

## **MAINTENANCE OF HAND PUMPS IN THE MUNICIPALITIES OF ARBINDA AND GORGADJI IN THE SAHEL REGION OF BURKINA FASO**

### **EXECUTIVE SUMMARY**

Burkina Faso adopted decentralization in 2004. Through the decentralization laws, water supply, sanitation and hygiene services among other services were transferred from the Burkina Faso central government to the municipalities. This was reinforced by the 2008 water sector reform establishes the roles and responsibilities of the municipalities in the water service provision. The government implemented the water sector reforms on a pilot scale in selected regions. In the Sahel region, one of the regions implementing the reforms, municipalities delegate maintenance of hand pumps to water users associations (WUAs). In addition, the municipalities contract local mechanics to ensure continuous maintenance of improved water points. This is in accordance with the reform agenda. In order to perform the roles of water service effectively, the USAID West Africa Water Supply, Sanitation, and Hygiene (USAID WA-WASH) Program through IRC, supported the municipalities of Arbinda and Gorgadji to evaluate the maintenance of improved water points (boreholes fitted with hand pumps). Boreholes are the main improved water sources in rural Burkina Faso. In the municipalities of Arbinda, there are 208 boreholes out of which 89% were functional. In Gorgadji, there are 123 boreholes out of which 88% were functional as of March 2014. The minority (8%) of boreholes is over 30 years old and requires rehabilitation. Boreholes require regular maintenance for effective functioning. However, the municipalities do not have adequate resources to monitor and maintain boreholes.

Accordingly, the USAID WA-WASH Program worked with the Directorate of Water Resources and Sanitation Services (DREAHA) in the Sahel region and in the municipalities of Arbinda and Gorgadji to develop and implement a monitoring plan for potable water services. The monitoring plan aimed to strengthen DREAHA, to build the capacity of the municipality in management of water services, and to coordinate WASH operations in the Sahel region, including, monitoring performance of drinking water services. Implementing the monitoring plan resulted in reduced length of break downs of water points from seven days to less than three days. In spite of this progress, some boreholes are not repaired fast enough due to the absence of trained technicians, inadequate finances among the water users associations (WUAs), and inadequate access to appropriate spare parts. The analysis on maintenance of water points aims to explore ways to sustainably maintain the water points. The analysis is based on data collected by IRC between 2012 and 2014. The data includes the breakdown patterns, average time take to repair a break down, and associated costs of maintaining boreholes.

The findings of the analysis show that despite a reduction in the duration of a breakdown, there is a direct correlation between the number of breakdowns and the costs of repair. This is explained by the two factors: (1) the WUAs have difficulty obtaining new spare parts, resulting to the use of second hand, low quality spare parts, thus succeeding frequent breakdowns and; (2) the inadequate knowledge among the mechanics. The WUAs have the necessary financial capacity for timely maintenance of the water points. Approximately USD 1,500 was mobilized in the municipality of Gorgadji and USD 25,000 in the municipality of Arbinda within a period of six months. With such amounts, the municipality of Arbinda could rehabilitate over seven boreholes and Gorgadji could maintain 30 boreholes. Based on current tariffs collected at village level of 2500 FCFA/household, the two municipalities have the financial capacity to cover the maintenance costs in a timely manner.

The municipalities of Gorgadji and Arbinda are among the municipalities where the pilot reform program is implemented by the state. These municipalities are committed to managing their water infrastructure in a sustainable manner consistent with the principles of the reforms. The reform program has made progress in the establishing water infrastructures and management structures in the two municipalities.

Despite the progress, the municipalities have not implemented all the set regulations of the reformed management model due to various challenges. For instance, local repairs should be paid from water tariffs paid by the water point users. The WUAs collect the water tariffs into a fund to pay for preventive maintenance of hand pumps. However, illiteracy among the members of the executive boards of WUAs hinders effective management and performance especially for the positions of chairman, secretary, and treasurer. The reform program also stipulates that the municipalities conduct preventive maintenance twice a year. However, preventive maintenance was not carried out in 2013 in the two municipalities because of inadequate financial resources. In addition, there is no management protocol or contract between hand pump managers and WUAs in Arbinda, contrary to the principles of the reform implementation program. Further, the two municipalities do not have spare parts in stock. The maintenance personnel buy spare parts from local dealers based in Dori or Djibo towns or from authorized distributors in Ouagadougou (approximately 270 kilometers away) thus extending the time needed to acquire spare parts for maintenance. Moreover, the maintenance personnel do not have adequate expertise in maintenance and repair of hand pumps.

Based on the challenges of the reform program management model, IRC conducted a study on an improved model for effective hand pump maintenance. This study was conducted in collaboration with Faso Hydro, an operations and maintenance private company, operating in the Sahel region. The study explored the management models and modalities to find out how municipalities could effectively transfer the responsibility related to maintenance of water points to a private operator through a total guarantee approach. This approach had been tested in the country earlier by the Sourou Nayala village water project until 2006 but failed due to the lack of legal and legislation support. The approach addresses the challenges such as: (1) unavailability of spare parts, which prolong the duration of hand pump breakdown; (3) non-functional hand pumps; (4) lack of harmonized hand pump management system despite the efforts of the reform program; and (5) lack of tools for the maintenance personnel. Further, the model guarantees better working conditions (regular and better pay, better working tools and transport facilities) for the maintenance personnel of the private operator.

The total guarantee approach spells out a number of conditions that must be met that include: (1) pumps with a functionality rate close to 100%; (2) sufficient density of pumps in an area to allow easy and less expensive coverage; (3) sound spare parts management system; (4) effective WUAs in all villages in the municipality to ensure demand driven maintenance service; (5) the transfer of management of all community hand pumps to the WUAs, and (6) strengthening of the technical and operational capacities of maintenance personnel for timely and effective interventions. The key stakeholders in the approach are the WUAs, the private operators (and maintenance staff), the municipality and DREAHA. The approach evaluates the roles and responsibilities of the key stakeholders based on the reforms and propose changes to position the private operator as an intermediary between the WUAs and the municipality. The full cost of water provision is calculated to include repairs and maintenance, salaries, and gross profit margin, and fixed and variable costs.

The total guarantee approach requires significant financial requirements. The price of water from boreholes must be set at a level that allows sustainable water services. Considering the high financial requirements for establishing a total guarantee maintenance system, the existing number of hand pumps in a municipality is not adequate to generate sufficient returns to motivate an operator. A single operator per municipality would call for adjusted household contribution levels to ensure feasibility and profitability for the private operator. Therefore, this system should be based on several municipalities per operator.

*The full report is available (in English) upon request via our website. For more details about our program activities and other reports please visit <http://wawash.fiu.edu/>*