

Project Name	Africa Region-Groundwater & Drought Management... in SADC
Region	Africa Regional Office
Sector	Environmental Institutions; Natural Resources Management; Environment Adjustment
Project ID	3AGE70547
Borrower(s)	RELEVANT SADC MEMBER STATES
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1. Country and Sector Background

Sector Issues

The Southern African Development Community (SADC) is a regional grouping of 14 sovereign states with the main purpose of fostering co-operation and mutual benefit from the resources in the region. With the establishment of the SADC Water Sector in August 1996 the critical importance of water to regional integration and economic development was recognized by the member states. The project concept has been developed in a highly consultative manner by the member states with support by the SADC Water Sector Coordination Unit (SADC-WSCU). Rainfall variabilityThe high degree of variability in rainfall and the associated water shocks resulting from severe droughts and floods is a factor of constant and unpredictable risk in Southern Africa. Improved management of water resources is at the core of addressing these water shocks that have a severe impact on the economies and the life supporting ecosystems already under stress. The population of the SADC region is expected to double in 25 years and major water and environment crises will occur if decisive and concrete actions are not taken towards sustainable and integrated water resources management to mitigate the effects of droughts and floods. Water scarcity in particular is creating competition and tensions amongst user groups and sectors on local, national and sub-regional levels. The recurring droughts in the region have demonstrated the potential value of groundwater as a more reliable and dependable source of water than surface water. The importance of groundwater in drought management emanates, among others, from its availability in population centers, providing renewable quantities of fresh water. Secondly, most aquifers have enough storage

capacity that can be used, if properly managed, to reduce the stress on surface water resources during the dry periods. Using the aquifer's static reserve as a temporary alternative to surface water can therefore be envisaged, provided that a sufficient recovery/replenishment period is allowed for the aquifer. The potential for future exploitation of static reserves in Southern Africa may involve its conjunctive utilization with surface water resources, i.e., artificial recharge in wet periods.

Groundwater managementIn the SADC region, 37% of the population rely upon formal or improved groundwater supplies and 23% on reticulated supplies from surface water sources. The remaining 40% rely upon unimproved sources, which may be either groundwater or surface water, and which are generally unsafe and more often prone to drought. Groundwater has a potential role to play in the future development of secured water supply facilities and drought management issues. Presently, about one third of the people in the region live in drought prone areas. In the driest part of the region, groundwater is the primary source of drinking water for the human population and livestock. Groundwater is the main or a complementary source of intensive irrigation in some parts of the SADC region and has a significant role to play in achieving food security through small-scale irrigation. In the majority of the member states, groundwater occurrence is, however, complex and sustainable development of the resource is challenging. As in the case of shared surface water resources in the SADC region (15 major river basins are shared) several countries also share major groundwater resources aquifers. Currently there are no joint monitoring networks or management plans in place for those shared aquifers. In addition, local aquifers may also have a regional impact, as groundwater abstraction may reduce the base flow of international river systems shared by several countries which potentially threaten ecosystems and downstream usage requiring a minimum stream flow. Some major aquifers, all with their distinct management challenges, found in the region include: dambo systems supporting year round vegetable production, low-yielding aquifers consisting of deeply weathered basement rock supplying drinking water, and aquifers in alluvial sediments associated with rivers and streams.The status of groundwater development in each individual country largely reflects the importance of the resource in that country. Member states such as Namibia, Botswana and South Africa, largely dependent on groundwater, are actively integrating the use of groundwater in their water resources management policies. In some other SADC member states, there have been very limited efforts and they rely mostly on the use of surface water. The vulnerability of groundwater supply systems to drought often results from the poor design and insufficient depth of wells, along with inappropriate pumping devices. The lack of water level monitoring and prediction is an aggravating factor. Proper prediction, development and management of groundwater could alleviate the water crisis situation during dry periods. Government Strategy

Development of a SADC regional groundwater management program Despite the present and future eminent socio-economic role of groundwater in the region, surface water issues have so far dominated regional water resources programs in SADC. Policy responses to drought have in the past commonly been based on short-term crisis management, and insufficient attention have been paid to the value of groundwater resources. The SADC Water Resources Technical Committee (WRTC), the Sectoral Committees of Senior Officials and Ministers of Water have acknowledged that more attention should be given to groundwater development and protection. To

address these issues a SADC Sub-committee for Hydrogeology, in which each Member State is represented, has been established. In a highly consultative manner SADC developed in 1998 a Regional Strategic Action Plan for Integrated Water Resource Development and Management (RSAP). One component of the RSAP is a groundwater management program that includes ten sub-projects. The program was subsequently approved by the SADC Water Resources Technical Committee, the SADC Sectoral Committee of Ministers of Water (June 1999, Zanzibar), and the SADC Council of Ministers (August 1999, Maputo). The overall objectives of the groundwater management program are to promote the sustainable development of groundwater resources, capacity building and to support the development and implementation of management frameworks at different scales. Subsequently, recommendations were given by both the SADC Regional Drought Task Force (made up of Ministers of Agriculture, Ministers of Transport, Communications and Meteorology) and the SADC Water Strategy Reference Group (composed of the WSCU, SADC secretariat and donors) to focus part of the groundwater management program on drought management issues. The project concept reflects those recommendations and thus includes and addresses regional aspects related to six of the ten components: (i) capacity building, (ii) the development of a regional groundwater information system, (iii) the development of a regional groundwater monitoring network, (iv) compilation of hydrogeological map, (v) the establishment of a regional groundwater research institute / commission, and (vi) a groundwater resource assessment of the Limpopo River Basin. Considering the focus on the Limpopo river basin and according to GEF policy guidelines the basic project concept was endorsed and recommended by the GEF operational focal points in Botswana (National Conservation Strategy Coordinating Agency), Mozambique (Ministério para a coordenação da Acção Ambiental), South Africa (Department of Environmental Affairs and Tourism), and Zimbabwe (Ministry of Environment and Tourism). Lesotho, on behalf of the SADC Sectoral Committee of Ministers (Ministry of Natural Resources), also formally recommended the project for funding to the GEF.

2. Objectives

The project objective is defined as: "The development of a SADC regional strategic approach to support and enhance the capacity of its member States in the definition of drought management policies, specifically in relation to the role, availability (magnitude and recharge) and supply potential of groundwater resources."

3. Rationale for Bank's Involvement

The project will benefit from being a part of the World Bank's Africa Water Resources Management Initiative (AWRMI). This initiative was launched in 1996 and seeks to support water resources analysis and policy reform at the national level and assists riparian countries in the development of cooperative frameworks and programs in relation to shared water resources. The initiative was developed as a direct response to the regional strategy for Sub-Saharan Africa, that was developed through intensive stakeholder consultations between 1994 and 1996. The strategy builds, in turn, upon the World Bank's long term vision of supporting integrated water resources management programs and projects as stated in the Water Resources Management Policy Paper (1993). The AWRMI is an expanding cross-regional partnership with a multi-disciplinary and multi-sectoral team of staff working currently on water resources management and development programs in about 20 countries and 5

international river basins. The AWRMI seeks to establish partnerships with other multi- and bilateral donor agencies and members of the civil society in order to strengthen ongoing and planned initiatives. The GEF's integrated land and water management program (OP#9) acts as a catalyst to bring about action on the ground and promotes the integration of land and water resource management practices on a regional and basin-wide scale. Mechanisms to share lessons learned from different components of OP#9 will be explored during the preparation phase.

4. Description

The project will be developed at two scales: the regional and the river-basin scale. At the regional scale, the project will identify transboundary impacts of groundwater development in the various river basins of the region, identify priority groundwater drought prone areas and provide regional management tools, such as basic harmonised hydrogeological maps, groundwater drought vulnerability and water scarcity maps, a minimum regional groundwater monitoring network, and a regional groundwater information system. The tools developed will be applied through the SADC institutional network, which is financed by the Member Countries and through the development of a Regional Groundwater Research Institution / Commission which would be established to promote groundwater resources awareness and management training. At the river-basin scale, the role of groundwater in proactive drought mitigation will be demonstrated in the semi-arid Limpopo river basin on a conceptual scale and at the field-scale in a pilot subcatchment simultaneously taking into account applicability and replicability for the region as a whole. The location of the pilot project will be determined during the project preparation phase which is financed by a GEF grant (PDF B).

Components at the regional level

a) Decision support tools:

The development of regional information and decision support tools for integrated groundwater management in drought prone areas,

b) Capacity building:

Capacity building, institutional strengthening, including the formation of a regional groundwater research institute / commission

Components at the river basin level:

c) Groundwater and surface water resources assessment of the Limpopo River Basin

Assessment carried out at the Limpopo river basin scale with particular attention to the interaction between groundwater, surface water and ecosystem dependencies.

d) Subcatchment pilot project:

Investigation, demonstration and promotion on the ground for the optimal uses of groundwater resources, engaging key stakeholders in a drought prone pilot area.

5. Financing

	Total (US\$m)
BORROWER/RECIPIENT	\$0.00
IBRD	
IDA	
GLOBAL ENVIRONMENT	
FACILITY	\$7.00
FRANCE, GOV. OF (EXCEPT	
FOR MIN. OF FOREIGN	

AFFAIRS-MOFA)	\$1.90
LOCAL GOVTS. (PROV., DISTRICT, CITY) OF BORROWING COUNTRY	\$1.20
SWEDEN: SWEDISH INTL. DEV. COOPERATION AGENCY (SIDA)	\$1.90
Total Project Cost	\$12.00

6. Implementation

The period of implementation is estimated to be four years. During the ongoing preparation phase the SADC-WSCU is the Executing Agency. During project implementation different agencies will most likely implement the project because of the work at different scales. An assessment of possible implementing agencies will be performed during the preparation phase. At the regional level, including the conceptual assessment of the Limpopo River Basin, project implementation will most likely be carried out by a suitable SADC institution, government agency or research institution with a regional outreach. At the pilot subcatchment level implementation could be carried out by a NGO or a community group in association with a private consultancy firm. The project will be guided by a multi-stakeholder steering committee set up also to guide the preparation phase. The established SADC structure with the SADC Water Resources Technical Committee (WRTC), Sub-committee for Hydrogeology, the Sectoral Committees of Senior Officials and Ministers of Water will be responsible for oversight of the whole project. The exact flow of decision making will be addressed during the preparation phase considering the ongoing restructuring of SADC and its institutions. Most likely a Project Implementation Unit (PIU) will be established at the new SADC directorate for Infrastructure & Services which will be based at the SADC Secretariat in Gaborone, Botswana. The role of the PIU will be to coordinate project implementation with the different project execution agencies. Project disbursement would most likely be through the SADC Secretariat and the established PIU. The PIU would manage all sub-contracts. The financial management capacity and audit arrangements of the SADC Secretariat would be assessed to make sure they meet acceptable standards. Grant funding for the project is envisaged from the GEF and various bilateral donors that already have indicated interest to support the project.

7. Sustainability

The tools developed during the project for managing groundwater on a regional level will be sustained through the SADC system and the Regional Groundwater Research Institution / Commission. The SADC-Water Sector Coordination Unit (SADC-WSCU) mandate is to facilitate and coordinate the sustainable development and management of shared water resources in the SADC region. Its role is furthermore to transfer the day to day operations of the project during its implementation to appropriate institutions in the region. Crucial for the success of the project is the support by the member states to a Regional Groundwater Research Institution / Commission to sustain and maintain the regional tools as well as continue training and education in groundwater resources management. The running costs of the SADC WSCU are today financed by the Kingdom of Lesotho and SADC member states contribute to relevant expenses such as regional meetings, workshops and training. The purpose of the pilot component at the basin level is to test various management options at the local scale, learn from

them and replicate the lessons learned within the regional framework. Sustainable downstream country based investments will be promoted in the SADC region based on the raised awareness of the role groundwater can play in drought management for enhancing socio-economic development and the protection of ecosystems. Additional options for sustainability will be explored during the preparation phase and during actual project implementation. The project as such will also in itself be a pilot project for how to manage regional groundwater resources shared between several countries in drought prone regions. Lessons learned can be replicated in other parts of the world through the GEF framework such as the GEF's outreach and publication program, GEF Lessons notes, and country dialogue workshops. These avenues provide excellent opportunities for wider dissemination of results at the regional and global level.

8. Lessons learned from past operations in the country/sector

Lessons learned from the Bank's Africa Water Resources Management Initiative (AWRMI) suggest that for projects to be successful on shared water courses there is a need for the riparian countries to establish a common vision for action and to have political commitment at the highest possible level. Equally important is to promote full stakeholder involvement in project preparation and implementation. These key lessons learned are also confirmed by the GEF from their multi-country operations (GEF Lessons Notes 11) which also stress the need for implementing agency collaboration and donor coordination. The project concept presented in this PCD is a direct outcome of the significant consultative process that the SADC member states embarked upon within the framework of the Regional Strategic Action Program (RSAP) for sustainable development and management of water resources and which is reflected in the groundwater management program. The SADC Protocol on Shared Water Courses is the common framework agreed to by all the member states. A vision of cooperation and equitable development of shared water resources is in place in SADC. In addition, SADC has established a strategic reference group consisting of different donors to provide advice to the implementation of RSAP. The next critical step for SADC is to translate the vision and the framework to joint action on the ground for the benefit of all. The project is therefore designed to function on multiple levels and scales involving stakeholders at the local, regional and global level. This is a robust project design where project activities at different levels reinforce each other. The sharing of knowledge and lessons learned can, however, best be achieved through a common mechanism which is provided by SADC. The SADC-HYCOS project is e.g. implemented through SADC with the Department of Water Affairs in South Africa as a hub that serves the other participating members government agencies responsible for water resources. The hub collects, analyzes and disseminates data on behalf of the member states. WaterNet and the Global Water Partnership are other examples of loose networks with a multitude of nodes for stakeholders at different levels to participate.

9. Program of Targeted Intervention (PTI) N

10. Environment Aspects (including any public consultation)

Issues : Environmental issues will be defined during the preparation phase. Environmental issues and the crucial aspect of stakeholder participation will be covered by two situation analyses carried out during the PDF B phase. The first analysis address environmental issues related to the abstraction and use of groundwater and

the regional SADC level. The second analysis address environmental issues at the pilot Limpopo River Basin scale and at the selected pilot subcatchment area. A Regional Steering Committee consisting of key stakeholders in the SADC region will guide the project preparation process and guarantee stakeholder engagement during the preparation phase.

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Note: This is information on an evolving project. Certain components may not be necessarily included in the final project.

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