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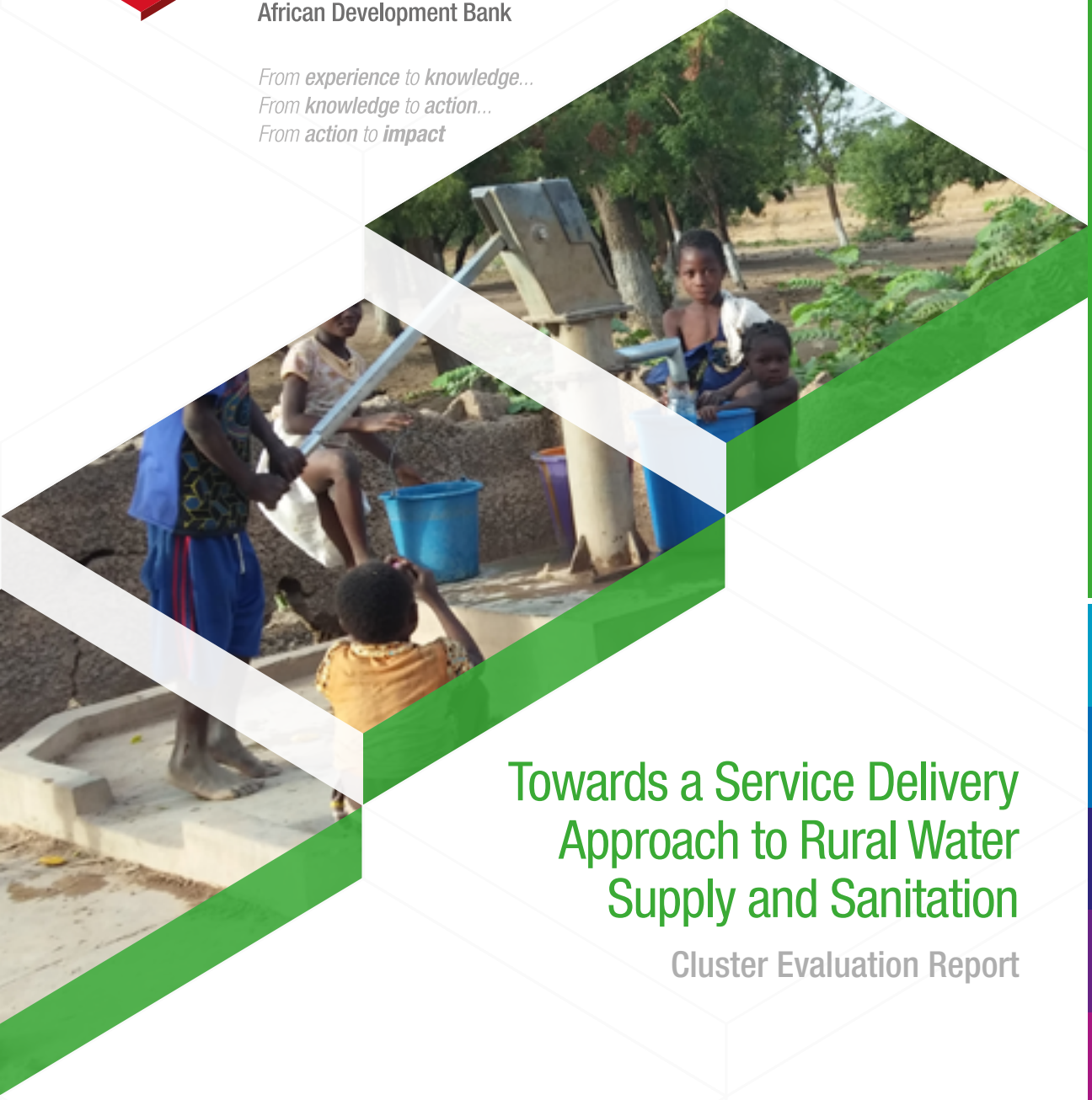

An IDEV **Project Cluster Evaluation**

Towards a Service Delivery Approach to Rural Water Supply and Sanitation

Cluster Evaluation Report

AFRICAN DEVELOPMENT BANK GROUP

January 2020

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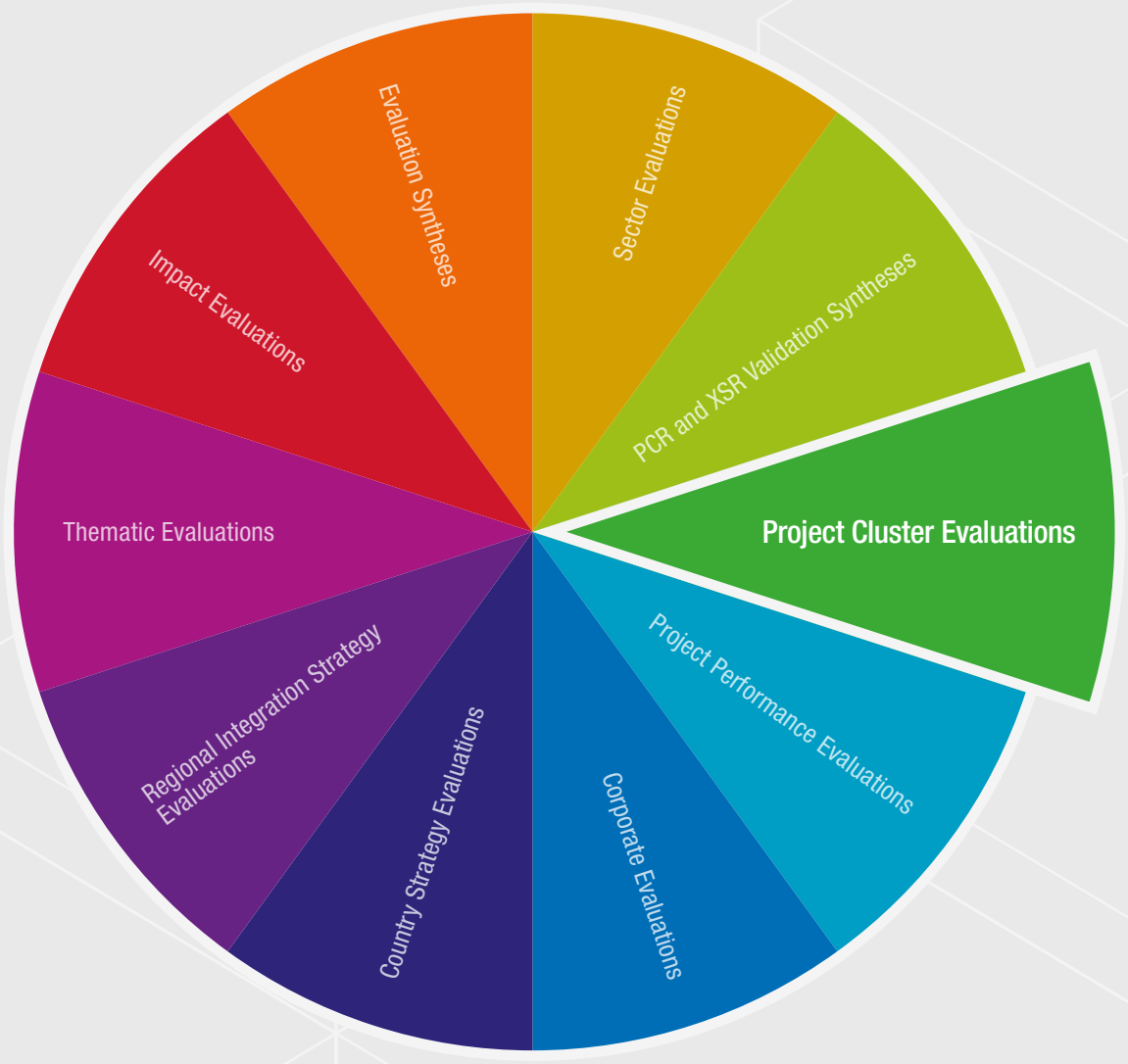

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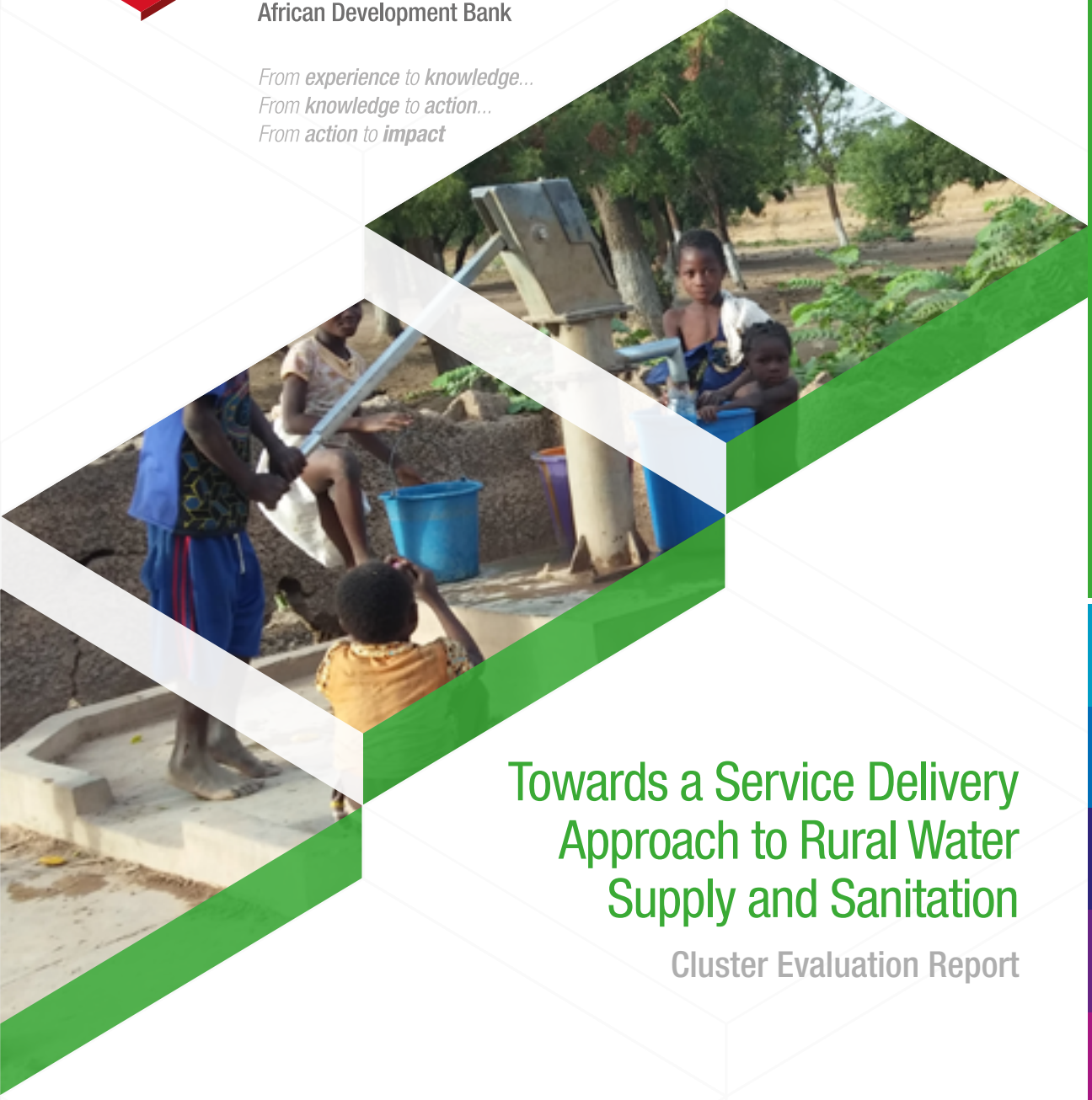

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Towards a Service Delivery Approach to Rural Water Supply and Sanitation

Cluster Evaluation Report

AFRICAN DEVELOPMENT BANK GROUP

January 2020

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Towards a Service Delivery Approach to Rural Water Supply and Sanitation
IDEV Project Cluster Evaluation, January 2020

About the AfDB

The overarching objective of the African Development Bank Group is to spur sustainable economic development and social progress in its regional member countries (RMCs), thus contributing to poverty reduction. The Bank Group achieves this objective by mobilizing and allocating resources for investment in RMCs and providing policy advice and technical assistance to support development efforts.

About Independent Development Evaluation (IDEV)

The mission of Independent Development Evaluation at the AfDB is to enhance the development effectiveness of the institution in its regional member countries through independent and instrumental evaluations and partnerships for sharing knowledge.

Independent Development Evaluation (IDEV)

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Abbreviations and Acronyms

AfDB	African Development Bank
CBM	Community-Based management
CBMS	Community-Based Maintenance Systems
CPRWSS	Central Provinces Rural Water Supply and Sanitation Project
DP	Development Partner
EIRR	Economic Internal Rate of Return
ESMP	Environment and Social Management Plan
EWSA	Rwandan Energy, Water and Sanitation Authority
FIRR	Financial Internal Rate of Return
LGA	Local Government Authority
MDG	Millennium Development Goal
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
NRWSS	National Rural Water Supply and Sanitation Program
OECD-DAC	Organisation for Economic Co-operation and Development-Development Assistance Committee
OVI	Objectively Verifiable Indicator
PAD	Project Appraisal Document
PER	Project Evaluation Report
PNEAR	National Rural Drinking Water Supply and Sanitation Programme
PPP	Public-Private Partnership
RMC	Regional Member Country
RWSS	Rural Water Supply and Sanitation
RWSSI	Rural Water Supply and Sanitation Initiative
SDG	Sustainable Development Goal
VIP	Ventilated Improved Pit (latrines)
UA	Unit of Account
WSS	Water Supply and Sanitation
WSSP	Water Supply & Sanitation Project

Executive Summary

Introduction and Evaluation Purpose/Scope

This report synthesizes key findings of the evaluation of a cluster of sixteen Rural Water Supply and Sanitation (RWSS) projects that were approved and implemented by the African Development Bank Group (AfDB, or "the Bank") in 2000-2017.

This cluster evaluation aims to (i) assess the relevance, effectiveness, efficiency and sustainability of RWSS projects; and (ii) draw lessons from what worked and what did not work.

This evaluation report is expected to inform the design and implementation of future RWSS projects under the Bank's High 5s priorities related to improving the quality of life for the people of Africa.

The Bank approved 223 Water Supply and Sanitation (WSS) investment projects (amounting to UA[1] 3.71 billion of net loans and grants) in the period 2005-2016. Of this, 39% (or UA 1.42 billion) financed investments in rural areas, aimed at improving the lives of the rural poor.

Sixteen RWSS projects, with a total net approval amount of UA 365 million, were purposively selected for this cluster evaluation. These projects are located in 13 countries including Burkina Faso (1), Burundi (1), Chad (1), Ethiopia (1), Ghana (1), Mali (1), Mauritania (1), Rwanda (2), Senegal (1), Tanzania (1), Uganda (2), Zambia (2), and Zimbabwe (1).

Project Cluster Performance

Development Outcomes

Overall performance

The project cluster was relevant but was ineffective and inefficient in delivering results, which are not likely to be sustained. Only the relevance criterion reported more than 75% of projects with a satisfactory rating.

Relevance

The project cluster objectives were relevant. However, there were weaknesses in some design aspects including (i) assumptions and risk assessment; and (ii) use of some RWSS guiding principles including demand-driven approach, building partnerships, and coordination.

The project cluster objectives aligned with the Bank's priorities and strategies, which view water supply and sanitation as a crucial component of development. The objectives were also in line with the development priorities expressed in the national development policies, plans and strategies for the 13 project countries, which were committed to achieving the Millennium Development Goals (MDGs) by 2015, including "halving the number of people who do not have access to safe drinking water and basic sanitation".

The projects were coherent, given the extensive demand for water supply and sanitation in rural areas. However, the link with waterborne diseases caused by contaminated drinking water and poor sanitation was not always highlighted in the project cluster documents.

Project designs had some weaknesses including (i) insufficient incorporation of some RWSS guiding principles such as participatory and demand-responsive approaches, and partnership; and (ii) some risks were not adequately addressed including inadequate maintenance and sustainability of projects, and insufficient behavioral change.

Effectiveness

There were significant accomplishments of project cluster outputs, although less for sanitation. However, the achievement of outcomes was threatened by several issues including (i) limited functionality of water schemes; (ii) poor water quality; and (iii) limited adoption of key hygiene practices among beneficiaries.

The projects delivered the essential physical infrastructures necessary for improving access to reliable and affordable water supply in rural areas. All the projects, with the exception of Uganda Water Supply & Sanitation Project (WSSP), accomplished more than 75% of their expected water outputs. Scaling down projects, mainly due to financial constraints and change in technology choice depending on available water sources, had adverse impact on the quantity and the quality of outputs and on reaching the expected outcomes. Project outputs achieved in capacity development and awareness campaigns were also commendable. However, physical outputs achieved for sanitation components were lower than for water components.

The project cluster had limited achievement on outcomes. It made progress in increasing access to improved water sources, which reduced drudgery of fetching water. However, beyond the headline success in providing first-time access to water lie a number of factors that inhibit the full achievement of the main outcomes related to **sustained** access to safe drinking water. These include (i) limited functionality of water schemes; and (ii) poor water quality. This, coupled with the poor achievement of sanitation outputs and insufficient adoption of key hygiene behavioral practices among beneficiaries, limited the achievement of project cluster outcomes.

Efficiency

The projects were economically viable, with moderate cost variations. Nevertheless, they experienced substantial implementation delays.

The projects were found to be viable economically, although data constraints limited the evaluation of the projects' Financial Internal Rate of Return (FIRR).

The cluster projects did not follow their implementation timetables nor their initial cost plans, with project loans and grants taking 32 to 101 months to fully disburse.

Implementation delays were mainly due to procurement issues at the early stages of the projects or during implementation (nine out of the 16 projects), start-up delays (Burundi, Ghana, Mauritania and Zambia National Rural Water Supply and Sanitation Program (NRWSS)), and capacity constraints of contractors (Ghana, Mali, Mauritania and Zambia). Other reasons included slow payment of government counterpart funds (Uganda WSSP and Zambia), poor quality of execution studies (Burundi), land acquisition issues (Uganda), and increased scope of water technologies (Ghana).

Sustainability

Low likely sustainability of RWSS projects

Technical viability was sound for water supply infrastructures, but less for sanitation facilities. Ownership and partnership were effective but there were shortcomings related to (i) capacity to operate and maintain the facilities, mainly when using community-based management models; (ii) financial viability; (iii) institutional capacity endangered by limited capacity; and (iv) environmental and social sustainability. In addition, high water demand, owing to rapid population growth and climate change, is likely to increase the challenge of obtaining sufficient water to meet needs.

Project M&E Performance

Significant shortcomings of monitoring and evaluation (M&E) systems

The Project Evaluation Reports (PERs) highlighted important shortcomings in monitoring and evaluation systems, suggesting that both RMC governments as well as the AfDB could implement improvements.

Specific reference to a general lack of data was made in Rwanda, Senegal, Tanzania, Chad, and Zambia, as well as to inappropriate monitoring and evaluation systems, which prevented the systematic collection of relevant data with clear responsibilities and well-defined frequency. Instead, Objectively Verifiable Indicators (OVIs) were provided for the entire population (Zimbabwe), or for all rural populations (Ethiopia, Ghana, Mali, Senegal, and Rwanda 2). Finally, beyond the availability of data, reports were not always accessible due to high staff turnover resulting from changes in government.

Key Issues and Lessons

Quality of project design

Lesson 1: Projects need to pay sufficient attention to design studies, procurement-related issues, and capacity in order to minimize implementation challenges.

- Issues with the quality of the project design were highlighted in Burkina Faso, Burundi, Mauritania, Senegal, and Tanzania.
- Project design often did not optimally address efficiency, such as procurement-related issues. This resulted in substantial implementation delays that lowered project efficiency in Burkina Faso, Burundi, Ghana, Mali, Tanzania, Uganda RWSS, Uganda WSSP and Zimbabwe.
- There were also implementation challenges, which were due to insufficient capacity within companies that were contracted to execute work.

Community-based management model

Lesson 2: Community-based management (CBM) under a demand-driven approach is more impactful when it is effectively applied during the whole RWSS project life cycle.

- Insufficient implementation of CBM under a demand-driven approach during the RWSS project life cycle created challenges that led to limited effectiveness and low sustainability. These challenges manifested themselves as poor performance of service providers, limited functionality of infrastructures, and a low level of services. Insufficient stakeholder participation in the project life cycle limited the achievement of outcomes and lowered sustainability, as was the case in Burkina Faso, Burundi, Mauritania, Senegal, Uganda, Zambia and Zimbabwe.

- Projects' effectiveness was jeopardized by inappropriate technological choices due to insufficient community participation during project conceptualization, as was seen in Burkina Faso, Burundi, Mauritania and Zambia. In this respect, community structures were insufficiently mobilized to maintain the functionality of the water system, as beneficiaries were not sufficiently consulted during the project conceptualization phase.

Capacity development within a decentralized system

Lesson 3: Capacity development for service delivery is needed in both the private and public sectors, at all levels of implementation, if RWSS projects are to maximize water results and solve chronic sanitation issues.

- There was insufficient attention given to service delivery capacities relative to infrastructure development. Moreover, the competencies of the service provider, including CBM and private operators, were sometimes taken for granted.

- Skills and management capacities at both the operational and strategic planning levels, inside and outside of the government, were often limited.

- Limitations in technical and management capacity gave rise to low cost-recovery and poor governance, as well as low willingness of customers to pay for poor quality services. These aspects jeopardized the successful implementation of projects.

- Capacity support to local governments is critical to enable them to fulfill their role (planning, monitoring, regulation, etc.) of sustaining rural services, specifically when using the Public-Private Partnership (PPP) model as was seen in Rwanda.

Fostering an RWSS service delivery approach

Lesson 4: RWSS projects need clear strategies to ensure good service delivery, quality sanitation infrastructure and sufficient behavioral change, if they are to achieve substantial outcomes.

- Beyond headline success in providing first-time access to water, the project cluster was characterized by poor service delivery, weak sanitation infrastructure and inadequate behavioral change. This situation was due to the pressure to expand coverage, which resulted in a strong focus on infrastructure development and less on service delivery.

- Moving towards Sustainable Development Goal (SDG) 6[2] will require a clear strategy to address these risks and ensure effective service delivery, quality sanitation infrastructure and sufficient behavioral change to maximize the achievement of RWSS projects' outcomes. These strategies should be developed in collaboration with key stakeholders including federal, regional and local administrations, and water users' associations. Such a strategy should address (i) water quality, (ii) sanitation facilities and services, and (iii) local operational capacities.

- Some outcomes, such as the reduced incidence of water-borne diseases, required profound behavioral change among stakeholders, especially the beneficiaries. This failed to occur despite awareness campaigns undertaken by the project cluster. Therefore, much remains to be done in terms of (i) hand-washing with soap at critical times in Burkina Faso, Chad, Ethiopia, Uganda, Tanzania, Rwanda, and Zambia; (ii) reducing open defecation in Chad, Ethiopia, Tanzania, Uganda and Zimbabwe; (iii) increasing the willingness to pay in Uganda; and (iv) improving water storage for some households in Burkina Faso, Ethiopia, and Tanzania.

Sustaining RWSS projects' benefits

Lesson 5: The adoption of a wider range of contextually-appropriate service delivery models, beyond community-based management, in RWSS projects is critical if they are to sustain project benefits.

- CBM supported by a system of local decentralized service is the dominant service delivery model in the project cluster in Burkina Faso, Burundi, Chad, Ethiopia, Tanzania, Uganda RWSS, Uganda WSSP, Senegal, Zambia Central Provinces Rural Water Supply and Sanitation Project (CPRWSS) and Zambia NRWSS. However, evidence shows that while this service delivery model was effective in providing some level of first-time access to improved water supply services, it failed to provide sufficient quality and reliable services, except in Senegal and Chad.

- The project design did not incorporate appropriate cost recovery and financing mechanisms to address all cost components for ensuring sustainable service delivery, particularly capital maintenance for replacement of assets, rehabilitation and major repairs. With the exception of Ghana, Mauritania, Rwanda and Senegal in the water supply system, the project countries did not establish the means to ensure the financial viability of both water and sanitation systems in rural areas.

Refining the M&E system towards service delivery and sustainability

Lesson 6: A comprehensive M&E system focused on rural service delivery and sustainability is critical to foster project development results.

- One of the differences between the SDGs and the MDGs in the WSS sector is that with the SDGs, the emphasis is no longer on access only but also on the service that people receive in terms of equity, safety and affordability. This new paradigm changes the definition of success for all RWSS interventions and the way the M&E system is conducted and used, from reporting to management and learning.

- Given the lack of baseline data as in Chad, Senegal, Rwanda, Tanzania, and Zambia, and of effective M&E as in Chad, Ghana, Mauritania, Rwanda, Senegal, Tanzania, Zambia CPRWSS, Zambia NRWSS and Zimbabwe, the project cluster often missed opportunities to learn and support the achievement of expected RWSS outcomes.

- Caution with respect to a focus on M&E contributing to administrative needs as opposed to management systems is advised. In this respect, project implementers may be overly focused on outputs without sufficient attention to service delivery and behavioral change.

- This suggests that both RMCs governments as well as the Bank could implement improvements through development and implementation of an effective monitoring, evaluation and learning system to ensure regular, relevant data collection, analysis, reporting and feedback, especially on RWSS community Water, Sanitation and Hygiene results. Partnerships between the Bank and RMCs could support the implementation of this effective M&E system at decentralized and national levels. The use of emergent technologies, methods and data-sharing platforms for results measurement will be critical towards improved RWSS service delivery.


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Introduction

This report synthesizes the results of a cluster evaluation of 16 Rural Water Supply and Sanitation (RWSS) projects that were funded by the African Development Bank Group (The Bank, or "AfDB"). The main objective of this cluster evaluation is to draw pertinent lessons for policy and practice for designing and implementing RWSS projects. The evaluation covers 16 RWSS projects (the project cluster), which were approved in 2000-2011 and completed in 2009-2017. The key evaluation questions for each project-level evaluation focused on the extent to which the RWSS project was relevant, effective, and efficient, and the extent to which its benefits are likely to be sustainable.

AfDB-funded Rural Water Supply and Sanitation Projects

The water sector has long been a priority for the Bank as is recognized in (i) the 2007 High-Level Panel Report on "Investing in Africa's Future"; (ii) the Bank's Ten-Year Strategy; (iii) the MDGs; (iv) the SDGs; and (v) the Bank's High 5s priority related to improving the quality of life for the people of Africa.

During the period 2005-2016, the Bank funded 223 WSS projects (amounting to UA 3.71 billion of net approvals)[3] of which 157 were investment projects (amounting to UA 3.65 billion) and 66 were studies (amounting to around UA 60 million). Projects in rural areas were estimated to account for around 39 percent[4], which was equivalent to about UA 1.42 billion in total net investment projects' approvals for the period 2005-2016. Out of the 223 projects, 109 were completed and they comprised of 76 investment projects and 33 studies. The completed investment projects represented UA 958 million of net approvals.

With a total net approval amount of UA 365 million, 16 completed RWSS projects were selected to constitute the basis of the cluster evaluation. These projects were located in 13 countries including Burkina Faso (1), Burundi (1), Chad (1), Ethiopia (1), Ghana (1), Mali (1), Mauritania (1), Rwanda (2), Senegal (1), Tanzania (1), Uganda (2), Zambia (2), and Zimbabwe (1).

The main objective of water sector interventions in project countries was to enable them to reach their MDGs commitments in terms of universal access to potable water supply, together with significant progress in sanitation and good hygiene practices by 2015. The aim was for the RWSS projects to improve access to safe, adequate, affordable and sustainable water supply and sanitation services in rural areas. With beneficiaries able to afford access to a reliable and sustainable drinking water supply, it was expected that there would be a reduction in (i) the burden of fetching water in rural areas; (ii) the pollution related to sewage and solid waste; and (iii) the incidence of water and sanitation-related diseases caused by poor hygiene and sanitation. These projects were therefore designed to enhance rural health standards, promote education, improve living standards and promote income-generating activities.

Evaluation Purpose and Scope

This cluster evaluation was conducted to (i) provide the Bank's Board and senior management with credible and actionable evidence on the extent of development results and the implementation performance of AfDB-funded RWSS projects; and (ii) provide the Bank's operational management and staff, and other stakeholders, with relevant lessons to inform the Bank's strategic project design and implementation of RWSS projects.

The evaluation covers a cluster of 16 AfDB-funded RWSS investment projects in 13 project countries as mentioned above. Annex 2 presents the list of the cluster projects, all of which have been completed. The performance assessment was based on the OECD/DAC[5] evaluation criteria of relevance, effectiveness, efficiency, and sustainability.

Evaluation Approach, Methods and Limitations

The project-level evaluation used a theory-based approach. As the projects' theories of change were not explicit at appraisal or implementation, the evaluation team reconstructed a RWSS project logic model as presented on Annex 1. This provided a basis for assessing results both at the individual project level as well as at the project cluster level.

The quantitative and qualitative data regarding performance indicators and water sector conditions were drawn from (i) desk reviews of relevant Bank documents and literature; (ii) interviews with key stakeholders (both inside and outside the Bank); and (iii) field visits of purposively-selected project sites. Each category of data was analyzed using mainly descriptive statistics. Comparative analysis was also conducted at the indicator level using baselines, targets and actual results. Evidence was triangulated from the various data sources and methods.

The RWSS cluster evaluation was limited mainly by:

- The purposive nature of the sample of sixteen projects. However, this limitation was mitigated by the reasonable sample size, which comprised of about 26 percent in terms of total investment projects' net amount and 38 percent in terms of completed investment projects net amount.
- Lack of baseline data and insufficient M&E at both project and sectoral levels to support the post-completion evaluation reporting. A mini-survey of around 500 households conducted for each project-level evaluation mitigated these limitations.
- Shortcomings associated with field visits and stakeholder interviews especially in terms of insufficient coverage of project sites and beneficiaries. The triangulation of evidence from other sources reduced the extent of the impact of these limitations.


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Project Cluster Performance

Development Performance

Overall performance. The project cluster was relevant, although weak in some design aspects. It was ineffective and inefficient in delivering results, which were not likely to be sustained. Only the relevance criterion reported more than 75% of projects with a satisfactory rating.

Relevance

Cluster objectives were relevant, but there were weaknesses in the selection of some guiding principles such as participatory and demand-responsive approaches and partnerships. Shortcomings were also noted in some risk assessments, including those on maintenance and sustainability issues as well as behavior change.

The project cluster's objectives of improving access to reliable, quality and sustainable water supply and sanitation in rural areas were aligned with the AfDB's priorities and strategies, which consider water supply and sanitation as crucial for development. The Bank's involvement in RWSS is based on a number of key policy and strategy documents including Country Strategy Papers, the Integrated Water Resources Management Policy and the RWSS Initiative (RWSSI). All RWSS PERs in this cluster analysis cited at least one of those Bank policy documents as a basis for guiding project objectives. Most frequently cited across all PERs were the individual Country Strategy Papers (by all projects) and the Bank's RWSSI financing framework for WSS in rural areas in Africa (by Ghana, Mauritania, Rwanda I and II, Senegal, Uganda RWSS, Chad, Tanzania and Ethiopia). Another frequently cited guiding document was the 2010 Policy for Integrated Water Resources Management (by Burundi, Ghana and Tanzania). This policy called for an approach to water resource management that recognizes the connection between water and other social development objectives related to energy, food production, public health and environment. More generally, the Bank's overarching approach to water, which entails improved access to safe water as a means to poverty reduction and socio-economic development, was reflected in the objectives of all RWSS projects in the cluster analysis. In addition, the project cluster used a programmatic approach, except for Zimbabwe.

The project cluster's objectives were also aligned with development priorities expressed in national development policies, plans and strategies of the project countries, which were committed to achieving the MDGs by 2015, including "halving the number of people who do not have access to safe drinking water and basic sanitation"[6]. The project cluster's objectives were considered to be well aligned with key water development challenges as described by each Regional Member Country (RMC) in various national strategies, action plans and policies. Generally, these national plans were designed with the MDGs in mind, setting national targets for rural water supply and rural sanitation coverage by 2015. Thus, all RWSS projects in this cluster analysis aligned with this MDG by way of their relevant subject matter. More specifically, 11 of the 16 PERs in this sample explicitly mentioned the link between RWSS project objectives and the MDGs, and/or the Water Vision goals (in the case of Burkina Faso, Ethiopia, Ghana, Mali, Mauritania, Rwanda National Rural Drinking Water Supply and Sanitation Programme (PNEAR) I and II, Senegal, Tanzania, Chad, and Zambia).

The design of the Bank's RWSS interventions was found to be weak. Weaknesses were mainly related to (i) inadequate definition of project objectives; (ii) assumptions and risk assessment; and (iii) use of some guiding principles including a demand-driven approach, building partnerships, and coordination.

Inexplicit Theory of Change led to an inadequate definition of project cluster objectives. The project cluster's sector goal was clearly stated, that is, to improve the living conditions of the rural population through sustainable access to drinking water and improved sanitation. However, the specific projects' objectives were inadequately stated and less-focused. They were stated in terms of (i) improving access (as was the case for Ghana, Zambia, Rwanda, Burkina Faso, Mauritania, Chad, and Ethiopia); and (ii) providing rural people with an adequate and sustainable quantity and quality of water (as was the case for Zambia and Zimbabwe). The projects' focus on access tended to ignore other aspects such as behavioral change and service delivery. In addition, confusion between outputs and outcomes occurred, for instance in the case of Ethiopia. Lastly, the links between project outputs and the expected medium-term and long-term outcomes (e.g., decreased incidence of waterborne diseases, reduced drudgery of carrying water, improved general hygiene habits, prevailing safe handling of water, increased access to safe water, etc.) were not clear.

This situation may be attributed to the fact that all projects, with the exception of Uganda WSSP and Zimbabwe Urgent WSS, were approved prior to the Bank introducing new tools to improve the quality of project design including a standard results-based logical framework, a readiness review, the quality at entry standards for public sector operations, etc.

Critical assumptions and risks linked to the RWSS Theory of Change were not adequately addressed. Inexplicit theory of change led to inadequate assumptions and risk assessment. The project cluster was consistent with the extensive demand for clean drinking water supply and sanitation in rural areas. However, the link with water-borne diseases caused by contaminated drinking water and poor sanitation, such as diarrhea, Guinea worm, cholera, etc., was not always highlighted in the project cluster documents. For example, the Zimbabwe project defined results in terms of actions, such as to provide urgent support for restoration and stabilization of water supply and sanitation, with no link explicitly made to the fact that the project had been prepared to respond to the urgent humanitarian needs created by the prevalence of water-borne diseases including cholera. Water-borne diseases due to inadequate water, sanitation and hygiene services were not explicitly mentioned in six out of the 16 projects.

Inadequate institutional capacities were the most common risk, as noted in 11 of the 16 projects reviewed. Community and beneficiary contributions were only mentioned in seven projects (Burundi, Senegal, Zambia NRWSS, Mauritania, Uganda RWSS, and Rwanda PNEAR I). Other critical risks linked to the theory of change were often not appropriately presented in the Project Appraisal Reports (PARs) of the cluster projects. For instance, risks concerning maintenance and sustainability of rural WSS facilities were addressed only in four of the projects. In addition, the risk of insufficient behavior change was only raised in the Zambia NRWSS and Mali projects.

Shortcomings in the use of RWSS guiding principles. The project cluster was guided by some principles to accelerate planning, programming, preparation and implementation of investments as well as human resource capacity building activities. These included the following, among others: (i) participatory and demand-responsive approaches; (ii) building partnerships; and (iii) coordination. Proper application of these principles remained a challenge for a number of the projects in the cluster.

- **Inappropriate use of approaches driven by beneficiary needs in project design.** The use of a demand-driven approach was stated in nine projects that were funded through RWSSI. The RWSSI participatory and demand-responsive approaches focused on community participation in program implementation to enhance sustainability of RWSS investments, meaning that the community should specifically express the need of improving water supply and sanitation as their priority. While the demand-driven approach was effective in Chad, Ghana, Mali and Rwanda RWSS projects, it was not in the case of other projects that were funded

within the RWSSI including Tanzania[7], Mauritania, Senegal, and Uganda[8], and those that were not funded by the RWSSI including Burundi, Burkina Faso and both Zambia projects. Inappropriate technology choices noted in these projects is indicative of insufficient reflection of community needs and participation in project design.

- The cases of Burundi, Burkina Faso, Mauritania[9], and Zambia CPRWSS show that population involvement and participation in the choice of WSS development were almost non-existent. In Burundi for instance, it was found that the choice of the Ecological Sanitation (Ecosan) latrine, made by the Ministry of Public Health, instead of the Ventilated Improved Pit (VIP) latrines did not correspond to the habits of the school population. As a result, there were difficulties in the appropriation and use of the Ecosan latrines. In Burkina Faso, grievances were raised against boreholes equipped with the Vergnet brand pump including (i) the difficulty of operating the pump; (ii) the poor design of equipment for pregnant women and elderly people; and (iii) difficulties related to its maintenance. Some water towers of the same brand were difficult to maintain due to problems of tank accessibility.

- The use of a demand-driven approach in sanitation (individual latrines) tended to compromise the policy of equity in service delivery such as in Uganda and Senegal. This was due to insufficient consideration of the beneficiaries' needs, choice and willingness to pay when designing facilities in line with their expectations and in applying appropriate technologies that are in conformity with the desired quality. Projects with a family latrine component were based upon a financial contribution from households. In this case, the demand-driven approach may have excluded poor households that could not afford the requested counterpart contribution for individual latrines.

Coordination and complementarity between project cluster partners exhibited mixed results. The level of coordination and complementarity was dependent on the institutional strength of national governments as well as the decentralization of coherent and supportive institutional mechanisms. Anchoring the RWSS program within a sector approach was frequently identified as confirmation of the relevance of the Bank's RWSS program in the RMC. This also increased the likelihood that an intervention would be effective and improve coordination with other funders. While various donor coordination frameworks to implement a RWSS program existed including joint sector reviews, basket-funding, parallel funding and memoranda of understanding, their success was dependent on the presence of a central executing agency with legitimate authority and agreed-upon regulations across concerned ministries and levels of government. The presence of a joint donor fund, or working group, was found to be a necessary but insufficient condition for the coordinated implementation of the RWSS program. Joint sector coordination was explicitly identified in only half of the cluster projects.

- Institutional coordination was described as having positively contributed to the RWSS projects in Burkina Faso[10], Rwanda[11], Senegal[12] and Zambia[13], whereby the strength of the institutional frameworks allowed the sector working group, or donor funding structure, to reinforce sector coordination mechanisms. In doing so, they facilitated the efficient and sustainable implementation of the RWSS program. In contrast, despite the presence of a joint sector coordination framework, donor coordination was described as weak in Uganda.

Beyond joint sector planning coordination, the Bank supported the implementation of RWSS programs through joint funding mechanisms such as basket funding. While this joint funding mechanism translated into an efficient and sustainable RWSS project implementation in Rwanda, this was not the case in Uganda and Tanzania, where donor contribution through basket funds was found to be unsuccessful due to weak coordination between central and local governments. In Uganda, disbursement from the central government to the

district level was challenging due to a 'sector ceiling' issue which limited the absorption capacity of the district. In Tanzania, the weakness was described in terms of dysfunctional fund management from central to local government as well as a segregation of water and sanitation efforts whereby the sanitation component of the project received a separate status, resulting in a poor implementation of sanitation and hygiene program components.

Partnership in RWSS was effective in half of the project cluster. The RWSSI considers partnership as a critical measure to foster coordinated resource mobilization and enhance synergy for implementation. When an operational framework was inadequate or the capacity to implement it was absent, the project suffered, as key partnerships were absent.

- In the selected RWSS projects, the key partner was the community unit (beneficiaries), who in partnership with the local government, assumed ownership of the project by taking control of operations and maintenance. However, beneficiaries were also the key partners most likely to be inappropriately excluded from project planning and implementation, as well as the ministries and entities responsible for sanitation.

- The mobilization of partners was effective in Ethiopia, Mali, Rwanda (with the PPP model), Senegal, Uganda, and Zimbabwe. It was however less effective in Burundi, Burkina Faso, Ghana, Mauritania, Tanzania, Chad (at the local level), and Zambia (Box 1). However, the role of government in facilitating capacity building and learning was weak for all countries. Lastly, only five out the 16 projects included the involvement of the private sector and non-governmental organizations (NGOs) either as an assumption or as a risk. The five projects were Zambia NRWSS, Mauritania, Uganda RWSS, and Rwanda PNEAR I and II.

Box 1: Example of Partnership Arrangements in RWSS Projects

- Ethiopia possesses the institutional structures needed at federal, regional, woreda and community levels to implement RWSSP. Beneficiary participation is coordinated through woreda support groups. Other partners included the private sector, civil society and other non-governmental partners, although the country's private sector has had limited participation. The evaluation revealed that the AfDB could have made a stronger contribution to the program with support for the development and implementation of a monitoring, evaluation and learning system.
- The project in Uganda was designed using existing frameworks to build community ownership and partnership trust. The use of institutional arrangements comprising technical staff from districts and towns was instrumental in creating a sense of ownership. Similarly, the use of Community Capacity Cash Contribution was described as having contributed to community ownership and the sustainability of partnerships with government and other Development Partners (DPs). However, while the RWSS evaluation reported that partnerships with indigenous private operators were effective, there is need to improve private partnerships at the parish level.
- In Tanzania, several partnerships did not develop as anticipated during the implementation of the RWSS program. At the federal level, the PPP framework did not develop due to a lack of national policy. Limitations with central government functioning, namely ministerial rearrangements and shifting of responsibilities, negatively impacted the operational integration of sanitation into the project. Despite some success in the establishment of water user groups, the functionality of the group to create and strengthen connections with key stakeholders was weak due to underfunding, and npredictable and delayed transfers from central government to Local Government Authorities (LGA). There is need for DPs including the Bank to maintain continuous dialogue and support to the government. At the community level, partnerships also appear to have been weak, characterized by consultant-designed schemes that were inappropriate for community needs, leaving community user groups unprepared and unskilled to respond to management and maintenance needs.
- In Zambia, the community ownership process was found to have been neglected. Although beneficiaries were described as full partners in the planning and implementation of the project, the project missed an opportunity to build these partnerships, highlighting the negative consequences of insufficient planning and implementation. At the district level, the District Water and Sanitation local authority insufficiently assumed its role to coordinate partnerships between community, religious and non-governmental organizations, which resulted in weak community ownership. The role of the Bank to build the program's conceptual framework and Theory of Change was also highlighted in this evaluation.

Source: selected PERs

Effectiveness

Significant accomplishments of project outputs were achieved in water, capacity development and awareness components, but they were less successful in sanitation. The project cluster made significant progress in increasing access to improved water sources, which resulted into reduced drudgery of fetching water. However, beyond the headline success in providing first-time access to water lie a number of factors that inhibit the full achievement of the main outcomes related to sustained access to safe drinking water. *These factors include (i) limited functionality of water schemes; and (ii) poor water quality. These, coupled with the poor achievement of sanitation outputs and insufficient behavior change among beneficiaries, limited the achievement of project cluster outcomes.*

RWSS Outputs Achievement

Satisfactory physical outputs of the water components. The projects delivered the essential physical infrastructure for improving access to reliable and affordable water supply in rural areas. All of the 16 projects, with the exception of the Uganda WSSP, produced more than 75% of their expected water infrastructure outputs, with six of the projects exceeding their planned physical outputs. Six of the 16 projects (Burundi, Mali, Ghana, Mauritania, Zambia NRWSS, and Zambia CPRWSS) were scaled down, mainly due to financial constraints and changes in technology. This adversely impacted the quantity and quality of their outputs. Also, the rural water supply outputs were challenged by the extent of their functionality and water quality (see details below). Not all the RWSS outputs are functioning at full capacity.

The main physical rural water supply outputs included constructed or rehabilitated boreholes, piped schemes, wells, water supply systems, water points, drilling, and pumping systems. Two main water supply systems that were used were: (i) pumping systems (in 13 of the 16 projects); and (ii) gravity systems (in seven of the 16 projects). The most common systems used to extract ground water included hand pumps (in seven of 16 projects) and diesel/thermal electrified pumps. Solar systems were developed in Burkina Faso, Mauritania and Uganda WSSP (Figure 1).

Figure 1: Typical Uganda WSSP Mini Solar-Powered Pumping Scheme

The physical outputs of the projects' sanitation components (including public toilets and households latrines) were moderate. Around 64% of 14 RWSS cluster projects achieved more than 75% of the expected sanitation facilities (Annex 4, Table A4.1). The remaining five projects (Burkina Faso, Chad, Ghana, Zambia-NRWSS[14], and Uganda WSS) provided less than 65% of their expected sanitation facilities. Furthermore, only the Rwanda phase 2 and Zimbabwe projects made adequate arrangements for fecal sludge management. The rest of the projects did not consider waste management. In Ghana, for instance, the project increased the number of latrines but provided no plans for households to empty their pit toilets. Similarly, pit toilets in Chad were left unattended once they became filled up due to the high cost of emptying them. In the absence of adequate household waste management, some of the project latrines were not used effectively.

The Bank's RWSS interventions did not significantly increase the number of household latrines for the rural population. The number of household latrines constructed through the RWSS cluster projects[15] was relatively low (90,910 latrines) compared with the real needs and below target (70%[16] achievement), with half of projects having achieved more than 75% of expected household latrines (Annex 4, Table A4.2). The limited number of household latrines could be attributed to the approaches used in the Bank-funded sanitation interventions in rural and urban areas, with countries choosing their own priorities[17] to address the challenge of the overall gap in the WSS sector. The different approaches that are grouped in Annex 4, Table A4.2 based on their primary focus area are as follows:

- The first group relates to community-based behavior change approaches that create demand for sanitation and hygiene behavior. In this case, the Bank financed only hygiene education and sanitation improvement promotion activities to support the construction of improved facilities by households. Approaches from this group were used by three of the 11 rural projects e.g., Zambia NRWSS, Uganda RWSS and Uganda WSSP. Within these approaches, targets for latrines to be constructed by households were relatively high (e.g., 440,000 and 950,000 latrines for Zambia National RWSS and Uganda RWSS, respectively), while no target was indicated for the Uganda WSSP (Annex 4, Table A4.2). There is lack of effective monitoring of the latrines that were constructed, leading to difficulties in making sound judgements in terms of performance. Similarly, it is difficult to make appropriate judgements in terms of effectiveness of the community-based change approaches used to support the construction of latrines by households. Access to sanitation is still inadequate, especially for the rural and poor communities.

- The second group relates to financing approaches that use specific financing mechanisms (target hardware subsidies, loan scheme, etc.) to increase uptake of sanitation facilities mainly among unserved or vulnerable populations. This was observed in six of the 11 projects including Burkina Faso RWSS, Mali RWSS, Ghana RWSS, Senegal RWSS, Rwanda RWSS 1 and 2). This strategic approach was the most frequently used in the RWSS cluster projects. This group achieved 68% of target.

- The third group relates to market-based approaches that develop or strengthen the market and supply chain for sanitation products and services. These approaches were not used in the RWSS cluster projects[18].

- Some of the Bank's rural sanitation interventions combined more than one of the three approaches. For example, the Mauritania RWSS and Zambia CPRWSS combined the community-based behavior and financing approaches.

The RWSS interventions produced substantial outputs in terms of capacity development and awareness campaigns. In addition to the construction of facilities, the Bank also provided information, education and communication (IEC), and awareness actions, as well as capacity building for stakeholders. In this regard, about 10% of the WSS project resources were allocated to soft interventions such as capacity development and awareness creation, while 90% were allocated to infrastructure development. The RWSS project cluster exceeded its targets (by 12% on average) in the number of people trained in the management of WSS systems and facilities (around 11,600) and masons (more than 3,000). About 5,300 people and 5,000 communities/clubs were reached through project activities in community awareness creation and sensitization about improved sanitation and hygiene practices.

RWSS Outcomes Achievement

Overall, the outcome achievement of the RWSS interventions was rated unsatisfactory. The RWSS interventions produced positive outcomes in terms of access to improved water sources and improved sanitation. However, the outcomes were undermined by the limited functionality of the rural water schemes, insufficient water quality, poor supply of appropriate and reliable sanitation facilities and services, and limited ownership, upkeep and management of sanitation facilities and services.

The Bank's support increased access coverage[19] to improved water sources and reduced the drudgery of fetching water in rural areas. The RWSS project cluster provided access coverage to improved water sources to an estimated 14 million people (83%) out of a target population of 17 million[20]. Around nine of 15[21] cluster RWSS projects (60%) met or exceeded their anticipated number of potential beneficiaries, while 80% of projects met at least 75% of anticipated potential beneficiaries (Annex 4, Table A4.3). In addition, all 16 RWSS projects, except Zimbabwe, reduced the time required for fetching water for people that effectively used the improved water sources. On average, the time was reduced by 45% for the Burkina Faso and Rwanda phase 1 projects; by 82 minutes for the Tanzania project; and by more than four hours in the Rwanda phase 2 project. This was in addition to the benefits of avoiding the rugged terrain, which was a major challenge for women and children fetching water.

Effective and sustainable access to, and use of, the RWSS water sources had mixed outcomes, mainly due to limited functionality of water supply facilities and insufficient quality of water. Field survey conducted for the Zambia CPRWSS indicated that around 32% of the water facilities were not functional at the time of the survey and at least 46% had experienced at least one breakdown since they were constructed (AfDB, 2016e). Some of the project cluster watersupply systems and facilities were under-used, not functioning or abandoned because of (i) water points without water or declining groundwater (e.g., in Burkina Faso, Tanzania, Senegal, and Zambia CPRWSS); (ii) facility breakdowns; (iii) high iron content or salt in the water (e.g., in Uganda RWSS[22], Zambia CPRWSS, Zambia NRWSS[23]); (iv) inappropriate design (e.g., in Ethiopia, Tanzania); and (v) lack of sufficient sunlight when the facility was powered by solar energy (e.g., in Burkina Faso). At the same time, positive results were found in other Bank-funded projects (e.g., in Mauritania RWSS, Tanzania RWSS[24], and Senegal RWSS[25]) in terms of functionality of the facilities.

Water quality also remained an important challenge. Insufficient water quality, i.e., water not meeting the quality standards that had been set, limited the RWSS project performance, for example in Tanzania, Ethiopia, and Zimbabwe (presence of E. coli bacteria), and Zambia CPRWSS and Zambia NRWSS (high levels of iron). It resulted from contamination at the point of use and/or at source, mainly from fecal matter, fertilizers, pesticides, iron

and salts. For Zambia for instance, field survey results indicated that 98% of the water facilities had never been disinfected or chlorinated since construction. Water samples were tested to detect the presence of total E. coli bacteria. The test results revealed that water was safe for human drinking in 49% and 28% of the water sources and points of use, respectively, implying that in a majority of cases, the water was unsafe for drinking. (AfDB, 2016e). Furthermore, water quality monitoring was inadequate in some project areas in Chad[26], Mauritania, Ethiopia, Senegal, Tanzania[27], Uganda RWSS[28], and Zambia NRWSS.

Both management and technical issues constrained the outcome performance of the Bank's support for rural water supply. The management of rural water facilities and supply was of insufficient quality. There was over-use and improper use of water facilities, e.g., in Burkina Faso, Burundi[29], and Tanzania. In addition, the maintenance of water facilities was found to be poor in Burundi, Chad, Ethiopia[30], Ghana[31], Senegal[32], Uganda RWSS, Zambia CPRWSS, and Zambia NRWSS. Contributing factors included insufficient human capacity, particularly within local municipalities as was the case in Zambia, and failure of the community-based management model in managing and operating the facilities as was the case in Burkina Faso, Burundi, Ethiopia, Tanzania, Uganda, and Zambia. In Ethiopia, the RWSS Program was effective in building infrastructure, but less so in building community institutional capacity to maintain it (IDEV AfDB, 2016a/b).

The technical constraints mainly related to inappropriate design and siting of water points, which led to the production of water that was unfit for human consumption or no water at all.

The RWSS interventions achieved unsatisfactory sanitation and hygiene outcomes. Access to the RWSS sanitation facilities and services was modest, as was the adoption of improved sanitation and hygiene practices, according to the project cluster. In terms of access, around 7 million out of the expected 15 million people (46%) were covered by improved sanitation services through the cluster projects. Only three of the 13 cluster rural sanitation projects (23%) met the needs of their target beneficiaries, while 31% of projects met the needs of at least 75% of their target beneficiaries (Annex 4, Table A4.3). This modest performance was due, to a certain extent, to the limited accessibility and usability of RWSS sanitation services and facilities, especially the latrines.

Although the RWSS interventions increased the sanitation services and facilities, their availability was considerably reduced over time, mainly because of inadequate facility maintenance and waste management, and/or non-functionality of facilities. For example, some of the latrines were inappropriate for the needs of the beneficiaries, of poor quality and/or not functioning such as in Burundi, Chad, Tanzania, Senegal, Zambia RWSS[33], and Mauritania. The inappropriate use and ineffective management of some of the latrines also rendered them inaccessible, thereby leading to the re-emergence of open defecation. This was the case of the RWSS latrines in Chad, where 85% of them were not functional for want of proper hygiene. In effect, improper hygiene kept the latrines out of use.

The adoption of the expected hygiene and sanitation behaviors/practices among project cluster beneficiaries was limited. The RWSS project cluster made only modest progress in:

- **Minimizing open defecation**. Three RWSS projects (in Burkina Faso, Ghana and Senegal) reported improvements in reducing open defecation but the practice was still common in the project areas, especially in Chad, Ethiopia, Tanzania and Zimbabwe. For instance, the Ethiopia RWSS impact evaluation (AfDB, 2016a) found that the program contributed little to the decrease of open defecation as 91% of households that did not own latrines continued the practice.

- **Improving hand-washing.** Hand-washing practices were reported in three projects including Ethiopia, Mauritania, and Rwanda PNEAR II, with the use of soap in the case of

Mauritania. These practices were insufficiently developed in other projects such as Burkina Faso, Tanzania, Chad, Uganda, Rwanda PNEAR I, and Zambia CPRWSS.

- **Ensuring the safe storage of water.** This practice was found to be adequate across five projects including Burkina Faso, Ethiopia, Senegal, Mauritania, and Zimbabwe, but not for the rest of the projects. Unsafe storage of water within households remained a significant challenge in Tanzania, according to the Tanzania project impact evaluation (AfDB, 2016b). This was also the case in Uganda, where the beneficiaries drank untreated water that they perceived to be safe.

The performance of the RWSS sanitation and hygiene interventions was limited by multiple inadequacies, including:

- **Supply of facilities and services.** As already highlighted above, the effective supply of RWSS sanitation and hygiene facilities and services was significantly below the desired targets.

- **Participatory methods for fostering behavioral change among project beneficiaries.** The RWSS participatory methods (e.g., SARAR/PHAST and CLTS[34]) were not as effective as desired in fostering the desired behavior change to sustain good sanitation and hygiene practices.

- **Ownership, upkeep and management of the facilities and services.** This was a common challenge among the community facilities, including those that were school-based. The poor sanitary and hygiene state of some facilities posed a health hazard, and sometimes led to their abandonment and the re-emergence of open defecation.

- **Incentive system for appropriate behavioral change.** Supporting communities to build appropriate incentives was not a focus of the RWSS interventions.

Beneficiaries perceived a decreased prevalence of water-borne diseases, although rigorous impact evaluations indicated mixed results.

- Reductions were reported in Burkina Faso and Mali based upon a household survey during the PER process, where almost all respondents perceived water-borne diseases to have diminished.

- Water-borne diseases were similarly reported as reduced following the implementation of projects in Ghana, Zambia NRWSS and Burundi.

- In Zimbabwe, health professionals confirmed reductions in water-borne diseases and the evaluation identified the possibility that the project avoided a cholera epidemic, but with the caveat that a lack of baseline data did not allow this finding to be confirmed.

- In Chad, the finding that water-borne diseases decreased was similarly interpreted with caution, whereby reductions resulted from factors including but not exclusive to water and sanitation.

- In contrast, in Uganda and Senegal, results from the household survey were not as favorable, with approximately half of respondents perceiving reductions in water-borne diseases.

- In Zambia, reductions in morbidity by water-borne disease were reported during the year following the project completion, but worsened thereafter, following boreholes becoming non-operational and people reverting to the use of unprotected wells.

- Impact evaluations of the Ethiopia and Tanzania programs indicated that while rates of diarrhea improved overall, improvements did not occur for children under five in Ethiopia and were modest in Tanzania, suggesting the consumption of water contaminated with E-coli.

Efficiency

The projects were economically viable, with moderate cost variations, but they suffered from substantial implementation delays. *Furthermore, available data to assess financial performance and cost-effectiveness was limited.*

Substantial implementation delays. No cluster projects followed their implementation timetables, with all experiencing substantial time overruns. In fact, none of the 16 projects met its original closing date or implementation period timeline. As Table 1 shows, the average project implementation period (from approval to completion) was 87 months (7 years and 3 months), which equates to an average delay of 32 months relative to the average planned duration at appraisal (55 months). The implementation duration ranged from a minimum of 49 months (4 years and 1 months) in Zimbabwe, to 141 months (11 years and 9 months) in Zambia. On average, the project cluster's first disbursement occurred 6 months after the entry-into-force date. Only one project, that is, Burundi, experienced a delay longer than one year from the entry-into-force date to first disbursement. The project cluster loans took 32 to 101 months to fully disburse. Table A4.5 in Annex 4 provides further details on project timelines.

Implementation delays were mainly due to procurement issues at early stages of the project or during implementation (for nine out of the 16 projects); start-up delays (for Burundi, Ghana, Mauritania and Zambia NRWSS); and capacity constraints of contractors (for Ghana, Mali, Mauritania and Zambia). Other reasons include slow payment of government counterpart funds (for Uganda WSSP and Zambia), poor quality of execution studies (for Burundi), land acquisition issues (for Uganda), and increased scope of water technologies (for Ghana).

Table 1: Project Time Performance (months)

Project	Approval to completion [M]	Entry into force to completion [M]	Entry into force to first disbursement [M]	First disbursement to last disbursement [M]
1. Burundi Rural Water Infrastructure Rehab & Ext.	94	94	14	76
2. Senegal RWSSI – Launch Sub-Program	61	58	3	56
3. Ghana Rural WSS Program	86	79	9	83
4. Zambia Central Provinces RWSS Project	75	65	7	60
5. Zambia National RWSS Program	141	115	-	92
6. Rwanda National RWSS Sub-Program I	70	56	1	58
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	100	93	3	89
8. Mauritania Drinking RWSS in the South	107	101	4	95
9. Uganda RWSS Program	77	76	11	32
10. Uganda WSS Program	74	64	2	62
11. Zimbabwe Urgent WSS Rehabilitation	49	47	11	40
12. Chad National RWSS Program	76	73	6	66
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	89	82	4	82
14. Rwanda National RWSS Sub-Program II	76	62	-	70
15. Tanzania RWSS Program I	109	104	2	32
16. Ethiopia WSS Program	105	93	10	77
Average	**87**	**79**	**6**	**67**

Source: *IDEV's evaluation team.*

Moderate cost variations. Nine projects experienced cost underruns of 3 to 22 percent of the original planned cost. Two projects, Rwanda II and Ethiopia, had cost overruns of 11 and 13 percent respectively, as indicated in Table 2 and Annex 4, Table A.4.8. The remaining five projects adhered to their cost plan. Table 2 also shows that the Bank provided more than 80 percent of the funding, with the exception of the Uganda WSSP, Uganda RWSS, Tanzania RWSS, Zambia NRWSS, and Zimbabwe projects. Government and beneficiaries made up the remainder. The government was the main funder of the Zambia National RWSS. In contrast, other donor partners participated in the Uganda, Ethiopia and Tanzania projects through a basket fund as was the case for Uganda RWSS; a sector-wide approach as was the case for Uganda WSSP; a MoU[35] regarding the project financing as was the case for Zambia NRWSS; and a Multi-Donor Trust Fund as was the case for Zimfund. For example, in Tanzania, other major funding contributors included the World Bank and the United Kingdom Department for International Development (DFID). In Uganda, donor partners such as Denmark, Sweden, the World Bank and NGOs were mentioned. In Zimbabwe, most funding came from donor partners including the United Kingdom, Germany, Denmark, Australia, Sweden, Norway and Switzerland.

Table 2: Cost variations

Project	Planned cost (million UA)		Actual cost (million UA)		Variation from planned total cost (%)
	Total	AfDB Share	Total	AfDB Share	
1. Burundi Rural Water Infrastructure Rehab & Ext.	13.34	90%	11.64	97%	-13%
2. Senegal RWSSI – Launch Sub-Program	29	86%	28.9	86%	0%
3. Ghana Rural WSS Program	14.37	89%	11.398	86%	-21%
4. Zambia Central Provinces RWSS Project	13.99	89%	11.6	94%	-17%
5. Zambia National RWSS Program	77.4	19%	75.4	17%	-3%
6. Rwanda National RWSS Sub-Program I	17.18	76%	14.47	65%	-16%
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	34.97	86%	32.64	88%	-7%
8. Mauritania Drinking RWSS in the South	11.5	84%	8.917	88%	-22%
9. Uganda RWSS Program	156.39	26%	156.39	26%	0%
10. Uganda WSS Program	285.53	15%	285.53	15%	0%
11. Zimbabwe Urgent WSS Rehabilitation	43.607	-	43.54	-	0%
12. Chad National RWSS Program	16.22	80%	13.88	84%	-14%
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	36.39	88%	28.29	93%	-22%
14. Rwanda National RWSS Sub-Program II	20.265	79%	22.851	66%	13%
15. Tanzania RWSS Program I	223	31%	179.1	31%	0%
16. Ethiopia WSS Program	54.24	80%	60.2	72%	11%

Source: *: IDEV's evaluation team.*

Viable economic performance. Cost-benefit analysis was conducted for 11 of the 16 projects at completion and/or ex-post. The 11 projects had Economic Internal Rates of Return (EIRRs) in excess of their respective opportunity cost of capital (Table 3). Due to data limitations, the EIRR was not re-estimated for five projects including Ethiopia, Mauritania, Mali, Tanzania and Zimbabwe. Significant discrepancies between EIRR computations at the different phases of the project were noted for four of the 11 projects.

Limited data to conduct financial performance and cost-effectiveness analyses. Only two out of the 16 projects conducted Financial Internal Rate of Return (FIRR) analysis during the appraisal stage. This led to limited data availability at ex-post level for FIRR re-estimation (Annex 4, Table A4.7). Seven projects assessed the cost-effectiveness at ex-post with different methods, leading to incomparable findings.

Sustainability

Sustainability of RWSS projects is likely to be low. *Technical viability was sound for water supply infrastructures, but less so for sanitation facilities. Ownership and partnership were effective. Shortcomings were raised in terms of (i) capacity to operate and maintain the facilities, mainly when using community-based management models; (ii) financial viability; (ii) institutional capacity endangered by limited capacity, and (iii) environmental and social sustainability. With high demand due to rapid population growth, climate change is likely to increase the challenge of obtaining sufficient water for community needs.*

Table 3: Economic Internal Rate of Return (EIRR) Ex-ante and Ex-post

Project	EIRR (PAR)	EIRR (PCR)	EIRR (PER)	Variation from PAR	Opportunity Cost of Capital (OCC)
1. Burundi Rural Water Infrastructure Rehab & Ext.	26.75	-	29	2.25	10%
2. Senegal RWSSI – Launch Sub-Program	27	-	15.8	-11.2	12%
3. Ghana Rural WSS Program	21.22	28.71	40	18.78	-
4. Zambia Central Provinces RWSS Project	9	14	24	15	10%
5. Zambia National RWSS Program	26	21		-5	-
6. Rwanda National RWSS Sub-Program I	22	27	17.8	-4.2	12%
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	-	-	44.8	-	12%
8. Mauritania Drinking RWSS in the South	-	-	-	-	-
9. Uganda RWSS Program	-	-	30	-	12%
10. Uganda WSS Program	20.2		12	-8.2	12%
11. Zimbabwe Urgent WSS Rehabilitation	22.05	-	-		12%
12. Chad National RWSS Program	14.54	13.1	13.34	-1.2	10%
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	12.67	12.42		-0.25	-
14. Rwanda National RWSS Sub-Program II	24	22.9	34	10	12%
15. Tanzania RWSS Program I	-	-	-	-	-
16. Ethiopia WSS Program	-	-	-	-	-

Source: *IDEV's evaluation team.*

Overall, RMCs were found to have access to standard technology to address water supply infrastructure issues. However, they experienced challenges to operate and maintain those facilities. In terms of water supply, the project cluster delivered sound technological infrastructures, except for Uganda RWSS, Uganda WSSP, Zambia, and Tanzania. Equipment choices were were made in such a way that the different, users, including the elderly and pregnant women, could easily operate pumps. Equipment may also have been selected based upon its strong reliability track record in the region, for example as in Mali. Where incorporated, such as in Burkina Faso, Mauritania and Uganda WSSP, solar packages for rural water supply systems using groundwater were described as well adapted to the localities compared to fuel-based technology. However, insufficient sunlight was noticed sometime in Burkina Faso. While it was anticipated that spare parts, as well as local capacity would be readily available to address minor repairs, as clearly shown in the Burkina Faso[36], Ghana, Chad, and Rwanda projects, it was not always the case in practice, which limited the operation and maintenance of facilities.

Water supply infrastructure was not always appropriate The water pumps selected in the Uganda and Zambia projects were not appropriate in areas that experienced low water pH or high iron content. Boreholes that had water with high iron content were abandoned by communities in Uganda[37]. Most of the pumps in Zambia were simple and easy to operate and maintain but in certain locations, metal components were vulnerable to aggressive water with low pH. Moreover, new water supply installations in Zambia CPRWSS appeared to be limited to handpump-equipped technology for boreholes. Possible alternatives such as hand dug wells and rainwater harvesting were dropped, but may have been cheaper to maintain. In cases where a high iron content source was established, the project had no provision for installing alternative iron removal plants, which emanated from local geological formations. Finally, the most common technology schemes that were developed by the program were electric pumps powered by diesel generators. These diesel engines were prone to breakdownsand had a limited operational life. Some of the breakdowns were easily preventable, for example, damage caused by air locks when fuel runs dry.

There were insufficient technical capacities and financial resources at the community level, with a shortage of essential spare parts and limited participation of the private sector undermining the maintenance of RWSS project cluster facilities. A project's technical sustainability hinges on the quality of maintenance and management of the facilities. Inadequate capacity to develop the institutional, management, financial and technical systems needed for the operation and maintenance of water and sanitation services was challenging for all projects. The project cluster used a decentralization approach for WSS delivery in rural areas. In this context, the Community-Based Management (CBM) model was the dominant service delivery model in almost all projects. Other service delivery models that were dependent on local context included (i) small-scale private operators in the case of Ghana, Rwanda 1 and 2, Senegal, and Uganda; and (ii) direct local government provision in the case of Ethiopia, Rwanda 2, Uganda and Zambia.

Box 2: Public-Private Partnerships (PPP) in Rwanda's Rural Water Supply

Community management of rural water supply was implemented in Rwanda from 1987 to 1994 when community water management boards were established in all districts. Standpipe users were grouped into committees whose members were elected by the users. The model very quickly exhibited the following limitations (i) low volunteering among water point committee members; (ii) lack of technical skills (i.e. professionalism); (ii) absence of user responsibility, reflecting non-ownership of facilities; (iv) failure of users to pay fees on a regular basis, and (v) poor financial management (including embezzlement of funds). These elements, along with the lack of skills, accountability and funds, led to poorly maintained water systems.

A 2004 evaluation of RWSS infrastructure management concluded that the community management model had failed, leading to Rwanda essentially abandoning the method and adopting a **private** operator management method through PPP. Under this system, local authorities (districts) owned the system by virtue of a decentralization process. In 2010, government support of the World Bank's Water Supply Program updated the WSS Policy, emphasizing sustainability and improving WSS by establishing the Rwandan Energy, Water and Sanitation Authority (EWSA) to operate in urban areas and oversee water and sanitation service provision in rural areas. EWSA supports the district-based transparent procurement of private operators to operate and maintain WS infrastructure. The government is now considering water sector restructuring, capitalizing on EWSA's experience in utility management to extend its mandate to engage the private sector directly to manage rural water infrastructure and big PPP projects where feasible. The role of the private sector in WSS will still include delegated management and be extended to models such as the Independent Water Producer and thereby attract big investors into the sector.

Source: Rwanda 1 PER

However, for PPP in rural water supply to work, there is need for a favourable environment including (i) a legislative framework that effectively monitors private operators; (ii) capacity strengthening of private operators and the promotion of competition; (iii) establishing a targeted subsidy system so that private operators can offer affordable pricing; and (iv) the existence of a regulatory mechanism. For example, in the Rwanda rural projects, deteriorating community management of piped systems prompted district authorities to seek private operators. This introduction of PPPs to improve the operations of piped rural water supply systems proved to be an unprecedented success (Box 2). In 2011, private operators were managing 356 of the 847 rural WSS facilities (42%), and the number is rising annually. Other countries such as Senegal, Mali and Ghana have also experienced some success in using small-scale private providers.

The project's technical soundness in Rwanda, Mauritania and Senegal is ensured through the quality of water facility infrastructure maintenance, even if under different models[38]. Sustainability was found to be more favorable with the delegation of rural community infrastructure management (or mini networks) to a competent private operator. This was also the case with the delegation of hand pump management to a user association that was contracted by the municipality.

The same cannot be said for other projects such as Burkina Faso, Burundi, Ethiopia, Tanzania, Uganda RWSS, Uganda WSSP, Zambia CPRWSS and Zambia NRWSS. These projects mainly used CBM models, supported by a system of local governance and decentralized service delivery. Evidence shows that for the project cluster, with some exceptions in Senegal and Chad, the CBM model was not successful in effectively managing and operating water supply and sanitation facilities, and improving service delivery. Overall, results were poor and led to the dysfunction or abandonment of infrastructure with project cluster water systems/points, except in Ghana. Consequently, projects failed to generate sufficient revenue to cover their operating and maintenance costs. The collection of operation and maintenance fees varied from community to community but the general indication is that funds were not regularly collected as required. For instance, some communities in Uganda and Chad seemed to prefer to wait until the facility broke down before collecting funds for rehabilitation.

In fact, Community-Based Maintenance Systems (CBMS) experienced a number of implementation challenges including:

- **Affordability.** When beneficiaries (first and foremost clients) were expected to pay for water services, they may not have had the capacity to do so. Unaffordability was suggested in the Zambia CPRWSS, Burkina Faso, Burundi, Tanzania, Rwanda, Senegal and Uganda RWSS projects.

- **Lack of capacity.** Water users' associations assumed responsibilities for collecting user fees and maintaining the functionality of the water supply system on a voluntary basis. In this role, they were generally described as either lacking the time, transparency and/or capacities to assume this role as was the case in Burundi[39], Ethiopia, Ghana, and Chad. It is important to mention that communities were trained in the operation and maintenance of facilities, as well as surrounding areas, to ensure their sustainability. This training, however, did not show positive results over a relatively longer period in some communities for the Burkina Faso, Burundi, Chad, Ethiopia, Tanzania, Ghana, Mali, Senegal, and Zambia projects.

- **Low willingness to pay.** Beneficiaries were sometimes reluctant to pay water fees as was the case in Burkina Faso[40], Rwanda[41] and Uganda RWSS.

- **Limited availability of spare parts.** As was the case in Burundi, Burkina Faso, Ghana, Rwanda, and Uganda RWSS.

- **Lack of enforcement of community by-laws.** As was the case in Uganda RWSS.

With regard to rural sanitation infrastructure, the selected technologies did not adequately respond to the need for providing sustainable infrastructures. Both household and public latrines relied on waste removal services, which were non-existent in rural areas. Indeed, families made no plans for desludging as was the case in Burkina Faso, Chad, and Ghana; or reinvestment in the relocation/reconstruction of a new latrine at the end of the toilets' lifespan as was the case in Burkina Faso and Rwanda 1[42]. In addition, the type of latrine technologies that were used in the project cluster did not meet the preference of some community members and adversely affected uptake of the latrines as was the case in Burkina Faso[43], Burundi, and Ghana.

Maintenance of public latrines was lacking and/or insufficient. This was particularly the case in Burkina Faso, Mauritania, Rwanda, and Senegal. This was due to absence of service for emptying excreta sludge and repairing nearby latrines, without which the long-term operation of the latrines could not be guaranteed. Beneficiaries did not have capacity to empty waste or were not interested in assuming this role. Hygiene committees also tended to become nonfunctional after program implementation had ceased. Lastly, public latrines were poorly used and maintained, leading to pollution and unpleasant odors. This led to closure or abandonment of some of them as was the case in Burkina Faso, Burundi, Chad and Zambia CPRWSS.

Low financial viability of project cluster. None of the RMCs had established the means to ensure the financial viability of both water and sanitation systems in rural areas. However, four RMCs including Ghana, Mauritania, Rwanda and Senegal were able to ensure the financial viability of a water supply system[44].

The financial viability of some water and sanitation systems was limited because water fees were seldom collected. This was due to either incapacities of the water users' associations to collect fees, or the unwillingness or inabilities of the users to pay fees. The low financial viability of the water users' association could also be linked to a lack of funds being transferred or simply contributed by the government, e.g., Burundi did not disburse counterpart funds. In some situations, the government would transfer fees to the water association as was the case in Ethiopia and Uganda. However, this practice was unsustainable. In other circumstances, while financial resources seemed to be available, the local authority did not prioritize the water program and used these resources for other purposes as was the case for Zambia NRWSS project.

Limited capacity endangered institutional sustainability. Project countries were found to have had limited technical skills including the broad political, institutional and regulatory frameworks that the project aimed to implement by creating (or reinforcing) groups with mandates to operate and maintain the water supply and sanitation infrastructures. Technical skills were thus dependent on these groups having an interest as well as the capacity to improve the system in addition to the presence of a strong and complete network of connections between groups (actors from central and line ministries, district/local authorities, users' groups/associations, private sector and civil society). The project cluster institutional situation had different patterns:

- Cases of strong institutional frameworks followed by competent and connected implementing groups as was the case in Rwanda[45] and Mauritania[46].
- Cases where the strength of the institutional frameworks and coordinating mechanisms varied within the same RMC Senegal[47] and Ghana.
- It was also not uncommon to find institutional conditions more able to support water supply infrastructure than sanitation as was the case in Mauritania[48] and Tanzania[49].
- Even when policy and institutional frameworks were in place, lack of political interest sometimes led to a breakdown in collaboration and coordination between key groups, thus threatening sustainability. This was the case for Zambia and Uganda, where political interference resulted in an inappropriate site selection and disengagement by the community, as choices were guided by interests unaligned with building and sustaining a water supply and sanitation system.
- Frequent political instabilities resulted in the essential mechanisms within and between the key groups becoming dysfunctional and thus weakening sustainability, for example, in Burkina Faso.
- Sanitation infrastructure's sustainability is also impacted negatively by the absence of a sustainable mechanism for management and maintenance, a lack of involvement of municipal actors and a lack of technical services from the ministries for the control and management of the facilities.

Effective ownership and partnership sustainability. All project evaluations, with the exception of the Burundi, Tanzania and Zambia projects, described the RWSS projects as having created enabling conditions to build a sense of ownership among beneficiaries. The extent to which this sense of ownership was maintained over time was, however, not always sufficiently addressed. Among the project cluster, ownership was reported to be present in six of the 16 projects. Overall, when beneficiaries assumed costs for sanitation facilities, this contributed positively to building community ownership. The projects further promoted ownership by implementing decentralized policies and including a broad network of stakeholders and beneficiaries in project design and implementation.

Authorities recognized that project success required community ownership. However, the integration of community ownership into project components did not always yield success. For example, sanitation plans built on the continued involvement of hygiene committees in schools were unlikely to be maintained in Burkina Faso, Burundi, Mali, and Chad. On the other hand, raising awareness in Burkina Faso, Ghana and Mali, and requiring community members to contribute financially to family latrines favored ownership of family latrines.

The project cluster did not give adequate attention to environmental and social sustainability, especially in the context of climate change. All the 16 cluster projects were classified as category II, according to the Bank's Environmental and Social Policies and Procedures. Therefore, the bid documents for the construction of WSS systems should have included provisions relating to environmental protection. Evidence of the effective preparation and implementation of an Environment and Social Management Plan was limited in some projects such as in Burkina Faso, Burundi, Ghana, and Mauritania. Protection of water facilities against human and agricultural pollution, and regular maintenance where protection had been made, is still challenging for Rwanda and Zambia. Improper operation and maintenance of sanitation infrastructure negatively affected the environmental viability of the project cluster. In contrast, Zimbabwe presented a good example of enforcement through payment from litigation by the Environment Management Authority.

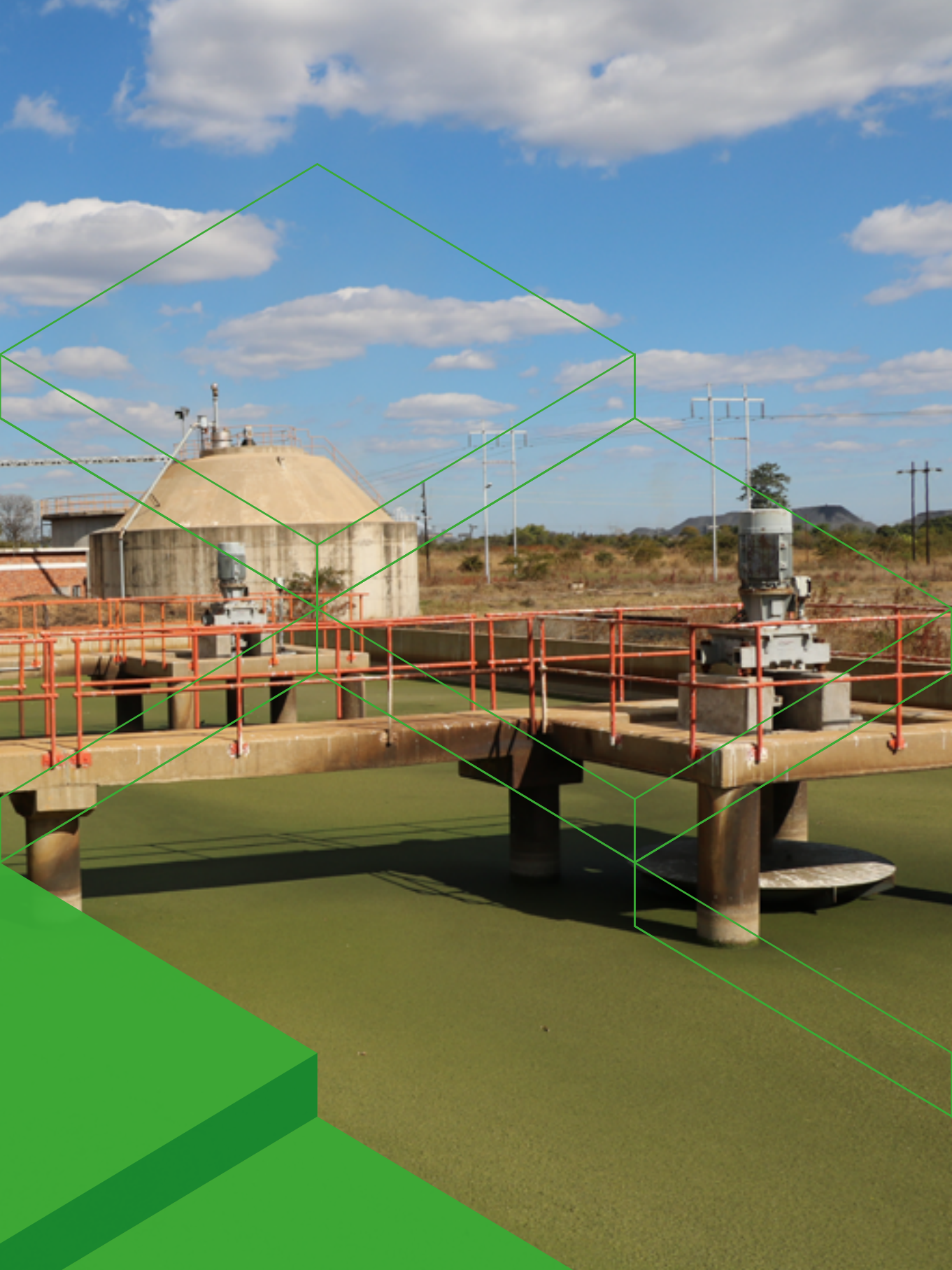
With high demand induced by rapid population growth, climate change is likely to increase the challenge of obtaining enough water. The project cluster faced some exogenous factors that are still a riskincluding (i) crops which use fertilizers and pesticides near water sources , e.g., in Burkina Faso, Burundi, Rwanda and Zambia); (ii) floods and erosion , e.g., in Burundi, Rwanda and Tanzania; (iii) climate change leading to continued drop in water resource quantity and quality, e.g., in Burkina Faso, Mauritania, Rwanda, and Tanzania; and iv) political and security challenges e.g., in Mali and Burundi.

Project Monitoring and Evaluation

There were significant shortcomings in the monitoring and evaluation (M&E) systems.

The PERs highlighted important shortcomings in M&E systems, suggesting that both RMC governments and the Bank could implement improvements. Specific reference was generally made to a lack of data , e.g., in Rwanda, Senegal, Tanzania[50], Chad, and Zambia. The project cluster, with the exception of Uganda WSSP, which was funded under a Sector Wide Approach (SWAP), lacked project area baseline data and an appropriate M&E system to ensure the systematic collection of relevant data with clear responsibilities and a well-defined frequency. Instead, the OVI were provided for the entire population, e.g. in Zimbabwe, or for the whole rural population, e.g. in Ethiopia, Ghana, Mali, Senegal, and Rwanda 2.

Pre-defined performance indicators, often from the PAR, were used consistently across outputs. However, outcomes were often weak as improvements were reported but were not based upon a performance measure. Baseline data against which to measure the extent of progress in service delivery as a result of the provision of water and sanitation facilities was often missing. In addition, data needed to measure efficiency was frequently not available from the RMC. Beyond the availability of data, reports were not always accessible due to staff turnover resulting from changes in governments. Moreover, the delay between the conclusion of project implementation and the time when data were collected for the PER, e.g., in Chad, Mauritania, Uganda and Zambia. At the same time, the project evaluator in Tanzania suggested that the one-year time lapse was insufficient to determine if effects were sustainable.



Key Issues and Lessons

Quality of Project Design

Lesson 1: Projects need to pay sufficient attention to design studies, procurement-related issues, and capacity in order to minimize implementation challenges.

Poor project design. Issues in the quality of project design were highlighted in Burkina Faso, Burundi, Mauritania, Senegal, and Tanzania. More specifically, the project appraisal in Burkina Faso was described as being of poor quality and based upon insufficient data. Targets were inappropriate and the selection of the intervention region was based on political interests, thus inadequately considered the needs of neighboring communities. In Senegal, implementation sites were poorly described. In Burundi, appraisal was based on poorquality studies that needed to be redone during the execution of the project. Delays in the Mauritania project were associated with an unrealistic timeline, while in Tanzania, problems with the project were linked to an overly sophisticated and expensive design.

Project design did not always give enough attention to threats on efficiency. The project cluster design gave insufficient attention to procurement-related issues. This resulted in substantial implementation delays in Burkina Faso, Burundi, Ghana, Mali, Tanzania, Uganda RWSS, Uganda WSSP and Zimbabwe, which lowered project efficiency. Delays were most often caused by procurement issues that occurred early in project implementation and thus may have been anticipated. For example, in Burkina Faso, bottlenecks arose from contradictions/incompatibility between national public procurement regulations and the Bank's procurement rules and procedures, and a lack of understanding of the procurement procedures for the community contracts. The Tanzania project faced important delays "in developing and implementing procurement procedures for consultants to design new schemes," which delayed the subsequent construction of the rural water schemes.

Implementation challenges also occurred in relation to inadequate capacities within the companies contracted to execute the work. Construction contracts were sometimes awarded to unqualified firms with weak technical and financial competencies, which caused delays and reduced the quality of outputs. In Zambia and Burkina Faso, the low capacity of contractors slowed project implementation, limited the availability of spare parts, and reduced the attainment of benefits. Inadequate capacity to deliver sanitation facilities also occurred in Ghana.

Community-based Management Model

Lesson 2: Community-based management under a demand-driven approach is more impactful when it is effectively applied during the whole RWSS project life cycle.

Insufficient implementation of community-based management under a demand-driven approach during the RWSS project life cycle presented challenges that led to limited effectiveness and low sustainability. These challenges manifested in the poor performance of service providers, limited functionality of infrastructures, and low level of services. Insufficient stakeholder participation in the project cluster life cycle also limited the achievement of outcomes and lowered sustainability in Burkina Faso, Burundi, Mauritania, Senegal, Uganda, Zambia and Zimbabwe[51]. The key partners most likely to be inappropriately excluded from project planning were beneficiaries as well as the ministries and entities responsible for sanitation.

The projects' effectiveness was jeopardized by inappropriate technological choices due to insufficient community participation during project conception. Inappropriate technological choices increased when community involvement was inadequate during project design as was the case in Burkina Faso, Burundi, Mauritania and Zambia. In this respect, community structures were insufficiently mobilized for water system maintenance, as beneficiaries were not sufficiently consulted during the project conception phase. In the Zambia CPRWSS project, the choice of borehole installations was associated with inadequate maintenance and ownership, resulting in one third of installed boreholes becoming non-functional. Community partners and district authorities in Zimbabwe described their role in the project as token, perceiving themselves as not being treated as equal partners in decision-making. The project quality thus suffered due to a missed opportunity to utilize local institutional knowledge.

Capacity Development within a Decentralized System

Lesson 3: Capacity development for service delivery is needed in both the private and public sectors, at all levels of implementation, if RWSS projects are to maximize water results and solve the chronic sanitation issues.

Insufficient attention was given to service delivery capacities relative to infrastructure development. The competencies of the service provider, including CBM and private operators, were sometimes taken for granted. Skills and management capacities at both the operational and strategic planning levels as well as inside and outside of the government were often limited. These limitations in technical and management capacity gave rise to low cost-recovery and poor governance, as well as low willingness of customer to pay for poor quality services. All these issues jeopardized successful implementation.

The capacities of service providers were often assumed, meaning that capacity development and the operating environment were often neglected. Moreover, the growing unrestrained influence and prominence of international players in the local market exhibited unintended potential to undermine the development of local capacities among consultants and contractors. Overall, this placed national players at a competitive disadvantage.

Despite the important socio-political role of local water users' associations, they often lacked well-planned management strategies based upon a clear understanding of the technical, administrative and financial parameters of the water system. There was need for further professionalization of service providers. Moreover, capacity support to local governments was critical in order to enable them to fulfill their role in sustaining rural services such as planning, monitoring, regulation, etc., specifically when using a PPP model as was seen in Rwanda.

Fostering an RWSS Service Delivery Approach

Lesson 4: RWSS projects need clear strategies to ensure efficient service delivery, quality sanitation infrastructure and sufficient behavioral change, in order to achieve substantial outcomes.

Lack of clear strategies curtailed achievement of RWSS projects' impact. Beyond the headline success in providing first-time access to water, the project cluster was characterized by poor service delivery, weak sanitation infrastructure, and inadequate behavioral change. This was due to the pressure to expand coverage, which resulted in strong focus on infrastructure development and less on service delivery. Moving towards SDG6 required a clear strategy to address these risks and to ensure efficient service delivery, quality sanitation infrastructure and sufficient behavioral change to enhance the

achievement of RWSS project outcomes. These strategies should be developed in collaboration with key stakeholders, including federal, regional and local administrations as well as water users' associations. Such a strategy should address (i) water quality, (ii) sanitation facilities and services, and (iii) local operational capacities. In fact:

- Poor water quality and irregular water quality testing and treatment remain a challenge. Issues with water safety were emphasized in the PERs from Tanzania, Ethiopia and Zambia.

- Sanitation facilities and services remain underfunded and poorly developed due to inadequate financial resources for the operation and maintenance of facilities. Water facility user charges were often insufficient to meet the cost of operation, maintenance or replacement, which contributed to delays or lack of repairs. Often, there was lack of a clear strategy for ensuring the financial viability of waterpoint and waste management. Access to sanitation services was weak across all RWSS projects. When accessed, handwashing facilities were inadequate. In cases where open defecation was assessed, improvements were reported but the practice was still challenging. The hygiene practices of open defecation and handwashing without soap undermined the positive health outcomes from RWSSP.

- Although the roles and responsibilities of local water associations or user groups were essential to the sustainability of water and sanitation facilities and services, they had weak organizational and management capacity as well as low motivation to assume their role.

Some outcomes such as the reduced incidence of water-borne diseases require profound behavior change among stakeholders, especially beneficiaries. This failed to occur in the project cluster. Despite awareness campaigns undertaken by the project cluster, much remains to be done in terms of (i) hand-washing with soap at critical moments in Burkina Faso, Chad, Ethiopia, Uganda, Tanzania, Rwanda, and Zambia; (ii) reducing open defecation in Chad, Ethiopia, Tanzania, Uganda and Zimbabwe; (iii) increasing willingness to pay in Uganda, due to low level of trust in the water user group; and (iv) improving water storage in some households in Burkina Faso, Ethiopia, and Tanzania.

Sustaining RWSS Projects' Benefits

Lesson 5: The adoption of a wider range of contextually appropriate service delivery models beyond community-based management in RWSS projects is critical if they are to sustain project benefits.

Community-based management that is supported by a system of local decentralized service is the dominant service delivery model in the project cluster in Burkina Faso, Burundi, Chad, Ethiopia, Tanzania, Uganda RWSS, Uganda WSSP, Senegal, Zambia CPRWSS, and Zambia NRWSS. However, evidence showed that while this service delivery model was effective in providing some level of first-time access to improved water supply services, except in Senegal and Chad, it failed to provide sufficient quality and reliable services. This suggested that there was need for a wider diversity of models for different contexts, as adopted in the Rwanda project (see Box 2).

Project design may also have inappropriately emphasized the provision of infrastructure and neglected the delivery of services to maintain the infrastructure. Apart from issues related to the service delivery approach, there were other issues related to financing of the full lifecycle costs of the service and asset management[52]. Instead of focusing only on providing the infrastructure, the project design should incorporate cost recovery and financing mechanisms to address all cost components for ensuring sustainable service delivery, particularly capital maintenance for

replacement of assets, rehabilitation, and major repairs. This would ensure optimal functionality of water and sanitation infrastructure. With the exception of the water supply system in Ghana, Mauritania, Rwanda and Senegal, the project countries did not establish the means to ensure the financial viability of both water and sanitation systems in rural areas.

Therefore, there is need to adopt a financing policy and implement a tariff guideline for rural water that distinguishes the different life cycle cost elements of the full cost service provision. This would include (i) different segments (geography, management model) with different levels of cost recovery through tariffs That is, the full costs are funded through a mix of taxes, transfers, and tariffs; (ii) identification of sources of funds and responsibility for major repairs, capital maintenance, and asset replacement, combined with earmarking mechanisms, for example, maintenance funds and taxes; and (iii) social pricing for the most vulnerable group to ensure affordability[53].

Refining the M&E System Towards Service Delivery and Sustainability

Lesson 6: A comprehensive monitoring and evaluation system focused on rural service delivery and sustainability is critical to foster project development results.

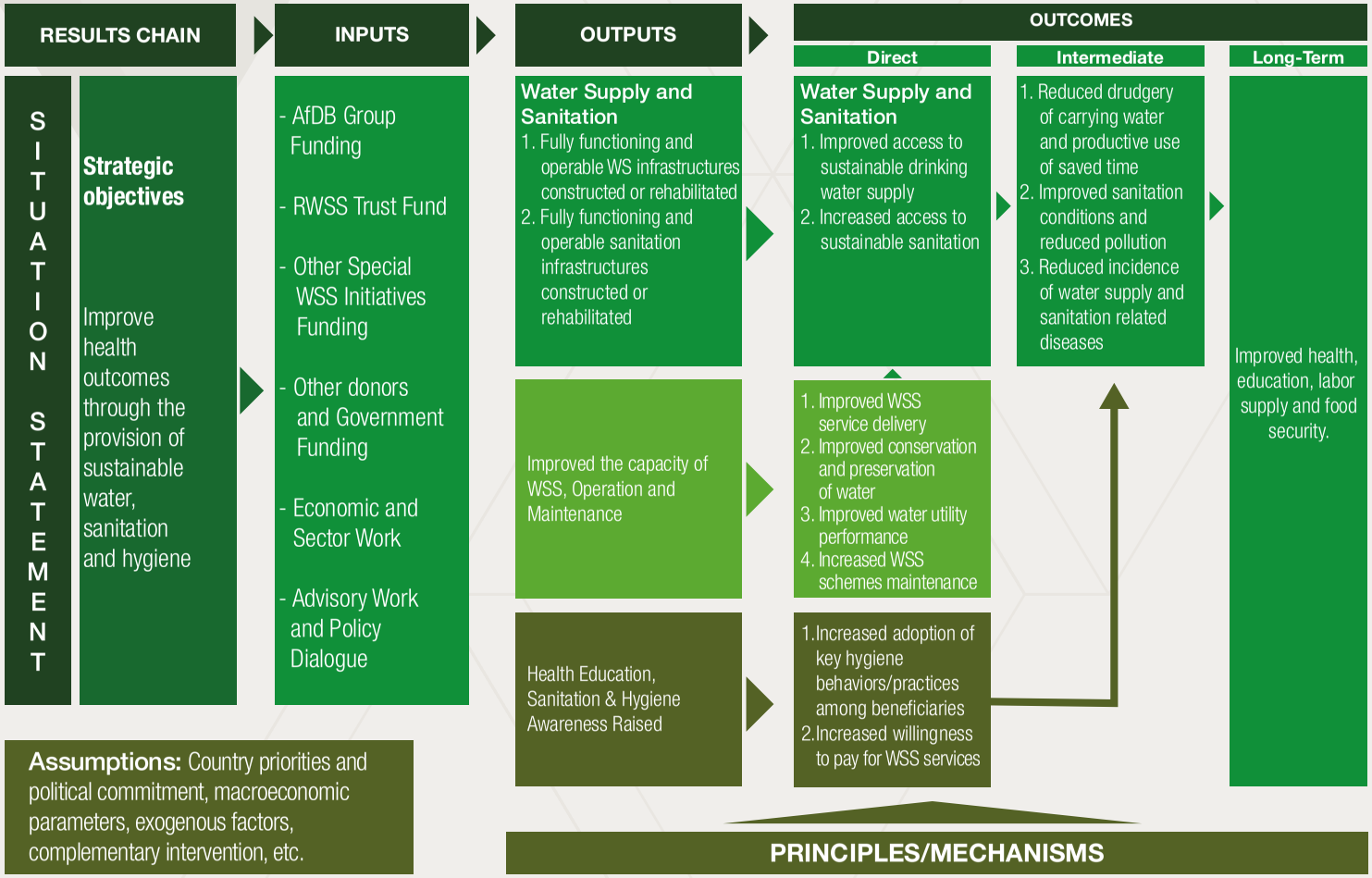
One of the differences between the SDGs and the MDGs in the WSS sector is that with the SDGs, the emphasis is no longer on access only but also on the service that people receive in terms of equity, safety and affordability. This new paradigm has changed the definition of success of every RWSS intervention as well as the way the M&E system is established and used, from reporting to management and learning.

Given the lack of baseline data in Chad, Senegal, Rwanda, Tanzania, and Zambia, and effective M&E in Chad, Ghana[55], Mauritania, Rwanda, Senegal, Tanzania, Zambia CPRWSS, Zambia NRWSS and Zimbabwe, the project cluster often missed opportunities to learn and support the achievement of the expected RWSS outcomes. For instance, a lot of focus on M&E's contribution to administrative needs as opposed to management systems. In this regard, project implementers could be overly focused on outputs without paying sufficient attention to service delivery and behavior change.

This suggests that both RMC governments and the AfDB need to implement improvements through development and implementation of an effective monitoring, evaluation and learning system to ensure regular, pertinent data collection, analysis, reporting and feedback, especially on RWSSP community WSS results. Partnerships between the AfDB and the RMCs could support the implementation of an effective M&E system at decentralized and national levels. The use of emergent technologies, methods and data-sharing platforms for results measurement is critical to improving RWSS service delivery, as also highlighted by the Ethiopia program impact evaluation[56].

Annexes

Annex 1: RWSS Intervention Project Logical Model



Annex 2: List of Selected RWSS Projects

No	Country	SAP code	Division	Project Name	Status	Approval Year	Net Loan (UA Million)	Disb. Rate %
1.	Burundi	P-BI-EA0-004	OWAS2	Rural Water Infrastructure Rehabilitation and Extension Project	COMP	2005	12.00	94
2.	Senegal	P-SN-E00-003	OWAS1	Rural Water Supply and Sanitation Initiative in Senegal-Launch Sub-Program	CLSD	2005	24.92	100
3.	Ghana	P-GH-E00-003	OWAS1	Rural WSS Program	COMP	2004	9.82	100
4.	Zambia	P-ZM-E00-003	OWAS2	Central Provinces RWSS Project	CLSD	2000	10.87	100
5.	Zambia	P-ZM-E00-009	OWAS2	National RWSS Program	COMP	2006	15.00	100
6.	Rwanda	P-RW-E00-010	OWAS2	National RWSS Sub-Program I	COMP	2003	9.25	98
7.	Burkina Faso	P-BF-E00-008	OWAS1	RWSS Project in the Cascades, West Central, South Central and Sahel Regions	COMP	2007	20.00	94
8.	Mauritania	P-MR-EA0-005	OWAS2	Drinking RWSS in the South	COMP	2006	9.70	81
9.	Uganda	P-UG-E00-005	OWAS2	RWSS Program	CLSD	2005	40.00	100
10.	Uganda	P-UG-E00-011	OWAS2	WSS Program	COMP	2011	40.00	93
11.	Zimbabwe	P-ZW-E00-002	OWAS2	Urgent WSS Rehabilitation	COMP	2011	30.84	100
12.	Chad	P-TD-EA0-001	OWAS1	National RWSS Program	COMP	2006	11.62	100
13.	Mali	P-ML-EA0-004	OWAS1	Drinking WSS Project in Gao, Koulikoro and Segou Regions	COMP	2008	22.00	78
14.	Rwanda	P-RW-E00-005	OWAS2	National RWSS Sub-Program II	COMP	2009	9.96	100
15.	Tanzania	P-TZ-EA0-009	OWAS2	RWSS Program I	COMP	2006	55.00	100
16.	Ethiopia	P-ET-E00-006	OWAS2	WSS Program	CLSD	2005	43.61	100
Total							364.59	

Annex 3: Main Tables

Table A3.1: Sector Goals and OVIs by Project

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Burundi	Rural Water Infrastructure Rehabilitation and Extension Project	Help to improve the living conditions of the rural population through access to drinking water and sanitation	1. Sustainably improve access to rural drinking water supply and sanitation in several provinces and the outskirts of Bujumbura. 2. Strengthen national capacities for management and monitoring of the rural drinking water supply and sanitation sector.	1.1 By 2009: the rate of access to drinking water in the project area increases from 43% in 2005 to 66%. 1.2 By early 2010, all community centers (schools, health centers and markets in Kayanza, Muramvya, Bururi and Gitega Provinces and in 40% of households are equipped with latrines, compared to 22% of households in 2005). 1.3 Mortality and morbidity of children under five years old caused by lack of safe water and adequate sanitation falls from 84‰ in 2004 to 66‰ in 2010. 2.1 4 000 jobs created between 2006 and 2010. 2.2 Losses on rehabilitated networks drop from 44% in 2005 to 25% in 2010. 2.3 Breakdown rate drops from 35% in 2005 to 20% in 2010. 2.4 Recovery of maintenance costs in rural areas improves from less than 50% in 2005 to 70% in 2010. 2.5 By 2008, 35 staff of DGHER, 24 officials of RCEs, 18 local Government administrators, 34 well drillers and 34 accounting officers of RCEs have been trained. 2.6 A sectoral study conducted by end 2008.	**Assumptions** Lasting peace is consolidated, at the domestic and sub-regional levels. Weak institutional capacities caused by the fact that several senior officers in administration and the private sector have left because of the conflict, which has lasted over ten years.. Country's capacity to sustainably mobilize funding for DWSS in rural areas. **Risks** Three major risks have been identified for the achievement of the project objectives: 1. weak institutional capacities of deconcentrated structures (DRAHRH) and local 2. administrations (rural communes); ii) failure by beneficiary communities to make the 3. requisite contributions; and lastly iii) the non-extension of the new management method to project structures, as planned in the reform of the management of the rural water supply systems.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Senegal	Rural Water Supply and Sanitation Initiative in Senegal – Launch Sub-Program	Provide sustainable supply of drinking water and sanitation in rural areas to improve the living conditions and health of the communities.	1. Improve the supply of drinking water to rural communities; 2. Ensure adequate sanitation to rural communities; 3. Contribute to improving the performance of the rural water and sanitation subsectors	**For sector goal** 1. Achievement of MDGs for water (82%) and Sanitation (59%) for Senegal by 2015. 2. Reduce infant mortality from 78 per thousand in 2005 to 39 per thousand by 2015. 3. - Reduce incidence of poverty from 60% in 2005 to 30% by 2015. **For project objectives** In 2010, rate of access to drinking water in rural areas decreases from 64% to 73 % and the rate of sanitation coverage from 17 to 38 %. **By 2015** 1. Rate of access to drinking water in rural areas rises from the current level of 64% to 82% . 2. Sanitation services coverage rate increases from 17% to 59% in rural areas. 3. Rate of breakdown of pumps falls below the current rate of 03 %. 4. Intervention time for breakdowns is 3 days maximum. 5. All water points undergo at least two quality analyses per year.	**Assumptions** Stable macroeconomic framework. Reforms related to decentralization policy pursued Institutional framework of sector strengthened and implemented. **Risks** The lack of contribution by the communities could constitute a sub-programme risk.
Ghana	Rural WSS Program	To extend the coverage of sustainable rural water and sanitation in order to improve health standards of the rural people in the country	To accelerate access to safe water and sustainable sanitation to contribute to the achievement of the national target.	1. Increased access to water supply and sanitation facilities from the existing 40% water coverage and 29% sanitation coverage to 85% of the rural population by the year 2015 and 100% by 2020. 2. Extended improved water supply systems for 9.6 million people and sanitation facilities for 12.6 million people by year 2015.	**Assumptions** The Government remains committed to increase access to water and sanitation Adequate funding is available. **Risks** The program may face poor implementation record due to possible constraints in human resources capacity within the executing agency and the district assemblies.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Zambia	Central Provinces RWSS Project	To improve the quality of life and productivity for all people, by ensuring an equitable provision of adequate quantity and quality of water to all user groups and improved sanitation services for all, at acceptable cost and on sustainable basis.	1. To provide the rural people in the Central Province of Zambia with adequate and sustainable water supply and improved sanitation and personal hygiene; 2. Control and prevent the transmission of Malaria in the project area 3. Control rate of deforestation in the project area.	A total of 85% of the population In the project area having access to adequate water supply and improved sanitation b. Cases morbidity and mortality in the project area reduced by 50% by the lime the project is completed. e. Every household having started a wood lot to meet its own needs for wood fuel.	**Assumptions** Sector reforms are continued and funding is provided to match; Support to communities is sustained; Community education Is continued. **Risks** 1. One of the major risks that the project might face is a delayed start-up due to lack of timely fulfilment of loan conditions, particularly the general ones. 2. The other risk that the project would face is poor implementation record due to constraints in human resources within the executing agency

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Zambia	National RWSS Program	Improved health and quality of life and reduced poverty of rural population of Zambia and contribute to achievement of Millennium Development Goal for water.	1. To improve access of the rural population to safe, reliable and convenient quantities of water supply of quality meeting national standards; 2. To increase the access of the rural population to improved sanitation and improved health & hygiene practices.	**For sector goal** 1. Increased proportion of rural population with access to clean and safe water from 37% in 2006 to 55% in 2010, 75% by mid-2015. 2. Increased access to improved sanitation facilities from less than 13% in 2006 to 33% by 2010 and 60% by 2015. 3. Reduce incidence of water-borne diseases by 30% by 2015. **For project objectives** 1.1.1 Increased proportion of rural population with access to clean and safe water from 37% in 2006 to 55% by 2010. 2.1.1 Increased access by households to improved sanitation facilities from less than 13% in 2006 to 33% by 2010. 2.2.1 Improve the pupil per latrine stance ratio to 25:1 for girls and 40:1 for boys by 2010. 2.3.1 Increase the % of people using handwashing facilities after latrine use by 10% and for pupils by 50% by 2010. 2.3.2 All pupils using improved sanitation facilities by 2010 and 20% increase in people using improved sanitation facilities by 2010. 3.1.1 By 2010, 72 District RWSS Plans completed within budget frame and having clear gender specific indicators. 3.2.1 Proportion of women trained. 3.3.1 Proportion of budgetary allocation in National Budget increased from 1.2% to 8% by 2010. 3.3.2 All donors in the RWSS subsector supporting the NRWSSP.	**Assumptions** Stable macroeconomic framework continued Consistency in sector reforms and national decentralization program Successful Implementation of the Fifth National Development Plan Availability of donor resources Increased budgetary allocation Willingness of communities to continue financial contributions for operation and maintenance Community commitment to continue to sustain the systems implemented Adoption of Operation and maintenance Framework for Rural Water Supply (A major issue surrounding operations and maintenance of rural water supply and sanitation functions is that no proper maintenance systems for rural water supply has been established in most of the rural areas in the country) **Risks** 1. The many new and inexperienced staff at the National and LA level poses a risk to the timely implementation of the program which can lead to delays and the failure to fulfil the MDGs and the program targets. 2. A major issue surrounding operations and maintenance of rural water supply and sanitation functions is that no proper maintenance systems for rural water supply has been established in most of the rural areas in the country. 3. Another potential risk of the program is related to the timely mobilization of communities and ensuring their willingness to contribute financially or provide labor and local materials for the program.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Rwanda	National RWSS Sub-Program I	Provide rural communities with sustainable drinking water and sanitation services to improve their living conditions	Improve access to drinking water and sanitation in rural areas in the Laves Region (Ruhengeri and Gisenyi Provinces)	**For sector goal** By 2009 In the Laves Region 1. Per capita consumption improves from 8 l/d/pers. to 20 l/d/pers. 2. Rate of access to water increases from 48% to 55%. 3. 125,000 persons supplied with water in a sustainable manner. **For program objectives** By 2008 1. Updating of bidding documents for secondary network and distribution. 2. Updating of engineering designs and bidding documents for lots 6 and DWSS network rehabilitated and extended. 3. Inspection and supervision of works carried out.	**Assumptions** Economic growth and economic development of rural areas will boost willingness and capacity to pay for water and sanitation services. **Risks** The major risk concerns the capacity of local governments. For the programme to succeed, it is important that: 1. the capacity of grassroots communities to plan and manage minor water and sanitation projects as well as conduct procurement procedures be strengthened; 2. Beneficiaries be receptive to sensitization campaigns: in that regard, the social mobilization and hygiene education activities of the DEA will be reinforced, while rural NGOs will be involved in the programme and strengthened through training activities.
Burkina Faso	RWSS Project in the Cascades, West Central, South Central and Sahel Regions	Provide rural communities with sustainable drinking water and sanitation services to improve their living conditions	1. Improve access to drinking water and sanitation in rural areas in the Kibungo, Kibuye and Byumba provinces 2. Provide the country with means of effectively monitoring the DWSS sector 3. Build capacities of various stakeholders to ensure the sustainability of rural water supply and sanitation services 4. Promote Initiative and prepare subsequent phases of the Programme	**For sector goal** 1. Reduction of prevalence of diseases in rural areas caused by lack of good quality water and absence of adequate sanitation. 2. Enhanced economic and social development of rural areas through availability of water. **For programme objectives** By 2008 in the Kibuye, Kibungo and Byumba provinces: 1. Per capita consumption improves from 8 l/d/pers. to 20 l/d/pers. 2. Rate of access to drinking water rises from 41% to 100 % by 2020. 3. - 145,000 persons supplied with clean water in the project area.	**Assumptions** Donor support for the Initiative is a vital success factor. The country's absorptive capacity remains weak, limited not only by the availability of counterpart contributions but also by the inability to prepare, design and present sound projects, as well as bear additional debt servicing if most of the financing is obtained as loans. The adoption of the legal and institutional framework has been long in coming, as a result of which sector actors (especially donors) are hesitant to make commitments. **Risks** The major risk concerns the capacity of local governments.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Mauritania	Drinking RWSS in the South	To provide sustainable drinking water supply and sanitation in rural areas aimed at improving the living conditions and the health of the people	1. To improve drinking water supply in rural communities; 2. To provide adequate sanitation to rural communities; 3. - To contribute to improving the performance of rural drinking water supply and sanitation.	**Sector goal** By 2015 1. Achieving MDGs for water : rate of access raised to 74%. 2. Achieving MDGs for sanitation : rate of coverage increased to 60%. 3. Child mortality reduced to 82 per thousand; 4. Poverty index reduced to 25%. **For project objectives** By 2010 1. Rate of access to safe water in rural areas is 62 % 2. Coverage rate in sanitation in rural areas is 40%	**Assumptions** Stable macroeconomic framework; - Reforms related to the decentralization policy; - Institutional framework of the sector strengthened and applied; - Management of water resources by private concessionaries effectively implemented. **Risks** Three major risks to the project objectives have been identified: 1. Lack of contribution from communities; 2. The non-application of institutional arrangements contained in DPS, notably the putting in place of a unified framework for PNAEPA-2015; and lastly 3. The non-extension of private management to project facilities.
Uganda	RWSS Program	To contribute to poverty eradication through improved public health by providing adequate sustainable safe water supply and sanitation services in rural communities.	Sustainable safe water supply and sanitation facilities, based on management responsibility and ownership by the users, within easy reach of 65% of the rural population (from 57% for water and from 56% for sanitation) by the year 2009 with an 80%-90% effective use and functionality of facilities	**For sector goal** 1. Increase coverage in rural areas of water supply from 57% and sanitation from 56% to 77% by 2015. 2. Reduction by 2010, of Uganda's preventable water borne disease burden from current 75% by: 2.1 Increasing public health awareness of defined health priorities to 75%, 2.2 Behavior change in health interventions by 50% of target groups, 2.3 All district plans for domestic and school hygiene promotion and sanitation based on best practice; and 100% safe water within 0.5 km of all schools 2.4 75% of primary and secondary schools with adequate water and sanitation facilities. 3. Infant Mortality Rate per 1000 drops from 86 in 2002 to 68 by 2008.	**Assumptions** GOU is able to raise the budgetary allocation for the sector. The integrated financial management system is rolled out in 2006 as planned. Efficient implementation of RWSS O&M framework. Private sector/NGO participation in RWSS maintained and promoted. **Risks** 1. There is a risk related to delays in the transfer of funds to LGs to implement the program activities. 2. Another risk is the possibility of slippage in the provision of financial contributions by the communities. 3. There are risks associated with the weak implementation capacity of the program at district and sometimes national levels, monitoring of community mobilization activities and timely implementation of the program.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Uganda	WSS Program	Contribute to improved health and productivity and reduction of epidemic diseases through use of safe water and sanitation services	1. Improved access sustainable safe water supply and sanitation facilities. 2. Improved hygienic practices and awareness. 3. Improved management and functionality of water supply and sanitation services	**For sector goal** 1. Increase percent of people with access to safe drinking water and sanitation services from 65 % in 2010 (water), 70 % in 2010 (sanitation) to 100 % in 2035 (water and sanitation). 2. Reduction of incidence of water borne diseases among children under five reduced from 68% in 2005 to 30 % in 2015. **For project objectives** 1.1 Increase percent of population with access to safe drinking water (CSI) from 65% (rural) and 67 % (small towns) to respectively 77% (rural) and 90% (Small Towns). 1.2 Increase percent of people with access to improved sanitation (household) (CSI) from 70 % (rural) and 77% (small towns) to respectively 77% (rural) and 88% (small towns). 2.1 Increase percent of people with access to (and using) hand washing facilities (households) from 21% to 50%.. 2.2 Increase percent of students with access (and using) hand washing facilities (Schools) from 33% to 50%.. 3.1 Increase functionality rate of water supplies systems from 81% (rural) and 88% (small towns) to respectively 90% (rural) and 95% (small towns). 3.2 Increase percent of water boards with women holding key positions (CSI) form 85 % (rural) and 77% (small towns) to 95 %. 3.3 Increase percent of Water points with actively functioning water and sanitation committees (CSI) from 70% (rural) and 89% (small town) to 95%.	**Assumptions** Institutional WSS reforms continue and address underlying problems A collaborative framework for effective sanitation management is established Improved and sustainable O&M Transparent and effective Financial Management end procurement processes **Risks** 1. Failure to operationalize WSS sector reforms 2. Fragmented implementation of the sanitation management framework 3. Inefficient operation and maintenance of water supplies and sanitation facilities 4. Weak, not disciplined corruption prone financial management and procurement processes

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Zimbabwe	Urgent WSS Rehabilitation	To improve the health and social well-being of the population through equitable provision of adequate water supply and sanitation services.	1. To provide urgent support for restoration and stabilization of water supply and sanitation services in the Municipalities of Harare, Chitungwiza, Mutare, Chegutu, Masvingo and Kwekwe. 2. To improve service delivery in the project areas	**For sector goal** 1. The entire population having access to adequate water supply and improved sanitation by 2030. 2. All wastewater treated by 2020 Outbreaks of water related diseases eliminated by 2015. **For project objectives** 1. Total water production stabilized and increased to 806,000 m3/d from 775,000 m3/d by Sept. 2012. 2. A total wastewater treatment capacity of 184,325 m3/d restored for all the urban areas from 76,325 m3/d by Sept 2012. 3. Cholera case fatality reduced to less than 1% by Sept. 2012. 4. Revenue collection increased by 20% 5. Non-revenue water decreased by about 10% from estimated 50% presently.	**Assumptions** Country's political situation continues to improve to allow proper sector planning and development to take place; Continued sector development support by GOZ and development partners; **Risks** 1. Risk of weak project implementing institutions will be mitigated by engaging a project management agent who will assist in critical public sector functions such as procurement. 2. Municipalities continue to improve institutionally and technically; Risk of failure to operate, and maintain the rehabilitated facilities. This will be mitigated through training of staff and provision of essential O&M supplies; 3. More resources are made available to continue with the rehabilitation of the water

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Chad	National RWSS Program	Help to improve the living standards of rural communities by providing sustainable access to drinking water and sanitation	1. Sustainably improve access to drinking water supply and sanitation services in the two regions. 2. Enhance national management and monitoring capacities in the rural DWSS sector	**For sector goal** 1. The percentage of the rural population with access to drinking water increases from 34% in 2003 to 66% in 2010 and to 80% in 2015 2. The number of people with access to adequate sanitation will increase from 10% to 40% in 2010 and 60% in 2015. 3. Decrease in the proportion of poor people from 57% in 2003 to 47% by 2015. **For project objectives** By 2010: 1. Drinking water access in the project area improves from 30% in 2005 to 80% in Tandjilé and from 5% in 2005 to 30% in Mayo Kebbi. 2. 363 453 persons (188 996 women have access to sustainable drinking water supply. 3. All public establishments (800 schools and health centers) in Tandjile and Mayo Kebbi Regions have improved latrines: 672 in schools and 128 in health centers. 4. prevalence of water-borne diseases in Tandjile and Mayo Kebbi Regions falls from an average of 33.7% in the Tandjile and Mayo Kebbi region to 16.8%. 5. Staff of the DH and DHE, MEE, and MSP, artisans/ repairers, village water point committees, provincial administrators have been trained.	**Assumptions** Reforms necessitated by the decentralization policy are continued. Capacity building activities are successful. The SDEA is implemented The communities are involved in the programme. **Risks** 1. One major programme risk has to do with the institutional capacity of the National Directorates for Water and Sanitation, the regional delegations and the local governments. (DGH and DAHB) and the local governments. The transfer of skills is not yet effective in the water and sanitation sector and this poses a threat to the sustainability of the investments. 2. Another risk is the possibility that the beneficiary population will not adhere to the programme or will withdraw at the launching phase (which could prevent the attainment of the desired delivery level), and this would be serious since they bear the greater part of responsibility for ensuring sustainability and for financing building of latrines in households.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Mali	Drinking WSS Project in Gao, Koulikoro and Segou Regions	Sustainably provide rural and semi-rural water supply and sanitation to improve the living conditions of the populations.	1. Improve drinking water supply services in the 3 regions targeted by the project (Gao, Koulikoro and Ségou) ; 2. - Improve household sanitation services and public sanitation in the 3 regions targeted by the project	**For sector goal** By 2015 1.a Increase in drinking water access rate from 67% (at present) to 82% (+ 22%). 1.b Increase in sanitation access rate from 5% (at present) to 20% (+ 300%). 2. Reduction of the infant/ child mortality rate from 196 per thousand (at present) to 96 per thousand (- 51%). 3. Reduction of incidence of poverty in rural areas from 72% (at present) to less than 50% (- 22%). **For project objectives** By 2012 1. Increase in average rate of access to drinking water in rural areas in the 3 regions targeted by the project from 49% (at present) to 56% (+14%). 2. Increase in average rate of access to sanitation in the 3 regions targeted by the project from 5% (at present) to 7.4% (+ 48%). 3. Reduction of the average rate of prevalence of water-borne diseases from 20% (at present) to 10% in the 3 regions (-50%). 4. Increase in the average consumption of water from 13l/day/inhab. for HOPs and 4l/day/inhab. for DWSS (at present) to 20l/day/inhab. for all the facilities.	**Assumptions**: - Stable macroeconomic framework; - Institutional capacities of national and regional structures strengthened; - Funding for the national programme provided. **Risks** 1. The institutional weakness of the central structures is the major risk of the project. 2. The second risk of the project is poor sensitization of the populations on the relationship between poor hygiene practices and the prevalence of the most widespread diseases. This situation is reflected by the relative reluctance of the populations to pay their contributions to household latrines.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Rwanda	National RWSS Sub-Program II	Provide rural communities with sustainable drinking water supply and sanitation services to improve their living conditions and health.	1. Improve drinking water supply services in 216 rural localities of 3 provinces (North, West and South) ; 2. Improve the supply of household sanitation services in 216 rural localities, and community sanitation services in 15 districts of 3 provinces	**For sector goal** By 2015 1. Increase in rate of access to drinking water from 47 to 71%. 2. Increase in the rate of sanitation coverage from 10 to 54%. 3. Decline in infant mortality rate from 123 to 80 per thousand. 4. Reduced incidence of poverty from 60 to 40%. **For program objectives** By 2012 1. Increase in rate of access to drinking water in rural areas from 47% to 61%, 60% and 60% respectively in the 3 provinces of the North, West and South. 2. Increase in rate of sanitation coverage from 10 to16% in the 3 provinces. 3. Reduction in average rate of prevalence of waterborne diseases and faecal peril in the 3 regions from 34 to 26%. 4. Increase in daily per capita water consumption in the 3 provinces from 5 to 20 litres. 5. Reduction in time taken by women and children to fetch water from 4 h 30 mn to1 h 30 mn.	**Assumptions** The capacity of local authorities to effectively fulfil their responsibilities under the decentralization policy; Non-application of institutional provisions of the sector policy; Failure of beneficiaries to contribute Non extension of private management to sub programme structures. **Risks** Four major risks have been identified for the implementation of the sub programme: 1. The capacity of local authorities to effectively fulfil their responsibilities under the Government's decentralization policy, particularly the effective transfer of management responsibilities for water structures to local authorities, thereby excluding any negative interferences by the Government or its local representatives in the selection of beneficiary populations or in the management of the structures; 2. The non-application of the institutional provisions in the sector policy documents adopted by the Government to rehabilitate the sector and make it more attractive; 3. Failure by the beneficiary populations to contribute; and lastly 4. Non-extension of the private management approach to the structures of the sub programme.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Tanzania	RWSS Program I	Improved health and quality of life and reduced poverty of rural Tanzanians	1. Improved district level capacity to implement demand-based RWSS projects 2. Improved access of rural communities to water and sanitation services operated and maintained by capable women and men, and improved health & hygiene practices	**For sector goal** 1. Reduced proportion of rural population below the basic needs poverty line from 38.6% in 2000/01 to 24% in 2010. 2. Reduced infant mortality from 95 in 2002 to 50 in 2010 per 1,000 live births. 3. Reduced child (under five) mortality from 154 to 79 in 2010 per 1000 live births. 4. Reduce diarrhea incidence by half by 2010. **For program objective** 1. Increase of access to water supply from 53% in 2006 to 69% by 2010. 2. Reduce walking distance to less than 500 meters. 3. Increase of rural population practicing good health / hygiene / sanitation from 50% in 2006 to 90% by 2010. 4. Increase of number of districts implementing demand-driven. 5. RWSS from 10% in 2006 to 100% by 2010 6. Increase of rural water committees with at least 50% female active membership from 40% in 2006 to 75% by 2010.	**Assumptions** Stable macroeconomic framework continued Government continues to be committed to poverty reduction and improved quality of life. Availability of resources Risk of losing staff to the private sector Availability of materials and staff for the program. Reforms related to decentralization policy pursued and sustained and relevant staff and systems available. Institutional framework of sector strengthened and implemented Community mobilized and continue to sustain the systems implemented Monitoring framework instituted and made operational and sustainable. **Risks** 1. There are risks that there may be delays in the transfer of funds to the LGAs to implement the program activities. 2. The risks associated with the weak implementation capacity at district and national levels are also of some concern but it is expected that the Capacity building Grant provided under the Program will progressively enhance Program implementation capacity.

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
Ethiopia	WSS Program	To improve social well-being, enhance national economic performance and ensure equitable provision of adequate water and sanitation services to all competing users at affordable cost and on a sustainable basis.	**Medium Term Outcome** 1. To improve access to rural water supply and sanitation in Ethiopia, thereby contribute to the achievement of water related MDGs.	**For sector goal** 1. Rural water supply coverage increased to meet the MDG targets: from 24% in 2004 to 35 % in 2008, 45% in 2010 and to reach 62% of the population by 2015. 2. Rural sanitation coverage increased to meet the MDG targets: from 8% in 2004 to 21% in 2007, 32% in 2010, and to reach 54% by 2015. 3. Incidence of water borne diseases halved by 2015; from 60% of the population in 2004, to 45% in 2007, 40% in 2010, and to reach 30% by 2015. **For program objectives** **Medium Term Outcome** 1.1 Rural Water Supply access increased from 24% to 32% by mid-2008. 1.2 Average distance to nearest water points reduced from 3km. in 2004 to 1 km by mid-2008. 1.3 Average travel time of women and children to water points reduced from 3 hours in 2005 to 1 hour in Participating Woredas by mid-2008. 1.4 Per capita water consumption increased from about 10 l/c/day in 2004 to 20 l/c/day by mid-2008. 2.1 Sanitation coverage increased from 8% to 21% and Improved hygiene and Sanitation practices adopted by mid-2008. 3.1 Effective M&E System in place. 3.2 Improved information about the sector.	**Assumptions** High level of public expenditure and donor support maintained for the water and social sectors. Government remains committed to increasing access to water and sanitation services at the national level. **Risks** 1. The human resources capacity constraints at all levels, particularly at Woreda level, poses a risk to timely programme implementation which can lead to delays and the failure to fulfil the MDGs and the programme targets. The risk is reduced by the high level of capacity building for government institutions at Federal, Regional and Woreda level, for beneficiary communities, artisans, local contractors and consultants during the early stages of programme implementation. 2. The ready availability of spare parts is another risk to programme sustainability, which will be mitigated by supporting the involvement of the private sector, community associations and cooperatives in the importation and distribution of spares to all parts of the country. The available financing of USD 88.7 million per annum is lower than the estimated financing requirement of USD 125 million per annum, and poses a risk that the MDGs will not be attained. While the Government and communities have shown commitment to meet their part of the financing, the risk of donors not increasing their contributions to the programme required levels remains

Countries	Project name	Sector goals	Project objectives/ Results chain	Objectively Verifiable Indicators (OVI)	Risk and Assumptions
			Short Term Outcome 1. Increased number of effectively functioning Rural Water supply and sanitation schemes. 2. Capacity of MOWR, RWBs, WWDs and beneficiary communities, local consultants and contractors and artisans enhanced. 3. Improved community awareness of water quality and hygiene. 4. Improved mechanisms for spare parts distribution to communities. 5. Improved and decentralized database and MIS for RWSS coordinated by MOWR	**Short Term Outcome** 1.1 Construction of 23,000 water points, 10,000 demonstration latrines and 6,900 communal latrines in schools, clinics and rural growth centers by mid-2008. 1.2 Up to 1.45 million improved traditional pit latrines constructed by communities with own financing by mid-2008. 1.3 Non-functional services reduced from 33% to 15% through rehabilitation of 1,550 water points by mid-2008. a. 15 staff of MOWR and MOH, 108 staff of RWBs and RHBs and 5,500 staff of WWDs and WHDs, 800 artisans LSPs, 600, 52 WSGs trained and implementing the RWSS Programme by mid-2008. b. About 108,000 community representatives, including 30% women, of 15,500 water committees trained and managing their own water services by mid-2008. c. Increased number of contractors and consultants working on rural WSSP by mid-2008. 3.1 Over 100,000 community representatives receive hygiene education by mid-2008. 3.2 Field water quality testing on-going in 550 Woredas by mid-2008. 4.1 Spare parts available at community level by private sector by mid-2008. 5.1 Computer hardware and software for database and MIS installed at MOWR, MOH and RWBs, RHBs, WWDs, WHDs and staff trained to use them by mid-2008.	

Annex 4: Performance Tables

Table A4.1 : RWSS Physical Sanitation Facilities Achievement

Project	Physical sanitation achievement ratio (Compared to planned)
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	101%
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	91%
3. Ghana Rural WSS Program	55%
4. Zambia Central Provinces RWSS Project	172%
5. Zambia National RWSS Program	8%
6. Rwanda National RWSS Sub-Program I	106%
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	64%
8. Mauritania Drinking RWSS in the South	184%
9. Uganda RWSS Program	-
10. Uganda WSS Program	58%
11. Zimbabwe Urgent WSS Rehabilitation	100%
12. Chad National RWSS Program	47%
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	82%
14. Rwanda National RWSS Sub-Program II	102%
15. Tanzania RWSS Program I	-
16. Ethiopia WSS Program	93%

Source: *PARs, PCRs and PERs.*

Table A4.2: RWSS Household Latrines Achievement and Approaches used for Household Latrines in AfDB-funded Interventions

Project	RWSS household latrines achievement			AfDB support strategy used for household latrines in AfDB-funded interventions
	Planned	Actual	Achievement ratio	
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project				
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	17 100	16 162	95%	Financing approach
3. Ghana Rural WSS Program	20 517	7 294	36%	Financing approach
4. Zambia Central Provinces RWSS Project	30 600	13 347	44%	Combined more than one approach
5. Zambia National RWSS Program	(440 000)	-	-	Community-based behavior change approach
6. Rwanda National RWSS Sub-Program I	2 000	2 120	106%	Financing approach
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	20 100	9 387	47%	Financing approach
8. Mauritania Drinking RWSS in the South	3 900	12 446	319%	Combined more than one approach
9. Uganda RWSS Program	(950 000)	-	-	Community-based behavior change approach
10. Uganda WSS Program	-	-	-	Community-based behavior change approach
11. Zimbabwe Urgent WSS Rehabilitation				
12. Chad National RWSS Program				
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	19 710	13 154	67%	Financing approach
14. Rwanda National RWSS Sub-Program II	16 000	17 000	106%	Financing approach
15. Tanzania RWSS Program I				
16. Ethiopia WSS Program				
TOTAL	**129 927 (*)**	**90 910**	**70%**	

(*) Excluding Zambia NRWSS and Uganda RWSSP that did not report actual data.
Source: PARs, PCRs and PERs

Table A4.3: Estimation of New People Having Gained Access to Drinking Water Supply and Improved Sanitation Services Through RWSS Projects

Project	People having gained access to water supply			People having gained access to improved sanitation		
	Planned	Actual	Achievement ratio	Planned	Actual	Achievement ratio
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	218 000	282 000	129%			
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal Use shorter version of hyphenLaunch Sub-Program	273 500	276 890	101%	172 000	116 300	68%
3. Ghana Rural WSS Program	246 800	381 869	155%	376 000	107 640	29%
4. Zambia Central Provinces RWSS Project	583 100	465 650	80%	177 480	75 540	43%
5. Zambia National RWSS Program	871 877	643 450	74%	945 660	243 309	26%
6. Rwanda National RWSS Sub-Program I	270 000	495 623	184%	15 000	16 200	108%
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	525 300	600 000	114%	281 500	166 100	59%
8. Mauritania Drinking RWSS in the South	41 000	61 560	150%	93 000	141 984	153%
9. Uganda RWSS Program	3 900 000	3 165 182	81%	5 800 000	1 917 000	33%
10. Uganda WSS Program	2 400 000	1 578 847	66%	2 400 000	1 249 445	52%
11. Zimbabwe Urgent WSS Rehabilitation	4 150 000	2 400 000	58%	4 150 000	2 400 000	58%
12. Chad National RWSS Program	363 453	350 000	96%	167 000	98 000	59%
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	442 000	460 000	104%	124 500	109 000	88%
14. Rwanda National RWSS Sub-Program II	642 000	711 950	111%	150 000	155 000	103%
15. Tanzania RWSS Program I						
16. Ethiopia WSS Program	2 386 749	2 450 000	103%			
TOTAL	**17 313 779**	**14 323 021**	**83%**	**14 852 140**	**6 795 518**	**46%**

Source: *PARs, PCRs and PERs and Evaluation Team estimations*

Table A4.4: Completion Dates Variations in Months [+/-] and %

Project	Approval Date (a)	Planned Completion Date (b)	Actual Completion Date (c)	Estimated Time [M] (d)=(b)-(a)	Actual Time [M] (e)=(c)-(a)	Delay [M] (f)=(e)-(d)	Variation [+/-] in % (h)=(f)/(d)*100
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	14/12/2005	30/06/2011	31/12/2013	66	96	30	45
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	21/09/2005	31/12/2009	31/12/2010	51	63	12	24
3. Ghana Rural WSS Program	08/09/2004	30/06/2009	31/12/2011	57	87	30	53
4. Zambia Central Provinces RWSS Project	08/12/2000	31/12/2005	01/06/2007	60	77	17	28
5. Zambia National RWSS Program	31/10/2006	31/12/2011	30/11/2017	62	132	70	113
6. Rwanda National RWSS Sub-Program I	17/12/2003	31/12/2009	31/12/2009	72	72	0	0
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	24/07/2007	31/12/2010	31/12/2015	41	101	60	146
8. Mauritania Drinking RWSS in the South	15/11/2006	31/12/2009	31/12/2015	37	109	72	195
9. Uganda RWSS Program	19/12/2005	31/05/2010	30/12/2011	53	72	19	36
10. Uganda WSS Program	05/10/2011	30/06/2016	31/12/2017	56	74	18	32
11. Zimbabwe Urgent WSS Rehabilitation	07/04/2011	30/09/2012	30/06/2015	17	50	33	194
12. Chad National RWSS Program	12/07/2006	31/10/2010	31/12/2012	51	77	26	51
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	11/06/2008	29/02/2012	31/12/2015	44	90	46	105
14. Rwanda National RWSS Sub-Program II	01/07/2009	31/12/2013	30/06/2015	53	71	18	34
15. Tanzania RWSS Program I	13/09/2006	31/12/2010	31/12/2015	51	111	60	118
16. Ethiopia WSS Program	21/12/2005	30/04/2014	31/12/2013	100	96	-4	-4

Source: *PARs, PCRs and Evaluation Team*

Table A4.5: Timeline

Actual Project Timelines (in months)

Project	Net Amount	Approval to Signature [M]	Signature to Effective [M]	Effective to First Disbursement [M]	First Disbursement to Completion [M]	Approval to First Disbursement [M]	Approval to Completion [M]
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	12.0	0	0	14	80	14	94
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal – Launch Sub-Program	24.9	1	2	3	55	6	61
3. Ghana Rural WSS Program	9.8	1	6	9	70	16	86
4. Zambia Central Provinces RWSS Project	10.9	6	4	7	58	17	75
5. Zambia National RWSS Program	15.0	25	1		115	26	141
6. Rwanda National RWSS Sub-Program I	9.3	4	10	1	55	15	70
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	20.0	1	6	3	90	10	100
8. Mauritania Drinking RWSS in the South	9.7	1	5	4	97	10	107
9. Uganda RWSS Program	40.0	1		11	65	12	77
10. Uganda WSS Program	40.0	3	7	2	62	12	74
11. Zimbabwe Urgent WSS Rehabilitation	30.8	2	0	11	36	13	49
12. Chad National RWSS Program	11.6	3	0	6	67	9	76
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	22.0	1	6	4	78	11	89
14. Rwanda National RWSS Sub-Program II	10.0	2	12		62	14	76
15. Tanzania RWSS Program I	45.0	2	3	2	102	7	109
16. Ethiopia WSS Program	43.6		12	10	83	22	105
TOTAL	**354.6**						
Average Time (M)		4	5	6	73	13	87
Average Time weighted by net amount (M)		**3**	**5**	**6**	**74**	**13**	**87**

Source: *IDEV Evaluation Team*

Planned Times to Completion (in months)

Project	Net Amount	Approval to Completion [M]	Signature to Completion [M]	Effective to Completion [M]
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	12.0	66	65	65
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	24.9	51	48	49
3. Ghana Rural WSS Program	9.8	57	64	64
4. Zambia Central Provinces RWSS Project	10.9	60	56	54
5. Zambia National RWSS Program	15.0	62	75	72
6. Rwanda National RWSS Sub-Program I	9.3	72	59	59
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	20.0	41	47	39
8. Mauritania Drinking RWSS in the South	9.7	37	39	37
9. Uganda RWSS Program	40.0	53	60	58
10. Uganda WSS Program	40.0	56	55	52
11. Zimbabwe Urgent WSS Rehabilitation	30.8	17	16	16
12. Chad National RWSS Program	11.6	51	57	54
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	22.0	44	40	38
14. Rwanda National RWSS Sub-Program II	10.0	53	95	53
15. Tanzania RWSS Program I	45.0	51	59	56
16. Ethiopia WSS Program	43.6	100	111	108
TOTAL	**354.6**			
Average Time (M)		54	59	55
Average Time weighted by net amount (M)		**55**	**60**	**57**

Source: *IDEV Evaluation Team*

Actual Times to Completion (in months)

Project	Net Amount	Approval to Completion [M]	Signature to Completion [M]	Effective to Completion [M]
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	12.0	94	94	94
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	24.9	61	60	58
3. Ghana Rural WSS Program	9.8	86	85	79
4. Zambia Central Provinces RWSS Project	10.9	75	69	65
5. Zambia National RWSS Program	15.0	141	116	115
6. Rwanda National RWSS Sub-Program I	9.3	70	66	56
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	20.0	100	99	93
8. Mauritania Drinking RWSS in the South	9.7	107	106	101
9. Uganda RWSS Program	40.0	77	76	76
10. Uganda WSS Program	40.0	74	71	64
11. Zimbabwe Urgent WSS Rehabilitation	30.8	49	47	47
12. Chad National RWSS Program	11.6	76	73	73
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	22.0	89	88	82
14. Rwanda National RWSS Sub-Program II	10.0	76	74	62
15. Tanzania RWSS Program I	45.0	109	107	104
16. Ethiopia WSS Program	43.6	105	105	93
TOTAL	**354.6**			
Average Time (M)		87	84	79
Average Time weighted by net amount (M)		**87**	**84**	**80**

Source: *IDEV Evaluation Team*

Delays to Completion (in months)

Project	Net Amount	Approval to Completion [M]	Signature to Completion [M]	Effective to Completion [M]
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	12.0	28	29	29
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	24.9	10	12	9
3. Ghana Rural WSS Program	9.8	29	21	15
4. Zambia Central Provinces RWSS Project	10.9	15	13	11
5. Zambia National RWSS Program	15.0	79	41	43
6. Rwanda National RWSS Sub-Program I	9.3	-2	7	-3
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	20.0	59	52	54
8. Mauritania Drinking RWSS in the South	9.7	70	67	64
9. Uganda RWSS Program	40.0	24	16	18
10. Uganda WSS Program	40.0	18	16	12
11. Zimbabwe Urgent WSS Rehabilitation	30.8	32	31	31
12. Chad National RWSS Program	11.6	25	16	19
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	22.0	45	48	44
14. Rwanda National RWSS Sub-Program II	10.0	23	-21	9
15. Tanzania RWSS Program I	45.0	58	48	48
16. Ethiopia WSS Program	43.6	5	-6	-15
TOTAL	**354.6**			
Average Time (M)		32	24	24
Average Time weighted by net amount (M)		**31**	**24**	**23**

Source: *Evaluation Team estimations*

Table A4.6: Financial Internal Rate of Return (FIRR) at Ex-ante, At Completion and Ex-post

Project	PAR	PCR	PER	Variation From PAR	Weighted average Cost of Capital
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	17.86	12			
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program			3.43		
3. Ghana Rural WSS Program					
4. Zambia Central Provinces RWSS Project		3			
5. Zambia National RWSS Program					
6. Rwanda National RWSS Sub-Program I			5.9		
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions					
8. Mauritania Drinking RWSS in the South					
9. Uganda RWSS Program			5		
10. Uganda WSS Program					
11. Zimbabwe Urgent WSS Rehabilitation					
12. Chad National RWSS Program					
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions					
14. Rwanda National RWSS Sub-Program II	15	21	23		
15. Tanzania RWSS Program I					
16. Ethiopia WSS Program					

Source: *PARs, PCRs and PERs*

Table A4.7: Project Costs

Planned Costs

Project	Planned Cost (Million UA)				
	Total	AfDB loan and/ or grant	Government	Beneficiaries	Donor partners and/or NGO
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	13.34	12	1.34		
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	29	25	3.118	0.882	
3. Ghana Rural WSS Program	14.37	12.79	0.72	0.86	
4. Zambia Central Provinces RWSS Project	13.99	12.41	1.58		
5. Zambia National RWSS Program	77.4	15	10.3	52.1	
6. Rwanda National RWSS Sub-Program I	17.18	13	2.48	1.55	
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	34.97	30	4.34	0.63	
8. Mauritania Drinking RWSS in the South	11.5	9.7	1.624	0.226	
9. Uganda RWSS Program	156.39	40	77.11	2.68	36.6
10. Uganda WSS Program	285.53	43.59	71.04	14.00	156.9
11. Zimbabwe Urgent WSS Rehabilitation	43.607	43.607			
12. Chad National RWSS Program	16.22	13	2.19	1.03	
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	36.39	32	3.89	0.5	
14. Rwanda National RWSS Sub-Program II	20.265	16	3.254	1.011	
15. Tanzania RWSS Program I	223	55	23	7	111
16. Ethiopia WSS Program	54.24	43.61	8.12	2.51	

Source: *PARs, PCRs and PERs*

Actual Costs

Project	Actual Cost (Million UA)				
	Total	AfDB loan and/ or grant	Government	Beneficiaries	Donor partners and/or NGO
1. Burundi Rural Water Infrastructure Rehabilitation and Extension Project	11.64	11.26	0.383		
2. Senegal Rural Water Supply and Sanitation Initiative in Senegal - Launch Sub-Program	28.9	24.9	3.118	0.882	
3. Ghana Rural WSS Program	11.398	9.818	0.64	0.94	
4. Zambia Central Provinces RWSS Project	11.6	10.87	0.73		
5. Zambia National RWSS Program	75.4	13	10.3	52.1	
6. Rwanda National RWSS Sub-Program I	14.47	9.35	5.12		
7. Burkina Faso RWSS Project in the Cascades, West Central, South Central and Sahel Regions	32.64	28.71	3.39	0.54	
8. Mauritania Drinking RWSS in the South	8.917	7.87	1.047		
9. Uganda RWSS Program	156.39	40	77.11	2.68	36.6
10. Uganda WSS Program	285.53	43.59	71.04	14	156.9
11. Zimbabwe Urgent WSS Rehabilitation	43.54	43.54			
12. Chad National RWSS Program	13.88	11.62	2.08	0.17	
13. Mali Drinking WSS Project in Gao, Koulikoro and Segou Regions	28.29	26.41	1.4	0.48	
14. Rwanda National RWSS Sub-Program II	22.851	15.04	6.8	1.011	
15. Tanzania RWSS Program I	179.1	55	23.3	7.4	93.4
16. Ethiopia WSS Program	60.2	43.59	11.79	4.82	

Source: *PARs, PCRs and PERs*

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Endnotes

1. Unit of Account
2. SDG 6 seeks to "ensure access to water and sanitation for all" by 2030. Its ambitious targets are to achieve universal and equitable access to safe and affordable drinking water, and adequate and equitable sanitation with an end to open defecation by 2030
3. SAP database as at June 2017
4. Organisation for Economic Co-operation and Development / Development Assistance Committee
5. "Halve by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation." (United Nations, Millennium Development Goals and Beyond 2015. http://www.un.org/millenniumgoals/environ.shtml).
6. An element of top-down targeting was inevitable due to the absence of a number of early steps that needed to be taken at the local Government Authorities level, including orientation for staff and then "promotion of demand at the community level".
7. During implementation, powerful politicians influenced distribution in order to gain more political capital
8. The technical choices adopted did not fit the financial capacities of the beneficiaries (in majority poor).
9. In Burkina Faso a law oriented the management of water and gave priority to the availability of drinking water over other uses, thus legitimizing the national program for water supply and sanitation, as well as the authority of sector leaders. This authority permitted trust to be built among technical and financial development partners who participated in direct dialogue with the government, created a unified intervention framework and participated in annual joint sector reviews.
10. In Rwanda, institutional and regulatory frameworks were anchored in mandates specific to the institutions involved in the water sector. The executing agency (i.e. the national rural drinking water agency) was charged with ensuring overall synergies and implemented appropriate cooperation or operational coordination provisions at the national level within an integrated water supply and sanitation authority. The program coordination units combined rural drinking water project capacities across all concerned ministries into a single, national drinking water and sanitation projects and programs management unit. Monitoring committees were responsible to work with community development committees as focal points in the context of decentralization.
11. In Senegal, the project coordination unit was similarly identified as having an indispensable role in reinforcing capacities, developing institutional strength and achieving results. Here however, the project coordination unit worked in partnership with more than one executing agency which permitted synergies and complementarity across interventions. The project coordination unit tasks are specified in the PER and described as conditional upon the favorable political governance environment in Senegal.
12. In Zambia, the DPs supported the government to build a comprehensive programmatic framework for the development of a rural water supply and sanitation sector through a memorandum of understanding. While one ministry assumed the role of the executing agency, an inter-ministerial coordination, or central steering committee provided policy and general management oversight. The unit within the executing agency was further supported by a project implementation unit, with decentralization mandate to coordinate the program across districts.
13. The number of VIP latrines for public institutions was reduced by 47% on account of higher than anticipated costs.
14. Ten of the 16 RWSS projects targeted household latrines.
15. Excluding the larger number of latrines planned in the cluster projects (e.g., 440,000 and 950,000 latrines for Zambia National RWSS and Uganda RWSS, respectively) for which the level of achievement is not monitored nor reported.
16. Household sanitation is by most national policies a household responsibility.
17. This was used by Ghana within a project funded by the African Water Facility Trust Fund.
18. The term coverage refers to whether there is an improved water supply near a dwelling. In the case of rural areas, typically, countries have set standards for a maximum distance, such as 1 km or 1.5 km. However, there may be cases when a person or household has coverage but does not use the supply because they are excluded due to non-payment or for some other reason.
19. The estimation of the number of project cluster beneficiaries was based on the limited available data, and on assumed water use (potential coverage) rather than on the actual use of water (effective coverage). It important to mention that in countries, such as Uganda, the indicator of access is defined differently. In Uganda, the access indicator is about "Percentage of people within 1 km (rural) of an improved water source". In contrast, "Access coverage" is referred to in Ethiopia's universal action plan. In other countries like Malawi, which is not part of this cluster, it is about "Percentage of households within 500 m (rural) of an improved water source" or "Percentage of people whose average total time to collect drinking water (from the main source) is less than 30 minutes".
20. The Tanzania RWSS Program I was excluded because the Impact Evaluation used (No PER was prepared) did not provide information on beneficiaries
21. In the Albertine region, functionality was low in some sub counties because the water was so salty that the communities had to abandon it. The technology of hand pumps was not suitable in the sub-counties of Rwebisengo and Kanara, located in Albert rift valley.

22. The project failed to effectively resolve the issue of the high iron content in the groundwater. As a result, most of the boreholes with high iron content were abandoned.

23. The analysis of self-reported data of the water point survey shows that about 89% of the water points are functional.

24. 90% of the water towers, 100% of the boreholes and 75.4% of the monitored standpipes are functional and in good condition overall.

25. Only one out of three laboratories built by the project for water quality control is operational (the one located in N'Djamena).

26. Although the Council Water and Sanitation Teams (CWSTs) acknowledged in interviews with the evaluation team that they were responsible for periodic testing of water quality at all water schemes, they stated that they were only able to occasionally carry out this mandate.

27. Although the National Water Quality Management Strategy required routine water quality monitoring by the districts, this was insufficiently implemented.

28. Cases were observed of water facility breakdowns not repaired, and of vandalism of water taps by the population which were not replaced.

29. The functionality of the water and sanitation infrastructure was reduced largely as a result of the breakdowns and the unused idle capacity of some facilities.

30. Although a spare-parts distribution network for hand pumps has been established at the regional level to ensure availability of spare-parts, the assessment found the network limited in providing necessary spares to adequately address the breakdowns in a timely manner. This contributed to the non-functionality of 40% of the water point system boreholes with hand pumps.

31. Breakdown of pumps, drilling generators and even a lack of fuel (diesel) were reported by the ASUFOR managers, especially in the southern intervention area of the sub-program.

32. It was also reported that some pit latrines had already collapsed, which may be linked to poor construction techniques and/or lack of effective supervision.

33. The participatory and interactive methods used to produce and communicate messages have practically not evolved since their introduction in the 1980s. SARAR (Self-esteem, Associative strength, Resourcefulness, Action planning, Responsibility) and PHAST (Participatory Hygiene and Sanitation Transformation) take the lion's share, along with the Community Led Total Sanitation (CLTS) method, which has been used in the sanitation sector for some years now (AfDB, 2012b).

34. Memorandum of Understanding

35. Grievances were raised against boreholes equipped with pumps of the VERGNET Brand.

36. Specifications for the construction of the boreholes should explicitly require plastic pipes and stainless steel.

37. In Rwanda, small operation and maintenance are under the responsibility of the water management operator using a part of water income (private, NGO or WASAC) while major maintenance is under district responsibility. Senegal is using water users' associations, while Mauritania has a public structure in charge of maintaining the water supply infrastructure.

38. Burundi water user group (i.e., Régies Communales de l'Eau) had insufficient means for maintenance as technical and financial capacities remained limited despite any revitalization achieved in the project. Similarly, in Ethiopia, although the project enhanced the capacity of the Water, Sanitation and Hygiene Committees (WaSHCOMs), they remained too weak organizationally, technically and financially to effectively carry out their responsibilities.

39. Preferring to buy the missing spare part

40. In areas with multiple sources of water (potable and non-potable), inhabitants are less predisposed to pay

41. The unit cost of the family latrines brought by the project is about USD240, which is beyond the means of rural households.

42. Latrine blocks are rarely provided to facilitate access for disabled and disabled people

43. Water collection schemes implemented in Ghana and Mauritania were based upon a pay-as-you-fetch system, thus contributing to the financial viability of the supply system. In Rwanda, the private sector ran water points and infrastructures with benefits to the operator depending on the revenue collected, hence encouraging an efficient and sustainable operation of the system. The Senegal water users' association (ASUFOR) was described as being financially profitable, as the population contributed to maintaining the water system through water fees.

44. In Rwanda, districts assumed an active role in planning, developing, implementing and monitoring water and sanitation service delivery. In so doing, they were involved in creating a water association (i.e., WASAC) mandated to implement the project.

45. Mauritania was characterized by a national office, uniquely focused on rural water services (l'Office Nationale des Services de l'eau en milieu Rural – ONSER). The integration of the project's implementing or coordinating unit into the executing ministries further institutionalized the project in Mauritania. Lastly, the implementation of a routine monitoring system shared by these entities (i.e., the implementing unit, the executing agencies and the regional water supply and sanitation authorities) further supported the likelihood for the project's sustainability.

46. For example, in Senegal, the water users' association, ASUFOR, was described as weak due to insufficient technical and financial capacities needed to manage and maintain the water and sanitation infrastructure. On the other hand, within the sector, capacities were said to be strong due to public–private–community partnerships, which permitted infrastructure to be sustained. Furthermore, the integration of the project implementing unit into the executing agencies also created a favorable institutional environment.

47. In Mauritania, the national office, ONSER, was described as favoring the institutionalization of water supply but not sanitation.

48. In Tanzania, while good progress was made towards assuring institutional sustainability of the water program's interventions, institutional co-ordination between water and sanitation programs was lacking across all levels of government, as well as at the community level.

49. The Tanzania PER reported that "there is a general low coverage and poor quality of available field monitoring data from the rural water and sanitation sector"

50. Local authorities felt that they were passive participants and did not own the project. Indeed, councils did not have control of the project. Involvement of local authorities in critical project decision making was low. While councils were involved in project Technical Working Groups for town clerks and engineers, they felt their involvement was limited to meetings only and not actual execution of the project. This was another missed opportunity in which the project could have leveraged on local resources including human capital, engineering services and supervision.

51. Moriarty et all., 2013, Trends in Rural Water Supply: Towards a Service Delivery Approach

52. World Bank, 2017, Sustainability Assessment of Rural Water Service Delivery Models: Findings of a Multi-Country Review. Water Global Practice –Policy Brief

53. The lack of regular monitoring of the activities of Water and Sanitation (WATSAN)/ Water and Sanitation Management Teams (WSMT) by the District Water and Sanitation Team (DWST) has led to poor service levels as a result of prolonged downtime of water, sanitation and hygiene facilities.

54. The monitoring and evaluation system for sub-programme effects and impacts was not well clarified

55. "There is a need to] support the development and implementation of an effective Monitoring, Evaluation and Learning system in order to ensure regular and pertinent data collection, analysis, reporting and feedback especially on RWSSP community WASH results. Given the lack of baseline data and effective M&E, the RWSSP missed an opportunity to learn and support program completion reporting and the impact evaluation study. Such a missed opportunity should be avoided by having a sound MEL system for the post-RWSSP. The Bank could build such a system through support for strengthening country systems to support the sustainability of the RWSSP results. The use of smart technologies (such as GPS-enabled devices, geo-referenced management tools and smartphones) for MEL should also be explored".

IDEV

Independent Development Evaluation
African Development Bank

An IDEV **Project Cluster Evaluation**

About this Evaluation

This report synthesizes the results of a cluster evaluation of 16 AfDB-funded Rural Water Supply and Sanitation (RWSS) projects that were implemented in 13 countries over the period 2000-2017. The evaluation assessed the performance of the projects and drew pertinent lessons for the policy and practice of designing and implementing future RWSS projects. It examined the extent to which the intended project results were achieved, and the factors that facilitated or limited their achievement.

The evaluation paid particular attention to key issues related to quality of project design; viability of the community-based management model; level of capacity development within a decentralized system; strategies to foster RWSS service delivery; and mechanisms to sustain benefits from RWSS projects. Lessons on what worked and what did not work for the projects were distilled from multiple sources of evidence using both quantitative and qualitative data collection approaches including desk reviews of relevant Bank documents and literature; interviews with key internal and external stakeholders; and field visits of purposively selected project sites.

Six key lessons emerged from this evaluation, including the importance of sufficient attention to project design studies and capacity strengthening to minimize implementation challenges; that community-based management under a demand-driven approach is more impactful if applied throughout the project cycle; the need for clear strategies to enable quality sanitation infrastructure and sufficient behavioral change; and the criticality of a comprehensive monitoring and evaluation system focused on rural service delivery and sustainability.

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