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MAXIMIZING THE BENEFITS FROM WATER AND ENVIRONMENTAL SANITATION

Improving Utility Management: Case Study from Kisumu, Kenya

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This paper highlights the main steps taken in the process of developing a Performance Improvement Plan (PIP) for Kisumu Water and Sewerage Company (KIWASCO), as part of the WUP capacity-building project funded by SIDA, which was facilitated by WEDC in partnership with Severn Trent International. As a departure from previous consultancies, the utility staff actually developed the PIP themselves, during which process they built their capacity in strategic planning processes. Although the project was implemented during a difficult period in which KIWASCO was in a transition, with several changes in senior management, it is felt that the involvement of middle managers in the PIP process ensured that maximum benefits were derived from the project.

Introduction

The water and sanitation targets are a prerequisite for achieving most Millennium Development Goals (MDGs) and halving global poverty by the year 2015. Keeping on track of set targets for water and sanitation services has been difficult for many low-income countries, particularly in sub-Saharan Africa. The challenge is higher in urban areas of some of these countries, where the number of people living in low income settlements of the urban centers is escalating. Service coverage may be improved through a combination of institutional, organisational and technological innovations. This paper highlights the experience and learning points from an initiative undertaken by management of Kisumu Water and Sewerage Company (KIWASCO). The initiative was undertaken as part of a project funded by Swedish International Development Agency (SIDA) through the Water utility Partnership (WUP). The initiative was facilitated by consultants from the Water, Engineering and Development Centre (WEDC) and Severn Trent Water International.

Background information

Kisumu is the third largest urban centre in Kenya, with an estimated population of 350,000 people at the end of 2004.

The Water Department of the Kisumu Municipal Council legally became autonomous in November 2001, but due to conflict of objectives, values and interests, it practically became operational as KIWASCO, a limited company wholly owned by the Municipal Council, in July 2004. Although KIWASCO is supposed to operate as an autonomous company in line with the agency agreement signed between the company and the Council, forces in the external environment have sometimes a very significant role in the strategic and tactical direction of the company.

Since its inception, KIWASCO has formulated guiding principles highlighted in Box 1.

Box 1. KIWASCO's Mission Statement, Vision and Core Values

Vision: To be the best water and sewerage provider in the Lake Region

Mission: To expand, sustain and provide reliable, portable and high quality water and ensure collection and disposal of wastewater in an environmentally friendly manner and at optimum cost

Company Strap line: Water is Life; Sanitation is Dignity

KIWASCO has two conventional water treatment plants with a total throughput capacity of about 18,000 m³/day, and with a treated water storage capacity of only 7,200 m³. The water treatment plants and the reticulation network are aged and inadequately maintained. Furthermore, the two sewage treatment plants and the sewer network have a small catchment area, compared to the municipal area. Table 1 shows basic performance indicators at the start of Phase Two of the project in July 2003.

Purpose and scope of the project

The overall objective of the project was to improve the performance of KIWASCO, which would in turn result into reduction of unaccounted for water, and allow for expansion of services to low-income settlements of the towns. The project was facilitated by a team of WEDC/Severn Trent consultants through the following action program:

- o A visit by the consultants to KIWASCO in October 2003 to update the findings of the audit manual that was carried out in the first phase of the project more than two years earlier. The area for piloting action plans for reduction of UfW was also identified during this visit.

Table 1. Basic performance indicators for KIWASCO in July 2003

Description	Unit	Indicator
Water Production	M3/day	18,500
Monthly billing	Kenya Shs	18 million
Monthly Revenue Collection	Kenya Shs	10 million
Total accounts	Number	11,500
Active accounts	Number	5,300
Unaccounted For Water	Percentage	70%

- A two-weeks' long training course in aspects of modern utility managements techniques, which enabled participants to prepare effective Performance Improvement Plans (PIP) and Action Plans for reduction of UfW
- Continuous backstopping through on-line and telephone communication, during the PIP preparation
- A one-week seminar in which utilities presented their draft plans followed by peer discussions on the scope and content of the draft PIPs.
- Final visits by the consultants to KIWASCO in November 2004, during which focal persons were assisted in the finalization of the PIPs.

The Performance Improvement Plan for KIWASCO was developed by a team of staff in the Utility, with support from the consultants. The core focal persons of this project were:

- The Technical Manager
- The Commercial Manager
- The Chief Accountant
- Asst Technical Manager.

Other staff were co-opted during the process, as and when required. Therefore, the PIP document was developed through an overly participative process involving senior, middle and supervisory staff.

The process of developing a PIP

The consultants assisted KIWASCO utility managers to map out the existing situation in the utility. ASWOT analysis was carried out with all senior and middle management. Table 2 shows major issues that were highlighted by staff.

Through a participatory process, the perceived weaknesses and threats were clustered under three headings of management, technical and financial issues. It became clear from this exercise that most problems were management-based. Furthermore, many of the problems clustered under Technical and Financial categories were found to have roots concerned with the management capacity of the utility.

Table 2. An abridged series of the SWOT Analysis by KIWASCO senior and middle staff, October 2003

Strengths	Weaknesses
<ul style="list-style-type: none"> • Autonomy of Company from the Municipal Council • Going concern • Monopoly of operations • Experienced dedicated staff • Income from sewerage services billed with water services • Sufficient technical information on the network 	<ul style="list-style-type: none"> • High level of illegal connections • High level of UFW • Inadequate production capacity • Frequent breakdown of infrastructure • Frequent bursts in the reticulation network • Weak management procedures & systems • Weak HRD and management systems • Poor MIS
Opportunities	Threats
<ul style="list-style-type: none"> • Inexhaustible raw water • Inexhaustible market • Affordable labour • Legible to international loans/grants • Water policies being updated • Existence of a gravity raw water source 	<ul style="list-style-type: none"> • High lake water pollution rates due to high pop • Environmental threats e.g. water hyacinth • High UFW • High unwillingness of customers to pay for water • Unstable power supply • Corruption • Illegal connections • Political interference • High poverty levels among customers

Having clustered the problems into three issue areas of management, technical and finance as shown in Table 3 below, separate task forces were formed to deal with each of the issue areas.

With the help of the consultants, the utility task force developed strategies to address the challenges shown in Table 3. Through discussion and brainstorming, strategies were developed to address the following challenges:

- Optimisation of human resources of the company
- Improvement of information management in the company
- Reduction of unaccounted-for-water, both technical and commercial aspects
- Optimisation of the water production systems
- Optimisation of the water distribution systems
- Improvement of the wastewater collection, treatment and disposal systems
- Improvement of revenue collection, including carrying out customer surveys to validate customer records
- Improvement of customer services

Table 3. Classification of key issues perceived as weakness and threats to KIWASCO

Management	Technical	Financial
<ul style="list-style-type: none"> Poor org. structure Lack of transport Slow procurement system Poor MIS Poor PR Lack of protective clothing Staff is irrationally deployed Poor comm.. Staff attrition Weak HR capacity development system Lack of processes, procedures and guidelines Lack of skilled manpower in key areas 	<ul style="list-style-type: none"> Illegal connections Low production levels Inadequate infrastructure Frequent bursts Frequent pump breakdowns High treatment costs Poor O & M practice High levels of breakdown of meters Old network Drawings of existing network not updated 	<ul style="list-style-type: none"> Late payment of salaries Low rate of debt collections Poor cash flow Inadequate tools and equipment Poor stock management Non-payment of internal and external liabilities Filling of vacant positions Non-remittance of statutory deductions Disparity in salary scales

The task forces came up with the following broad strategies to address the above challenges:

1. Operations and maintenance management strategy
2. The human resource development and information management strategy
3. Reduction of UFW strategy
4. Revenue enhancement strategy
5. Service expansion (both water and sewerage services) strategy
6. Informal settlements service enhancement strategy

With the assistance of consultants, the three task forces worked out goals, targets and accompanying activities for each of the identified strategies. For example, under the operations and maintenance management strategy, one of the corporate goals identified was to:

Increase the quantity and quality of potable water delivered to the distribution network from 19,000 m³/day to 20,000 by 2006/07 in a cost-effective manner.

In order to work towards this corporate goal, the target for one of the water treatment plants was to increase the

production capacity at Dunga Waterworks from the present 16000 m³/day to 21,700 m³/day by end of FY 2007/8. The 'hardware'-based activities for Dunga Waterworks were derived as:

- Procure and install 1 No Pumpset at Dunga Intake by end of FY 2004/05
- Procure and install 2 No. High lift pump sets for Old pump house and new pump house, Dunga WTP by end of FY 2005/06
- Clean 2 No water reservoirs annually
- Clean 12 No sedimentation tanks annually

A 'soft-ware'-based target contributing to the above corporate goal is to establish best practices in water production processes by end of 2004/05. The activities for this target are:

- Train water operators in O & M best practices
- Train water operators in occupational health and safety procedures
- Establish tailor-make plant operational manuals
- Establish routine and Planned Preventive Maintenance procedures

Each of the goals, targets and activities were compiled in form of a matrix showing the projected progress against each item for the period up to the Financial Year 2008/09, together with identified officer(s) responsible for spearheading the actions, and the budgetary implications.

The financial model

The costs for each of the activities were estimated and compiled as part of the expenditure budget. These were then inputted into an Excel-based financial model that was tailor-designed by the consultants to enable the financial implications of the PIP to be quantified. The model deals with:

- Policy issues, in particular the impact of additional water production capacity and UfW improvements on the availability of water and the resultant need to plan and pro-actively promote its sale and delivery.
- The implications relating to any assumed composition of UfW between technical and commercial losses e.g. most reductions in commercial losses should translate directly into increased sales because you are discovering water already being delivered.
- Service Coverage i.e. population served
- Capital programme
- Income and expenditure (Profit & Loss Account) and cash flow requirements
- Tariff setting
- Manpower planning
- Setting SMART targets

Pilot Area for Reduction of UfW

With the help of the consultants, the technical department identified a suitable location where the reduction of UFW could be piloted. The pilot area was identified through the following process:

- Identification of existing activities for reduction of UfW and the existing district meter areas (DMAs)
- Studing the water network plans and identifying potentially better DMAs
- Visiting potential sites and checking installations such as existing meters chambers, boundary valves, and any possible restrictions (e.g. busy highways)
- Selecting the most suitable place for establishing a pilot DMA.

The technical staff then established the pilot DMA through the following process:

- Data collation on the zone characteristics
- Identification of number, location and optimal dimensions of the district meters
- Evaluation of the potential to carry out pressure management
- Installing and marking boundary valves and district meters
- Updating network plans and establishing DMA data records

However, this process delayed due to unavailability of the required equipment.

Results of the Intervention

Although the SIDA-funded project on utility management and reduction of un-accounted-for-water came during KI-WASCO's transitional period full of turbulence, the project improved the capacity of senior and middle management staff in strategic planning. The PIP process enabled staff to carry out a situational analysis of the company in a fully participatory manner. This process enabled the staff to shift their focus from 'fire-fighting' short term issues, to the long-term strategic horizon of finding answers to the following four golden questions:

1. Where has the utility come from?
2. Where is the utility now?
3. Where does the utility want to be?
4. How does the utility reach the desired destination?

A number of improvements have already been realized since the development of the PIP document. Firstly, the estimated figure of unaccounted-for-water has reduced from 70% at the beginning of the project to 60% two years later. This short-term gain is mainly due to 'soft-ware' interventions that have so far been accomplished in the management of operation and maintenance of distribution networks and billing systems. It is expected that further progress will be made as interventions in 'hardware' aspects are intensified.

Secondly, there has been a significant improvement in

the efficiency of addressing customer complaints since the employment of a Customer Relations Officer. The company has taken serious steps to reach out to its customers. Furthermore, capacity building in customer service through a tailored programme has contributed immensely to culture change and staff performance.

Challenges

The main challenges were:

- Huge outstanding arrears by government departments
- The transitory nature of the company, leading into frequent change of top management staff.

Conclusion

KIWASCO is a company in transition. It is evolving from being a department of Kisumu Municipal Council to becoming an autonomous commercial enterprise. The SIDA-funded project on 'Water Utility Management and Reduction of Un-accounted For Water' came at the right time when KIWASCO most needed to find its strategic direction. The Performance Improvement Plan (PIP) provides the basis for improving the performance of KIWASCO. The PIP will continuously be reviewed so as to take into account the gains made and the new challenges cropping up all the time.

Bibliography

- Hydroconseil and B.G. Associates (2003) Kisumu Water and Sanitation Project Pre-feasibility Study
- Severn Trent and WEDC, Loughborough University (2005) Project No 3 Water Utility Management and Reduction of Unaccounted-For-Water: Phase 2 Performance Improvement Plans for UFW, Final Report.
- The Government of Kenya (2001) 'The Memorandum of Association for Kisumu Water and Sewerage Company (KIWASCO)
- The Government of Kenya (2002) The Water Act 2002.
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