levels: connecting regional agricultural frameworks with actions from national and local AWM networks and initiatives**

*Key international, regional, national and local actors/initiatives*

12. **Regional collaborations for TWRM seem to be working relatively well, both as cooperation within SADC member states and institutions and between SADC and development partners**. This is particularly valid for the multi-sectoral Water Strategy Reference Group (WSRG) that brings together the SADC Secretariat and all international cooperation partners in the water sector.

13. Since regular engagement and dialogue with development partners is important for the **implementation** of the SADC RAP, **the experience of groups such as the SADC WSRG could be used to replicate the successful experience of the water sector.** In particular for the purpose of stakeholder awareness, information sharing, and external support to regional cooperation needs.

14. **In practice, water resources in SADC are usually managed, monitored and distributed through local governments and local actors** who are often not aware of the operations of the basin **commissions** and their role in them. In order to improve food security, it is important for national and regional actors to more directly engage local actors for transboundary agricultural water initiatives.

*Urban and rural household food security*

15. Food security is not simply about producing food or allocating natural resources. Food security is more importantly about **building the social and economic means of production and safety nets to address vulnerability**, and this cannot be done outside of the unit of the household.

16. **Urban food security** is increasingly becoming an area of concern for development. And with urbanisation comes the transfer of rural poverty to urban areas. While combined food supplies may be sufficient at the metropolitan scale, access to that food is highly inequitable in Southern African cities.

17. **Policy making for water thus offers an opportunity to forge linkages across national, urban and rural actors for sustainable urbanisation and agriculture**, as cities are engines of rural development. Regional institutions and processes should thus seriously consider such opportunity for real impact.

*Political economy for actors across levels*

18. AWM involves many different actors and incentives, power struggles, vested interests and political and economic deals. **A Political Economy Approach (PEA) is useful in this paper as a means to raise awareness on the related processes that hinder implementation of water reform overall and for agricultural production in particular**.

19. After gaining Independence, most state-builders in SADC countries inherited immense problems of labour and industry and in order to ignite national economic production, trade and social development, **natural resources and especially water were viewed as means to gain power, build their economies and create jobs**.

20. **National interests and state sovereignty are thus central to regional attempts to manage** transboundary **water resources**, especially given the absence of a punitive framework for non-compliance with River Basin Organisations in SADC.

**III. What CAADP can do: potential synergies under the RAP for improved AWM in SADC**

*Operationalization of TWRM in RAP*

21. **RAP policies and investments could be coordinated with and complementary to the SADC Water Infrastructure Programme** to boost agricultural production through improved water management and infrastructure.

22. Water has multiple uses for a variety of users in the river basins of SADC. As such, the action plan of the RAP could benefit from incorporating lessons from past and existing TWRM programmes and **initiatives** in the region, particularly **projects that use a mix of methods and approaches to engage a diversity of actors across different levels**. An example of such an initiative is the Limpopo Basin Development Challenge.

23. Regional water experts recognise the **need for investment in practical areas such as the installation and maintenance of Multiple Use Systems (MUS) as** part of an integrated approach to **water** for agricultural productivity, domestic use, and livelihood and nutrition diversification.

24. Water infrastructure development prioritized in the SADC RAP, including cross-border irrigation **schemes**, will require that water rights are secured in order for regional agricultural projects to abstract and store water from natural sources. The process of developing water related investment programmes under the RAP, i.e. designing the Regional CAADP Investment Plan for AWM, will therefore require that **credible RAP implementation plans consider that these water rights are usually conveyed at national and often community-level scales and engage these stakeholders early in these processes.**

*Opportunities for triangular sectoral-synergies of agriculture, water and trade*

25. **Food security both at national and regional levels remains a goal of common interest for all national and regional players in the water, agriculture and trade sectors.** The RAP is also explicit on the need for effective management of shared water resources for agriculture in SADC.

26. **The text of the SADC RAP already incorporates water resources for agriculture as a key policy issue and the pairing of agriculture and trade are at the heart of the SADC RAP documents.** This alignment in the RAP of the three sectors water, trade and agriculture may be enhanced for **implementation** through most of its key priority areas including: i) improved sustainable agricultural production, productivity and competitiveness; ii) improved regional and international trade and market access; iii) improved private and public sector engagement and investment in agricultural value chains.

27. **Once water can be better captured, stored and managed for agriculture in some member states, water can be liberated for consumption in the manufacturing sector in other member**

**states**, thus boosting intra-regional trade while contributing to regional food security, livelihood development and economic growth. The RAP could be the coordination and investment instrument through which to realise such cross-sectoral and cross-border cooperation for improved food security in SADC.

*Addressing broader bottlenecks for TWRM in RAP implementation*

28. Creating synergies between CAADP and existing regional water frameworks may also mean **building on progress made by clusters of countries in specific areas without all SADC member states moving together at the same pace.**

29. **Policy and investment strategies should be explicit on the need for simultaneous support for 'hardware' of infrastructure development in TWRM and 'software' of institutional and human resource** development **in the water sector.** This is especially relevant considering the importance of water governance for realising regional food security as outlined in the RAP.

30. **Investment** needed **to bolster the implementation of the RAP for TWRM will require simultaneous investment in capacities at local, national and regional levels and infrastructure at the same levels.** Most of the RBOs in Africa tend to be staffed by technical experts from the water sector with minimal representation from other sectors, including agriculture, which hinders appropriate consideration of the multifaceted, cross-sectoral approaches that are needed to transcend traditional administrative boundaries or 'working in silos'.

31. **SADC processes for food security, starting with the RAP, could aim to further improve the roles of public and private sector stakeholders.** Requiring for example that RBOs are included in dialogue, consultation, policy measures and institutional frameworks as well as providing more incentives to encourage investment into TWRM from the private sector.

Improved AWM for regional food security in SADC will require alignment of development agendas between sectors as well as across regional, national and local levels, in order to realise the RAP vision. Some avenues exist -and are explored in this paper- for operationalizing the section of the RAP, specific to improved TWRM for improved agricultural production (RAP Policy Statement 10.5). Other opportunities exist to capitalise on links between the RAP and already functional cross-sectoral and multi-actor initiatives in the region in order to strengthen TWRM.

# 1. Introduction

Improved coordination, coherence and complementarity between agriculture, trade, regional integration processes and development partners' support is key for Africa's development agenda. While CAADP[1] implementation at national level has gained momentum in recent years, implementation at the regional level has been slow, and progress differs between regions[2]. In Southern Africa, Ministers of Agriculture and Food Security adopted the SADC Regional Agricultural Policy (RAP), which is the regional compact in SADC, in June 2013 after a series of multi-stakeholder workshops in the various member states. This is followed by the preparation of a RAP Investment Plan for presentation to the Ministers of Agriculture and Food Security in 2014.

To contribute to the CAADP, ECDPM undertakes, with its African partners, relevant policy-oriented analysis and multi-stakeholder dialogue facilitation around regional CAADP issues and processes as well as on its linkages with the broader regional integration dynamics in African regions. The objective of this paper is to stimulate further discussions among involved stakeholders and to contribute to the consultative processes around the implementation of the RAP, particularly in terms of providing important information on regional approaches to water for agricultural production in SADC. The paper is the outcome of: extensive and regular consultations and interviews with stakeholders in the regions (including RECs Secretariats, the NPCA, government officials, donors, civil society, the private sector, and other experts from regional institutions); ECDPM's different types of informal contributions to the formal CAADP-related processes, and; deep investigation of the existing literature.

Linking Transboundary Water Resources Management (TWRM) processes with CAADP objectives has remained minimal in SADC, despite the Region's strong efforts to address water resource management through transboundary frameworks and organisations. Water has played a unifying role to spearhead cooperation in the Region with the Protocol on Shared Watercourses being the first treaty to be ratified at the level of SADC[3]. As a result of this historical and political standing of water governance in the machinery of SADC regional cooperation, and given approximately 70% of the water in SADC is shared by two or more MS[4], the Region presents interesting cases of Transboundary Water Resources Management (TWRM). There is however scope to expand and deepen dialogue around Agricultural Water Management (AWM) in discussions about the Regional CAADP Investment Plan for SADC. This dialogue about AWM can also help strengthen horizontal coherence across different sectors within the broad-based nature of the CAADP. Furthermore, the coordination, policy and investment mechanisms and platforms in the water sector in the SADC region are interesting cases from a regional integration perspective as they elucidate the complex dynamics across hydrological, national and institutional boundaries. This is applicable given that regional CAADPs are expected to complement national policies and address areas where a cross-border approach is necessary to contribute to vertical coherence across geographical dimensions and facilitate integration and complementarity at different levels. For these reasons, this paper explores the significance of regional cooperation for improved management of agricultural water for food security in the SADC region.

1 See Box 1 for a brief explanation of CAADP processes.

2 ECPDM conducted a series of institutional mapping analyses of regional approaches to food security in the African RECs. See www.ecdpm.org/dp128. The SADC mapping exercise yielded specific results on the potential of cross-sectoral synergies in the SADC water sector, particularly with the SADC infrastructure programme; see www.ecdpm.org/dp128b.

3 The TWRM approach in the region is guided by the SADC Protocol on Shared Watercourses which was the first sectoral protocol tabled and ratified by the regional body. It was first ratified in 1988 and revised in 2000, the revised text put forward a basin-approach to water management, as opposed to emphasizing territorial sovereignty.

4 See Annex 1 for a map of transboundary river basins.

Section 2 of this paper introduces the importance of sustainable management of shared water resources for regional food security and the complexities related to multi-sectoral interactions of key sectors (water, agriculture and trade) for food security. Section 3 analyses (through a political economy approach) the role of some key involved stakeholders in the SADC water sector to better understand the complex interactions of these actors across different levels of global, regional, national and local water resources governance. Section 4 concludes with some suggestions for implementing the RAP and how it can use sectoral-synergies across water, agriculture and trade to realise better cross-sectoral and regional cooperation for food security in SADC.

**Box 1: CAADP in Brief**

CAADP is the agricultural programme of the New Partnership for Africa's Development (NEPAD), which is a programme of the African Union. Established by the AU assembly in 2003, CAADP's goal is to eliminate hunger and reduce poverty through agriculture. To do this, African governments have agreed to increase public investment in agriculture to a minimum of 10 per cent of their national budgets, which is expected to result in a 6 per cent average annual agricultural sector growth rate. CAADP identifies four key pillars for food security improvement and agricultural investment: (1) Sustainable Land and Water Management; (2) Market Access; (3) Food Supply and Hunger; and (4) Agricultural Research.

The CAADP is centered around the definition of national and regional plans ('compacts'), an agreement among all stakeholders (public, private as well as donors) serving as a framework for partnerships, alliances, and dialogue to design and implement the required policy interventions and investment programmes. The formulation of national and regional investment plans is one of the most important activities to implement CAADP after the definition and signature of the compact (to date 36 out of 54 countries in Africa have signed the CAADP compacts, of which 28 have investments plans valued at US$50 billion and 24 have convened Business Meetings; for more information: www.caadp.net)

CAADP therefore is not a (donors') programme, it is a common framework for stimulating and guiding national, regional and continental initiatives on enhanced agriculture productivity and food security which each region and country can develop and implement as preferred. CAADP is an attempt at fully implementing the Paris Declaration and Accra Agenda for Action on Aid Effectiveness, and achieving the Millennium Development Goal of halving the proportion of people living on less than a dollar a day and suffering from hunger (MDG1). It is difficult to identify similar partnerships, even sector-wide approaches, that can claim to have the same: degree of African ownership (at political-bureaucratic-experts level), including at national level (unlike other AU/regional initiatives such as FTAs); robust plans for mutual accountability (serious monitoring & evaluation is built into CAADP); outreach to other sectors (trade, capacity development, natural resources, infrastructure, research and technology, safety); level of ODA predictability (substantial commitments of funds and relatively advanced alignment by donors) and regular donor coordination (e.g. headquarters focal points work together via teleconference every other week to task-divide and harmonize their CAADP activities).

The clear linkages between trade and agriculture within CAADP are confirmed by the fact that around thirty per cent of the investment needs included in national CAADP investment plans formulated so far relate to the development of market access and value chains. Weaknesses remain, with CAADP criticized by some stakeholders for lacking sufficient: private sector involvement; regional level implementation; and clarity on the continental-regional-national nexus.

The formulation and implementation of CAADP-related initiatives are driven by a broad range of actors. CAADP being a continental framework, the African Union, and particularly the NPCA, is tasked with its coordination. Designated Pillar Lead Institutions oversee and support work that falls under the 4 CAADP pillars. RECs facilitate the formulation and

implementation of a regional compact and a regional agricultural investment plan, while supporting their member states with CAADP initiatives on the national level. At the national level, governments facilitate the formulation and implementation of a national compact and investment plan. Bilateral and multilateral donors provide financial and technical support to CAADP processes and investment.

One specific financial donor vehicle to support the CAADP processes (not investments), is the CAADP Multi-Donor Trust Fund (MDTF) hosted at the World Bank. The MDTF aims to strengthen institutional capacities of African drivers of CAADP, particularly on the continental and regional level, to effectively lead, implement, monitor and evaluate CAADP processes. Beneficiaries of so-called 'Child Trust Funds' include the NPCA, Pillar Institutions and the RECs. Among the contributing donors are UK's DFID, the European Union, France, Ireland, the Netherlands and USAID.

*Source: Rampa, F., van Seters, J. & Afun-Ogidan, D. 2012. ECDPM Discussion Paper 128b. www.ecdpm.org/dp128b Updated November 2013 by Ian Mashingaidze, Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN).*

## 2. The big picture: water resources management for regional food security

According to the United Nations Food and Agriculture Organisation (FAO) food security "exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" [5]. Four dimensions of food security can be identified: physical availability of food, economic and physical access to food, food utilisation and the stability of these other three dimensions over time[6]. **In order to address food security comprehensively through analysis, policy formulation and implementation, it is necessary to consider the different levels of regional, national, household and individual food insecurity.** And it is often necessary to simultaneously assess food security at these different levels to design policies that take into account the range of economic, social and physical conditions determining food security for households and individuals especially.

**The national level is the first point of departure to assess food security because policies are most often formulated and executed at country level**. Simply put, national food security is when there is a satisfactory balance between food demand and food supply at reasonable prices[7]. But this is subject to the influence of the different factors which affect agricultural production, including for example natural phenomena, population increase and market volatility[8]. For households to be assessed as food secure their food consumption should be greater than their needs as defined by the aggregate of individual requirements[9]. For an individual to be food secure, his or her food consumption should be greater than their needs as defined by physiological requirements and also the earnings, assets and position in the household[10].

5 FAO Food Security Programme. 2008. An Introduction to the Basic Concepts of Food Security: http://www.fao.org/docrep/013/al936e/al936e00.pdf

6 Ibid

7 See Thomson, A. & Metz, M. 1998. Implications of Economic Policy for Food Security: A Training Manual. Rome: FAO

8 FAO. 2003. Trade Reform and Food Security: Conceptualising the Linkages. Rome: FAO.

9 See Thomson, A. & Metz, M. 1998. Implications of Economic Policy for Food Security: A Training Manual. Rome: FAO

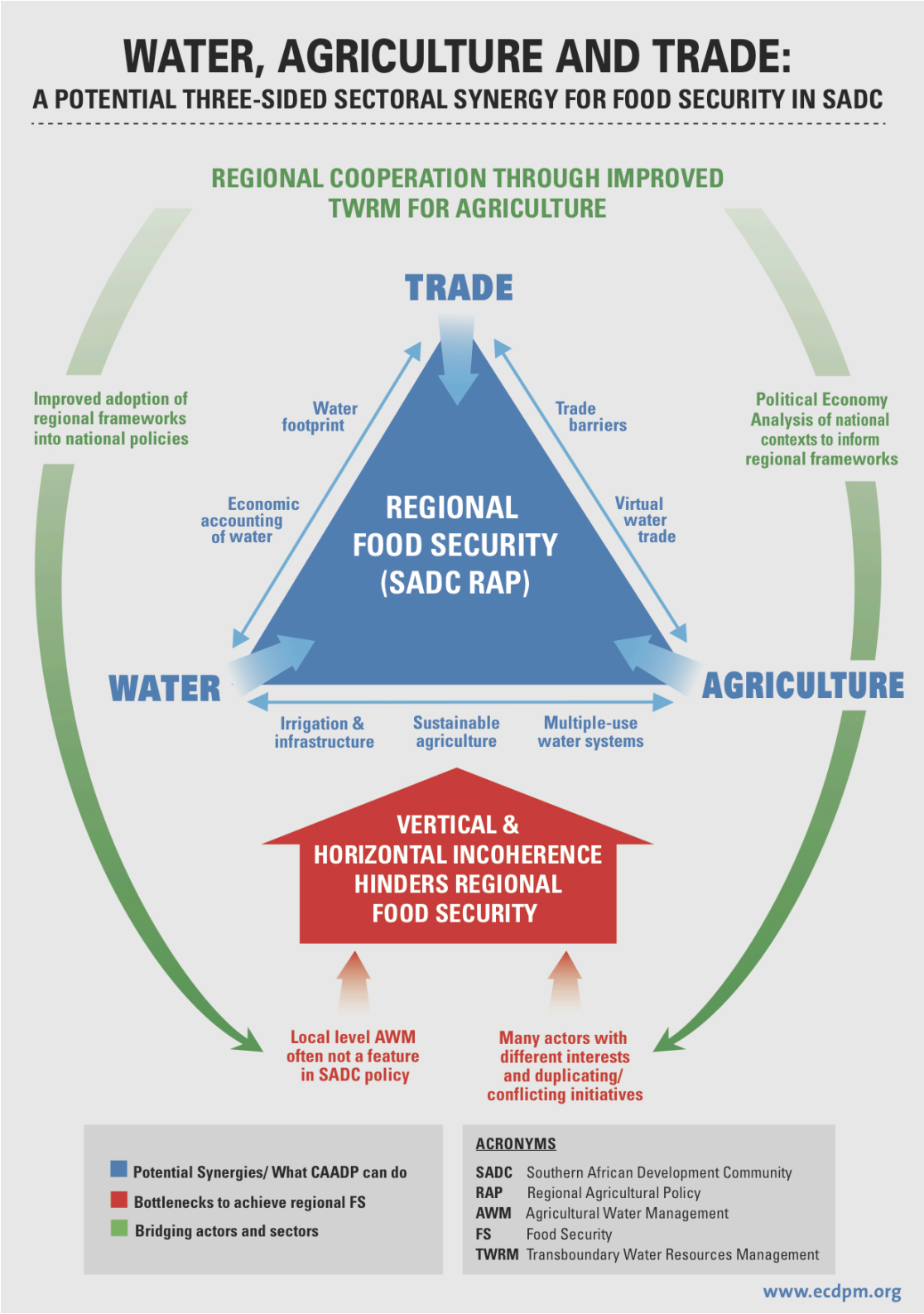
10 Ibid

Southern Africa is characterised by high food insecurity. In SADC, agriculture is the largest employer, the largest component of GDP and the biggest generator of foreign exchange[11]**.** However, the estimated number of people vulnerable to food insecurity and poverty in SADC increased by 23% in 2010 to 4.04 million people (up from 3.3 million people in 2009). Seldom can one country produce all of its food alone, therefore it is imperative to **address food security at the regional level where cooperation is vital for agriculture and trade across national boundaries**. As such, this paper focuses on regional food security issues while linking to the national and household levels where food is produced, distributed and consumed.

For the purpose of examining the importance of improved TWRM processes on regional food security, this section will look into the ways in which water resources are managed in SADC and introduce the official frameworks through which this is done for enhancing regional food security. In addition, this paper presents ways the RAP could also translate into better policy, coordination and investment for transboundary water governance for agriculture in the region. **Three sectoral interactions across three sectors, all key in support of regional food security, are explored in greater detail (as illustrated in Figure 1); (i) water and agriculture, (ii) water and trade, and (iii) trade and agriculture.** These relationships underpin this paper's recommendations for implementing the RAP policy statements on improved management of agricultural water, taking into account the realities of local, national and transboundary water management in SADC. Such "triangular" conceptualisation is proposed as a means to illustrate the complex aspects of cross-sectoral and transboundary cooperation for improved agricultural water management (AWM) for food security in the SADC region.

11 Ibid

**Figure 1: Water, agriculture and trade: a potential three-sided sectoral synergy for regional food security in SADC** [12]




12 Mohammed Ait Kadi from Global Water Partnership (GWP) proposed a similar approach in 2011 for regional food and water security using the case of Morocco. It is termed the Water-Agriculture-International trade Nexus and focuses on ways in which this cross-sectoral synergy complements more efficient and equitable water allocation to tackle water scarcity and food insecurity exacerbated by climate change.

## 2.1. Water resources management for food security: the CAADP approach

CAADP identifies four key pillars for food security improvement and agricultural investment: (1) Sustainable Land and Water Management; (2) Market Access; (3) Food Supply and Hunger; and (4) Agricultural Research. AWM falls under CAADP Pillar 1 for Sustainable Land and Water Management (SLWM). The **CAADP Pillar 1** [13] Framework document identifies bottlenecks and barriers to progress in the SLWM agenda in Africa. These bottlenecks are mainly in the areas of (i) knowledge and technological barriers; (ii) policy, institutional and governance barriers; and (iii) economic and financial barriers. **This Framework prioritises issues of coordination, joint planning and decision-making among state actors with mandates relevant to land and agricultural water.** Multi-stakeholder partnerships and multi-sectoral approaches at multiple scales are identified as critical in the Pillar 1 Framework in order to support integrated programmes, policies and investments within and among African countries not only for SLWM but broader developmental objectives set out under NEPAD.

**Box 2: CAADP Pillar I role, aims and elements**

The overall role of the CAADP Pillar I Framework is to promote partnerships between international, regional, national, district and local/community level stakeholders with the long term goal of restoring, sustaining and enhancing the productive and protective functions of Africa's land and water resources. The Framework aims to extend the area under sustainable land and water management throughout Sub-Saharan Africa by combating the interrelated problems of land degradation, food insecurity and rural poverty. The main objectives to achieve this in the short to medium term are:

- Building capacity and strengthening the enabling institutional, policy, legislative, budgetary and strategic planning environment for SLM and water strategies; and
- Mainstreaming sustainable land management and water strategies into country-driven programmes to remove the bottlenecks and barriers to financing and scaling-up on the ground, successful technologies and approaches.

The aims of the framework are to provide support for:

(i) coalition-building amongst the key stakeholders, regional integration, coordination and partnerships;
(ii) empowerment of national and regional stakeholders;
(iii) improvement of the collection, management and dissemination of knowledge related to SLM and water strategies;
(iv) identification, mobilisation and harmonisation of the investment funds required for the promotion of SLM and water strategies at the local and country levels (and as required sub-regional and regional levels) within nationally determined strategic investment programmes; and
(v) scaling up investments and ensuring a more reliable, broad-based and sustained flow of funds for agricultural water.

CAADP Pillar I brings together four key elements of the CAADP process:
Sustainable Land Management undertakes to embrace and build on the strategic vision, country support tools and **sustainable land management** framework to assist countries in scaling up sustainable land and water management practices. The SLM framework was developed through NEPAD/TerrAfrica as part of the programme of support mobilised by NEPAD under CAADP and the Environment Action Plan (EAP).

13 See Box 2 for a brief overview of the CAADP Pillar I Framework

**Agricultural Water Development** aims to ensure that issues arising from initiatives led by several key CAADP and TerrAfrica partners are well reflected. This is executed mainly through a collaborative initiative involving AfDB, FAO, IFAD, IWMI and World Bank to enhance investment and sustainable productivity in agricultural water.

**Land Policy/Land Administration** addresses issues related to land policy and land administration as critical to the achievement of sustainable land and water management objectives. The African Union Commission (AUC), United Nations Economic Commission for Africa (UNECA), the Africa Development Bank (AfDB) and various other partners are spearheading the outputs from this work. For the Pillar I Framework, this element of CAADP processes is geared towards the development of a specific land policy and land administration framework to be accordingly incorporated into the Pillar I Framework.

**CAADP Roundtable** ensures that the principles and modalities for engagement and integration of sustainable land and water management into the country and regional level CAADP implementation processes (roundtables) is a key element of the Pillar I framework itself.

*Source: AU and NEPAD. 2009. Sustainable Land and Water Management: CAADP Pillar I Framework*

The main focus for natural resource management and water in particular under the Pillar I Framework is to enhance the underutilised potential for the development of Africa's water and land resources for agricultural production. In order to maximise on opportunities to sustainably raise agricultural output and contribute to the reliability of food supply, **the strategies and processes of the CAADP Pillar 1 Framework seek to mainly increase the area equipped with irrigation, build agricultural soil fertility and moisture-holding capacity**. Although the Pillar 1 Framework outlines the relevance of TWRM, especially for river basin cooperation, in practice, its strong focus on water for irrigation side-lines an Integrated Water Resources Management (IWRM) approach. IWRM approaches are characterised by the application of knowledge from diverse disciplines and stakeholders to design and implement efficient, equitable and sustainable solutions to water and development challenges. It also involves comprehensive and participatory planning and implementation for water management that balances social and economic needs while ensuring sustainable and coordinated water use across sectors.

**The RAP formulation process promoted such broad consultation** similar to IWRM approaches and consisted of a number of steps: an 'audit' or 'stocktaking' of agricultural policies in SADC MS, followed by national workshops with all relevant stakeholders; a 'Synthesis Report' of such consultations ("RAP: Synthesis Report & Policy Directions"); a regional workshop on the RAP preparation, and; five studies to analyse key agriculture issues to be addressed in the SADC region. These five studies commissioned by the SADC Secretariat and partners were completed in April 2012 and presented as working papers to inform the RAP policy-development phase. The parts of the studies that included water related issues, focused on sustainable and profitable management schemes, taking a basin approach for joint planning and management of shared water courses in the region, aligning with global principles of water resources management and preventing pollution of water sources by the agricultural sector. The results of this consultative process feed into the RAP which also covers transboundary water management, regional agricultural markets and climate smart agriculture.

Cross-sectoral consultation with water sector stakeholders during the RAP formulation process could have been expanded to include more water stakeholders with transboundary mandates, such as River Basin Organisations (RBOs), the African Ministers Council on Water (AMCOW) and SADC Secretariat Water Division[14]. This illustrates one of the main problems identified by regional water stakeholders interviewed

14 This is not however for the lack of involvement of specific organisations such as the International Water Management Institute (IWMI) with dedicated participation in the RAP policy consultation and formulation process.

for this paper: **in SADC national and regional agricultural planning and investment takes place without adequate consultation of the water sector**. Furthermore, the complexities of water resources management mean that even though regional discussions and policies might capture transboundary water issues, the practical implications of these decisions and policies can mostly only be realised at the rural, urban and/or community levels – often also not adequately consulted in national and regional agricultural planning.

**Despite frameworks such as Pillar I offering good ideas at the broad overarching continental level, in reality they have not translated into better coordination of all key relevant stakeholders for AWM for food security in the SADC region**. This lack of action can be ascribed to low MS commitment for a regional integration agenda in SADC but is also indicative of the non-contentious nature of shared water resources management in the region. According to one stakeholder interviewed for this paper, the SADC Water Protocol was the first Protocol to be signed at the level of SADC because there are sufficient water supplies in the region for the current scale and pace of economic development – meaning conflicts related to shared water resources are associated with water use and lack of shared benefits rather than strictly issues of water scarcity. Nonetheless, water remains a highly political issue and discussions about scarce water resources often taint cooperation among the region's diverse water users. When regional cooperation is constrained by issues of water scarcity, improving water efficiency through technical and policy interventions (which also result in more availability of water) present opportunities for solving conflicts related to scarcity. The operationalization of the SADC RAP can realise Pillar I and broader CAADP aims by focusing on potential synergies across sectors key for food security and across geographical levels key for managing the region's shared water resources for food security.

Therefore in a situation of existing good guidelines and principles, but little practical interaction between the water and agriculture policies and stakeholders, **the RAP provides a renewed and timely opportunity for strengthening both the cross-sectoral and transboundary approaches of water resources management for food security in a regional framework.** The RAP prioritises water resources for agriculture in its first strategic objective[15]. Emphasis is placed on TWRM in Policy Statement 10.5[16] and it takes into consideration the need to align with other SADC regional frameworks for natural resource management and complement the national actions of MS to improve AWM. These frameworks include the existing SADC Protocol on Shared Water Courses and the SADC Water Policy and its Strategy.

**Box 3: SADC RAP Rationale, Objectives and Guiding Principles**

SADC has great potential to be a significant player for agricultural development on the African continent and globally with its wide range of natural resources including fisheries and forestry, the abundance of arable land, generally a favourable climate for growing food; an adaptable labour force; a decent network of core road, rail and port infrastructure; and rich mineral deposits including crude oil. With a population of 277 million in 2010, SADC also has a large market for its own produce. The diversity of its members provides SADC with potentially beneficial synergies involving the whole agricultural value chain. The rising global demand for processed agricultural products provides SADC with added opportunities to boost its agricultural development.

To achieve full agricultural potential, SADC MS need to engage and invest more in the agriculture sector in the context of regional economic integration. In particular, the region needs to increase production and productivity; increase

15 See Box 3 for a brief overview of the rationale and objectives of the SADC RAP

16 *Policy Statement 10.5. SADC shall complement and support Member States' own national actions to improve the management of water resources for agriculture*
Paragraph 42 highlights "Scarcity of water resources and growing competition for water in many sectors reduces its availability for agriculture, particularly irrigation. Key focus areas for the policy therefore include the effective management of shared water resources for agriculture particularly crop production in water scarce areas; the enhancement of water productivity; the reduction of water resource pollution; and water management options including water harvesting for the vast majority of farmers who are unlikely to access irrigation within the mid to long term. Water, including shared marine space, rivers and inland lakes, is also essential as habitat for fishery resources" (SADC RAP, 2013).

private and public sector engagement and investment in agricultural value-chains; improve agricultural trade and markets, minimise social and vulnerability risks faced by the region's population; improve the national and regional enabling environment for agriculture; and take full advantage of regional diversity and therefore complementarities among MS.

The RAP will contribute by promoting collaborative actions at the regional level and complement actions at the national level that stimulate competitive production and trade of agriculture-based products whilst ensuring the sustainable utilisation of natural resources and effective protection of the environment. The RAP focuses on regional approaches for increased agricultural growth rates through promoting smallholder commercialisation, agro-processing and the development of agricultural value-chains (particularly regional ones) and by creating a conducive environment for private sector investment. The overall goal of the policy is to contribute to sustainable agricultural growth and socio-economic development.

More specifically, interventions through the RAP will aim to achieve the following inter-related specific objectives:

1. Enhance sustainable agricultural production, productivity and competitiveness;
2. Improve regional and international trade and access to markets of agricultural products;
3. Improve private and public sector engagement and investment in the agricultural value-chains; and
4. Reduce social and economic vulnerability of the region's population in the context of food and nutrition security and the changing economic and climatic environment.

The Guiding Principles for the formulation and implementation of the RAP are:

a) **Subsidiarity** - whereby all programmes and activities are undertaken at levels where they can be best handled. The Policy will only undertake regional initiatives where regional coordination adds value to Member States' individual interventions and actions.
b) **Additionality** – only programmes that add value to regional integration, or enhance the capacity to achieve Policy objectives will be implemented as priorities.
c) **Complementarity** - regional programmes should be complementary to programmes developed and implemented at the national level.
d) **Proportionality** - action at the regional level should not exceed that which is necessary to achieve the objectives of the Policy avoiding imposing on Member States rules that are too stringent or efforts that are too great relative to those that would be reasonable or effective.
e) **Regionality** – the regional level only deals with issues that concern two or more Member States.
f) **Coherence** - the policy framework should be consistent with global, continental and regional initiatives.
g) **Partnership and Consultation** - ensure the permanent involvement of stakeholders in the agricultural and related sectors in the identification of solutions to constraints, implementation, monitoring and evaluation of the Policy.
h) **Responsiveness to change** – acknowledgement that the Policy must be an organic or evolving policy, rather than a static instrument, that focuses on a set of basic fundamentals and grows iteratively in response to experience and changing circumstances.
i) **Market Integration** – acknowledgement that all programmes and activities which directly integrate markets should be undertaken to facilitate free movement of factors of production, goods and services as well as the promotion of regional specialization based on comparative advantages.
j) **Environmental sustainability** – regional programmes should aim at maintaining the region's "natural capital" and, along with both social sustainability and economic sustainability, contributing to sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
k) **Progressivity** – allow for moving forward in such a manner that takes into account different national circumstances and particular interests.
l) **Solidarity** – the region guarantees a minimum level of cohesion between its members and provides common financial, human and institutional resources to reduce the disparities that exist between the members.

*Sources: SADC Regional Agricultural Policy, 7 June 2013 & SADC RAP Priority Issues and Interventions, 2012.*

Before turning to who key AWM stakeholders and initiatives are, and what the local-level situation is (as any such opportunity shall be based on existing actors and on having an impact at local level), the

remainder of **this section presents a broad picture of AWM in SADC. This section also offers an explanation of some cross-sectoral and transboundary approaches to food security involving water, agriculture and trade.** These approaches include the Water, Energy, Land Nexus approach, water footprint model for agricultural production and concept of virtual water trade.

## 2.2. Water resources management for agriculture in SADC

**The agricultural sector is by far the largest consumer of the region's water resources, using between 70 to 80% of available water resources**[17]. Botswana and South Africa have the largest agricultural water use with just less than 60% of water used for agricultural production[18]. This indicates that as the economies of SADC countries become increasingly diversified and reliant on manufacturing, mining and tourism, for example, agricultural water use will compete with other sectors of the economy. Despite most water being used in agriculture, FAO 2006 AQUASTAT data show that the **total irrigated land of the region (as a proportion of total cultivated area) remains low with 11 of the 15 SADC countries having less than 10% of total cultivated area under irrigation** and 5 of these 11 have less than 1% under irrigation[19]. Recent data on irrigation indicate that only 16% of the Region's irrigation potential of more than 20 million hectares is being used, and this is mostly in South Africa and Madagascar[20]. With the exception of these two and Mauritius, the rest of the MS utilise way below half their potential[21].

Improved overall management of water resources is linked with agricultural and food production sectors, and fisheries, energy, forestry, trade and tourism and other economic sectors including the service, health and extractive sectors, all very important for the development of the SADC region. Moreover, water has a complex role in maintaining social and political stability, economic growth and ecosystems. **The agriculture sector in SADC is of major social and economic importance in the region with about 70% of the region's population dependent on agriculture** for food, income and employment. Therefore, the performance of this sector has a strong influence on food security, economic growth, social stability and overall water resources management in the region, hence the imperative to focus on the linkages between water and agriculture.

Specific water-related priorities in the RAP are captured as productivity-enhancing inputs for agricultural production, productivity and competitiveness. In particular, water features as a productivity-enhancing agricultural input and highlights the need for greater regional coordination among SADC MS to improve the management of water for agriculture. In this context **water is framed in the RAP as fundamental to the economic growth of the region.** This is emphasised for effective shared water management for crop production in water scarce areas; the enhancement of water productivity; the reduction of water resource pollution; and water management options including water harvesting for the vast majority of farmers who are unlikely to access irrigation within the mid- to long term[22].

Investing in water infrastructure, especially for water storage, is indeed a buffer against climate change related rainfall variability. The RAP addresses climate change as a cross-sectoral issue for reducing the economic and social vulnerabilities of the region's population. Therefore, tackling climate change also

17 See Malzbender, D. & Earle, A. 2007. Water Resources of the SADC: Demands, Discrepancies and Governance Responses. ACWR: Cape Town.

18 Ibid

19 This is according to 2006 FAO AQUASTAT data.

20 SADC Food, Agriculture and Natural Resources Division. 2012. Early Warning System – Food Security Update July 2012. Gaborone: SADC Secretariat.

21 Ibid

22 See paragraph 10.5 in SADC (2013) Regional Agricultural Policy

presents opportunities for improving food security, including by strengthening cross-sectoral regional frameworks for food production and management of shared water resources.

## Water for agriculture in existing cross-sectoral and transboundary approaches

### i) Climate change and AWM in SADC

**Climate change poses cross-sectoral challenges to economic development and is especially problematic for Southern Africa where economies are highly dependent on natural resources.** The prevalence of poverty and food insecurity coupled with limited development of institutional and infrastructural capacities in most African countries substantially reduces the ability of governments, farmers and businesses to cope with climate change. Higher temperatures in most countries in the region cause increased evapotranspiration, shorter growing periods, drying of the soil, increased pest and disease pressure, shifts in suitable areas for growing crops and livestock and a number of other serious problems for water and agriculture. Climate change is also expected to cause increased variability of rainfall and increased intensity and frequency of extreme events, including droughts, floods and storms. These impacts are mostly experienced by large rural populations dependent on rain-fed agriculture, forests, fishing and rangelands for their livelihoods.

Data indicate that **food production in SADC has not kept up with population growth over the long term**[23]**.** In a rapidly changing climate, policy-makers are confronted by the challenge to make domestic production keep pace with the growth of demand for food while ensuring agricultural productivity is not adversely affected by climate change. One of the primary challenges for managing water in this scenario is to strengthen water security in terms of the availability of, and access to, water sufficient in quantity and quality to meet the health, livelihoods, ecosystem and production needs of populations.

**Over the past two decades, overall food production has been adversely affected by droughts in various parts of the SADC region**[24]. Adverse weather patterns have threatened food production leading to reduced planting and crop failure. This has lead to food shortages and undermining access to food for large sections of the population. In line with these and other challenges, the SADC RAP includes climate change as part of the crosscutting issues to be addressed to reduce the social and economic vulnerability for the region's population. Beyond change in rainfall patterns and in temperature and increased evapotranspiration, **climate change for water supply and demand in SADC means increased demand for water for irrigation** in regions where existing water supply and quality is already negatively affected by other factors.

The key issue for SADC, carried over to the RAP as well, is how to deal with adaptation and mitigation[25] to climate change and variability while supporting a unified regional response to climate change. From the economic point of view, there is also the need for a coordinated mechanism to benefit from carbon emission trading[26] for environmental services, supporting the maintenance of carbon sinks in forests, land

23 According to the SADC Secretariat, between 1990 and 2006 the SADC population increased from 152 million to 249 million, whereas food production increased by a lessor degree from 22.06 million tons to 23.61 million tons. (SADC Secretariat, State of Vulnerability to Food Insecurity and Poverty, 2011)

24 See SADC Secretariat. 2011. Climate Change and Food Security Fact Sheet. Gaborone: SADC Secretariat.

25 Climate change adaptation according to the Intergovernmental Panel on Climate Change (IPCC) is defined as 'initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects'. Various types of adaptation exist and examples include raising river or coastal dikes, the substitution of more temperature-shock resistant plants for sensitive ones, etc. According to the same source, climate change mitigation is 'technological change and substitution that reduce resource inputs and emissions per unit of output'. Although several social, economic and technological policies would produce such an emission reduction, climate change mitigation entails the implementation of policies to reduce greenhouse gas emissions and enhance carbon sinks such as forests. (IPCC, 2007)

26 According to the United Nations Framework Convention on Climate Change (UNFCCC), Parties to the Convention have accepted commitments under the Kyoto Protocol to limit or reduce greenhouse gas emissions. These targets are expressed as levels of allowed emissions, or "assigned amounts," and as such emissions trading allows countries that have emission units to spare - emissions permitted them but not 'used' - to sell this excess capacity to countries that are over their targets. In this way, a new

and preserving biodiversity[27]. **In terms of tackling food insecurity, climate change presents opportunities for improving cross-sectoral regional frameworks for food production and management of shared water resources** as climate change affects the region by either floods or droughts even within the same year as well as highly seasonal and erratic rainfall patterns, leading to variable flows in rivers and unpredictability of dam levels.

Given the immensity of these changing conditions, **the role of regional governance is very important in managing shared resources because hydrological and climatic zones do not correspond with the political and administrative boundaries of individual states. These natural systems and national boundaries also do not match the sectoral delimitations of regional cooperative frameworks, such as CAADP**. An important example here is the isolated implementation of the three international frameworks of the Rio Conventions launched together in 1992 as guiding mechanisms for addressing climate change, conserving biological diversity and combating desertification. Although the Rio Conventions have interconnected principles, the implementation of their objectives are very often executed in silos with greater consideration needed for streamlined intervention especially in a region such as SADC with multiple challenges to cope with adverse effects of climate change, lose of biodiversity and increased desertification. Systemic approaches and investments are recommended in this case with the inclusion of technical inputs, ecosystem management options and climate change scenarios without being too sectoral in approach[28].

The water sector can be described as a system of uncertainties, already characterised by risk management. Water, as a non-renewable resource, features prominently in policies and initiatives adopted at regional level to address climate change. These policy frameworks emphasise investing in water infrastructure, especially for water storage, as a buffer against climate change related rainfall variability. But even without the threat of climate change induced phenomena, such investments require the institutional apparatus for effective water storage, distribution and management. Therefore, the emergence of climate change-focused initiatives (although presenting opportunities for cross-sectoral engagement and development) will not concretely address the need to strengthen the SADC water sector overall. **A strengthened water sector would by default address numerous climate change-related concerns for agriculture especially[29].**

**ii) The interconnection of water, energy and land**

Climate change is one of many challenges to be addressed in AWM in SADC. **The RAP also acknowledges that use and management of water, especially at regional level, requires an integrated approach that takes into account land and energy issues.** This is recognised especially in terms of land for sustainable biofuel production and agricultural productivity enhancing measures where electrical energy use is key for increased production and competiveness[30]. Land administration, use and management are pivotal to both the Pillar I Framework (see Box 2) and the RAP with specific focus on cooperation for shared resources and land reform programmes. This focus on land in both the RAP and Pillar I could benefit from more detail on how to operationalize linkages between the land and water sectors

commodity was created in the form of greenhouse gas emission reductions or removals. Since carbon dioxide is the principal greenhouse gas, people speak simply of 'trading in carbon' as it is presently tracked and traded like any other commodity, hence the term 'carbon market'. (See UNFCCC, International Emissions Trading, 2014)

27 SADC has taken on climate change related initiatives, e.g.: on climate smart agriculture the "SADC/COMESA/EAC Climate Initiative project" established in 2008 and funded by the Norwegian Government; and a five-year tripartite programme entitled "Agriculture Adaptation Framework for the COMESA-EAC-SADC Region-Up scaling of Climate Resilient Agriculture" (it will run from 2010 to 2015 and is also funded by the Norwegian Government). (See ECDPM DP128a)

28 An interviewee for this paper alluded to a programme of the UNCCD Global Mechanism in SADC to develop a transboundary natural resource management Decision Support System (DSS) for policy makers in the countries of the Limpopo River Basin.

29 This comment was made by a water expert conversant with national, regional and international dynamics of the SADC water sector, who also highlighted the disconnection in of the scales of climate change impacts (30-year margins) and the scales of 5-10 year strategies for management of water and other natural resources.

30 See SADC RAP, 2013, policy statement 10.6

and hence it would be important to discuss ways to improve both land and water management in SADC. The SADC Regional Water Policy and SADC Regional Indicative Strategic Development Plan (RISDP) are examples of regional policies that acknowledges the need for integrated approaches, however the practical applications of inter-sectoral cooperation in SADC remain elusive[31].

Land remains a crucial point of intersection for inter-sectoral policies and investments in the SADC region and particularly for water and agricultural policies and investments. The demand for more arable land and its water resources has risen due to rising food prices, population growth and the prevalence of biofuel policies. Water plays a central role for farmers and investors looking to cultivate land[32]. But in the context of Southern Africa, a critical determining factor for agricultural investment is the **complex political, economic and cultural interface of land tenure rights and irrigation water rights.** These rights are important to mention briefly in terms of the prolific debate on land and water 'grabbing'[33]. Securing tenure to undertake long-term investment cannot be done without engaging the local level. And although these policies recognize and emphasize the need for land re-distribution and re-allocation of water rights on an equitable and equal basis, the practices in land (re)distribution in SADC are influenced by contested politics of land and agriculture.

**An integrated approach which equally considers the interrelationships, pressures and access to energy, land and water resources is increasingly accepted as a transformational development approach called the *Water, Energy, Land (WEL) Nexus***[34] within the changing context of natural resource management[35]. Managing these resources at the points of intersection for water, energy and land policies are influenced by factors such as (i) resource endowments of land and water; (ii) resource-intensive consumption and production patterns; (iii) access to water, energy and land for the poorest; and above all (iv) good appropriate governance and monitoring systems.

In terms of water governance and more broadly natural resource management in SADC, areas that presently receive most attention among member states are mainly related to agricultural planning and land resources. **Water supply self-sufficiency and security, as well as improved monitoring and information-sharing across riparian states, are issues with the greatest scope for improvement in the development of regional water policies** according to regional water stakeholders in SADC [36]. An integrated approach such as the WEL Nexus offers opportunities for public and private regional and national stakeholders to discuss these issues in the context of water governance in SADC and sustainable agricultural practices for irrigation and food production in the region. To implement the RAP, it is key that its investment plan takes into account the need for improved dialogue across national and regional levels and between sectors key for food security. The WEL Nexus is an example of such an integrated approach and could be used during RAP implementation for improved transboundary cooperation and cross-sectoral dialogue.

31 A call for more practical interventions to facilitate breaking down the culture of working in sectoral silos was a major point of discussion at the 6th SADC Multi-Stakeholder Water Dialogue in October 2013. See: http://www.sadc.int/news-events/news/more-inter-sectoral-programmes/

32 See Bues, A. & Theesfeld, I. 2012. Water grabbing and the role of water: Shifting water governance in the light of agricultural foreign direct investment.

33 See Ruth Hall's article in the ECDPM GREAT Insights December 2013 Food Security edition for more on the mounting battle for land in Southern Africa: http://www.ecdpm.org/Web_ECDPM/Web/Content/Navigation.nsf/index2?readform&http://www.ecdpm.org/Web_ECDPM/Web/Content/Content.nsf/0/5D5C3569009AE392C1257C39003E7787?OpenDocument

34 The *WEL Nexus* analyses the interconnections among water, energy and land and emphasizes the benefits of shifting towards an integrated nexus approach. Such an approach is important to address interdependencies, increasing coherence and creating synergies across sectors and resources encouraging more strategic approaches and cooperation with partner countries and the private sector for increased policy impact and sustainable growth.

35 The *WEL Nexus* is an approach put forward in the 2011/2012 European Report on Development titled *Confronting Scarcity: Managing Water, Energy and Land for Inclusive and Sustainable Growth.* The report is co-authored by ECDPM, the Overseas Development Institute (ODI) and the German Development Institute (DIE).

36 These issues were marked for greater inclusion in regional water policy and were identified by interviewed water stakeholders in the SADC region as critical for maintaining regional stability (which SADC has been fortunate to enjoy to date among its member states).

The potential of small-scale energy generation projects to support irrigation schemes, for example, is yet to be explored in concrete terms. Regional stakeholders identified an **'energy/irrigation nexus'** as being a pertinent issue for the SADC region. **On-going projects and greater future opportunities exist for increased cooperation and investment between energy and agricultural sectors.** This is also a critical sectoral synergy as the energy sector has the capital and expertise to build the electricity generation infrastructure that farmers need to harness their irrigation and production potential[37].

**Decisions regarding water, energy and land that impact all or most riparian states are frequently made unilaterally, outside regional platforms that are specifically set-up or mandated to coordinate such decision-making processes.** This is an example of a challenge for the domestication of all SADC policies and approaches into national frameworks and programmes. This is not specific to only the relations of SADC member states and TWRM organs but a broader coordination challenge. Meaningful sectoral integration has remained elusive even in the case of SADC where regional water policies have been prepared and put into practice[38]. This can be ascribed to a lack of significant and consistent investment in the 'software' of water resources management on the part of government and donors, especially since such investment does not generate 'quick wins' and easily measurable results as infrastructure-focused (or 'hardware') investments.

In terms of the regional water sector, SADC member states have refurbished their water policies and Acts over the last two decades to reflect the importance of integrated approaches for cross-sectoral and cross-boundary cooperation. Although these policies are written in line with international academic standards and accepted water policy principles, they are often prepared by means of consultant-driven processes that produce policy texts with refined and polished language but are barren of local contexts to give workable substance to translate the policies for implementation. Regional water experts identified these types of water policies as posing major challenges because the capacities and expertise (i.e. 'software') to execute water policy strategies are not present in the current water management institutions and the same institutions are not structured for effectively implementing IWRM principles.

As discussed above, the development of dynamic policies in SADC for water, energy, land and food security may benefit from nexus approaches. **Policy development for integrated sectors and geographical levels may also benefit from approaches that seek to attach an economic cost to water in accordance with its latent values for commercial and social growth.** In light of the potential to value water in these terms, many national governments stand to benefit by practicing improved capacity, coordination and decision-making among the different institutions of water-using sectors in a way that acknowledges water services as both a social and economic good. Recent shifts in the SADC water sector have included discussions on the use of economic accounting for water use, and debates on the concept of embedded water content of agricultural and industrial products as a means to value water. The applicability of the concept of embedded water content is discussed in view of its benefits and challenges to support improved TWRM in the SADC region.

37 SADC water governance experts interviewed pointed to a lack of energy for irrigation because public finance of agriculture is often not willing or able to fund energy projects for irrigation. Exceptions are present for commercial producers but this is not transferred at smallholder level.

38 This reality of working in silos was a major feature of the October 2013 SADC Multi-Stakeholder Water Dialogue held in Lusaka. The Water, Energy and Food Nexus was discussed as an approach for consideration at the highest political and planning levels of MS, donor agencies, civil and private sectors. Of great relevance was the need to consider expanding the mandates of RBOs to drive the nexus approach as well as how the nexus approach can contribute to building climate resilience.

## 2.3. Water in agricultural trade in SADC

**The general approach to TWRM in SADC has been to take a river basin or shared watercourse approach.** Within a river basin, water flows from the furthest point (on the boundaries of the basin) to the lowest point. There are physical interactions between activities on land and in water systems, between activities upstream and downstream, between surface water and groundwater. The rationale is to base the planning of water resources on the basin as a whole as it ensures greater attention to the on-going processes and interactions taking place within the watercourse. This fosters an integrated approach for planning and investment in a crosscutting fashion for different sectors, groups and institutions using water in that basin. This is central to the principles of IWRM, as discussed earlier, upon which the SADC Water Policy and Strategy are based. As such the SADC water sector institutions are modelled on hydrological features, evidence of which is the River Basin Organisations, with greater scope to link with other sectors, especially agriculture.

This paper presents suggestions on how operationalising the TWRM Policy Statement of the SADC RAP can **effectively reflect the realities and interactions of the triangular relationship across the three sectors of water, agriculture and trade (see Figure 2)**. These interactions across the water, agriculture and trade sectors are expressed in this discussion paper through the two concepts of the water footprint and virtual water trade, used to unpack the complexities of water resources management and regional food security in the context of intra-regional trade.

### Water for agricultural trade in water footprint and virtual water trade mechanisms

It is timely in this analysis to broaden considerations of AWM to include a perspective of 'water governance' as opposed to water management. In this perspective, **the concepts of 'water footprint' and 'virtual water' are briefly presented and contribute to a better understanding the often neglected considerations of water in the commercial value chains of agricultural and industrial production**.

**The water footprint approach is structured to establish the extent of fresh water use in production systems.** The analysis that accompanies the approach is rooted in a broader assessment of resource sustainability and governance, and essentially uses water accounting tools as part of a broader technique to address interconnected issues with a particular product, country, region, or production chain. The water footprint of a community or country can be a useful tool to measure the total volume of freshwater a community uses within its borders but also water use outside its borders.

**With the rise in international trade flows, the water footprints of people are increasingly externalized to other parts of the world.** Consumers of imported agricultural goods for example generally do not pay for the negative effects of their water footprints, because water supply is mostly heavily under priced and also the negative effects of pollution are not taken into account in the price of the products. Therefore, local water problems (as further discussed in section 3 below) are not factored into water pricing and are strongly linked to cheap consumption elsewhere. In SADC, water footprints of crop production are very high when compared to the global average of these products[39]. Most of the national water footprints in SADC are much lower than the global average. The reason for the inefficient production of crops in the region can be related to high evaporation rates in the many arid and semi-arid territories of SADC. Other

39 See Kort, 2010. The study showed that the average SADC water footprint is only 776 m3/capita/yr compared to the global average for consumption of 1243 m3/capita/yr.

reasons identified for low yields are poor use of fertilisers, pesticides, poor quality seeds and agricultural infrastructure[40].

**Virtual water is essentially the volume of water used to produce a product measured at the place where it was actually produced[41].** The transfer of water over long distances is generally not economically feasible for most countries. But the import of virtual water in the form of products, especially agricultural products, is a cost-effective way in which to import water to water-scarce areas. Virtual water import is more feasible for countries that are water scarce but already industrialised, or those countries that are already well on their way to industrialisation. This is because when most of the (unprocessed) agricultural goods have to come from abroad, advanced economic and institutional capacities are required to present alternative employment opportunities outside of the agricultural sector. In addition, good infrastructure and a functioning logistical apparatus are needed for marketing or distribution of such imported food. Stable governance structures are also a requirement to prevent a monopoly over food distribution by centralised state agencies[42]. Indeed, the concept of virtual water and the debates surrounding its trade were initially developed, and are in fact immediately applicable, to the Middle Eastern nations with extreme water scarcity and wealth to import agricultural goods that would otherwise be impossible to produce locally.

In order to meet its agricultural and industrial consumption needs, **SADC needs 11% of its water imported in the form of virtual water in the trade of commodities**[43]. Agricultural products are imported to SADC from (in order of highest imports): South America, South East Asia, Central and South Asia, North America, Oceania and the Former Soviet Union[44]. Crop products constitute the most exported form of virtual water from SADC. South Africa, Madagascar, Tanzania, Zimbabwe and Mauritius export 80% of virtual water from SADC in the form of crop products. These crops are mainly coffee, sugarcane, maize, cotton, clove and oranges. Crops that make up the most imports of virtual water are rice, wheat, maize, cotton seed, soybean, oil palm, sunflower seed, and sugarcane products. Here the largest importers are South Africa, Tanzania, Mozambique, Mauritius and Angola.
Regarding intra-SADC trade of virtual water, South Africa and Zimbabwe dominate this with trade of almost 25% of the total trade in crop products. For livestock products, more than 90% of the export is from South Africa, Zimbabwe, Botswana, Swaziland and Namibia. Virtual water import of livestock products is mainly imported by Swaziland, Angola, South Africa, Malawi and Namibia. The total intra-regional trade of livestock is over 44% of total livestock trade[45]. Additionally, **water needs of the SADC MS are likely to increase as population growth increases, demand for agricultural production rises and the need for industrial outputs grows.** For these reasons, improved water efficiency, especially for agriculture, is needed and all stakeholders could benefit from considering the importance of water footprints and virtual water imports as water use and consumption rise.

40 Ibid

41 According to Hoekstra, who theorized the concept of the water footprint, the adjective 'virtual' refers to the fact that most of the water used in the production stage of the product, is in the end not contained within the product itself. The real water content of products is generally negligible if compared to the virtual water content, such as with wheat for example. (See Hoekstra, 2011)

42 These factors are identified and expanded upon in great depth in a study by Horlemann, L. & Neubert, S. 2007. *Virtual Water Trade: A realistic concept for resolving the water crisis?*

43 See Kort, 2010, V*irtual water trade in the SADC region: a grid-based approach.* According to Kort, 2010, the largest portion of virtual water flows leaving and entering SADC are related to the trade of firstly crop products (exports 73% and imports 74%), followed by livestock products (exports 18% and imports13%) and lastly industrial products (exports 9% and imports 12%).

44 Ibid

45 Ibid.

### Linking concept to reality for virtual water trade in SADC

To more closely examine the policy implications of concepts such as the water footprint or virtual water trade for a SADC country, this sub-section focuses on a study conducted in South Africa to consider the usefulness of the concept of virtual water for its planning and regional comparative advantage. The Water Research Commission of South Africa conducted an analysis in 2012 to assess the feasibility of the water footprint methodology for understanding production value chains and merging the water, carbon and energy footprints[46]. The study found that South Africa could gain from a water footprint perspective to understand the local context of water use for trade of agricultural and industrial goods. **From the level of river basin cooperation, the water footprint analysis concept generally benefits state-level mechanisms most to support cross-sectoral dialogue and inform transboundary development planning, policy and water allocation.** When investigating water use per product made in the country, the water footprint method was found to be useful for understanding supply chain water risk, communication among different parts of the chain and for benchmarking within the production phase. These are findings that can apply to other SADC countries with similar water use practices.

The Water Research Commission of South Africa found that **an added value of the water footprint is the accessibility of the concept to both public and private sector actors.** As a result, decision-makers such as heads of corporations and government ministers are paying attention to water footprints. Additionally, water footprints can create transparency and provide information that allows the public to hold companies accountable for supply chain decisions. As the study shows, water scarce countries such as South Africa have use for the water footprint tool to support efficiency, raise awareness and foster dialogue cross-sectorally with stakeholders not previously involved in water debates, bringing new and important decision-makers into the water debate.

Despite these positive attributes, however, the study by the Water Research Commission found that beyond the initial accounting and mapping of the footprint tool, the links into the complex webs of production and trade are not yet sufficiently integrated to meaningfully inform decision-making across the range of economic, social and environmental considerations of water resources management. **From this perspective, the research in the South African context demonstrates the limits of the water footprint and virtual water approaches, but highlights the relevance of the concepts in the highly dynamic and diverse local water profiles of the different SADC MS**.

The acknowledgement of the embedded water content of products, and especially crops, is not a new idea in SADC water sector policies and frameworks. Overall, the concept of virtual water has undergone name changes from ‘embedded’ to ‘embodied’ water to refer to the sum of water use in the various steps of the production chain of traded commodities, goods and services. In the SADC Water Policy, Strategy and accompanying five-year plans for implementation, virtual water and the exchange thereof are not explicitly stated. Rather, as pointed out by SADC water sector stakeholders, the concept of virtual water trade is included under the term of ‘comparative advantage in water availability’ through the promotion of intra-regional trade and balancing national water budgets in a sustainable manner[47]. This recognition in SADC

46 The study conducted by the South African Water Research Commission, 2012, focused on a literature review to assess the applicability of water footprints in South Africa to understand how they may contribute to sustainable management of water mainly in the industrial sector, and to explore linkages between water and energy and the concept of water offsetting.

47 The SADC Regional Water Policy, 2005, section for policy statements on Water for Development and Poverty Reduction, highlights the relationship between trade, food security and water resources management in policy statement 4.1.4 “Regional water resources management, taking into account the overarching imperatives for resources utilization, shall consider the concept of comparative advantage in water availability as a means of promoting intra- regional trade, services, poverty reduction and balancing national water budgets in a sustainable manner… Since agriculture is the largest economic sector in terms of water use, trade in agricultural products is the main component that should be considered in the trade in water intensive commodities. When applied in a coherent manner at a regional level to ensure regional food security, the concept of comparative advantage between countries in the use of water may contribute fundamentally to regional trade and economic integration and at the same time contribute to

water policies (including the SADC Revised Protocol on Shared Watercourses, the SADC Water Policy and Regional Water Strategy) and the RAP of water as key to potentially promoting intra-regional agricultural trade is central to the arguments of this paper. This recognition highlights the present and forecasted challenges regarding water availability in the region and that **water resource governance immediately impacts regional food security and agricultural trade.**

As highlighted in the SADC Water Policy and other sources, **the region is found to be well-suited for this trade of agricultural goods with virtual water content** within the boundaries of the region, and in particular between water-rich poorer countries (e.g. Zambia) and water scarce but more industrialised countries (e.g. South Africa and Botswana)[48]. Ultimately, in a regional context, the question to be asked is whether the import and export of virtual water (in the form of food trade) support food security and a more equitable and efficient allocation of water for each country involved as well as for the region at an aggregate level. In the case of SADC, to achieve those goals there is still great need for developing cross-sectoral analysis and cooperation to guarantee water security (especially for those who use it for agricultural production), food security and sustainable agricultural water use.

### Bottlenecks to link improved water governance and agricultural trade in SADC

Various studies highlight how little of African lands are irrigated compared to the rest of the world[49]. According to the SADC Secretariat, **the greatest potential for both AWM and economic growth in the SADC region lies in irrigating its land; the percentage of cropland that is actually irrigated is comparatively small, estimated at about 4.5 per cent**[50]. As such, urgent action is needed at both national and regional levels to address both the overdependence on rain-fed crop production (which is exacerbated by climate change-induced natural hazards such as droughts and floods) and the inadequate water control and irrigation infrastructure. These are important features that constrain the efforts for enhancing productivity and competitiveness of the region's farmers.

Another bottleneck for improved water governance in the region is that **the majority of farmers in SADC are smallholder or subsistence farmers and account for most of the region's agricultural production but very often do not have access to the policy-formulation processes for water governance**. Realising the economic and policy reforms to benefit smallholders in the global system will involve putting an end to subsidies and protectionist measures in the agricultural sectors of developed countries and simultaneously putting in place measures to protect subsistence farmers in developing countries[51]

Possible synergies in the areas[52] of irrigation and boosting farmer's productivity worth exploring include the SADC Water Infrastructure Programme that envisages as one of its main targets to develop by 2015 the water infrastructure needed to double the size of land under irrigation in the region. CAADP policies and investments could be coordinated and complementary to the SADC Water Infrastructure Programme to boost agricultural production through improved water management and irrigation infrastructure. In this context, the water resources management approach in SADC (a combination of an overarching SADC

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poverty eradication in communities producing the food. However this approach needs to be balanced with the national governments' needs for food security and sovereignty, and will require a negotiated process based on integrated planning at a regional level" (p. 22-23).

48 See Horlemann, L. & Neubert, S. 2007. p. 9.

49 E.g. studies done by IWMI using remote sensing in 2006 (Global Irrigated Area Map) and by the Comprehensive Assessment for Water Management in Agriculture in 2007

50 SADC Secretariat. 2011. Food Security and Climate Change Fact Sheet.

51 This is one of the recommendations made by Allen, 2011, to put the theory of virtual water trade into pragmatic terms, and specifically within the context of BRICS emerging economies.

52 Synergies as identified in the ECDPM Discussion Paper 128b *Regional Approaches to Food Security in Africa: The CAADP and other relevant policies and programmes in SADC*

Protocol and single basins protocols) suggests that **creating synergies between CAADP and existing regional water frameworks may also mean building on the progress made by clusters of countries in specific areas, without all SADC MS moving together at the same pace.**

Potential exists for linking improvements in regional agricultural trade with better water cooperation, given that SADC region as a whole is a net importer of virtual water, especially through agricultural goods[53]. However, more urgent priorities are to be found in the poor irrigation infrastructure and access of farmers to markets and technologies for increasing intra-regional trade when compared to the design of policies/investments taking fully into account the water content of traded goods and the water security of individual SADC MS. Nonetheless, in SADC the water footprint and virtual water trade concepts have the benefit of bringing together i) the potential for increased regional trade, ii) the prospects for agricultural growth and iii) the increasing water stress of several SADC economies. Simultaneously considering these issues, regional cooperation for food security may centre on **establishing a regional policy, coordination and investment framework aimed at food security and linking regional agricultural trade with the availability in each SADC member state of the water to produce such traded goods.** This would include mechanisms for member states to trade more food within SADC in cases when one of the states faces a water shortage crisis (e.g. due to droughts).

**Designing policies and investment initiatives that take into account virtual water content of agricultural goods can complement other and existing SADC policies and approaches**. Such comprehensive regional cooperation approach however implies as prerequisite a consensus among MS that regional trade and economic policies should take into account the embedded water content when valuing goods for agricultural trade. It is important to highlight that even trade policies that consider virtual water content would not work effectively as a standalone policy strategy without concurrently improving sustainable water management practices and, most importantly, without related dynamic well-funded and adequately-staffed water institutions.

Given that regional-focused initiatives do not record much domestication at members state level, there is probably need for the sectoral triangulation approach of water, agriculture and trade to support the SADC RAP by drawing on the substance and experience of the water sector for improved agricultural water management in the region. Regional water experts recognise the need for investments in **practical areas of synergy across the sectors is the installation and maintenance of Multiple Use Systems** (MUS) as part of an integrated approach to water for agricultural productivity (systems for both crop irrigation and livestock water access), livelihood and nutrition diversification (aquaculture or sale of cash crops for example) and domestic use. In practice, these diverse uses of water infrastructure already take place but with single use water supply systems for crops for example, damaged by livestock when they try to access it or households finding that they cannot access the water in the months of the year when the system is not used for crop irrigation. MUS also present an example of 'enabling' policies, as opposed to 'regulatory' policies, for the agricultural water sector in SADC region and includes a view of future trade and market access for agricultural goods.

It is pertinent to place these issues of water scarcity and virtual water trade in perspective because even though agriculture is challenged by drought in drier areas, these same areas only use a fraction of rainfall for agriculture. As such it is important to consider the importance of access to water and not only the physical availability; the strength of governance institutions and not only the technologies; equitable distribution of water resources is as equally important as increased agricultural productivity; the essential

53 According to Kort, 2010, the net import of virtual water by the region is 7379 million m3/yr. Botswana, DRC, Madagascar and Zimbabwe are the only exporters of virtual water in SADC.

nature of water to both ecosystems and food systems and that both such systems are constantly changing and dynamic over the short and long term; water generates conflict but also cooperation; addressing water problems involves social processes in which credible information can be a very powerful tool but **one of the most important elements supporting sectoral synergies is dependant on networks of partners and the forms and patterns of their interaction and engagement**[54]**.**

In SADC, where it is estimated that 70% of the regional water sources cross national boundaries, opportunities exist for the RAP to improve sustainable agriculture water management in support of regional food security**.** A central question to consider to better understand and improve the coordination of TWRM in SADC, is 'who is doing what with different components of shared water resources in the region?' This question is tackled in section 3, after framing the geographical levels and key actors for TWRM in SADC.

# 3. The need to bridge different sectors and geographical levels: connecting regional agricultural frameworks with actions from national and local AWM networks and initiatives

## 3.1. Key international, regional, national and local actors/initiatives for water governance in SADC region

In the previous section the major challenges and dimensions of sustainable water management for agriculture in SADC were presented. Insights were also offered into interactions of water with trade and overall food security from a regional perspective. But who are the actors behind such relationships, operations and the related policy processes? What are the complexities related to the interactions across multiple sectors and geographical levels that affect the contribution of water resources management for regional food security. This section tries to answer these questions. The involvement overall of water sector stakeholders is vital in any collaboration for regional food security but involvement is low in the SADC RAP development process according to regional water governance experts. This is not however for the lack of involvement of specific organisations such as the International Water Management Institute (IWMI) with dedicated participation in the RAP policy consultation and formulation process. It is relevant then to **examine who are some of the key actors in the sector and unpack the interactions of these actors across different levels of water resources governance**.

The institutional landscape of the water sector in SADC has developed according to different interests from colonial histories to the rise of business and political elites. Answering the central question of 'who is doing what with different components of shared water resources in the region?' is key to better understand the coordination of TWRM in SADC. Furthermore, the RAP Policy Statement 10.5 on TWRM calls for regional interventions to complement and support that of national actions. It is therefore of value to examine the key players in local, national and regional levels of the SADC water governance system. As an overview, the table in Annex II depicts a non-exhaustive list of some key stakeholders, institutions and donors (in no particular order of importance) for TWRM in SADC. For the purpose of demonstrating the importance of connecting different levels and actors for TWRM, this section will move from a regional to local perspective.

54 These contrasts and overlaps are identified by Larry Harrington in the Water and Food Blog of the CGIAR Challenge Programme on Water and Food (CPWF) on April 24, 2013 called *Putting Water Issues in Perspective: CPWF Water Dialogue Posters to Spark Debate*.

Political Economy Analysis provides some insights on national and regional processes and practices that hinder the contribution of local level contexts to regional level policies and practices of the SADC water sector.

At **global level,** there are numerous networks such as the Global Water Partnership (GWP) with regional networks across the world and Africa supporting sustainable water resources management. Sector-specific water initiatives also exist at global level targeting companies, for example, to engage in local collective action for shared water resources such as the Water Futures Partnership. An example of an institution with a mandate to support AWM as part of CAADP is the Partnership for Agricultural Water for Africa (AgWA)[55]. It is a coalition for political processes and investment at a continental level. AgWA was inaugurated in 2008 by NEPAD to support partnership among African countries, donors, and regional and international organisations in water for food production, economic growth and poverty reduction.

Another example of such an organisation at the continental level is the African Ministerial Council on Water (AMCOW) (which also leads the African Water Facility (AWF) to mobilize resources to finance water resources development activities in Africa) which was formed primarily to promote cooperation, security, social and economic development and poverty eradication among 53 member states through the effective management of the continent's water resources and provision of water supply services. Because of this initial focus on water and sanitation issues, AMCOW has not been a major actor to promote AWM. With recent efforts through AgWA, the African Ministerial Council on Water has also become involved in CAADP processes.

For SADC region and the implementation of the RAP, there is acknowledgement that the success of the policy is contingent on actions taken outside the agriculture sector[56]. The RAP itself incorporates the mandates of other SADC Secretariat units as they relate to agriculture, for example from within the Food, Agriculture and Natural Resource (FANR); Trade, Industry, Finance and Investment (TIFI); Infrastructure and Services (I&S); Gender and other Secretariat units. **Regional collaborations for TWRM seem to be working relatively well, both as cooperation within SADC MS and institutions and between SADC and development partners.** The overall regional approach is guided by the Regional Strategic Action Plan on IWRM, the SADC Water Policy and Strategy, and the SADC Water Infrastructure Programme. Also, platforms for the SADC member countries to address water related issues and challenges are active in the form of the SADC Protocol on Shared Water Courses and the individual water basins arrangements. Thus, shared watercourse institutions are one of the main vehicles for implementing the SADC water programmes at river basin level.

**The thematic coordination for the SADC Water Sector takes place mainly through the Water Strategy Reference Group (WSRG), consisting of the SADC Secretariat and all international cooperating partners (ICPs),** under leadership of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The WSRG was set up in 2008 to coordinate the implementation of the partnership of the Windhoek Declaration on a new SADC-ICP Partnership. The WSRG meets at least twice a year, and in various formats: a pre-donor meeting, where ICPs coordinate among themselves; the main WSRG meeting, where the SADC Secretariat makes presentations and where roundtable discussions take place; bilateral discussions between SADC and individual WSRG members. The SADC Water Sector ICP Collaboration Web Portal complements the thematic coordination of the WSRG, providing ICPs and the public with an overview about all international support programmes, events and latest developments in the region.

55 See http://www.agwa-africa.org/

56 SADC, Regional Agricultural Policy: priority policy issues and interventions, August 2012

Regular engagement and dialogue with development partners is important for the implementation of the SADC RAP, **the experience of groups such as the SADC Water Strategy Reference Group could be used to replicate the successful experience of the water sector.** In particular for the purpose of stakeholder awareness, information sharing and external support to regional cooperation needs. Such coordination and partnership is one of the best examples of SADC-donors partnership, according to SADC water sector stakeholders interviewed for this paper. Information sharing significantly contributes to mutual accountability objectives; particularly in the form of the web-portal reporting all donors support and initiatives related to IWRM in SADC and the water awareness kits (for most water basins)[57].

However, some argue that national processes have not adequately informed the SADC water sector processes for regional integration. In this sense, it could be argued that the classic development problematic of 'top-down' instead of 'bottom-up' logic for processes and initiatives is at work in the case of SADC regional integration. Water policy-makers interviewed for this paper reiterated that **the potential implications of projects for TWRM cannot be considered without consultation, investment and approaches informed by local water management**. Some water sector planners also question the effectiveness of the River Basin Organisation (RBOs) as a mechanism some consider to be an imported concept from donor countries. Regional water experts from SADC said RBOs are often not effective in their intermediary role to produce concrete outcomes for water and water infrastructure projects. These national-regional dynamics were discussed during the course of the development of this paper in response to questions about 'success stories; of regional cooperation in the SADC water sector. Specifically, there are success stories on regional water information sharing hubs, donor-coordination and building cooperation in RECs. However, one regional water expert interviewed for this paper stated that evidence is still needed of the tangible contribution of RBOs to regional cooperation, transboundary consultation, and coordination of riparian states for IWRM at basin level.

In light of the above successes, it then seems pertinent for the operationalization of the TWRM aspects of the RAP to incorporate successes of projects that use a mix of methods and approaches to engage a diversity of actors across global, continental, national and local levels as far as possible. For example, a **river basin initiative that works with local actors and global and river basin stakeholders, is the Limpopo Basin Development Challenge (LBDC)[58].** It is an initiative with global and regional players that operates at regional scale to support the generation of scientific evidence for development decision-making. It also seeks to increase the productivity of rain-fed agriculture, increase the resilience of small-scale farmers and reduce the risks in rain-fed production systems associated with an unpredictable climate. The geographical area of the LBDC falls within the borders of four riparian states: Botswana, Mozambique, South Africa and Zimbabwe.

In terms of **connecting local actors to national AWM initiatives**, according to national water experts in SADC, it is not common to find large-scale water projects that include local level agricultural producers in the project design and implementation phases. An example of a national initiative where local farmers were engaged in project development from the start is the Lower Usuthu Smallholder Irrigation Programme (LUSIP) run by the government company Swaziland Water and Agricultural Development (SWADE**)**. This is a smallholder irrigation initiative that concretely sought in the first place to address local water needs for agriculture by building three dams in the Lower Usuthu Basin. The partnership among donors for the first and second phases of the project was well coordinated and included a strong component for capacity development of the local farmers to enter into agricultural business cooperatives for growing sugar cane, maize, other crops and farming livestock with the on the irrigated lands. The programme is also

57 See ECDPM Discussion Paper 128b. 2012. *Regional Approaches to Food Security in Africa: The CAADP and other relevant policies and programmes*

58 See www.africanclimate.net/en/node/6483

coordinated through a pooling of financial resources from a diversity of actors from Swazi, African, Arab and EU development banks, global environmental donors and local cooperatives[59]. Moreover, the local level partnerships among land users, policy-makers and technical experts at all levels demonstrates replicable ways to overcome food insecurity, low agricultural production, poverty and economic inequality.

## 3.2. Urban and rural household food security

As discussed in the previous sub-section, the abundance of actors in the water sector in any country and especially the complexity of institutional and investment arrangements at regional level, present divergent priorities and needs requiring dynamic governance of shared water resources. As discussed in section 2, the different conceptualisations of food security across different geographical levels are important to gain a fuller picture of the realities of food insecurity to be addressed by policy and investment strategies. Food security is not simply about producing food or allocating natural resources**. Food security is more importantly about building the social and economic means of production and safety nets to address vulnerability, and this cannot be done outside of the unit of the household.** Household food security requires households to produce sufficient food for their needs, or to generate income for food from other sources. Any food security or agriculture strategy or policy should, therefore, include assessment of its impact at household and local levels. Therefore, any agricultural production arrangements put forward by regional frameworks should feature a role for local level stakeholders and households and not only national or regional ones.

A widespread concern for development and a classical political economy debate is that of government and business elites favouring urban over rural areas. In the water sector in particular, this can be for many reasons, including the profitable business of the urban water sector, the political attention and mix of professionals it attracts, and as a result the substantial funds raised from taxation for government revenue[60]. The same cannot be said for rural water management where the stakeholders differ more openly across industry, domestic, agriculture and livestock. At the rural water supply level, governance of water is through public water suppliers, rural district councils and rural water associations such as community water point committees, private commercial interests and traditional leaders. It is important to place these actors within the different contexts of regional, national and household food security. Essentially, **if food security is to be promoted in SADC in accordance with the RAP framework, synergies at the local level could inform regional water policy and investments and not the other way around.** This sub-section offers brief insight into the important linkages that can be made with rural and urban practices and stakeholders for the purpose of improving SADC food security policy domestication[61] and using water more explicitly for poverty-reduction strategies as outlined in regional water policies and the SADC RAP. Country-specific examples are used from South African cities.

59 See http://www.afrol.com/articles/10631 and http://www.ifad.org/climate/gef/swaziland.pdf

60 These and other factors determine the drivers of the political economy, obstacles and opportunities for progress in the Kenyan water sector. See: Rampa (2011).

61 Domestication in this sense refers to mainstreaming of policy from the regional level into national contexts for the purpose of supporting regional integration. The United Nations Economic Commission for Africa (UNECA), 2012, highlights that regional integration in Africa is emphasized through the establishment of various Regional Economic Communities (RECs) and through dynamic processes and a diversity of approaches and benefits, the domestication or mainstreaming of policy decisions and protocols from the regional level into national development strategies.

## The interplay across rural and urban spheres for food security in SADC

The scale of demographic growth and urbanisation in SADC indicates that urban development challenges will intensify over the coming decades. Presently the developing world is home to more than 82% of the global population[62] and research indicates that future urban growth will be most pronounced in Asia and Africa[63]. As such, **urban food security is increasingly becoming an area of concern for development. And with urbanisation comes the transfer of rural poverty to urban areas.** While combined food supplies may be sufficient at the metropolitan scale, access to that food is highly inequitable in Southern African cities. Urban poverty remains a constant and chronic challenge to development, even in the more successful cases such as Botswana, Namibia and South Africa[64].

Research in the Southern African region found that of 11 cities surveyed, an average of 77% of urban households are food insecure[65]. A related study by the Development Bank of Southern Africa (DBSA) in 2009 on food security in three urban centres of South Africa (Cape Town, Durban Metro and Johannesburg), found that urban food insecurity is experienced at the levels of the household and the individual. This is noteworthy given that nearly two-thirds of South Africa's population live in cities and approximately half of this population live in poverty[66]. Furthermore, this study found that despite sufficient food supplies within the city, many households were classified as chronically hungry because they could not afford, and thus not access, food supplies. **As such an opportunity for development exists whereby the local, provincial and national governments all have important roles to play in leading the reshaping of a socially, economically and environmentally sustainable urban food system that also features the private sector.**

It is critical to consider people and their livelihoods for integrating food security into broader development agendas that support employment and livelihood creation, agriculture and food production. This is linked with the dynamic interchanges across regional, national and household levels as discussed in section 2. Furthermore, an essential element to achieving food security is addressing the social and economic vulnerabilities[67] that effect whether people can bounce back from an external stress, for example crop failure in time of drought. As **food security depends on agricultural production as well as the ability of national economies to create adequate livelihoods for their people. For this reason it is vital to consider the interplay across rural and urban realities for food security[68].** This is particularly relevant when considering that urban food insecurity and poverty were found to be directly linked to each other in the above DBSA study of food insecurity in Southern African cities. The potential exists in SADC for local food systems at the urban level to play a strategic role in the social and economic development of the urban poor through the support of sustainable livelihoods for access to food in urban areas.

62 UN HABITAT State of the Worlds Cities 2012/2013, p. 25

63 UN Department of Economic and Social Affairs: World Urbanisation Prospects The 2011 Revision, p. 12

64 Frayne, B., Battersby-Lennard, J., Fincham, R., Haysom, G. 2009. Urban Food Security in South Africa: Case study of Cape Town, Msunduzi and Johannesburg. Midrand: DBSA. p. 8

65 The African Food Security Urban Network (AFSUN) undertook a baseline urban food security survey in late 2008 in eleven cities in nine countries in Southern Africa. The cities included Windhoek, Gaborone, Maseru, Manzini, Maputo, Blantyre, Lusaka, Harare, Cape Town, Msunduzi (Durban Metro) and Johannesburg. (See Frayne et al, 2009)

66 See Frayne, et al, 2009, p. 42

67 According to Hart, 2009, food insecurity and vulnerability are sometimes used separately and sometimes synonymously in the sense that "food insecurity may be interpreted as a particular form of vulnerability (that is, vulnerability to inadequate access to food or vulnerability to hunger) and at other times as an outcome of vulnerability" (p. 362).

68 This perspective featured in discussions at the May 2011 Workshop on Regional Approaches to Food and Water Security in the Face of Climate Challenges. It was hosted in Midrand, South Africa and brought together policy and decision-makers, researchers and practitioners of eastern and Southern Africa to explore regional cooperation for food and water security in the context of climate change. See Muller, 2012.

An example of an opportunity for rural-urban linkages in SADC is in the peri-urban domain; characterised by the dispersal of urban population growth towards the rural surroundings of the city. These areas are growing in their populations in most Southern African cities and are characterised by both rural and urban economic and social activities. Returning to **the link between livelihoods, water needs and food security**, a distinctive feature that characterises the water needs of the peri-urban poor is that their livelihoods tend to be more diversified than in the rural and urban contexts, as poor households are more likely to depend on both natural and non-natural resource-based productive activities[69]. Many income activities in the peri-urban interface are water intensive, such as agriculture, horticulture, animal husbandry, tanning, brick making, food vending and small-scale textile production. For those involved in these activities, a lack of water not only constrains personal consumption and hygiene but also poses a serious threat to their livelihoods as discussed above.

Ecological sustainability for managing agricultural water resources is important for food security, particularly in the context of growing demands on water supply from urban and peri-urban populations. Growing agricultural water demand in SADC will continue to dominate water consumption patterns for a considerable time to come. As discussed, this is directly linked to the demand for food, population increase and dietary shifts. **As the SADC population becomes more urbanized, a shift is likely to more water intensive crops such as wheat, as opposed to traditional grains like sorghum.** On average the demand for cereals is expected to grow by 37% between 2000 and 2025[70]. With this rise in demand for food and water at the urban level, it will become increasingly relevant to consider water pricing in the context of local water scarcity as discussed in section 2. Valuing water in agricultural products according to the scarcity of the area of production of those goods, can support more sustainable and inclusive urban and rural food production systems.

**Policy making for water thus offers an opportunity to forge linkages across national, urban and rural actors for sustainable urbanisation and agriculture**, as cities are engines of rural development. Cities provide many opportunities for investment (in particular for infrastructure development), especially as cities not only support urban development but also contribute to rural development in an environment of strong urban-rural linkages[71]. Improved infrastructure is crucial between rural areas and cities as it increases rural productivity and enhances rural residents' access to water, education, healthcare, markets, information and other services. For the urbanite on the other hand, enhanced urban-rural linkages benefit cities through agricultural produce and increased rural demand for urban goods and services.

For the SADC region, the RAP makes these strategic links to the growing urban population of the region in terms of market creation and regional absorptive capacity for migration. Implications for the RAP of overall population increase, and especially rural population increase means that agricultural production will need to be more intensive and deliberate for farming of high potential growing areas. And indeed, the policy includes measures to focus on those agricultural growth areas that are connected to urban centres for regional agricultural activities to meet the increased demand from the growing population. **Agricultural development will therefore need to play a significant role in containing these large expected demographic shifts and therefore balance the pressures on the economies of the region as a whole**[72].

69 Allen, A. 2006. The peri-urban water poor: citizens or consumers? p. 344

70 Nyagwambo, N.L. 2008. Local governments and IWRM in the SADC Region. Harare: IWSD. p. 11

71 See the UN System Task Team on the Post-2015 UN Development Agenda on Sustainable Urbanisation Thematic Think Piece prepared by UN HABITAT, 2012: www.un.org/en/development/desa/policy/untaskteam_und/thinkpieces/18_urbanization.pdf

72 SADC. 2012. RAP Priority issues and interventions. p. 7

## 3.3. The political economy for AWM actors across geographical levels

The previous sections briefly sketched the variety and complexity of the actors relevant for AWM in SADC as well as the importance of local populations and initiatives for regional food security. This sophistication inherent to AWM is often lost in policy dialogue, as key stakeholders tend to focus on a lack of government capacity to efficiently and effectively manage water resources for economic and social development. AWM involves many different actors and incentives, power struggles, vested interests and political and economic deals. **A Political Economy Approach (PEA) is useful in this paper as a means to raise awareness on the related processes that hinder implementation of water reform overall and for agricultural production in particular**.

At the regional level, political economy of water governance is useful to uncover the interaction between political and economic processes, and also how power and resources are distributed and contested in different contexts. A national level political economy perspective is not only relevant to understand the impact of external pressures on national priorities from international donor-driven development cooperation. It is also relevant for examining internal and external political processes, elucidating the underlying incentives, central (in)formal actors and the economic forces that push or hinder change[73]. In this section a brief and non-exhaustive nationally focused political economy perspective is offered on the immense complexities of the water sector of government ministries, RBOs and interactions among members states of SADC. Reference is also made to the elements characterising the importance of local level water resources management in the region.

### Policy does not drive how water flows[74] – featured roles and key players for water governance at national and regional levels in SADC

Historically, water management in Southern Africa during the pre-colonial era focused on water quality and environmental flows. This management system was mainly expressed in the taboos associated with non-hygienic use of water points and customs on water abstraction[75]. The colonisation of Africa brought new water management systems that were usually tied to the systems in the colonising country. Colonial water management was supply-oriented in that big water schemes were developed mostly for productive purposes such as irrigation and hydropower generation[76]. In former settler colonies such as South Africa and Zimbabwe, many farm dams were developed with the result that South Africa and Zimbabwe have the highest water impoundment or storage ratio in SADC. However, **water management was premised on racial prejudices that favoured a minority settler group at the expense of the majority indigenous populations.**

In Southern Africa it is not possible to talk about the political economy of resource management without discussing power that still lies with those ministries and departments developed on the back of colonial efforts such as mining and agriculture[77]. After gaining their Independence, most state-builders in SADC countries inherited immense problems of labour and industry and in order to ignite national economic

73 See O'Meally, S. 2009. Political economy, water and the MDGs.

74 This concept was proposed during an interview with ECDPM Senior Advisor Political Economy and Governance, Jan Vanheukelom.

75 An example cited by the LoGo Water Partnership is from the Shona custom where cooking pots were not allowed at the well as "it would cause the well to dry up" or sayings such as "stagnant water is dead". The most potent water management tool was religion. Important water points everywhere were almost always declared holy sites only to be used after certain appeasement rituals were performed by the appropriate persons. See Nyagwambo. 2008.

76 Good examples of this can be found in SADC in the irrigation schemes in the Limpopo delta and the Kariba and Cabora Basa Dams for hydropower generation on the Zambezi. See Nyagwambo, 2008.

77 Swatuk, L. 2003. Kant and should: strategic thoughts about 'wise use' of the Okavango Delta System. Pretoria: UP. p. 130

production, trade and social development, natural resources and especially water were viewed as means to gain power, build their economies and create jobs. Today, for most states, the intentions for water governance remain to ensure a combination of national development and steady supplies of water[78]. **National interests and state sovereignty are thus central to regional attempts to manage transboundary water resources, especially given the absence of a punitive framework for non-compliance with RBOs in SADC.**

Water is a highly political issue and discussions about scarce water resources often taint cooperation between the region's diverse water users. **Improving water efficiency through technical and policy interventions, which also mean more availability of water, thus present opportunities for solving conflicts that arise from water scarcity**. A case study on the political economy for water governance and regional integration in Southern Africa illustrates the dynamics of tainted cooperation for TWRM[79]. The study refers to riparian states Namibia and Botswana sharing the Okavango Delta and in 1994 signed the river basin cooperation agreement of the Okavango River Basin Water Commission (OKACOM). Cooperation in OKACOM illustrates some of the political and economic motives behind transboundary cooperation. For example the support for the regime of inclusivity, consultation and cooperation in the river basin are mostly backed by Botswana, the downstream state with the most losses to bear if a multilateral relationship of interdependence is not fostered. In so doing it pursues its own national interests of developing its national tourism industry and withdrawing water for economic activities such as agriculture. Indeed, many upstream riparian states would ask why they should stunt their own national economic growth so that countries down river can benefit instead. In the past, Botswana has rejected the needs of riparian Namibia to use 2% river flow and as a so called 'donor darling' in the region, Botswana has active donor support from international environmental organisations giving it more clout within regional negotiations on use of shared water resources[80].

**It is important that the implementation plans of regional policies for improved TWRM for agriculture in SADC acknowledge these types of varying and asymmetrical power dynamics and economic relations between MS.** An example is the protracted and often times troubled development of the Lesotho Highlands Water Project (LHWP), now in its second phase. It was brokered bilaterally (without river basin commission) between the two governments of Lesotho and South Africa. There are many dimensions to the different phases of the project and stakeholder relations, including economic, social, cultural and ecological effects on the people and environments since the completion of Phase 1A and 1B of the LHWP. Without going into the details of the complex relations between the countries, for the purpose of this paper it is pertinent to point out a potential 'water, land, food' nexus between the two countries to result from the LHWP. This potential sectoral interconnection relates to the links of i) Lesotho's lose of its land due to flooding as a result of the errors or sabotage during the construction of the dams, ii) increased droughts and overgrazing in recent years in Lesotho and iii) the existence of underutilised arable land in South Africa[81]. So Lesotho is exporting water but does not have the arable land to grow food for its population while another precious resource of land in the country importing that water is underutilised. As complex and unfavourable as a negotiation of such a subject may be for both countries (especially Lesotho already in the shadow of the continent's economic power house), it may be worth opening the dialogue for improved food security, which is in the best interests of both. This potential synergy across sectors key for food security links with the messages of this paper, particularly those detailed in section 2, as the SADC RAP can realise its objectives and apply guiding principles in such a setting.

78 Ibid, p. 135

79 See: Muller (2013)

80 Ibid

81 This argument is presented in the case study by Wentworth, L., 2013, *Lesotho Highlands: Water Woes or Win-Wins?* for the PERISA series on Infrastructure jointly developed my SAIIA and ECDPM. http://www.saiia.org.za/news/new-publication-series-the-political-economy-of-regional-integration-in-africa

Beyond challenges in such regional and bi-lateral relations, other **challenges for integrating sectors across transboundary scales relate to generally separated agendas of national institutional structures and the expertise of both national and regional policy-makers**. These challenges were noted by regional water governance experts interviewed for this paper. The professionals in the water sectors of SADC MS are generally hydrologists and water engineers. Often the voices of the agricultural and food security practitioners are not heard in water planning and policy-making platforms and vice versa. Furthermore, institutional arrangements place water and agriculture in separate functional spheres despite effective organisation, sound policy frameworks and positive progress in the water sector of SADC region and its member states. These challenges depict institutional weaknesses, political bottlenecks and insufficient financial and human resources for the relevant national and regional organisations.

Regional water experts interviewed for this paper referred to similar **human resource and institutional complexities for the management of transboundary water resources across regional, national and local levels**. Some of the reasons for these complexities include multiple intersections of legal, economic, political and other forces with no dominant framework for governing watershed practices at the local level, despite many years and copious funds invested in TWRM structures and approaches in SADC[82]. Regional approaches to natural resource management have created numerous events and platforms for discussing texts, policies and strategies but implementation of transboundary projects and initiatives is minimal[83]. The CAADP and its regional processes are not exempt from these complexities and bottlenecks. As discussed in this section, addressing these complexities involves bridging different sectors and actors/initiatives at different levels. Before offering specific suggestions on ways the implementation of the RAP could make these connections, it is important to consider the contribution of the local level to sectoral synergies for regional food security in SADC.

### Keeping it 'home-grown': why the local cannot be removed from TWRM, agriculture and trade in SADC

Water management in Southern Africa in the post-colonial era has tended to develop along nationalistic trajectories with the result that several water management models have emerged. Decentralisation is a common feature of most national water policy and strategy documents in SADC. This is consistent with IWRM principles for water service provision to be decentralized to the lowest appropriate level and spatial scale, often being the local government in most countries. **In practice, water resources in SADC are usually managed, monitored and distributed through local governments and local actors.** In order to improve food security, it is important for national and regional actors to more directly engage local actors for transboundary agricultural water initiatives.

According to global and regional drivers of IWRM[84] approaches, international river basins are best managed through para-national institutions. In line with this thinking, river basin commissions have sprung up in most regions of the world. Although the institutional set-ups of basin organisations are designed to better serve national governments and quasi-governments organisations, they often leave out the stakeholders within the basin and in particular local government institutions who are often not aware of the

82 Water experts in SADC region state that there is often no justification provided by donors for funding the institutionalization and operations of TWRM structures and approaches when water resources are mainly managed at the local level.

83 Political economy and policy analysis experts specialised in African RECs and regional integration issues lament the hollow mechanisms and design flaws of many regional structures guided by donor-driven frameworks, including the CAADP and RAP. Leading institutions are often not equipped to do implementation because the institutional mechanisms are not adequate to implement projects and other actors in the region may not have the mandates, funding or transparency required by donors.

84 For example the SADC Secretariat's Water Division has been prioritising the river basin approach as the approach of choice as well as the concept of sharing either the water or the benefits as a way of seriously motivating participation by all parties. However, according to the LoGo Water initiative, progress in this direction has mainly been hindered by lack of trust. The issue of sovereignty has also not helped the cause for stakeholder participation at the regional level. (See Nyagwambo, 2008, p. 42)

operations of the basin commissions and their role in them [85]. For this reason, **the success of river basin commissions is not only contingent on political ownership and leadership at country level, but they also need to be understood on the ground where water is used.** As such it is important to raise awareness at local level about the existence of a particular river basin commission and its operations, as well as clearly define the role of local stakeholders in the operations of that commission.

If local level stakeholders are so vital in the action to reform the regional water sector, why are they neglected in the TWRM agenda? **Many forces play a role in the push and pull of TWRM policy, legislation and practice for agricultural water management in SADC**. For example, international law and water governance feature high on the agenda-setting scale for international donors. A global paradigm shift in **international water law** observed over the last decade has seen global debates shift from sovereignty over natural resources (hard fought for in the decolonisation period) to water access as a human right (a central normative factor in international affairs, decision-making and economic cooperation)[86]. IWRM and the river basin approaches are a part of this shift to a human rights and benefit-sharing approach[87] in SADC water policy and policy implementation. Water resources management is also an element of **political patronage among political and business elites** in the formal and informal, national and transnational political and professional networks of the region. This can offer one explanation for why the focus of water governance is often not placed on local level initiatives because of contesting business and political factors that often overtake the needs of small-scale water users and initiatives.

### Bridging the public and private sectors for national and regional infrastructure development

As mentioned earlier in this section, implementing regional policies for food security can benefit from approaches that use a combination of methods, sectors, actors and geographical levels. In the context of agriculture in SADC, the focus is still very much on transforming the region from a largely subsistence agrarian society into a sustainable commercialised agricultural and diverse economy. This involves increased and sustained investment from public and private sectors in terms of agriculture-related market infrastructure. The infrastructure industry is affected by high transport and logistical costs. These costs are influenced by the state of transport and logistical infrastructure (e.g. roads and border facilities), and by transport means and organisation (e.g. border controls and transit procedures)[88]. **Regional water practitioners agree that irrigation infrastructure is the main area in greatest need of investment in SADC and especially for smallholder farmers.** Water infrastructure, especially for irrigation, is prioritized in the SADC RAP.

**Infrastructure development to support the growth of the agricultural sector**, although not the main focus of the RAP, is relevant for implementing the RAP as cross-border corridors are a feature of regional cooperation initiatives in the region – including as the stated focus of the former SADC Chairmanship of Mozambique. Cited expected interventions include the promotion of "natural resources and agri-business

85 Nyagwambo, 2008, p. 41

86 Brölmann. 2013. International law as a tool for global water governance: http://www.thebrokeronline.eu/Blogs/Prioritising-Water/International-law-as-tool-for-global-water-governance

87 Benefit sharing is a term broadly used in international development debates and in the water sector as it relates to equitable sharing and management of water resources, especially in a transboundary context. In SADC river basins there is growing impetus to shift to an Economic Accounting of Water (EAW) approach to assess the total economic value of water for riparian states in order to share and optimize the benefit derived from water as opposed to calculating water use purely by volumetric abstraction per country in the catchment area. Although benefit sharing is not actively practiced in SADC, there is momentum for RBOs to adopt EAW approaches to facilitate regional negotiations. (See Manase, G. 2010)

88 The SADC RAP, 2013, outlines this element of transport and logistics for agricultural development as part of a broader call for budget allocation for agricultural infrastructural development and maintenance.

activities and investment, in relation to cross-border transport corridor initiatives", as well as "promoting new infrastructure development in agriculture specific areas that have a regional/multi-country scope".[89]

Other challenges for the RAP operationalization process to consider is increased competition for land and water in SADC due to population growth, changing climate and land use patterns and increased national and transnational private sector large-scale land acquisitions for commercial farming. **Greater investment in agriculture has been promoted not only in terms of addressing food insecurity and rural poverty, but also offers many SADC countries an opportunity to diversify their national economies** away from dependence on a single sector (e.g. mining sector) as well as to unleash private sector development[90].

Water is crucial in this economic development and there is need for the regional CAADP policy and investment processes to integrate these concerns across sectors and producers. Water governance experts in the SADC region have suggested ways to do this by **greater partnership across the public private divide in the water sector,** whether it is for strengthening involvement of private sector through incentives such as cost-recovery measures, adjusting trade tariffs following economic valuations of water and/or creating the space for innovative approaches to water demand management in both rural and urban areas.

# 4. Concluding remarks: What CAADP can do for improved AWM in SADC

According to its "guiding principles", the Regional Agricultural Policy for SADC should exist to add value to national-level agriculture policies and practices. In the case of water governance for agriculture, this value-addition is still challenged, as some regional stakeholders are convinced of the need for TWRM for agriculture and others are not convinced that the local and national realities of agricultural water management in SADC are at all enhanced by TWRM. In an attempt to clarify what is the possible value-addition of TWRM in the context of food security, this paper provides a few suggestions of potential synergies for improved TWRM in SADC, focusing especially on opportunities to enhance the Regional CAADP Investment Plan. **In order to operationalize the RAP through such Investment Plan, more research and dialogue are indeed needed - directed especially at fully understanding the specific country-situations in terms of local, national and regional agricultural water management for food security.**

Stakeholders confirmed there is a critical need for more analysis and linkages in SADC on the relationship of water, trade and agriculture in national and regional policy, planning and practice. This relationship is pertinent because although the RAP and other guiding documents and frameworks exist for the water sector at regional level, **the most interesting and relevant dynamics in SADC for agricultural water management for food security, as well as the actual implementation of any regional decision, are taking place at national and local levels.** In this context, it is significant to explore how the SADC RAP can build on existing policies, coordination structures and investments to improve national and regional interactions for agricultural water governance and food security. Exploring these issues is relevant for

89 ECDPM Discussion Paper No. 138 focusing on corridors for regional trade cooperation for agricultural development and food security under the CAADP highlights these important linkages of transboundary infrastructure and networks. See Byiers, B., & Rampa, F. 2013. *Corridors of power or plenty? Lessons from Tanzania and Mozambique and implications for CAADP*: www.ecdpm.org/dp138

90 See Chu, 2012, for the specific case of land and water grabs in Zambia.

SADC as water is a highly political issue and discussions about scarce water resources often taint cooperation among diverse water users. Improving water efficiency through technical and policy interventions, which also mean more availability of water, thus present opportunities for solving conflicts that arise from water scarcity.

In this last section, a few suggestions are made for ways to operationalize the TWRM aspects of the RAP (Policy Statement 10.5) during the policy's implementation stage. More broadly, this section also offers suggestions of synergies that could be made across the water, agriculture and trade sectors as well as local, national and regional geographies (as discussed throughout this paper) that could contribute to achieving the RAP vision. This section concludes with suggested ways for any such implementation of the RAP to also address broader bottlenecks for TWRM in SADC.

## 4.1. Operationalization of TWRM in the RAP

Without wanting to exaggerate coordination ambitions, this paper has discussed the importance of vertical and horizontal coherence for regional coordination for TWRM in SADC. **RAP policies and investments could be coordinated with and complementary to the SADC Water Infrastructure Programme to boost agricultural production through improved water management and infrastructure.** Possible synergies worth exploring in the areas of irrigation and boosting farmer's productivity include that of the SADC Water Programme that envisages as one of its main targets to develop by 2015 the water infrastructure needed to double the size of land under irrigation in the region. Such coordinated efforts could also feature in RAP implementation programmes, especially for harnessing shared water resources for agriculture and promoting cross-border irrigation schemes as a specific example of projects with a regional or multi-country scope[91]. In this context, the water resources management approach in SADC, which is de facto a combination of the overall SADC Water Protocol and the agreements involving different sub-sets of SADC member states belonging to different river basins, suggests that creating synergies between CAADP and existing regional frameworks may also mean building on the progress made by clusters of countries in specific areas, with different SADC member states making progress at different paces.

Water infrastructure development as prioritized in the SADC RAP, including cross-border irrigation schemes, will require that water rights are secured in order for regional agricultural projects to abstract and store water from natural sources. The process of developing water-related investment programmes under the RAP, i.e. designing the Regional CAADP Investment Plan for AWM, will therefore require taking into account that **these water rights are usually conveyed at national and often community-level scales and thus engaging such stakeholders early in these processes.**

As discussed in section 3, water has multiple uses for a variety of users in the river basins of SADC. As such, the action plan of the RAP could benefit from incorporating lessons from past and existing TWRM programmes and initiatives in the region, particularly **projects that use a mix of methods and approaches to engage a diversity of actors across different levels**. An example of such a programme is the Limpopo Basin Development Challenge (LBDC); a river basin initiative that works with global and river basin stakeholders as well as local actors. The LBDC methodology and approach could be used as model when making the RAP objectives on AWM operational because it offers a good example and best practices of (relatively) effective cooperation between international, regional and local levels.

91 See SADC RAP policy statement 15.1 on agriculture-related infrastructure development and improved utilization of existing infrastructure.

Another initiative to potentially guide the implementation of TWRM aspects of the RAP is that of the **Lower Usuthu Smallholder Irrigation Programme (LUSIP). This is a smallholder irrigation initiative that concretely sought in the first place to address local water needs for agriculture and demonstrated a good partnership among donors** for the first and second phases of the project. It was also well coordinated and included a strong component for capacity development of the local farmers to enter into agricultural business cooperatives for growing sugar cane, maize, other crops and farming livestock on the irrigated lands. The programme is also coordinated through a pooling of financial resources from a diversity of actors from Swazi, African, Arab and EU development banks, global environmental donors and local cooperatives.

**More in general, regional collaborations for TWRM seem to be working relatively well, both as cooperation within SADC member states and institutions and between SADC and development partners**. This is particularly valid for the multi-sectoral Water Strategy Reference Group (WSRG) that brings together the SADC Secretariat and all international cooperation partners in the water sector. The RAP Investment Plan could thus possibly work to replicate the approach of the WSRG toward stakeholder awareness and information sharing. Information sharing namely in the form of the web-portal reporting all donors support and initiatives related to IWRM in SADC that significantly contribute to mutual accountability objectives. Such coordination and partnership is one of the best examples of partnership among donors in SADC region, according to stakeholders in SADC Regional Water sector.

Regional water experts recognise the **need for investment in practical areas such as the installation and maintenance of Multiple Use Systems (MUS) as** part of an integrated approach to water for agricultural productivity (systems for both crop irrigation and livestock water access), livelihood and nutrition diversification (aquaculture or sale of cash crops for example) and domestic use. In practice, these diverse uses of water infrastructure already take place but with single water-supply systems. For example, livestock damage single water supply systems for crops when they try to access water. Or households find that they cannot access the water in the months of the year when the single water supply system is not used for crop irrigation. If further integrated into policies and investment planning, MUS could present an example of water infrastructures that support 'enabling' policies (as opposed to 'regulatory' policies) for the agricultural water sector in SADC region. SADC MS stand to benefit from further planning and investment for wider use of MUS as well as building on existing initiatives in the region to support smallholder farmers for water productivity, production incentives and market access. The RAP contains such 'enabling' aspects for intra-regional trade of agricultural goods and also seeks to reduce external tariffs on agricultural production factors with specific mention of water equipment and water harvesting technology (as well as renewable energy and green technology)[92].

Finally, the RAP stands to benefit from incorporating shifts in policy that are taking place at regional and national levels to include the perspective of **benefit-sharing within an economic valuation of water resources in a shared river basin**. Presently the SADC region mainly measures water resource use by means of volumetric water use per riparian state but this is changing to include an Economic Accounting of Water (EAW) approach at river basin level. The expansion of this approach in regional water policy and practice could improve joint planning and investments for regional food security. An EAW approach also highlights the importance of water governance for supporting the livelihoods of rural and urban populations for sustained economic growth. The use of such approaches for implementing the RAP could give prominence to the potential shared economic gains and social development to result from synergies across sectors key for food security.

92 See SADC RAP Policy Statement 14.2

## 4.2. Opportunities for triangular sectoral-synergies of water, agriculture and trade

Water is a fundamental catalyst for development in the SADC region and as discussed throughout this paper, is a resource most harnessed for agricultural production at national and sub-national levels, even though the sustainable management of overall water resources should be addressed at basin and regional levels. **The text of the SADC RAP already incorporates water resources for agriculture as a key policy issue and the pairing of agriculture and trade are at the heart of the SADC RAP documents.** This alignment in the RAP of the three sectors water, trade and agriculture may be enhanced for implementation through most of its key priority areas including: i) improved sustainable agricultural production, productivity and competitiveness; ii) improved regional and international trade and market access; iii) improved private and public sector engagement and investment in agricultural value chains.

However, the role of water is less explicit in the policy (when compared to trade and agriculture) and this is not unexpected given the traditional divorce of water resource management across local and national frontiers. Importantly, as past research and regional stakeholders point out, these 'disconnects' are prevalent because of mismatched hydrological, political and administrative boundaries; overlapping geopolitical boundaries that characterize TWRM. Added to this complexity are the different land and water-use agendas of public, private and community actors, different paces of the overall development of different countries and often unmonitored transboundary commercial agricultural water abstractions. All of which illustrate the **complex (and often times conflicting) interests and interaction of regional policy, investment and coordination for water, agriculture and trade.**

While recognising there are feasible limits to coordination across sectors and geographical levels, this complexity presents opportunities for multi-dimensional collaboration through a regional CAADP compact and Regional CAADP Investment Plan. For the implementation of specific policy interventions that require cross-sectoral cooperation among MS, these policies could also factor in standards to tackle challenges of different pace and scale of development of MS. Such standards of proportionality could include mechanisms for differentiated implementation plans and monitoring systems to keep track of progress to implement specific policy interventions among member states. **Such guiding principles of proportionality (see Box 3) are vital for regional action to remain responsive and flexible to national objectives and accommodate those sub-groups of countries that will meet specific objectives faster.** The SADC RAP already incorporates such an approach to be responsive to change and progressivity and there are potential opportunities for expanding this to specific initiatives for TWRM for agriculture in the river basins of the region.

**It is important to note that many of the points made in this paper (e.g. the need to involve and connect national and local water actors into the RAP and other regional frameworks) indeed reflect the guiding principles of the RAP** (see Box 3). The most relevant guiding principles for connecting sectors and transboundary cooperation as outlined in section 2, are: subsidiarity, additionality, complementarity, proportionality, coherence, partnership and consultation, responsiveness to change, progressivity and solidarity. Beyond reflecting these principles, the suggestions made in this paper aim to exploit synergies across sectors and geographical levels – they are not attempts at forcing coordination with all relevant actors or having the RAP guide all AWM interventions from regional down to local levels. Rather, the suggestions offered in this paper are flexible, inclusive, partnership-building and complementary in the approach to AWM by different actors at different levels and taking into account different sectors.

The principle of proportionality envisages moving ahead at different paces in the region as part of embracing comparative economic strengths of different countries for sectoral integration in the region. Such a potential area for partnership in SADC, as detailed in section 2, is structured on an **intra-regional 'triangle' of cooperation among water resource management, agriculture and trade sectors.** Regional experts interviewed for this paper confirmed that this type of discussion is not yet explicit within regional policy circles and processes, but applying such an approach can make great gains. Furthermore, high-level agreements for economic integration across sectors and national boundaries could translate into improved conditions to support increased agricultural productivity of the regions farmers. Regional water experts interviewed for this paper gave the example of policies that restrict the trade of goods across borders and as such prevent smallholder farmers from accessing advanced tillage and water-use technology proven to be effective in the Southern African region. Addressing the restrictions on trade of these goods has an impact on water use efficiency and agricultural productivity in the region.

It is useful to depict such potential sectoral-synergies in the form of 'horizontal' collaboration of water, agriculture and trade sectors. Most countries in SADC use between 5 to 10% of available water resources so the major challenges for most MS are not related to water scarcity as there are sufficient supplies. The greatest need is for improved irrigation for agricultural production, essentially the target in the RAP for improved governance of shared water resources. **Once water can be better captured, stored and managed for agriculture in some MS, water can be liberated for consumption in the manufacturing sector in other MS,** thus boosting intra-regional trade while contributing to regional food security, livelihood development and economic growth.

**This potential to enhance regional cooperation can also be realised through better regional agricultural market outlook and food insecurity monitoring, especially during times of drought and flood.** SADC countries are prone to the adverse impacts of variable climate and can use sectoral synergies for water, agriculture and trade to bolster regional structures and programmes to support adaptive capacities for agricultural trade. SADC Secretariat climate change experts discussed this approach as supporting both national and regional food security which is in the interest of all stakeholders.

Food security both at national and regional levels remains a goal of common interest for all national and regional players in the water, agriculture and trade sectors. The SADC RAP presents the framework and platform for dialogue to enter into regional cooperation beyond bi-lateral discussions but in support of the overarching CAADP principles of regional dialogue, collaboration and action. The RAP Guiding Principles (See Box 3) include the principle of solidarity – guaranteeing a minimum level of cohesion between members and the importance of common resources (financial, human and institutional) to reduce disparities between MS. **The triangular/sectoral synergies of water, agriculture and trade hence presents an opportunity for the RAP to bridge national and regional divisions in support of real policy reforms and investment to improve food security.**

## 4.3. Addressing broader bottlenecks for TWRM in RAP implementation

Synergies across sectors cannot materialise without being grounded in national policy and finance programmes. Regional water stakeholders confirmed in interviews for this paper that **policy and investment strategies should be explicit on the need for simultaneous support for 'hardware' of infrastructure development in TWRM and 'software' of institutional and human resource development in the sector.** Both enabling policies and flexible institutions will be needed to support the design, inception, management and monitoring of TWRM. According to regional water experts interviewed for this paper, investment programmes to bolster the work of the RAP for TWRM, need **simultaneous**

**investment for expertise and infrastructure. These investments would need to support improved interactions across geographical levels from local, national and regional levels and infrastructure development at the same levels.**

The link to RBOs is relevant here because they are intended to represent these diverse interests through their independent structures. But the reality expressed by regional stakeholders is that **RBOs tend to regard water development strictly as a hydrological matter**. And as confirmed by these stakeholders and past research studies, most of the RBOs in Africa tend to the staffed by technical experts from the water sector with minimal representation from the agriculture, finance, forestry, fisheries and planning sectors. This hinders appropriate consideration of the multifaceted, cross-sectoral approaches that are needed to transcend traditional administrative boundaries, or 'working in silos'.

A suggested approach to address this bottleneck could be for the **regional SADC processes for food security, starting with the RAP, to explicitly require RBOs to be included in dialogue, consultation, policy measures and institutional frameworks**. Likewise, if RBOs are to be effective and align with national needs, they will need to be restructured, integrating institutional arrangements that incorporate these different disciplines and demonstrate an appropriate system of public and corporate governance that meets the needs of all participants.

One of the major debates identified among regional stakeholders was that of **accountability in regional policy frameworks and regional coordination bodies**. The extent to which RECs are held accountable to member states is influenced by the currently minimal member state funding for SADC activities and the prevalence of donor-funded agendas. The practicalities of this often donor-led agenda, mean salary payment and overuse of consultants to conduct national studies leads to a general indifference among regional level cadres to vigorously seek out institutional change. The operationalization of the RAP could address this challenge by requiring a dual approach of SADC financial and technical support for MS TWRM activities as well as MS incorporating TWRM into their national action strategies and investment plans using the existing institutional structures of RBOs as coordinating platforms.

In terms of supporting institutional and human resource capacity development[93], the SADC RAP could use the example of WaterNet (Southern African Network for capacity development in IWRM). This is an example of **an institution to result from an 'enabling' approach to policy or investment for institutional and human resource development in SADC**. This is acknowledged by regional stakeholders as a' success story' of regional cooperation with national benefits as the human resources of national institutions benefit through technical and policy expertise with the purpose of 'levelling the playing field' between riparian countries of the region and also capacitating national and regional policy-makers, managers and water sector personnel for IWRM. The SADC RAP could also make links with the work of this pool of national and regional experts with exposure to national circumstances and regional dynamics to participate more actively in TWRM policy development, research projects and consultancies.

Another area for increased support is the **need for greater agency on the part of smallholders to demand policies and investments that favour small-scale production and access to transboundary discussions on water policy and economic benefit-sharing.** The majority of farmers in SADC are smallholder or subsistence farmers and account for most of the region's agricultural production, but very often they do not have access to the policy-formulation processes for water governance. Capacity

93 Links can be made here to other strategies outlined in the SADC RAP related to enhancing sustainable agricultural production, productivity and competitiveness. In particular, policy statement 11.3 on enhancing the capacity of institutions involved in agricultural development, could be implemented with the view of AWM and TWRM stakeholders as key players in agricultural value chains as well as supporting cross-sectoral research and development to include TWRM and IWRM into farm support services for tailored local level information and knowledge.

development of institutions and strengthened coordination structures in the RAP could include a needs assessment of smallholders across the region. Improved communications measures could spearhead these interventions, such as translating meetings and documents into the languages of local communities[94]. In some cases there may be need for more long-term development of the technical capacities of leaders and communication media for mobilising farmer groups and other important stakeholders (e.g. women, youth and small business owners) to put pressure on leaders in local, national and regional water governance authorities.

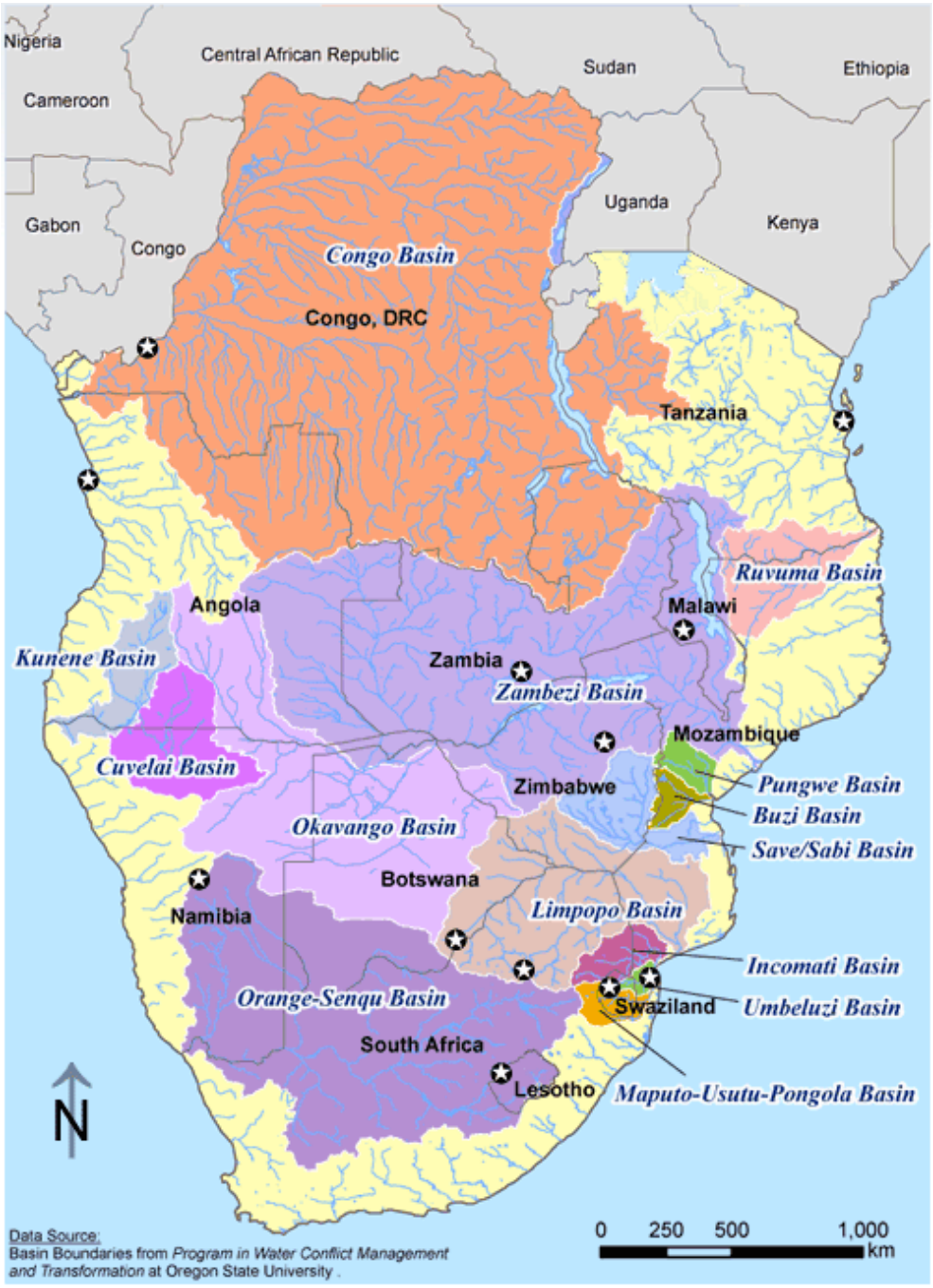
**SADC processes for food security, starting with the RAP, could aim to further improve the roles of public and private sector stakeholders.** Secretariat water experts confirmed that more incentives are needed to encourage greater investment from the private sector in TWRM. When compared to transport, energy and Information and Communication Technology (ICT) sectors, the water sector is said firstly to be in need of more investors and secondly needs more incentives such as cost-recovery measures to entice private companies to invest in the water sector and support public-private partnerships. As shown, the private sector are key partners at the local level and this matches with regional goals as private sector investments are counted for the CAADP aim to raise agricultural productivity by at least 6% per year and increasing public investment in agriculture to 10% of national budgets per year. The RAP could include 'basket-funding' initiatives for TWRM, agriculture and trade for collective investment from donor, private and civil society actors. Regional stakeholders confirm that such basket-funding cooperation presently exists only among donors to fund TWRM interventions A basket-funding approach to investment for specific RAP objectives could support greater sectoral and stakeholder coordination and also likely result in pooled resources to finance larger agricultural water, energy and trade infrastructure projects that are typically not supported by public finance.

As discussed in section 3, numerous existing approaches and initiatives that support national and regional food security, do not have explicit or singular reference to water governance. Some argue that national processes have not adequately informed the SADC water sector processes for regional integration. In this sense, it could be argued that the **classic development problematic of 'top-down' instead of 'bottom-up' logic for processes and initiatives is at work in the case of SADC regional integration**. Regional stakeholders point out that this is especially relevant in light of the external pressures on the SADC Secretariat to do so by international donor agencies and formal development cooperation. Additionally the globally evolving international development schemes that impact the water sector (such as adapting to and mitigating climate change as well as addressing the Water, Energy, Land Nexus for example) compound this scenario within regional cooperation dimensions. This is because key operational and small-scale considerations can easily be neglected within these broad and overarching debates. It is vital that this top-down approach be inverted in the case of RAP implementation to include all stakeholders (mainly sub-national and national) for the water for agriculture agenda of the region. The areas of water, land and energy remain, as for other sectoral relationships, in silos in terms of their systems, institutions and monitoring.

The above suggestions are made based on the potential to realise the TWRM aspects of the SADC RAP in light of a sectoral synergy across water, agriculture and trade sectors. The main goal of this synergy is to address food security at multiple levels in the region and in so doing incorporate the lessons from the successes of past and existing initiatives, partnerships, networks and policies. The RAP already incorporates some of these aspects and further cooperation among MS and regional institutions for TWRM stands to reduce food insecurity through increased agricultural production and regional trade in line with CAADP objectives.

94 Regional practitioners pointed to the need for greater dialogue in basin areas based on equitable exchanges among communities speaking different languages. This could be in the form of workshops or documents for officials and local communities sharing the same river catchments for different economic and social activities.

# Annex I: Transboundary River Basins in the SADC region




*Source: SADC Water Sector ICP Collaboration Portal*

# Annex II: Actors, networks and initiatives in SADC region water resources management sector

| | Key institutions and actors | Description of activities / Mandate / geographical level | Website / online information |
|---|---|---|---|
| **Global & Continental** | African Development Bank (AfDB) African Water Facility (AWF) | The African Water Facility (AWF) is an initiative led by the African Ministers' Council on Water (AMCOW) to mobilize resources to finance water resources development activities in Africa. It is hosted at the African Development Bank (AfDB) and can provide support to multinational and national institutions and communities. | www.africanwaterfacility.org/en |
| | African Ministers Council on Water (AMCOW) | The African Ministers' Council on Water (AMCOW) was formed primarily to promote cooperation, security, social and economic development and poverty eradication among 53 member states through the effective management of the continent's water resources and provision of water supply services. | www.amcow-online.org |
| | Partnership for Agricultural Water for Africa (AgWA) | AgWA is a Partnership of African countries, development partners, international, regional and national organisations from the public and private sectors and civil society who have a common interest and important capacities to support investment in Agricultural Water Management (AWM) in Africa. AgWA works with national governments, regional and international organisations and donors. | www.agwa-africa.org/index.php/about-agwa |
| | International Water Management Institute (IWMI) | IWMI is a scientific research organization focusing on the sustainable use of water and land resources in developing countries. It is headquartered in Colombo, Sri Lanka, with regional offices across Asia and Africa. It works in partnership with governments, civil society and the private sector to develop agricultural water management solutions and is a member of CGIAR, an international consortium of agricultural research centers. | www.iwmi.cgiar.org |
| | Global Water Partnership (GWP) and Global Water Partnership in Southern Africa (GWPSA) | GWP is a global action network with the chief focus of supporting social change processes for sustainable water resources management and IWRM. The network is comprised of various organisations involved in water resources management from developed and developing country government institutions, agencies of the UN, bi- and multi-lateral development banks, professional associations, research institutions, NGOs and private sector at country, regional and international levels. | www.gwp.org<br><br>www.gwp.org/gwp-in-action/Southern-Africa |
| | The Water Futures Partnership | The Water Futures Partnership is composed of SABMiller, the World Wildlife Fund (WWF), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and local partners in nine countries to build the business case and create mechanisms for companies to engage in local collective action to help address shared water risks facing businesses, communities and ecosystems. | www.water-futures.org |

| | Key institutions and actors | Description of activities / Mandate / geographical level | Website / online information |
|---|---|---|---|
| **Regional** | SADC Secretariat Food, Agriculture and Natural Resources (FANR) Division | The main function of the FANR Directorate is the coordination and harmonization of agricultural policies and programmes in the SADC region. The main focus of FANR is to ensure food availability, access, safety and nutritional value; disaster preparedness for food security; equitable and sustainable use of the environment and natural resources; and strengthening institutional framework and capacity building. | www.sadc.int/fanr |
| | SADC Secretariat Water Division | With 70% of regional water resources crossing national boundaries, the SADC Water Division oversees harmonisation of national water use policies and moderates transboundary issues. It aims to ensure that water in Southern Africa is used in a sustainable and equitable fashion through facilitating cooperation of SADC MS for treating water as a regional resource that requires management and protection across national boundaries. | www.sadc.int/themes/infrastructure/water-sanitation/ |
| | SADC Water Infrastructure Programme | SADC MS have requirements for regional water infrastructure development in accordance with the Regional Indicative Strategic Development Plan (RISDP). Specific targets for water infrastructure development are to develop by 2015 water infrastructure needed to double land under irrigation, and halve the proportion of people without access to drinking water and proper sanitation. | www.sadc.int/water |
| | SADC Water Strategy Reference Group (WSRG) | The thematic coordination for the SADC Water Sector takes place mainly through the Water Strategy Reference Group (WSRG), consisting of the SADC Secretariat and all international cooperating partners (ICPs), under leadership of GIZ. | www.icp-confluence-sadc.org/documents/water-strategy-reference-group-wsrg-terms-reference |
| | SADC Secretariat Water Sector: ICP Collaboration Portal | The information-sharing and dialogue platform was developed to coordinate the efforts of International Cooperating Partners (ICP) in the SADC region working on water issues. Collaboration takes place at the levels of international, river basin and member states. The work of the ICP Collaboration Portal mainly takes place through the SADC WSRG. | www.icp-confluence-sadc.org |
| | Development Bank of Southern Africa (DBSA) | DBSA, based in South Africa, is a development finance institution with the purpose of accelerating sustainable socio-economic development in Southern Africa. It funds physical, social and economic infrastructure with the goal to improve the quality of life of the people of the region. DBSA investment focus in the water sector includes water resources and sanitation schemes internationally, in the region and in South Africa. | www.dbsa.org |
| | Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) Limpopo Basin | The Limpopo Basin Development Challenge is to improve integrated management of rainwater to improve smallholder productivity and livelihoods and reduce risk in a water-scarce environment. The more pressing development challenge in the farming systems of the Limpopo Basin is the unproductive use of water during normal rainfall seasons. | www.fanrpan.org/projects/lbdc/about |

| | Key institutions and actors | Description of activities / Mandate / geographical level | Website / online information |
|---|---|---|---|
| | Development Challenge (LBDC) | The project engages RBOs, basin commission member states and small-scale farmers. | |
| | WaterNet (Building Capacity for Water Resources Management in Southern Africa) | WaterNet is a regional network comprised of over 55 members, mainly university departments and research institutions, specialized in water but also governmental and private sector organisations. The programme supports awareness raising and capacity development for IWRM through formal and informal education in partnership with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Institute for Water Education (IHE). | www.waternetonline.ihe.nl |
| | Institute for Policy, Land and Agrarian Studies (PLAAS) | PLAAS does research, policy engagement, teaching and training about the dynamics of chronic poverty and structural inequality in Southern Africa. Emphasis falls on the key role of restructuring and contesting land holding and agro-food systems in the subcontinent and beyond. Analysis focuses on marginalised livelihoods in Southern Africa, especially of subsistence and smallholder farmers and farm workers, of coastal and inland artisanal fisheries and fishing communities; and of informal self-employment in rural and urban areas. | www.plaas.org.za |
| | African Water Issues Research Unit (AWIRU) | AWIRU is a research division of the University of Pretoria. It strives to support NEPAD by developing a scientific understanding of the role of water as a source of socio-economic and political stability. | www.awiru.co.za |
| | **Information sharing platforms** | | |
| | SADC Water Information Sharing Hub (SWISH) | SWISH aims to support and facilitate the sharing of information in the SADC Water Sector aligning with the information sharing objectives of regional policies including SADC Protocol on Shared Watercourses and the Regional Strategic Action Plan on Integrated Water Resources Management. | www.sadcwaterhub.org |
| | SADC Economic Accounting of Water Use Project (EAW) | A practical framework developed from lessons learned from SADC that allowed the development of standardised methodologies, indicators and best practices to assist in the understanding of the role of water in the economy of a country or River Basin. | www.sadcwateraccounting.org |
| | SADC Hydrogeological Map and Atlas | The SADC Hydrogeological Map and Atlas provides an overview of the groundwater resources of the SADC region by means of an interactive web-based regional map. The map is intended to serve as a base map for hydro geologists and water resources planners and also present information to non-specialists. | www.196.33.85.22/bin-release |
| | Water Institute of Southern Africa (WISA) | WISA provides a forum for the exchange of information and views to improve water resources management in Southern Africa. It keeps its members abreast of the latest developments in water technology and research through its national and international liaison, links and affiliations. | www.wisa.org.za |

| | River Basin Organisations (RBOs) | Main Objective of RBO | SADC Member States |
|---|---|---|---|
| **River Basin** | Inco-Maputo Tripartite Permanent Technical Committee Permanent (TPTC) | These riparian states established in 1983 the "Tripartite Permanent Technical Committee" (TPTC) to agree on water use in the shared watercourses enabling sustainable development. | South Africa, Mozambique and Swaziland |
| | International Commission of Congo-Oubangui-Sangha (CISOS) | The immediate objective was to improve cooperation amongst the member states, through improved communication using the Congo River and its tributaries. A future objective is to promote IWRM, in order to enhance development and alleviate poverty in the member states. | Cameroon, Central African Republic, Democratic Republic of Congo and the Republic of Congo |
| | Limpopo Watercourse Commission (LIMCOM) | The commitment of the riparian states managing their water resources together dates back to 1986, when the “Limpopo Basin Permanent Technical Committee” was jointly established. In 2003 this cooperation was fostered through the multilateral agreement to establish the Limpopo Water Course Commission (LIMCOM). Riparian states ratified this agreement in 2010. | Botswana, South Africa, Zimbabwe and Mozambique |
| | Lake Tanganyika Authority (LTA) | The Lake Tanganyika Authority (LTA) was established by the governments of Burundi, Democratic Republic of Congo, Tanzania, and Zambia. The LTA promotes regional cooperation required for socio-economic development and sustainable management of the natural resources in the Lake Tanganyika basin. | Burundi, DRC, Tanzania and Zambia |
| | Orange-Senqu River Commission (ORASECOM) | The Orange-Senqu River Commission (ORASECOM) promotes the equitable and sustainable development of the resources of the Orange-Senqu River. ORASECOM provides a forum for consultation and coordination between the riparian states to promote integrated water resources management and development within the basin. | Botswana, Lesotho, Namibia and South Africa |
| | Permanent Joint Technical Commission for the Kunene River (PJTC Kunene) | The Permanent Joint Technical Commission (PJTC) is an advisory body established to consult the respective governments on the development of the Kunene River and to oversee the implementation of common infrastructure projects. | Namibia and Angola |
| | Okavango River Basin Water Commission (OKACOM) | Guided by the spirit of managing the Okavango River Basin as a single entity, the three sovereign states of Angola, Botswana and Namibia agreed to sign the "OKACOM Agreement" in 1994, in Windhoek, Namibia. The Agreement commits the member states to promote coordinated and environmentally sustainable regional water resources development, while addressing the legitimate social and economic needs of each of the riparian states. | Angola, Botswana and Namibia |
| | Ruvuma Joint Water Commission (Ruvuma JWC) | Regarding mechanisms for cooperation in the Ruvuma River Basin, both Mozambique and Tanzania are dedicated to cooperate and a Joint Water Commission was established in 2006 to promote social economic development and regional integration. | Mozambique and Tanzania |
| | Zambezi Watercourse Commission (ZAMCOM) | The Zambezi is the largest river in Southern Africa. The Zambezi basin is shared by eight countries. The Zambezi Watercourse Commission was established in 2004. | Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe |

| | Key institutions and actors | Description of activities / Mandate / geographical level | Website / online information |
|---|---|---|---|
| National/ Local | Lower Usuthu Smallholder Irrigation Programme (LUSIP) | A large-scale project run by the Swaziland Water and Agricultural Development (SWADE) that is also a smallholder irrigation initiative to address local water needs for agriculture by building three dams as part of a partnership among a diversity of donors for the first and second phases of the project. The project also focuses on capacity development of the local farmers to enter into agricultural business cooperatives. | www.swade.co.sz/index.php/2012-08-29-08-07-22/lusip-i |
| | Lesotho Highlands Water Project (LHWP) | The LHWP is Africa's largest water transfer scheme. It also has a hydropower component and is developed in partnership between Lesotho and South Africa. It comprises a system of several large dams and tunnels throughout the two countries. In Lesotho, it involves the rivers Malibamatso, Matsoku, Senqunyane and Senqu and in South Africa the Vaal River. The purpose of the project is to provide Lesotho with a source of income in exchange for the provision of water to South Africa's central Gauteng province (where the majority of South Africa's industrial and mining activity occurs) as well as generate hydroelectric power for Lesotho (currently almost 100% of Lesotho's requirements). | www.lhwp.org.ls |
| | Water Research Commission South Africa (WRC) | The WRC actively contributes to South Africa's water knowledge base by funding fundamental water research, growing scientific capacity and disseminating knowledge to important stakeholders through various formats. The organisation funds different research touching all aspects of the water cycle, including the use of water in agriculture. | www.wrc.org.za |
| | LoGo Water (Local Governments IWRM in Southern Africa) | LoGo Water was a project funded by the European Commission from 2005-2008 to strengthen IWRM at the local level working with local authorities in SADC. The project mainly developed information materials and fostered partnerships in the region to support local authorities to engage at the regional level while actively seeking solutions at the local level. | www.logowater.iclei-europe.org |

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**About ECDPM**

ECDPM was established in 1986 as an independent foundation to improve European cooperation with the group of African, Caribbean and Pacific countries (ACP). Its main goal today is to broker effective partnerships between the European Union and the developing world, especially Africa. ECDPM promotes inclusive forms of development and cooperates with public and private sector organisations to better manage international relations. It also supports the reform of policies and institutions in both Europe and the developing world. One of ECDPM's key strengths is its extensive network of relations in developing countries, including emerging economies. Among its partners are multilateral institutions, international centres of excellence and a broad range of state and non-state organisations.

**Thematic priorities**

ECDPM organises its work around four themes:

- Reconciling values and interests in the external action of the EU and other international players
- Promoting economic governance and trade for inclusive and sustainable growth
- Supporting societal dynamics of change related to democracy and governance in developing countries, particularly Africa
- Addressing food security as a global public good through information and support to regional integration, markets and agriculture

**Approach**

ECDPM is a "think and do tank". It links policies and practice using a mix of roles and methods. ECDPM organises and facilitates policy dialogues, provides tailor-made analysis and advice, participates in South-North networks and does policy-oriented research with partners from the South.

ECDPM also assists with the implementation of policies and has a strong track record in evaluating policy impact. ECDPM's activities are largely designed to support institutions in the developing world to define their own agendas. ECDPM brings a frank and independent perspective to its activities, entering partnerships with an open mind and a clear focus on results.

For more information please visit www.ecdpm.org

**ECDPM Discussion Papers**

ECDPM Discussion Papers present initial findings of work-in-progress at the Centre to facilitate meaningful and substantive exchange on key policy questions. The aim is to stimulate broader reflection and informed debate on EU external action, with a focus on relations with countries in the South.

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