



Sustainability of community water supplies

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THE KENYA FINLAND Western Water Supply Programme (KFWWSP) started in the Western Province of Kenya in February 1981 with the "Supply Driven Approach" (SDA). The SDA was later found to be unsustainable in the long run since beneficiaries were merely passive recipients of externally funded projects.

During the SDA, a lot of work had to be done to set up structures which could deal with issues that were important to the beneficiaries. This included siting, construction, O&M and actual ownership of the water supplies. To reduce this burden, the approach was gradually changed to "Demand Driven Approach" (DDA).

DDA was started in May 1993. Under this approach, communities contributed 30% of the total cost of the piped water supply project in terms of labour, material and cash (minimum 2% of total cost of the project). There has since been a lot of awareness creation and the Programme soon found it difficult to cope with the demand.

It is expected that the Community Water Supplies (CWS) implemented by the Programme will continue to be operated, maintained and managed in a self-sustaining manner even after the Programme ends in December 1995. Some of the CWS implemented under the SDA (especially pumped systems) have already started experiencing serious operational problems. Therefore training, especially in financial and other management affairs, will be essential, if they are to be kept operational.

Programme achievements

The programme has constructed/rehabilitated/augmented 46 institutional and Ministry Water Supplies (MWS). 14 CWS have been implemented and handed over while 2 are still under construction. Of the 16, 8 are gravity and 7 are pumped systems using ground water. One CWS using surface water has a treatment plant. These systems will serve about 130,000 consumers.

12 projects have been implemented under SDA while 4 are on DDA. Of the 4, 2 are still under construction. Total community contribution is about US \$ 300,000 while the Programme has contributed US \$ 600,000.

Operation of CWS

The 16 CWS are managed by the community through water committees. Each committee comprises members served by the water supply and it includes a chairperson, secretary, treasurer, committee and co-opted members. They are elected at a general meeting and serve for a specified period of time depending on the constitution of

the water supply but usually for a maximum of three years according to the regulations of the Ministry of Culture and Social Services (MoCSS) with which the committees are registered. The committees do not have a legal status. The role of the water committees is to:

- Authorize expansion of and/or improvements of the water facility and supply of spare parts, extension of services, and maintain a true and accurate account of all money received and spent.
- Decide the charges, fees and contributions for services provided to the members and recommend for their approval at a general meeting.
- Employ extra staff to reinforce the operation and maintenance of the water supply.
- Identify the training needs of the community and organize for ways of achieving this.
- Sign contracts of Agreement with external agencies on behalf of the community.
- Look into ways of reinvesting project funds and tap the existing community resources for the project's sustainability.

Out of the 14 completed projects, nearly all of them have serious problems which can be classified as **financial, management, technical and social/political**.

(i) **Financial problems:**

- Inadequate revenue collection.
- Misappropriation of revenue collected.
- Poor record keeping.
- Unsuitable tariffs.

(ii) **Management problems:**

- Unsuitable committee members (could be illiterate or over qualified). This has led to poor planning for most of the CWS.
- Inadequate qualified staff mainly as a result of poor remuneration.
- Inability to follow constitutions (by-laws).

(iii) **Technical problems:**

- Inappropriate technology used.
- Inadequate tools and equipment.
- Lack of routine and corrective maintenance.
- Poor quality of works.

(iv) **Social/political problems:**

- Interference by politicians and other influential people in decision making.
- Inter-clan rivalry.

- Inability and/or unwillingness to pay.

Steps to enhance sustainability

Emphasis has been laid on training of the committees and their assistants (employed staff) on both technical and financial management. In particular, the following steps have been taken:

- Information package was prepared and send to all CWS. The package has 8 modules comprising DDA in water supply development, General information and Procedures for the Development of Community Based Water Supplies, Technological Options, Community Managed Piped Water Supplies, Health Education, Self Management Support, Hand Pump Maintenance and Spare Part Distribution System and Training.
- Training has been carried out for revenue clerks and/or system managers on:
 - Roles of management committees.
 - Revenue collection.
 - Tariff setting.
 - Book-keeping.
 - Budgeting.
 - Meetings.
- Model by-laws were developed from the existing by-laws of the various CWS and copies were send to all the CWS.
- The Decision Support System (DSS) has also been prepared and send to all CWS. Training in its use will be arranged. The DSS manual comprises, among other aspects the following:

(i) Elements of successful community water system management. These include:

- Technical characteristics which describe the general scope of a given water system.
- Population and business characteristics whose data is used to calculate several performance indicators and to estimate the future demands and the investment requirements accordingly.
- Personnel characteristics which describe the staff composition.

- Water audit characteristics.
- (ii) Performance Management monitoring aspects which include:

- Economic performance measures
- Efficiency measures
- Service level measures.
- Capital projects progress report.
- Technical operations report.
- Billings and collection report.
- Statement of operating expenditure.
- Principal financial ratios.
- Other financial statements, e.g balance sheet.
- Annual report.

Umbrella Water Users Association (UWUA) is proposed to be established to give technical and financial management assistance to the member CWS and possibly water point source committees. Through this UWUA, it is expected that there will be sharing of knowledge and pooling of resources which will create a system that will fill the vacuum left by the Programme.

- The UWUA should work more or less like a co-operative society with individual CWS being the shareholders.
- Activities of the UWUA could include monitoring, collection, dissemination of information and training of the communities to ensure sustainability of the CWS. Assistance in form of loans based on shares could also be given to enable emergency repairs.
- The UWUA should be manned by a team of qualified staff with experience in co-operative, management and in O&M and technical/ financial management of water supplies. Experience in writing project proposals to attract loans for extensions etc. and in establishing income generating activities will be necessary.
- The Provincial Water Engineer's office may look after but not directly control the activities of the UWUA.
- Technical assistance may be requested through the UWUA from the government or private consultants as deemed necessary.

In addition, the transfer process, where the MWS are handed over to the consumers has been started. This process together with the given institutional and management development support is aimed to improve the sustainability of water supplies in Western Province of Kenya.

Sound strategies for community water supply and sanitation programmes in developing countries should be based on a clear understanding of the existing problems, the beneficial impacts achievable, and the factors which determine sustainability. The impacts of many water and sanitation programmes are limited, and many systems break down and are abandoned prematurely. Only limited impacts are achievable in the short term without greatly increased investment. Sustainability, in the sense of continued delivery and uptake of services, is threatened by numerous attitudinal, institutional and economic The Arcadis Sustainable Cities Water Index assessed 50 global cities by the stewardship of their water across issues impacting their water resiliency, efficiency and quality to show which cities are best positioned to harness water for their long-term success. The overall index examines the water sustainability of 50 cities from 31 countries across all continents. The South Los Angeles Wetlands Park was designed to capture and treat urban runoff, while providing rare green space to an underserved community of Los Angeles. It is, in fact, the fastest growing alternative water supply source in the world and can be a valuable weapon for cities looking to diversify their water supply and reduce water shortages. Water Reuse. Water is vital to human health and the sustainability of our communities and our world. This is more apparent today than perhaps at any time in recent history. The emergence of COVID-19 in late 2019 has underscored the critical role that clean water and reliable sanitation play in preventing and controlling disease and in making hospitals and communities resilient in the face of extraordinary challenges. We offset more than a third of tariff costs in 2019 and improved the sustainability of our supply chain by auditing over 250 suppliers to ensure they can meet our needs consistently. We held more than 1,500 CI events company-wide, helping our employees to work more efficiently and improve how we serve customers.