



## LAKE VICTORIA WATER AND SANITATION INITIATIVE FAST TRACK CAPACITY BUILDING PROGRAMME FOR UTILITIES



# Final Project Report

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## Preface

UN-HABITAT in association with the Governments of Kenya, Tanzania and Uganda is currently implementing an initiative to address the water and sanitation needs of poor people, living within the secondary urban towns around the Lake Victoria region. The Lake Victoria Region Water and Sanitation Initiative (LVWATSAN) has been designed to achieve Millennium Development Goal (MDG) targets for water and sanitation in small urban centers, taking into account the physical planning needs of these urban centers together with attention to drainage and solid waste management as an integral part of environmental sanitation.

A Capacity Building Workshop was held at the UN-HABITAT Africa Headquarters in Gigiri, Nairobi – Kenya from 16<sup>th</sup> - 18<sup>th</sup> October 2006, organized by UN-HABITAT with the aim of identifying capacity building activities required to support and sustain infrastructure investments under LVWATSAN. The Workshop brought together over 80 participants drawn from Ministries of Water, local authorities; water and sanitation service regulators and providers; private sector; Non-governmental organizations; Community-based Organizations and international and regional experts. As part of the deliberations, a fast track capacity building programme was identified as an urgent necessity to ensure that the necessary capacity is in place to effectively manage and operate the expanded water and sanitation systems.

UN HABITAT identified, the National Water and Sewerage Corporation (NWSC) through its External Services Unit as a suitable partner with potential, experience within the region and competence to carry out the fast track capacity building programme. As such, UN HABITAT under a Cooperation Agreement contracted NWSC ES to take on the consultancy services in this regard. The NWSC was tasked with developing training modules and a comprehensive training programme that would result in: improved sustainability of the investments in each of the utilities, predicated on adequate cost recovery systems; an expansion of the revenue base; improved customer relations as well as more effective operational systems geared at reduction of Non revenue water. As a beginning, five towns around Lake Victoria region i.e. Kisii and Homa Bay in Kenya, Muleba and Bukoba in Tanzania, and Kyotera town in Uganda were selected as the ideal towns. However at the inception of implementation, Kyotera in Uganda was not included as the management framework of its water system was not yet streamlined.

Over the 15 months period June 2007 to August 2008, the NWSC External Services has undertaken a fast track capacity building programme in the four towns resulting into significant improvements in the respective utilities as well as behavioural and attitude change within the staff.

The programme has been successfully completed and notable positive results have been realized. In general there has been increased team spirit as well as change in attitude amongst the staff. The utilities have been able to reduce the Non revenue water, improve revenue collection to some extent and improve their customer relations. With the infrastructure investments made by UN HABITAT there has been improved water supply in all the towns.

Further consolidation of the hardware and software efforts made during this phase of the LVWATSANI the utilities shall go a long way in improving their performance.

In implementation of the programme, a number of challenges have been faced that resulted in delay in execution of some activities and affected the achievement of some of the targets. These included inadequacy in staff capacity, delayed procurement of some of the hardware items such as consumer meters, bulk meters etc, the post election violence in Kenya, failure of the utilities to meet some of the deadlines etc. Despite these challenges, good progress was made and the programme has in general been very successful. It is recommended that the inadequacies in staff capacities particularly in the case of MLUWASA be addressed as a matter of urgency. Follow up missions to all the towns to ensure full operationalization and implementation of the billing system are required within the next three months. The follow up activities are not provided for in the current Cooperation Agreement, a mechanism for this needs to be sought. Furthermore there is need to strengthen the monitoring and evaluation at board and district level to ensure sustainability and continuous performance improvement of the utilities.

For future capacity inputs in the four towns, the foundation laid during the Fast Track Capacity building programme shall provide a good spring board. 4

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# 1.0 INTRODUCTION

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## 1.1 Back ground

In March 2004, UN-HABITAT in association with the Governments of Kenya, Tanzania and Uganda launched the Lake Victoria Region Water and Sanitation Initiative (LVWATSANI) to address the water and sanitation needs of the people particularly the poor in the secondary towns around Lake Victoria. The initiative has a clear pro-poor focus and is intended to generate desirable outcomes that have a lasting effect on the poor. These anticipated outcomes include improved access to water and sanitation services in the project areas, functional and gender focused arrangements for sustainably managing and monitoring the rehabilitated systems, institutionalized capacity building programmes to regularly update the capacity of stakeholders, and a contribution to the reduction in pollutant loads entering into the Lake Victoria.

As a beginning, five towns around Lake Victoria region i.e. Kisii and Homa Bay in Kenya, Muleba and Bukoba in Tanzania, and Kyotera in Uganda were selected as the ideal towns. However at the inception of implementation, Kyotera in Uganda was not included as the management arrangements of its water system are yet to be streamlined by the Government of Uganda. UN HABITAT identified, the National Water and Sewerage Corporation (NWSC), Uganda through its External Services Unit as a suitable partner with potential, experience within the region and competence to carry out a fast track capacity building programme for selected towns around the Lake Victoria region. As such, NWSC ES under a Cooperation Agreement signed in May 2007, was contracted to take design and implement a fast track capacity building programme. The NWSC's scope of work included: developing training modules and a implementing a comprehensive training programme that would result in: improved sustainability of the investments in each of the utilities, establish adequate cost recovery systems; expand the revenue base; improve customer relations as well as more effective operational systems geared at reduction of Non revenue water.

## 1.2 Selected Towns and Water Authorities

### 1.2.1 Muleba Urban Water Supply and Sewerage Authority (MLUWASA) – MULEBA, TANZANIA

Muleba Town is the headquarter of Muleba District in Tanzania and acquired town status in 1984. The town covers an area of 1934 ha and has a population of 10,732 as of 2002 (Population census 2002). Muleba town population is currently estimated at 15,000. The Muleba Urban Water Supply and Sewerage Authority (MLUWASA) is the water authority charged with the provision of water services in the Area. MLUWASA covers an area of 21.5 km<sup>2</sup> with a distribution network covering 11.5 km<sup>2</sup> (Figure 1). The total distribution network is 21 km and comprises of different pipe sizes. Water is abstracted from Nyamwala Gravity Scheme and Kaigara pumping water

scheme. The service coverage by June 2007 was about 45% but only 38.4% of the people were being served.

### **1.2.2 Bukoba Water and Sewerage Authority (BUWASA) – BUKOBA, TANZANIA**

Bukoba Water and Sewerage Authority (BUWASA) is the autonomous government agency charged with the delivery of water supply and sewerage disposal services to the residents of Bukoba Municipality. BUWASA covers an area of 80 km<sup>2</sup> (Figure 1) (30km<sup>2</sup> proper urban, 50 km<sup>2</sup> peri-urban) and comprises of different pipe sizes. BUWASA has two main sources of water which include water pumped from Lake Victoria (73% of total production) at Custom intake and Kitela River at Kagemu intake. Water is also received from four gravity springs of Kisindi, Mafumbo, Nyakanyasi and German Gallery. BUWASA had not yet taken on sewerage services at the start of this Capacity Building Programme.

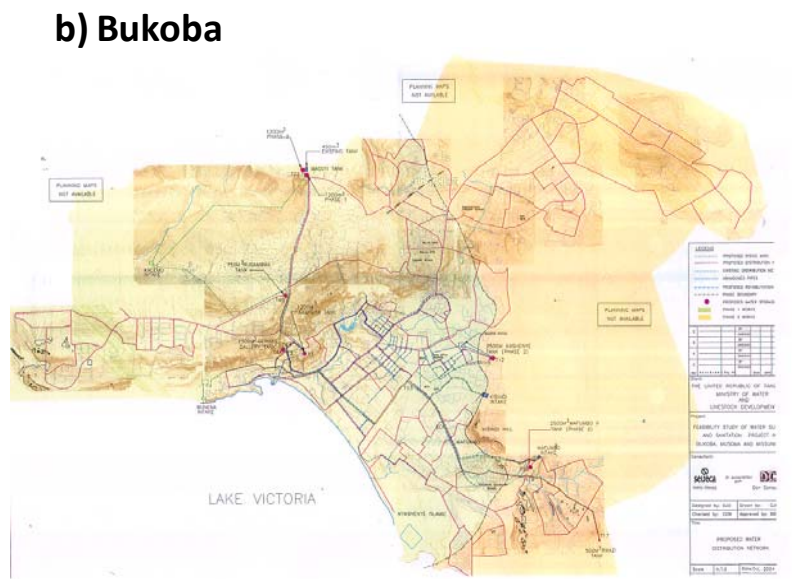
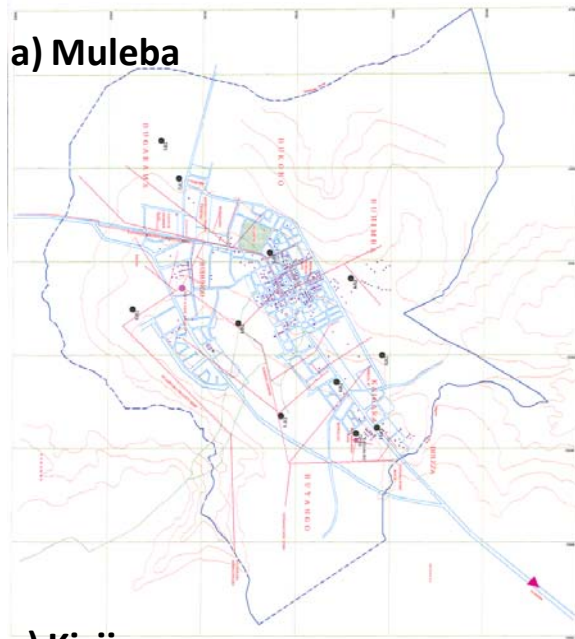
### **1.2.3 Gusii Water and Sanitation Company (GWASCO) – KISII, KENYA**

Kisii town covers an area of 29 km<sup>2</sup> out of which 8 km<sup>2</sup> is within the Central Business District. Kisii has a population of up to 83,000 within the municipal boundaries and about 200,000 people within the service area of the Kisii Water Supply System. Gusii Water and Sanitation Company (GWASCO) is a limited liability company formed specifically to run water and sanitation business in five districts of Kisii, Nyamira, Gucha, Nyansiongo and Keroka. Its mandate is to provide effective, efficient, adequate and safe water to customers and to collect, treat and dispose sewage in a safe and environmentally friendly and sustainable manner on a commercial basis. Kisii Water Supply Area has two main sources of water, River Gusii and Nyakomisaro Gravity Scheme. For this Cooperation Agreement Sanitation services were not included.

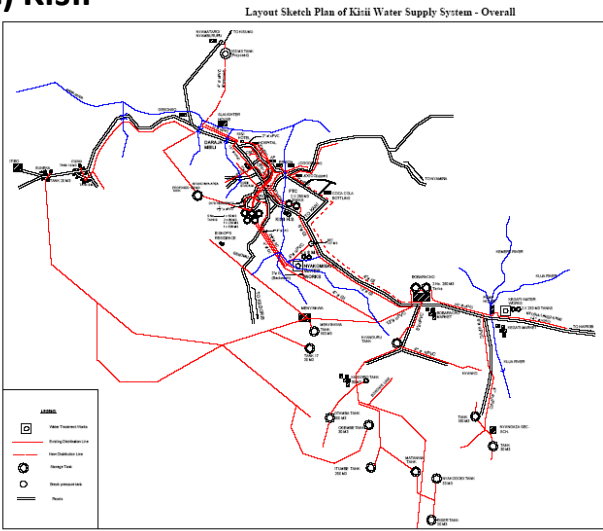
### **1.2.4 South Nyanza Water Services Ltd. (SNWSL) – HOMA BAY, KENYA**

Homa Bay town covers an area of 23 km<sup>2</sup> with only 3 km<sup>2</sup> in the commercial business district. The main source of water for the town is Lake Victoria. There are two raw water intakes situated to the south east of the town. South Nyanza Water Services Ltd (SNWSL) is one of the water companies recently formed by the Lake Victoria South Water Services Board (LVSWSB) given the mandate to provide water and sanitation services. It serves within 3 districts of Homa Bay, Rachuonyo and Suba and has 5 schemes. This study focused on Homa Bay Water Supply area.





### c) Kisii



**NOTES**

**PROJECT**  
LAKE VICTORIA REGION  
WATER & SANITATION  
INITIATIVE

**CLIENT**  
UN HABITAT

**DRAWING TITLE**  
KISII WATER SUPPLY  
LAYOUT PLAN

**CONSULTANT**  
JAMES MURAGE

**DRAWN BY**  
C. WAMBUA

**DATE**  
OCTOBER 2005

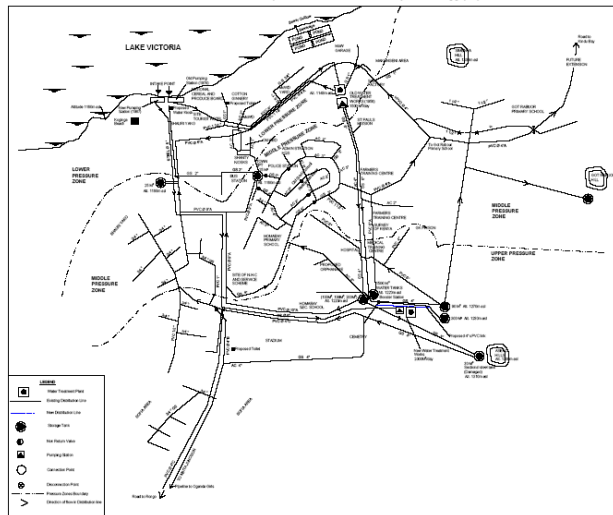
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OCTOBER 2005

**SCALE**  
NOT TO SCALE

**DRG No.** UNH-LVRS/SLP-01

### d) Homa Bay



**NOTES**

**PROJECT**  
LAKE VICTORIA REGION  
WATER & SANITATION  
INITIATIVE

**CLIENT**  
UN HABITAT

**DRAWING TITLE**  
HOMABAY WATER SUPPLY  
LAYOUT PLAN

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**DATE**  
OCTOBER 2005

**CHECKED BY**  
MRS. WOKARI

**DATE**  
OCTOBER 2005

**SCALE**  
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**DRG No.** UNH-LVRS/SLP-01

Figure 1: Lay outs of the service area for each of the towns



### **1.3 Project Objectives**

The overall objective of the Fast Track Capacity Building Programme for Utilities was to support the financial and operational sustainability of the capital investments being provided under the Lake Victoria Region Water and Sanitation (LVWATSAN) Initiative.

The specific objectives were to build the capacity of utilities in the 5 towns of the LVWATSAN Initiative to:

- improve collection efficiencies and expand the revenue base utilities by establishing effective billing, accounting and revenue collection systems;
- reduce Non revenue water through capacity building in water audits, leak detection and repair and water demand management;
- improve customer relations and the image of the utilities

### **1.4 Project Duration**

The project was carried out between June 2007 and August 2008.

### **1.5 Project Team**

The NWSC through its External Services unit provided a team of experts in various fields that included: institutional development, business development, operations and management, network management, block mapping, financial management, commercial and customer care, billing and training among others. The NWSC ES team was led by Dr. Rose Kaggwa, Manager External Services. Back stopping activities were provided by Dr. Eng. Silver Mugisha.

## **2.0 APPROACH TO ASSIGNMENT AND GENERAL OUTCOMES**

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### **2.1 Introduction**

The NWSC External services adopted a combination of methods and techniques while implementing the Fast Track Capacity Building Programme. A participatory approach was used throughout the implementation process aimed at ensuring active participation of management and as many staff as possible. During the programme, feedback from the utilities was encouraged. Ideas and information was also exchanged with the Country Technical Advisors for Kenya and Tanzania as well as the UN HABITAT Clerk of works in each of the towns.

### **2.2 Situational Analysis and Training Needs Assessment (SA & TNA)**

Field visits were carried out from 11<sup>th</sup> – 15<sup>th</sup> June 2007 in Bukoba and Muleba, Tanzania and from 25<sup>th</sup> and 29<sup>th</sup> June 2007 in Homa bay and Kisii, Kenya to enable the NWSC ES team carry out a comprehensive Situational Analysis and Training Needs Assessment. On this basis, a meaningful capacity building programme was designed and a training plan prepared for each utility. During the visits, the NWSC ES team visited the water abstraction points, plant installations, reservoirs and storage tanks, parts of the network as well as some of the consumer points. Discussions were held with management and staff in formal and informal meetings. Focus discussion groups were also used at different fora. The team also carried out a desk review of some of the existing documents and reports. Staff were also interviewed and a questionnaire administered to determine the capacities and training needs of the staff. Issues impinging greatly on the performance of each of the utilities were identified. The findings from the SA & TNA guided the NWSC ES team in the development of practical interventions through the on job training and focus areas under which the performance improvement programme was designed. Change Agents (i.e. champions of the performance turnaround) were identified in each of the utilities. They were drawn from the management of the utilities, water board and local government i.e. the districts councils (*Refer to Situational Analysis and Training Needs Assessment Report for more details*).

### **2.3 Tailor made Training Programme/Bench marking visit**

From the initial field visit, high impact tailor-made training modules were designed and a regional Best Practice Training for the Change Agents held at the National Water and Sewerage Corporation, Training Center in Kampala, Uganda, between the 24<sup>th</sup> and 29<sup>th</sup> September 2007. The participants (32 in number) were taken through a rigorous six day training/benchmarking exercise that involved lectures on various topics, discussions, group work and field visits to various plant installations and business units of the NWSC. The participants were also given assessment exercises after each broad topic to gauge their level of understanding. The participants also carried out an evaluation of the course. The one week training/benchmarking visit exposed the participants to best practices and was an eye opener for many of the

participants and enabled them identify Performance Improvement Goals for their own utilities. They were able to share experiences, achievement and challenges they were facing in each of their utilities with one another which increased the regional collaboration. The training covered the areas of Commercial and customer care services, Revenue collection, Leak and illegal use reduction, Block mapping, Cross-cutting institutional development issues (business planning, SWOT analysis, contracting, monitoring and evaluation, incentive mechanisms and other topics related to utility management and water supply (*Refer to Report on Change Agents Training*)).



*Plate 1: Change Agents Training in Kampala*

#### **2.4 Performance Improvement Programmes (PIPs)**

The development and implementation of intensive utility-based performance improvement programmes (PIP's) for each town focusing on improvement of utility operational performance and causing change of staff attitude towards work was done through participatory 3-day workshops held in each of the towns. The workshops were held between October and November 2007 and involved work out sessions in which management and staff participated. The PIPs developed covered six operational areas namely: water production, transmission and water quality; leakage control; billing and revenue collection; customer care service; finance and accounts and human resource and administration. For the first time, management and staff analyzed their performance through identification of their strengths and weaknesses and formulated strategies to address the issues raised from the identified bottlenecks geared towards improving performance. For each of the PIPs, the budgets were confined to the annual budget provisions and included the support from UN HABITAT, other development partners and the national governments. Strategies devised involved both hardware and software issues. Reporting templates/formats were designed to enable monthly reporting. Key performance indicators were selected and targets set for each of them based on the historical performance of the last six months prior to the workshop. An incentive mechanism was put in place to enhance the performance. To increase the commitment of the boards, management and staff, the PIPs were signed between management and staff and witnessed by the Board Chairpersons.



*Plate 2: Signing of Performance Improvement Programmes in BUWASA and GWASCO*

Monitoring of the implementation of the PIP for each utility was carried out and quarterly evaluation workshops conducted between March and April 2008. During the workshops there was an apparent appreciation of the method of evaluating the targets that had been set. There was free dialogue between management and staff in formulating new strategies to consolidate gaps identified and improve on the achievement of targets in order to foster further performance improvement. The sessions also provided training for staff as the NWSC ES team continued to coach and mentor (*Refer to Performance improvement plans and quarterly evaluation reports for each of the utilities*).



*Plate 3: Quarterly evaluation work out sessions in MLUWASA and Homa Bay*



## 2.5 On job Training

On job training for staff from each utility Areas was carried from November 2007. NWSC sent various teams to work on ground with the utilities. Focus areas included: water demand management (water audits, leak detection, illegal use reduction) all geared at reduction of non-revenue water, improvement of collection efficiencies and expansion of the revenue bases, through the establishment of accounting and revenue collection systems, improvement of reliability, efficiency and capacity of the billing systems, improvement of customer care amongst others. The training was carried out using lectures, discussion, field demonstrations and question and answer sessions. During the on job training the NWSC team reviewed the implementation of the newly prepared PIPs for each town and identified areas of improvement. Strategies to improve the performance were also included during the training. In addition to this guidance notes based on established literature and NWSC's experience were given to the staff and training materials developed (*Refer to On job training report*).



*Plate 4: Leak detection demonstrations in BUWASA and MLUWASA*

## 2.6 Billing software development and training

The billing systems in Homa Bay and Muleba were found to be manual while in Kisii and Bukoba computerized systems were in place. The NWSC ES team reviewed the existing systems and identified a number of gaps and inadequacies. As such, a more robust access based computer system i.e. **LVIC Billing Expert (LVIC BE)** was developed for the utilities. This system has now been installed in all the towns and has been customized to suit each utility's circumstances/peculiarities. For BUWASA and GWASCO the systems shall be run in parallel for at least 3 months up to end of October 2008, before phasing out the older systems. The LVIC BE system is synchronized with the block mapping and allows for easy inclusion of new customers. Training was also carried out with the staff who were led through step-by-step the operation of the system (*Refer to Billing Support Training Report*).

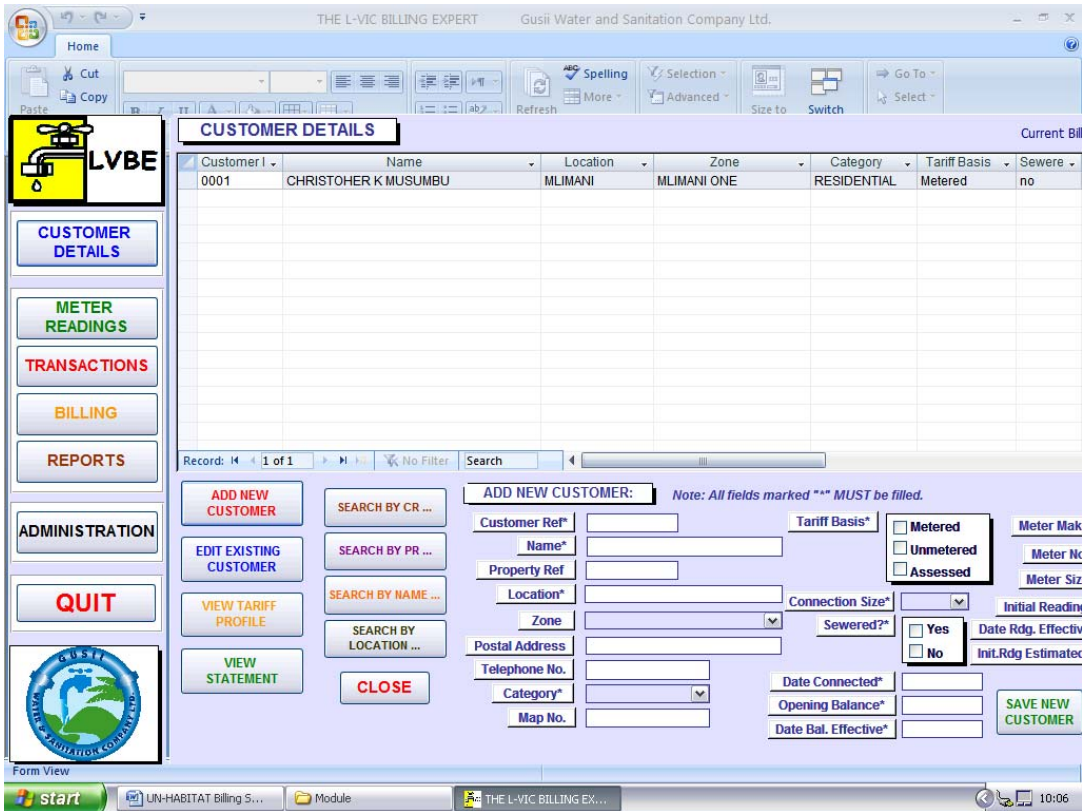


Plate 5: Window for entering a new customer in the LVIC Billing Expert

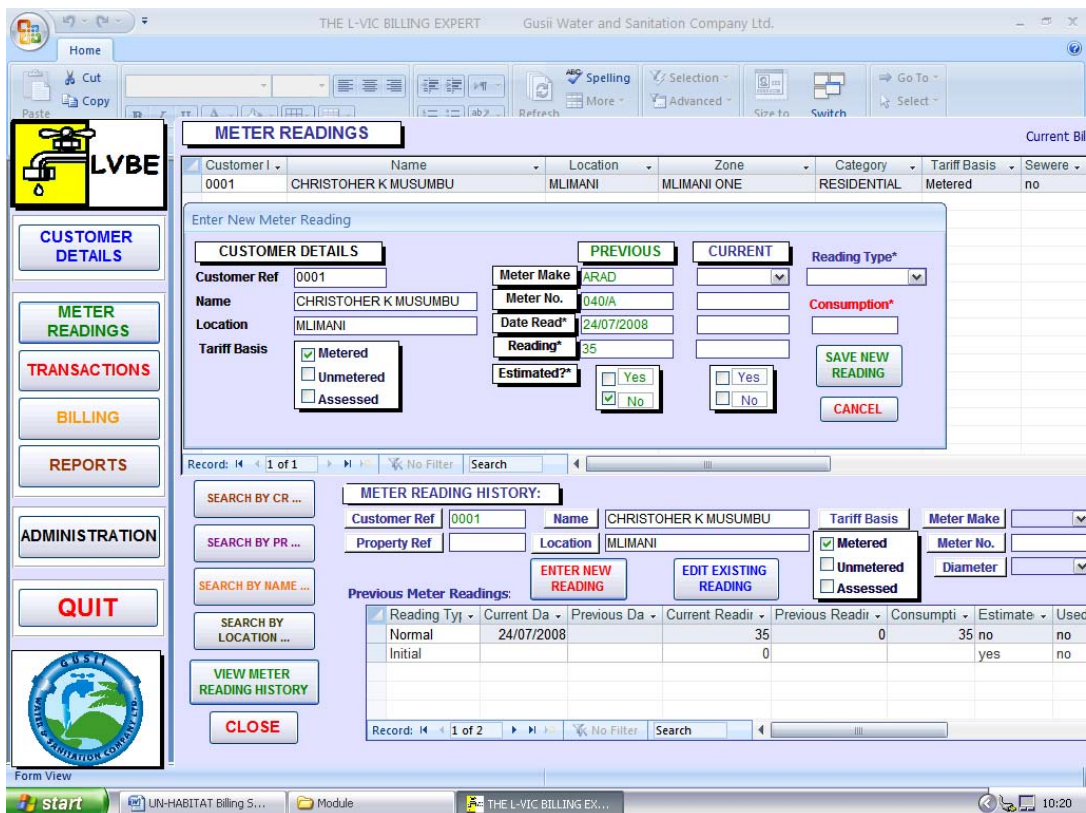


Plate 6: Menu for new meter readings in the LVIC Billing Expert



*Plate 7: NWSC Expert discussing the new billing system in GWASCO*

## **2.7 Physical Customer Referencing – Technical Assistance**

To provide baseline information with regard to the physical customer reference, pilot areas were selected in each utility and block maps prepared for each of the selected zones during the period March 2008 and July 2008. Pilot Areas were selected based on: availability of water e.g. in Kisii & Homa bay, concentration of customers e.g. for BUWASA, and on the choice of the clients. Hands on training of the key technical staff to foster continuity of the block mapping activity for each town was carried out. Practical demonstrations were also held on how to use the equipment for surveying and carrying out the block mapping exercise (*Refer to digitized maps*).



*Plate 8: Unearthing a buried meter during pipe and metal locator demonstrations*





*Plate 9: Leak detection demonstrations in the field in Homa Bay*

## **2.8 Training Materials/Operational Manuals**

Following the completion of the PIPs and on job training, training materials/operational manuals were produced that will provide a basis for easy instruction. These include short procedures on how to carry out water audits, illegal use reduction, leakage control, revenue management and customer care. Operational Manuals for the billing system, finance and accounts procedures and policies, customer care guidelines, water balance, illegal use reduction, leak detection and block mapping were also prepared (*Refer to Operational Manuals*).

## 3.0 KEY ACHIEVEMENTS AND CHALLENGES

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### 3.1 Key Achievements

The Fast Track Capacity Building Programme resulted in a number of improvements in various areas. The utilities with exception of MLUWASA which had a number of challenges, some of which are highlighted in the subsequent section, showed steady improvement over time. General achievements registered include the following:-

#### **Documentation and reporting**

All the utilities have improved on documentation and reporting. With the reporting templates developed during the execution of the programme, data and information can now be captured on a regular basis. For example a logging system now exists for capturing customer complaints and the actions taken. This has greatly improved on the handling of customer complaints and provision of feed back to the customers. On the technical side, the use of job cards was introduced, as well as introduction/improvement of data collection e.g. daily pumpages, number of bursts repaired etc. Through the monitoring and evaluation reporting templates, the utilities can now track their performance over time and produce comprehensive monthly and quarterly reports. In GWASCO for example, the culture of reporting and use of figures and measurement systems has been embraced.

#### **Team building**

The approach taken during the PIP and evaluation workshops resulted in a revamped feeling of ownership. The staff now have a sense of belonging and this was quite apparent during the evaluation workshops especially in BUWASA where the management and staff spearheaded some of the discussions. In GWASCO, the big rift that existed between management and staff has reduced with staff now supporting management decisions.

#### **Performance Achievements**

##### **- Reduction of Non revenue Water**

The Non Revenue water (NRW) in general was noted to improve over time. This was attributed to both the infrastructure developments/hard ware components provided by UN HABITAT as well as the skills the staff acquired during the Fast Track Capacity Building programme. In BUWASA, some improvements were realized during the first quarter where NRW reduced from 57.4 % in the quarter before the programme to 48.4 %. Similarly, in MLUWASA, NRW reduced from 41% prior to the programme to 38% in the first quarter. For GWASCO – Kisii NRW reduced from 51.3 % before the programme to 33.2 % in the third quarter. In SNWSL – Homa bay, NRW reduced from 55.6 % prior to the programme

to 43.4 % by the third quarter. These improvements were as a result of implementation of strategies to reduce non revenue water and improved response to leaks and bursts.

- **Improved Revenue collection**

Improvements were noted in revenue collection over time in all the towns although in some cases the targets set for each quarter in the PIP were not achieved. The positive trends in revenue collections are partly attributed to more vigilant and improved measurement of water sales. Example of revenue collection improvements for BUWASA are shown in the figure below.

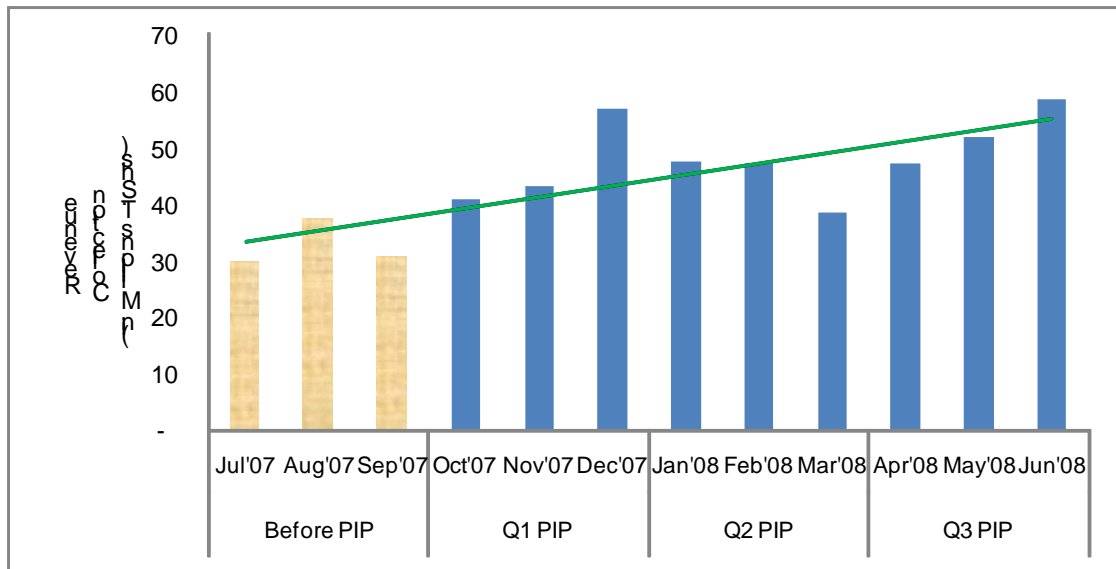


Figure 2: Revenue collection trends for BUWASA July 2007 – June 2008

- **Physical Customer Referencing**

Pilot areas were block mapped in each of the towns as follows: 71 block maps covering 17.8 km<sup>2</sup> in Homa Bay, 113 covering 28.3 km<sup>2</sup> in Kisii, 95 covering 23.8 km<sup>2</sup> in Bukoba and 53 covering 13.3 km<sup>2</sup> in Muleba were done. This has enabled the utilities to easily locate their customers in these zones. Examples of the block maps produced are shown in the figure below.

- **Billing**

A more robust access based computer system **LVIC Billing Expert** has been developed for the utilities. This has enabled computerized generation of bills that can easily be scrutinized and allow for improved data collection and referencing. This allows for easy integration with the block maps and on line receipting. Data clean up has been done for all the towns. New bills shall be printed by end of September 2008.

## - Other Achievements

- ✚ Increased metering efficiency e.g. in BUWASA metering efficiency increased from an average of 63% before the PIP to 85 % in the 3<sup>rd</sup> Quarter whilst in Homa bay it increased from 29% to 69% between the 1<sup>st</sup> Quarter and the 3<sup>rd</sup> Quarter.
- ✚ Despite the management inadequacies in MLUWASA, there was better understanding of the need to work as a team in addressing some of the bottlenecks being faced by the authority. In all the utilities there has been a marked improvement in the ambience of both the offices and installations thus improving their corporate image.
- ✚ A staff organization structure and key result areas for proposed staff positions have been prepared and submitted to the Muleba District Officials for consideration in a bid to streamline the management of MLUWASA.



*Plate 10: Improved offices in GWASCO and cleaner plant in Homa Bay*

## 3.2 Challenges

Although good progress was made during the implementation of the Fast Track Capacity building programme, a number of challenges were faced during the execution of the programme. Some of the challenges hindered the speedy implementation of the programme while others reduced the performance improvements and the intended positive impacts. Some of the major challenges are highlighted below.

- ✚ Delayed release of vector maps for each of the water supply areas of the four towns by UN HABITAT. This slowed the actual kick off of the block mapping exercise. Furthermore, the lack of block mapping equipment in each of the towns resulted in the NWSC ES team being forced to only demonstrate the use of various equipment. Since the period for carrying out this exercise was rather short, there is a possibility that the technical teams in each of the utilities did not fully grasp the required techniques.

- ✦ *Force Majeure*. The unforeseen post election violence in Kenya resulted in a dormant period of almost three months. This delayed the implementation of various activities provided for under the PIPs.
- ✦ The lack of adequate management for MLUWASA and Homa Bay resulted in a slowed momentum in carrying out a number of the planned activities. In the case of Homa bay, a new Managing Director was appointed in the second half of the implementation period which resulted in some improvements. For the case of MLUWASA, the delay by the Muleba District council to take a firm decision on the appointment of a new MD greatly hampered the implementation of various activities.
- ✦ Lack of some key hardware e.g. computers, repair materials, leak detection equipment, delayed supply of meters etc resulted in a slowed impact of the PIPs. E.g. With no consumer meters i.e. a low metering efficiency, the improvements in billing and revenue collection have been minimal. Many of the customers are charged on flat rate results in a loss of revenue. Delayed supply of bulk meters also made impossible for accurate measurement of water supplied as well as of NRW. The lack of computers further compounded by computer illiterate staff compounded the problems in data collection and processing particularly in the case of billing.
- ✦ The capacity of the staff in some instances was found to be inadequate. For example in MLUWASA there was no qualified management team whilst in GWASCO and SNWSL – Homa bay some of the staff are nearing retirement and were not easily trainable. This may also affect continuity and the momentum registered during the programme. Furthermore, input provided for under the Cooperation Agreement for on job training was not adequate. The billing staff in general lacked adequate computer knowledge that resulted in a slow understanding and appreciation of the billing system. As a result the data clean up required took longer than anticipated hence the failure to fully commission the billing system.

## 4.0 RECOMMENDATIONS AND CONCLUSION

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### 4.1 Recommendations

To further improve the performance of the utilities and ensure that with the infrastructure investments made by UN HABITAT are operated in a sustainable manner the following is recommended:

- ✚ UN HABITAT should make a supplementary provision for follow up missions by the NWSC billing experts to Bukoba, Kisii and Homa bay to allow for the final commissioning of the billing system. To further improve the billing systems, computers need to be procured and staff adequately trained in computer skills.
- ✚ To improve collection efficiencies and expansion of the revenue base, the utilities need to embark on an aggressive universal metering programme so as to ensure 100% metering. Support should be sought to make this happen as soon as possible
- ✚ In a bid to address issues pertaining to Non revenue water, bulk metering needs to be completed to ensure accurate measurement of water supplied. Leak detection and pipe leak tracing equipment should be provided. A set could be shared between Muleba and Bukoba and another one between Kisii and Homa bay in a bid to reduce costs.
- ✚ The quality of the existing staff needs to be strengthened further through tailor-made training programs.
- ✚ Strengthened Monitoring and evaluation by the Asset holding authorities in order to ensure continuous performance improvement.

### 4.2 Conclusion

The Fast Track capacity building programme has in many ways registered significant successes. Lessons have been learned that will provide a better restructuring of future training programmes for the other utilities around Lake Victoria. Systems and processes have now been established that if enforced and monitored are sure to lead to continuous performance improvement in all the utilities.