

# Operation and Maintenance of rural water services in Kenya:

Sustainable solutions

## Background

If countries are to meet the Millennium Development Goal target for water (halving the number of people without sustainable access to safe drinking water by 2015), their governments must critically address operation and maintenance aspects of water systems. A lack of attention to operation and maintenance has resulted in considerable failure of water supply systems in developing countries.

The Government of Kenya must address the challenge of operation and maintenance if it is to provide 100% of the population with access to clean water by the year 2010 (Water Act 2002). Operation and maintenance was previously the responsibility of government, or an external support agency. As demand for water increases, the government does not have adequate capacity to supply services. It becomes essential to involve other stakeholders, including communities, in managing and maintaining water systems.

The Government of Kenya Water Act 2002 is a legal framework to guide implementation of reforms in the water sector. Greater emphasis is placed on community management of water facilities, with the promotion of community participation in decision making at all stages, from scheme development through to operation and maintenance. The ultimate goal is to promote community ownership, as a way to ensure the provision of sustainable and affordable services.

## Headline facts

- In sub-Saharan Africa it is estimated that 35% of improved rural water supplies are non-operational.
- Approximately 680 piped water systems provide over 740,000 water connections throughout Kenya (World Bank estimates). An additional 350 community-run water schemes exist in the country. A high percentage of these connections are however inactive, as a result of poor management and maintenance
- Among 24 million rural dwellers in Kenya, about 10 million have access to an improved water supply through piped or point source systems. Among those with access, 30% are served by community managed water supply schemes, many of which are developed by self-help groups
- Other agencies and authorities involved in managing rural water supply systems in Kenya include; self-help groups, women's groups, church organizations, NGOs, government departments, parastatals and external support agencies.
- The Government of Kenya has established numerous new water projects, while giving little regard to rehabilitating existing non-functional ones. The high costs of such an approach are proving difficult to sustain.
- To improve on sustainability, the Government of Kenya is supporting private sector participation and community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes.



## What Causes Poor Operation and Maintenance of Water Services in Rural Kenya?

### Insufficient and inefficient use of funds

- Operating and maintaining water services costs money, but insufficient funds limits the purchase of spare parts and training provided to maintenance staff. In many cases, affordability of the service is not factored into a scheme at the planning stage. Many schemes developed have been very expensive to maintain, resulting in their collapse.
- External support agencies have traditionally been reluctant to finance operation and maintenance activities, while governments often accord it a low priority. Service users, who are a potential source of finance, do not typically view water as a commodity for sale and so may be unwilling to pay for it.
- Even where communities are willing and able to pay for operation and maintenance costs, poor financial management systems often lead to these resources being inappropriately or inefficiently spent. This further reduces the viability of the water systems.

### Inappropriate system design

- With no official policy to restrict the range of hand pump models in the East African region, a large number of different pump manufacturers and models are found throughout Kenya. Many local communities find it difficult to maintain their water supply schemes, as they have limited (and in many cases no) access to the supply of spare parts to match the technology used.

#### ■ *Is anything better than nothing?*

During a study on sustainable hand-pump projects in Africa, one district water officer commented that he would find it difficult to prevent a donor or NGO introducing their own hand pump model to the district. Even if the model was imported and totally new to the area, with no long term strategy for spare part supply, he still considered any implementation to be better than none at all.

(Harvey et al, 2003)

#### ■ *Limited access to spare parts in Western Kenya*

*The Vergnet pump was introduced to Western Kenya in 1999. Although many women voiced concerns during a pilot study of the difficulty and inelegance of operating this foot-operated pump, the pumps have experienced only minor operating problems to date. Despite this, there is only one company based in the region which is able to conduct repairs and provide spare parts. The resulting high cost of repairs presents a major constraint to the pump's sustainability.*

### Inadequate data on O&M costs

- There exists no data on the costs associated with adequate operation and maintenance programmes for a range of water facilities. Also, limited data exists as to which technologies work best in which situation and there is no documented best practice for ensuring sustainable rural water services.
- Reliable financial data can help programme implementers design appropriate operation and maintenance programmes for different facilities. It also assists the development of sustainable financing mechanisms to support operation and maintenance initiatives.

### Unclear management arrangements

- The sustainability of rural water schemes is greatly affected by the degree of community participation in establishing a water system from technology selection, through to the supply and management arrangements of spare parts, appropriate financial arrangements and ensuring appropriate training in the skills required for operation and maintenance.
- Where project implementers do not promote the participation of beneficiary communities and the roles of each stakeholder is not clearly defined, this leads to uncertainty and confrontation around the respective roles to be played by all those involved.

- A study of government and donor supported water projects in Makeni district, Kenya identified managerial problems which started once projects were handed-over to the community. Many communities were unwilling to pay towards operation and maintenance costs, arguing that water should not have to be paid for. Where payments were made, poor records were kept and funds often mismanaged.

- In the community of Maturu–Luandeti, Kenya, non-participation of the community in initiating their water project resulted in reluctance to contribute towards the costs of running the system. People had understood that the water was free and expected the external support agency to be responsible for running it.



## Making Community Management Work

- The community management model allocates a degree of management responsibility for a water supply scheme to the users. The community, often through a water committee or other community-based organization, is responsible for managing maintenance activities, to ensure a sustainable water service.
- The degree of sustainability is influenced by the willingness of users to contribute their resources (in time, money and skills) necessary to ensure a functioning system. Communities will also need support to carry out certain managerial and technical functions, often provided by external agencies. This may in the form of guidance when facing key decisions such as establishing user charges, developing maintenance schedules or deciding whether to repair or replace a component.
- The Kenya National Policy on Water Resources Management and Development (NPWRMD) emphasizes the importance of community involvement in all stages of project implementation. Such involvement ensures that the interests of the community are represented and a sense of ownership is created, both of which affect the project's long term sustainability.

- *Enhancing community management in Kenya*  
A Kenyan strategy in support of community management is the formation of a Water Users Association programme. The pilot phase has established an initiative to build capacity in communities for water utility leadership. It is also addressing the capacity of those agencies responsible for managing rural water services, through improved management systems and supporting basic rehabilitation of water supply schemes.

## Supporting Community Management

- A community-managed rural water supply scheme requires a management structure (such as a Water Committee) to effectively oversee operation and maintenance services and collect revenue to cover the cost of those services.
- Governments can foster an enabling environment by setting appropriate legal and regulatory frameworks and standards. They can also monitor the achievement of standards, as well as broader operation and maintenance strategies.
- Arrangements may also need to be in place to provide additional institutional support to the community management structure. This support, in the form of information and training, can fill capacity gaps such as those required for major maintenance work, skills training, establishing administrative and financial systems, auditing accounts, or ensuring compliance with national legislation.
- Relevant, practical and well-tailored training has a major impact on the sustainability of services and enables communities with limited formal education to operate and maintain relatively complex water supply schemes.

- *AMREF-Kenya supporting community management*  
AMREF has been implementing water and sanitation interventions in Kenya for over 40 years. A key pillar in the sustainability of their interventions is the formation and capacity development of water committees to ensure effective management, operation and maintenance systems are in place before direct support from AMREF is withdrawn.

### Tariffs and subsidies

- In Kenya, rural tariffs for water are generally lower than those in urban areas, despite the higher cost of implementation, operation and maintenance of the scheme (especially for donor funded, or heavily subsidized schemes). This ensures that tariffs are affordable to the community (the majority of whom are poor), which in turn enhances financial sustainability of the water system.
- Subsidizing equipment and spare parts, encourages local hardware stores to stock them, which in turn increases access to equipment and spares by the community.

## A Successful Community-managed Water Scheme

- Guitar self-help water project is a successful community-managed water supply project. The scheme delivers piped water directly to 600 households, as well as providing kiosk-based delivery to other households in the area. Extension of the service requires new users to pay a connection fee and be responsible for installing a water meter and household connection pipes.
- A private company provides technical support for the boreholes, as well as overseeing the water quality. Four full-time employees manage the scheme, with an elected (voluntary) committee overseeing all operations.
- The self-help group runs a savings account and offers bill collection services. The group relies on user charges to cover standard operation and maintenance costs, while informal finances available from other projects help to finance major repairs and scheme expansion.

## Private-sector management models

- Improving water supply services is a high priority for many governments yet even with donor support, public sector finances and capacity are clearly inadequate to meet service delivery requirements. Securing additional private sector investment and support provides once possible long term solution to address these gaps.
- Two examples of private sector involvement in the management of services are POOM and PPOM.

### Private Ownership, Operation and Maintenance (POOM)

- There is growing demand for greater involvement of the private sector in both the construction and maintenance of water supplies. While private operators (individuals or companies) need to make a profit, they offer the advantages of flexibility and cost effectiveness, particularly when providing operation and maintenance services.

- In Kenya, several companies have been established under the new Water Act to supply water to urban communities, taking full responsibility for operation and maintenance of the service. This strategy, in its initial stages of implementation, is expected to enhance water service delivery in many regions in Kenya.

### Public-Private Operation and Maintenance (PPOM)

- PPOM exists where the user community owns the water supply and finances operation and maintenance services. The private sector provides the maintenance and repair services, ensuring functionality of the water supply.

- A local mechanic can be trained to operate as an artisan responsible for pump maintenance. Such an arrangement is often very effective, as the artisan resides within the community and has other ongoing business, so they are not wholly dependent on pump maintenance as a means of livelihood.

This Country Note presents examples of sustainable operation and maintenance systems for rural water supply services in Kenya.

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