



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

## Capacity Building for Change Agents from Water Utilities around the Lake Victoria Region

In

Water Systems Management  
24<sup>th</sup> – 29<sup>th</sup> September 2007

# Training Report



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**CLIENT:** UN-HABITAT

**TARGET GROUP:** BOARD OFFICIALS, DISTRICT OFFICIALS, MANAGERS AND  
STAFF OF WATER AUTHORITIES

**TRAINING PROGRAMME:** WATER SYSTEMS MANAGEMENT

**VENUE:** NATIONAL WATER AND SEWERAGE CORPORATION  
TRAINING CENTRE, BUGOLOBI  
PORT BELL ROAD  
PLOT M11

**DATE:** 24<sup>TH</sup> – 29<sup>TH</sup> SEPTEMBER 2007

## ***Executive Summary***

Capacity building support is required to ensure efficiency and efficacy of small urban centres in the Lake Victoria basin region which are playing an increasingly important role in the economic development of the region. However, rapid and unplanned growth has placed enormous pressure on the capacity of these urban centres to provide adequate water supply and sanitation services for their growing populations. The challenge here is to achieve the required balance between investments on water and sanitation infrastructure and capacity building, favourable policy and regulatory frameworks and multi-stakeholder partnership building at all levels.

UN-HABITAT in association with the Governments of Kenya, Tanzania and Uganda is currently implementing a major initiative to address the water and sanitation needs of poor people, living within the secondary urban towns around the Lake Victoria region. The National Water and Sewerage Corporation (NWSC) through its External Services Unit was identified by the UN-HABITAT as a suitable partner with potential, experience within the region and competence to carry out the fast track capacity building programme. The National Water and Sewerage Corporation (NWSC) is a leading water utility charged with the primary responsibility of providing water and sewerage services to the major urban centres of Uganda. Currently NWSC operates in 22 towns.

Because of its experience adopting various change management techniques and expertise in undertaken a series of performance improvement initiatives, this has driven performance of the utility to greater heights. UN HABITAT recognized the gains NWSC has achieved and saw it fit to contract National Water and Sewerage Corporation (NWSC), External Services to carry out capacity building in Water Systems Management for Change Agents from Water Utilities around the Lake Victoria Region. Four towns around Lake Victoria region i.e. Kisii and Homa Bay in Kenya and Muleba and Bukoba in Tanzania were selected as the ideal towns from which change agents were identified through a situational analysis and training needs assessment carried out by an NWSC Expert Team prior to the training. The training was held over a period of six days from 24<sup>th</sup>–29<sup>th</sup> September 2007.

A total of 32 participants were trained. The training registered numerous benefits to the participants, providing applicable knowledge on best practices adopted by NWSC. Basic knowledge was imparted to the Change Agents. Through interaction with resource persons and actual field attachments the participants were well equipped to go out and act as Change Agents. The participants were assessed on individual basis and awarded certificates of completion.

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## ***Acronyms and Abbreviations***

%	Percentage
BUWASA	Bukoba Water and Sewerage Authority
ES	External Services
ET	Expert Team
FY	Fiscal Year
GWASCO	Gusii Water and Sanitation Company
IT	Information Technology
K.Shs	Kenya Shillings
LVWATSANI	Lake Victoria Water and Sanitation Initiative
LVWSB	Lake Victoria South Water Services Board
MD	Managing Director
MLUWASA	Muleba Urban Water and Sewerage Authority
NWSC	National Water and Sewerage Corporation
O & M	Operations and Maintenance
SNWSL	South Nyanza Water Services Ltd.
T.Shs	Tanzania Shillings
U.Shs	Uganda Shillings
UFW	Unaccounted for Water
WSS	Water and Sewerage Services

## **1.0 INTRODUCTION**

### **1.1 Back ground**

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 a fast track capacity building programme for selected towns around the Lake Victoria region. 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 unaccounted for water.

As a beginning, five towns around Lake Victoria region i.e. Muleba and Bukoba in Tanzania, Kisii and Homa Bay in Kenya, and Kyotera in Uganda were selected as the ideal towns to commence the fast track capacity building programme. In June 2007, the National Water and Sewerage Corporation External Services (NWSC ES) sent out a team of experts to carry out a situational analysis and training needs assessment for the utilities operating in the towns of Kenya and Tanzania<sup>1</sup>. This exercise enabled the team obtain baseline data on the performance in the areas of billing and revenue collection, customer care and water demand management. Key software and hardware requirements were identified to support these key areas. The TNA enabled the identification of core training needs as well as the essential complimentary skills the staff require. Adequate material was gathered and used in the designing training modules and the capacity building programme. As one of the key outputs of the SA & TNA, Change Agents were identified from the boards, management and staff of Muleba Urban Water and Sewerage Authority (MULWASA), Bukoba Water and Sewerage Authority (BUWASA), Gusii Water and Sanitation Company (GWASCO) – Kisii Scheme, and South Nyanza Water and Sanitation Ltd (SNWSL) – Homa Bay Scheme. Additionally, some district officials were also identified.

### **1.2 Change Agents Training Workshop/Benchmarking visit**

From the 24<sup>th</sup> to 29<sup>th</sup> September 2007, a six day training workshop was held in Kampala, Uganda for thirty two (32) Change Agents (Annex 1).

#### **1.2.1 Focus Areas**

The training in Water Systems management targeted the following focus areas:

- Commercial and customer care services
- Revenue collection
- Water infrastructure and demand management
- Block mapping

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<sup>1</sup> Kyotera (Uganda) not included since it has no service provider

- Cross-cutting institutional development issues (business planning, SWOT analysis, contracting, monitoring and evaluation, incentive mechanisms etc.)

### **1.2.2 Objectives**

The workshop/benchmarking visit was aimed at exposing the Change Agents to best practices from a Ugandan utility, and at the same time enable them to identify Performance Improvement Goals for their own utilities in collaboration with the NWSC. The workshop was also aimed at knowledge exchange between the participants further enriched by the regional representation.

### **1.2.3 Report outline**

In this chapter an introduction that covers the background, the focus areas and objectives are outlined. The second chapter presents the expectations of the participants and the topics covered during the training. The Modus Operandi is explained in the third chapter and the outcomes of the course in chapter four. Chapter five presents the findings from of the gap analysis. Chapter six provides a brief on the criteria for the ward of certificates and the recommendations and conclusions are presented in chapter seven.

## 2.0 PARTICIPANTS EXPECTATIONS AND TOPICS COVERED

### 2.1 Participants Expectations

The participant's expectations were to learn more and share experiences about the following:-

- Billing Software programmes
- Reduction of Unaccounted for Water and Techniques of leakage control
- Network Operations and Maintenance and how to improve on water distribution
- Learn more on how NWSC turned around the water sector through the performance improvement strategies adopted.
- Revenue collection concepts in relation to making supernormal profits
- Customer care management
- Survey and mapping
- Dealing with environmental challenges
- Change management
- Water demand management

### 2.2 Topics covered

The training course module entitled 'Water Systems Management' covered the following broad topics :

- Innovative Revenue Generation and Customer Care Management
- Water Infrastructure and Demand Management
- Change Management Principles and Approaches
- Performance Improvement Plan Preparation
- Field Attachments and Excursions

A series of specific topics (for full timetable refer to Annex 2) were taught and these included:-

#### **(a) Billing (procedures and data input) and key commercial aspects**

This session introduced the participants to the basic concepts and roles of utility billing, provided exposure to the structure and design of effective and efficient billing systems, outlined techniques for efficient and accurate metering and gave an overview of billing runs and billing software systems.

#### **(b) Innovative Revenue Generation Management and marketing**

This session highlighted the pre-requisites for easy revenue collection, described revenue collection strategies, methods of outsourcing revenue collection, the importance and practicability's of the partnering approach, how to increase payment options and minimizing of illegal use. The session further described critical revenue management reports highlighting their importance. The session further focuses on strategies for marketing of services. During the session, examples were given from best practices. Participants were also encouraged to share their experiences.



**(c) *The Customer and Effective Service Delivery***

This session provided the participants with better understanding of the meaning and role of the customer. It gave an overview of utility business – the product and service concept and the internal and external customer. The session provided better understanding of the customer and customer service as a determinant for acquiring and retaining customers. Aspects of Quality Service Delivery and concepts of customer care were highlighted. Issues pertaining to Slogans, the Customer Charter and Customer Policy, the internal outlook, Customer Management systems, Customer Care Units, Customer Service Standards and Codes of Practice were also discussed.

**(d) *Non Revenue Principles and Water Balance***

This session provided a clear understanding of the components and analysis of Non-Revenue Water (NRW) through an interactive construction of the water balance and the underlying assumption in estimating components of the water balance. The session also outlined the benefits of reducing NRW, the importance of NRW in assessing utility efficiency and performance and the trade-offs for NRW. The participants were encouraged to share their practical experience.

**(e) *Network Operations and Maintenance***

This session gave an overview of water distribution systems installations and appurtenances, highlighted critical areas of operations and maintenance of water distribution systems, provided the participants with techniques to deal with waste control and described typical asset record requirements that should be maintained by a water utility. The session further outlined the systematic approaches for the effective management and benefits of preventive and corrective maintenance practices in network systems and network balancing to deal with cost-benefits of mains extensions, network intensification and customers.

**(f) *Survey and block mapping***

In this session the participants were introduced to the block mapping practise. The session highlighted the objectives and benefits of block mapping, the concepts of map referencing and provided an understanding of field survey processes, consumer data collection and processing as well as the procedures for map updates. It further helped the participants to understand the development and updating of block-maps and digitization processes. The participants were shown why it is important to block map and how it can be done.

**(g) *Meter Management***

In this session, procedures and benefits of a sound meter management system were outlined. Common meter technologies and appropriateness were outlined as well as factors affecting meter choice. Systems for tracking meters and meter databases, meter reading, metering accuracy, meter life-cycles, consumption profiles, test-benches, replacements and renewals, trade-offs, management approaches for small meters vs large meters were discussed in length.

**(h) *Leak Detection and illegal use reduction***

This session outlined the procedures and principles for undertaking an effective leak control and illegal use reduction programme. Discussions on network sectorization, setting up of district meters, flow measurement, night flow measurements, setting up of

leak detection programmes, techniques for leak location (sounding sticks, noise correlators etc.) leak repair management were held. Also covered were techniques for proactive information gathering and successful investigations of suspected illegal consumption cases as well as management of confirmed illegal consumption cases.

**(i) Performance Management: Basics**

In this session, participants were introduced to basics of performance indicators (qualitative and objective performance indicators), targets/benchmarks, driving forces for performance improvement plans and the SMART criteria. The programme approach was emphasized as key to organizational behaviour change. Participants were introduced to the FOUR questions of strategic management. Detailed discussions of **SWOT and PEST analysis** were held and tips were given on how to distinguish between quantitative and subjective situation analysis. Examples of successful cases were used to illustrate the efficacy of programme approach to performance improvement.

**(j) Performance Monitoring and Evaluation**

During this session, the role of business planning in WSS management and key considerations in business planning e.g. comprehensive SWOT and Strategy formulation were introduced. The importance of participatory approach to prepare performance improvement programmes; programme ownership and staff involvement were highlighted. The *Stretch-Concept* was introduced as a key tool for participatory work-outs, concepts of cash-flow preparation and mainstreaming with company financial budgets, priority financing, recurrent and one-off expenditure preparation, delegating capital investments and role definition were described in detail.

**(k) Performance Improvement Plan Preparation**

In this session, the participants prepared performance improvement plans in groups based on a case study.

**(l) Field Attachments and Excursion**

Attachments to the sections of billing, the meter management workshop, illegal use reduction, leak detection, block mapping, the call centre and customer care departments of Kampala Water provided a stint of on job training. Some of the participants were also exposed to the good relationship between the district town councils and NWSC through a visit to the Entebbe Municipal Council.

A field excursion to the production plants at Gaba enabled the participants to get an experienced view on the operations and maintenance of water systems. Additionally, visits to the Kampala Branch offices provided hands on experience of operations in a commercial setting.

### **3.0 MODUS OPERANDI**

An action oriented and participatory approach was used. A series of lectures were given on the various topics highlighted in section 2 (Plate 1). The training programme covered four full days of lectures, one day for field attachments and one day for field excursion. The training was conducted on a daily basis starting at 8.45 a.m. till 6.00 p.m. with breaks for morning tea, lunch and evening tea. Presentations were made by the facilitators using PowerPoint slides for lecturing purposes, focus group discussion, question and answer sessions. Throughout the sessions the facilitators encouraged active interaction. For practical lessons, participants were divided into groups to work on specific assignments. They were given tasks that enabled them to critically examine case studies, discuss different scenarios and come up with suggestions on how best to tackle different situations. They then made presentations in plenary sessions which allowed them to critique each other. These sessions were helpful in driving home the theoretical knowledge learned while relating it to day-to-day situations.



**Plate 1. Class room sessions**

Furthermore in order to assess the level of understanding of each of the participants, short tests were given at the end of each topic covered under each course unit. The results are shown in Annex 3. The tests were given on the morning following the end of the each course unit. Each test had a thirty minute duration and was marked out of a score of 100. A sample of one of the tests given is provided in Annex 4. At the end of the course, participants were presented with an individual assessment transcript (Annex 5) and a certificate of completion (Annex 6). Table 1 illustrates the scale used to grade all participants.

**Table 1: Grading of participants overall performance**

#	% Score	Grading
1	90-100	Outstanding
2	80-90	Very good
3	70-80	Quite Good
4	60-70	Good
5	50-60	Average
6	40-50	Below Average
7	< 40	Poor

As illustrated in the results attached (Annex 3) all of the participants attained a grade above the 40% mark. This is an indicator of successful delivery of the subject matter to the participants.

On day four, the participants visited the Gaba water treatment plants where they were able to see the practical implementation of the issues discussed and taught under the various topics covered in the lecture rooms. They were further exposed to the best practice in operations and process control. Areas highlighted were water quality monitoring, operations and maintenance and documentation. A field excursion to two of the Branch offices in Kampala Water i.e. Kansanga and Kitintale on the fifth day enabled the participants to see for themselves what happens in a busy commercial office. The participants were able to observe the customer care services and other commercial aspects. The afternoon of the fifth day saw the participants divide into five groups and spend three hours on practical training through field attachments in the following areas:

- Leak detection and illegal use reduction
- Billing
- Customer care management
- Meter management
- Block mapping

Another group comprising of Board members and district officials spent the same time visiting the Entebbe municipal town council where they met the Deputy Mayor and shared experiences in the water and sanitation sector. The team then visited the Entebbe NWSC Area offices and treatment plant.

The course and resource persons were assessed at the end of the programme in a wrap up session as a means of determining the effectiveness of the whole training programme. This was done through Question and Answer session and general discussion. The participants were encouraged to be as frank as possible.

Finally, at the end of each training programme, a gap analysis session was held during a brainstorming exercise. Participants were able to give their views on missing links and gaps identified. New topics were listed that could be included in further training modules. The participants were able to openly critique the whole training module and give suggestions on how to improve future programmes.

## 4.0 OUTCOMES

The Capacity building Course in Water Systems Management for the Change Agents from Water Utilities around the Lake Victoria Region was successfully held for a total 32 participants (Plate 2). The participants were from the selected towns of Muleba and Bukoba in Tanzania, Kisii and Homa Bay in Kenya and Kyotera in Uganda. The group consisted of staff from different fields and included members from the board as well as district officials who are all involved in the Water and Sewerage Services (WSS) affairs in the respective towns.



Plate 2. Group photo for participants attending the training

The participants were able to acquire new knowledge on how to manage water systems. Basic information was given on technical and financial operations and on management and regulation. Knowledge on best practices adopted by NWSC that are applicable to service providers, district representatives, Board members and to some extent regulators was transferred. The participants were introduced to some of the change management concepts. The six-day course gave the participants an overview of the basic management of a water utility as well as equipped them with basic skills for driving performance. Participants were able to have hands on experience of operations in a busy and well managed utility through the excursions and field attachments. This provided an opportunity for them to have many of their questions answered by the people in the field.

## 5.0 GAP ANALYSIS

In order to promote effectiveness of the course module, a brainstorming session was conducted on the last day of the training to get an overview of the course objectives and outcomes from the participants. This exercise was also aimed at identifying the various gaps which would provide baseline information that will be used to enrich this particular course as well as provide feeders for other course modules to be developed. This section of the report highlights the outcomes of the gap analysis carried out at the end of the training session.

From the gap analysis done it was discovered that most of the gaps identified are knowledge gaps which can be eliminated by further broadening the training modules to accommodate the missing topics. The following items were highlighted by participants as areas which needed to be included in the training module:

There was a bottleneck of time constraints. The course content was viewed to be a lot for the duration. It is therefore encouraged for the participants to enrol for more capacity building courses to get an in-depth understanding of each of the topics in the course module taught.

The knowledge gap as far as utility management is concerned is still rather big, more so when it comes to the Muleba Urban Water and Sewerage Authority (MLUWASA). This gap can be reduced through a deliberate effort by the Muleba town council and the Tanzanian government to address the human capacity in this town. However with a tailored on job training and focused capacity building programmes such as this, there is great promise. It is recommended that in depth modules that cover the various topics are developed for the separate target groups in the near future.

From the gap analysis done it is apparent that some subjects were excluded that are however important more so in ensuring continuous performance improvement. It was also realized that aspects pertaining to asset management and understanding of treatment processes were not tackled during the course. There is need for more in depth knowledge regarding these functions. Also included are topics on;

- Legal Regulation
- Tariff setting in Relation to small towns
- Procurement

During the administration of the course some limitations were identified by the participant as areas where improvement was needed. The General gaps identified included:

- The need to include more examples and case studies to enable the participants get more practical approaches to the course content.
- The person facilitating the performance monitoring and evaluation topic was too complicated and needed more time.
- The need for more participation on the side of the participants
- The location for the training has odour problems from the surrounding environment (Sewerage Treatment Plant).

## 6.0 CERTIFICATION

On completion of the training, certificates were presented to participants recognizing their training experience and commitment to continued learning. The certificates were awarded based on daily performance in which tests were used as a yardstick to assess individual merit and on results from the practical assignments from the field attachments. The participants were awarded certificates (Plate 3) which were categorized as follows:

**Certificate of completion:** The participant attended all the courses, did all the tests and passed with an average score above 40%

**Certificate of attendance:** The participant attended less than 50% of the course and did not do any test.

All participants were awarded certificates of completion with exception of one from MLUWASA who fell sick and attended only one day of the course. A sample of the certificate and individual assessment transcript are attached as Annex 5 and 6.



**Plate 3. Participants receiving their certificates after completing the course**

## **7.0 RECOMMENDATIONS AND CONCLUSION**

It was noted that this training gives a basic foundation in water systems management. However, there is need to carry out in depth training on various subjects through class room sessions as well as a rigorous on job training programme.

From the gap analysis done it is apparent that most of the gaps identified are knowledge gaps which can be eliminated by further broadening of the training modules to accommodate the missing content. This may necessitate further training in the near future. The gaps identified only serve in enriching the course module and show the relevance of this module to improving both operational and financial performance in running the water utilities.

The information given to the participants with regard to water infrastructure and demand management, innovative revenue generation strategies and customer care management will go a long way in improving their operations, supervisory, monitoring and evaluation skills.

Finally, the training provided applicable knowledge on best practices adopted by NWSC and provides a springboard for these utilities as they embark on performance improvement initiatives.



## **ANNEXES**

**Annex 1: List of participants**



LAKE VICTORIA WATER AND SANITATION INITIATIVE  
FAST TRACK CAPACITY BUILDING PROGRAMME FOR UTILITIES  
**Water Systems Management for Change Agents**  
24<sup>th</sup> – 29<sup>th</sup> September 2007  
**Attendance List**

#	Name	Designation	Telephone	Email	Signature
1.	E.T. Rugarabamu	District Administrative Officer, Board Member MLUWASA	+255 753 569899	—	
2.	Erast Vincent	District Water Engineer, Board Member MLUWASA	+255 784 904032	—	
3.	Faustin Kiiza	Managing Director, MLUWASA	255787008442	—	
4.	Thomas Poncian	Billing in Charge, MLUWASA	255757843044	—	
5.	Boniface Manumbu	Technician, MLUWASA	255 754511493	—	
6.	Eng. Elias Mutapima	Muleba District Council Engineer	+255 754 055867	elias.paul@yahoo.com elimita2000@yahoo.com	
7.	Chaggaka J.A. Kalimbia	Managing Director, BUWASA	+255784860591	buwasa@bukobaonline.com	
8.	Juliet Shangali	Public Relations Officer, BUWASA	+255 787799328	julie_7a22002@yahoo.com	

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#	Name	Designation	Telephone	Email	Signature
9.	Vedasto Mutabasibwa	Technical Manager, BUWASA	+255 2221744 +255 713 350060	buwasa@bukobaonline.com	
10.	Jacob Laisser	Financial Manager, BUWASA	+255 754 69 3085 +255 786 664 996	jacoblaiser@yahoo.com	
11.	B.B. Ndibalema	Business and Administration Manager, BUWASA	0784-326880	buwasa@bukobaonline.com	
12.	Dotto Matage	Technician for Mapping issues	0753932292	buwasa@bukobaonline.com	
13.	JANAT KAYANDA	Board Member, BUWASA	+255 713 569 826 +255 787 569 826	janclayard@yahoo.co.uk	
14.	Gilbert Oluoch STEPHEN P.O. AGULO	Chairman of the Board, SNWSL	0733 256406	Retagulli@fahad.com	
15.	Lai MARTIN O.	Managing Director, SNWSL	+254 0728-799 219	homawatercompany@yahoo.com	
16.	Ms. Christine MAWIA	Accountant, SNWSL – Homa Bay	+254 0720 671 388	homawatercompany@yahoo.com	
17.	Ademba -O. DANISH	Scheme Manager, SNWSL – Homa Bay	+254 0724-035 487	-	
18.	Nancy Atieno Mactain	Internal Auditor, SNWSL	+254-722568097	nmaectain@yahoo.com	
19.	Amos Owiro	Local Government Works – Homa Bay	+254-722484743	amosowiro@yahoo.com	
20.	Samuel Nyauke	Multi Stakeholders Forum, Secretary, Homa Bay	1254 8736 226655	samuelnyauke967@yahoo.com	
21.	Rosemary Obara	Chairperson of the	+254 733832626	kenrose2010@yahoo.com	

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#	Name	Designation	Telephone	Email	Signature
		Board, GWASCO			
22.	Thomas Kondoi	Managing Director, GWASCO	0735396146	tokondoi@yahoo.com	
* 23.	Josephat Nyachoti	Finance/Accountants Manager, GWASCO	0726994089	nyachoti@yahoo.com	
24.	Thomas Ongoro	Scheme Manager, GWASCO – Kisii	0734625517 0722877361		
* 25.	Mark Ongonge	Technical Manager, GWASCO – Kisii	0722877361		
26.	Robinson Mugambi	Municipal Engineer, Kiisi – Secoded			
27.	Reuben Masese	Multi stakeholders Forum Chairperson, Kisii	+254 722 230 194	reubenmasese@yahoo.com	
28.	Joseph Omolo	Desk officer for LWATSAN at LVWSB	+254 724 072223 +254 733 479764	lucavic-smith@yahoo.com	
29.	Eng. Ms. Petronella Ogut	Technical Services Manager	+254-722-212659	petogut@yahoo.co.uk	
* 30.	<del>Kasibante</del> KIRUMIRA STEPHEN MWAZI	District Water Officer, Kyotera	0752932616	stephenkirumira@yahoo.com	
* 31.	<del>Charles Kagamba</del>	Water Board Chairman, Kyotera			
32.	Ms. Janet Kayanda	Multi Stakeholders forum, Bukoba <sup>board member</sup>	+255713569826 +255787569826	janetopat@yahoo.co.uk	
	FELIX ERNESI	Tech in charge	0752336971		
	MUNERA				
* 33.	Kibwika Charles (C/Person)		0772541557		

## Annex 2: Training Programme

### **24<sup>th</sup> September 2007, Monday – Day 1**

#### *Innovative Revenue Generation and Customer Care Management*

Time	Session content (Facilitator)
8.30 – 9.00 a.m.	Registration
9.30 – 10.30 a.m.	Official Opening
10.30-11.00 a.m.	TEA BREAK
11.00-1.00 p.m.	Billing (procedures and data input) and key commercial aspects
1.00 – 2.00 p.m.	LUNCH BREAK
2.00 – 4.00 p.m.	Innovative Revenue Generation Management and marketing
4.00-4.30 p.m.	EVENING BREAK
4.30-6.30 p.m.	Customer Care
6.30-7.00 p.m.	BREAK
7.00-7.30 p.m.	Sharing Experiences / Case Study/Role play/ Video

### **25<sup>th</sup> September, Tuesday – Day 2**

#### *Water Infrastructure and Demand Management*

Time	Session content (Facilitator)
<b>8.15 – 8.45 a.m.</b>	<b>Individual Assessment Exercise</b>
8.45-9.00 a.m.	Introduction to the Day's sessions: outline, objectives and expected outputs.
9.00 -10.30 a.m.	Non Revenue Principles and Water Balance
11.00-1.00 p.m.	Network Operations
1.00-2.00 p.m.	LUNCH BREAK
2.00-3.30 p.m.	Survey and block mapping
3.30-4.00 p.m.	EVENING BREAK
4.00-5.00 p.m.	Meter Management
5.00-6.00 p.m.	Leak detection and illegal use reduction
6.30-7.30 p.m.	Sharing of Experiences/Case Study

### **26<sup>th</sup> September, Wednesday – Day 3**

#### *Change Management Principles and Approaches*

Time	Session content (Facilitator)
<b>8.15 – 8.45 a.m.</b>	<b>Individual Assessment Exercise</b>
8.45-9.00 a.m.	Introduction to the Day's sessions: outline, objectives and expected outputs.
9.00-10.30 a.m.	Performance Management: Basics
10.30-11.00 a.m.	TEA BREAK
11.00-12.00 a.m.	SWOT and PEST analysis.
12.00-1.00 a.m.	Performance Monitoring and Evaluation
1.00-2.00 p.m.	LUNCH BREAK
2.00-4.00 p.m.	Business Plan Preparation: Key ingredients
4.00-4.30 p.m.	EVENING BREAK
4.30-7.30 p.m.	Performance Improvement Plan (PIP) Preparation: Case Introduction

## **27<sup>th</sup> September, Thursday - Day 4**

### *Performance Improvement Plan Preparation and benchmarking tour*

<b>Time</b>	<b>Session content</b>
<b>8.15 – 8.45 a.m.</b>	<b>Individual Assessment Exercise</b>
8.45-9.00 a.m.	Introduction to the Day's sessions: outline, objectives and expected outputs.
9.00-10.30 a.m.	Preparation of Performance Improvement Plans (PIP) by participants
10.30-11.00 a.m.	<b>TEA BREAK</b>
11.00-1.00 p.m.	Group work continues
1.00-2.00 p.m.	<b>LUNCH BREAK</b>
2.00-4.30 p.m.	Presentation of PIPs by Groups
4.30-7.30 p.m.	Visit to Gaba Water Treatment works/Laboratory/Booster station

## **28<sup>th</sup> September, Friday - Day 5**

### *Field Work/Attachments*

<b>Time</b>	<b>Session content (Facilitator)</b>
8.45 - 9.00 a.m.	Introduction to the Day's sessions: outline, objectives and expected outputs and Grouping participants for Attachments
9.00 - 9.30 a.m.	Participants divided into groups
9.00 - 1.00 p.m.	Field Work in designated places
1.00-2.00 p.m.	<b>LUNCH BREAK</b>
2.00-6.00 p.m.	Field Work in designated places

## **Saturday - Day 6**

### *Field Work/Attachments/Closing Ceremony*

8.00-8.30 a.m.	Introduction to the Day's sessions: outline, objectives and expected outputs
8.30-9.00 a.m.	<b>TEA-BREAK</b>
9.00–1.00 p.m.	Field work in designated places
1.00-2.00 p.m.	<b>LUNCH BREAK</b>
2.00-4.00 p.m.	Site seeing in Kampala
4.30 p.m.	<b>Closing ceremony and Cocktail</b>

### **Annex 3: Test Results for the Participants**

*Capacity Building for Change Agents for Utilities around Lake Victoria  
Training Report*

**CAPACITY BUILDING PROGRAMME - UTILITY INFRASTRUCTURE MANAGEMENT & REGULATION, 20 - 25<sup>th</sup> AUGUST 2007**

	<b>NAME</b>	<b>REVENUE/CCARE</b>	<b>WATER MGT</b>	<b>Change Mgt</b>	<b>ATTACHMENT</b>	<b>TOTAL MARKS</b>	<b>AV.SCORE</b>	<b>POSITION</b>
1	Reuben Masese	96	77	82	100	355	88.8	1
2	Josephat Nyachoti	80	77	88	100	345	86.3	2
3	Martin Lai	94	93	80	70	337	84.3	3
4	Stephen Kirumira	86	68	82	100	336	84.0	
5	Christine Mawia Julius	86	90	98	60	334	83.5	
6	Elias P. Mutapima	76	72	86	100	334	83.5	
7	Erasmus Rugarabamu	90	60	94	80	324	81.0	
8	Mark Ongonge	64	82	74	100	320	80.0	
9	Thomas O. Ongoro	70	72	74	100	316	79.0	
10	B.B. Ndibalema	86	74	74	80	314	78.5	
11	Stephen Agulo	62	70	82	100	314	78.5	
12	Chaggaka Kalimbia	55	85	72	100	312	78.0	
13	Erast Vincent	74	58	96	80	308	77.0	
14	Amos O. Owiro	84	71	82	60	297	74.3	
15	Thomas Kondoi	84	77	76	60	297	74.3	
16	Danish P. Ademba	70	78	56	80	284	71.0	
17	Vedasto Mutabasibwa	82	86	54	60	282	70.5	
18	Dotto Matage	82	76	64	60	282	70.5	
19	Boniface P. Manumbu	66	55	98	60	279	69.8	
20	Joseph Otieno Omolo	62	80	56	80	278	69.5	
21	Jacob Laisser	66	63	88	60	277	69.3	
22	Janat M. Kayanda	76	43	74	80	273	68.3	
23	Samuel O. Nyauke	58	68	42	100	268	67.0	
24	Nancy A. Mactain	64	69	74	60	267	66.8	
25	Julieth Shangali	64	63	74	60	261	65.3	
26	Richard Odhiambo	68	47	48	80	243	60.8	
27	Charles Kibuuka	48	47	44	80	219	54.8	
28	Felix Ernest	62	33	38	40	173	43.3	
29	Faustin Kiiza	56	38	30	40	164	41.0	

Missed some of the assessment exercises

1	Petronella Ogut	92	89	100		281	93.7	
2	Rosemary Obara	74	66	78		218	72.7	
3	Poncian Thomas	60				60	60.0	

**REVENUE AND CUSTOMER MARKS      POSITION**

Reuben Masese	96	1
Martin Lai	94	2
Petronella Ogut	92	3

**WATER INFRASTRUCTURE AND DEMAND MANAGEMENT**

Martin Lai	93	1
Christine Mawia Julius	90	2
Petronella Ogut	89	3

**CHANGE MANAGEMENT**

Petronella Ogut	100	1
Christine Mawia Julius	98	2
Boniface P. Manumbu	98	2
Erast Vincent	96	3

**OVERALL**

Reuben Masese	<b>88.8</b>	<b>1</b>
Josephat Nyachoti	<b>86.3</b>	<b>2</b>
Martin Lai	<b>84.3</b>	<b>3</b>



## **Annex 4: Sample Test Sheet**

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

#### **Water Systems Management for Change Agents**

**Day 2 Session Test:** Water Infrastructure and Demand Management

**Duration:** 30 minutes

Name of Staff: ..... Date: 26<sup>th</sup> September 2007

Designation: ..... Company: .....

1. Name two key components of a Water Distribution System (8 marks)
2. Give three causes of Bursts and leaks in a water distribution system (12 marks)
3. List five components of Non Revenue Water (NRW) (15 marks)
4. List four benefits of reducing Non Revenue Water (NRW) (10 marks)
5. What are the benefits of introducing Block Mapping to your towns? (20 marks)
6. Give at least two measurement tools used in field surveying during update of block maps (10 marks)
7. (a) Assuming that NRW of your utility is currently at 50% would you aim at reducing it to 0% (5 marks)  
(b) Give two reasons to support your answer in (a) above (10 marks)
8. List two meter technology types for the domestic consumer category (10 marks)

**Good Luck**

**END**

## Annex 5: Individual Assessment Transcript



### NATIONAL WATER & SEWERAGE CORPORATION

TELEGRAMS WATERS KAMPALA

Telephone: 256 - 41 - 315000  
256 - 31 - 260414/5

Fax: 258299/345531/346447/346532

Email: info@nWSC.co.ug

ES/TR/01

Our Ref: \_\_\_\_\_

HEAD OFFICE

P. O. Box 7053  
PLOT 39 JINJA ROAD  
KAMPALA

29<sup>th</sup> /09/07

WATER SYSTEMS MANAGEMENT  
TRAINING FOR CHANGE AGENTS FROM UTILITIES AROUND THE LAKE  
VICTORIA REGION HELD FROM 24<sup>th</sup> – 29<sup>th</sup> SEPTEMBER 2007  
AT  
NATIONAL WATER AND SEWERAGE CORPORATION TRAINING CENTRE, BUGOLOBI

### Individual Assessment Transcript

This is to certify that **STEPHEN KIRUMIRA** attended the above training programme and was examined in four main modules and attained marks as follows:

No.	Module	Marks (%)
1	Innovative Revenue Generation and Customer Care Management <i>(Billing procedure, data input and key commercial aspects, Innovative Revenue Generation Management and marketing and Customer Care)</i>	86
2	Water Infrastructure and Demand Management <i>(Non Revenue Principles and Water Balance, Network Operations Survey and block mapping Meter Management Leak detection and illegal use reduction)</i>	68
3	Change Management Principles and Approaches <i>(Performance Management: Basics, Performance Monitoring and Evaluation, Business Plan Preparation: Key ingredients)</i>	82
4	Field Attachment	100
	<b>Overall Score</b>	<b>84.0</b>
	Grading: 90-100 %: Outstanding, 80-89 %: Very good, 70-79 %: Quite Good 60-69%: Good, 50-59 %: Average, 40-49 %: Below Average, < 39 % : Poor	<b>Very Good</b>

Signed by:

**Rose C. Kaggwa (Ph.D)**  
Manager External Services/ Training Coordinator

**Annex 6: Sample of Certificate awarded on completion of course**



# **CERTIFICATE OF COMPLETION**

This certificate is awarded to

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who has successfully completed a course in Water Systems Management  
which took place from 24<sup>th</sup> – 29<sup>th</sup> September 2007

at the

**National Water & Sewerage Corporation Training Center, Bugolobi.**

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Dr. William .T. Muhairwe  
Managing Director

National Water & Sewerage Corporation

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Dr. Eng. Silver Mugisha  
Chief Manager Institutional  
Development & External Services  
National Water & Sewerage Corporation