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PLANNING FOR RESILIENCE IN EAST AFRICA THROUGH POLICY, ADAPTATION, RESEARCH, AND ECONOMIC DEVELOPMENT (PREPARED)

NWSC-Jinja Non-Revenue Water (NRW) Reduction Strategy

July 2014-August 2015

June 2014

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NWSC-Jinja Non-Revenue Water (NRW)
Reduction Strategy July 2014 –August 2015

DISCLAIMER

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

CONTENTS

- CONTENTS 1**
- ACRONYMS AND ABBREVIATIONS 1**
- 1.0 INTRODUCTION 2**
 - NON-REVENUE WATER IS A REGIONAL ISSUE 2
 - FOCUS OF THE JINJA NON-REVENUE PILOT 5
- 2.0 STRATEGIC OBJECTIVES (JULY 2014-AUGUST 2015) 7**
 - SO 1 BUILD NWSC SERVICE DELIVERY IMPROVEMENT PROGRAM 9
 - SO 1 Measures of Success July 2014 – August 2015 9
 - IR 1 REVIEW THE NWSC PERFORMANCE IMPROVEMENT PROGRAMS 9
 - IR 2 INTRODUCE QUALITY SERVICE IMPROVEMENT PROGRAM (QSIP) 11
 - SO 2 DEVELOP INTERACTIVE CUSTOMER SUPPORT AND OUTREACH FRAMEWORK AND STRATEGY 13
 - SO 2 Measures of Success July 2014 – August 2015 13
 - IR 1 CONDUCT BASELINE CUSTOMER SATISFACTION SURVEY 13
 - IR 2 BUILD CUSTOMER ENGAGEMENT FRAMEWORK AND STRATEGY 14
 - SO 3 IMPLEMENT ENGINEERING AND ICT SOLUTIONS 15
 - SO 3 Measures of Success July 2014 – August 2015 15
 - IR 1 DETERMINE DISTRICT METERING AREAS (DMA'S) 15
 - IR 2 INTRODUCE ICT APPS AND PLATFORMS (E.G. IFORMBUILDER, MAJI VOICE, ISSD CODES) 16
 - IR 3 IMPROVE METERING POLICIES AND PRACTICES 17
 - IR 4 IMPLEMENT PROPOSED SOLUTIONS FOR NRW 18
- 3.0 OPERATIONAL PRINCIPLES 19**
- 4.0 ORGANIZATIONAL ROLES AND RESPONSIBILITIES 23**
 - 3.1 PROPOSED ROLES AND RESPONSIBILITIES 24
- 5.0 WORK PLAN 26**
 - KRA I: NWSC-JINJA SERVICE IMPROVEMENT PROGRAMS BUILT 26
 - KRA II: INTERACTIVE CUSTOMER SUPPORT AND OUTREACH FRAMEWORK DEVELOPED AND TESTED 26
 - KRA III: ENGINEERING NRW SOLUTIONS IMPLEMENTED 27
 - KRA IV: ICT NRW SOLUTIONS IMPLEMENTED 27
 - 5.1 DETAILED WORK PLAN 28

ACRONYMS AND ABBREVIATIONS

COP	Chief of Party
EAC	East Africa Community
GUC	Grants Under Contract
ICPAC	Intergovernmental Authority on Development's Climate Prediction and Applications Center
JTF	Joint Task Force
LVBC	Lake Victoria Basin Commission
MDGs	Millennium Development Goals
MOU	Memorandum of Understanding
MTN	Mobile Telephone Network
NRW	Non-Revenue Water
NWSC	National Water and Sewerage Corporation
PIP	Performance Improvement Program
PREPARED	Planning for Resilience in East Africa through Policy, Adaptation, Research, and Economic Development
QSIP	Quality Service Improvement Program
TOR	Terms of Reference
USAID	United States Agency for International Development
WASH	Water Supply Sanitation and Hygiene

INTRODUCTION

The overall goal of PREPARED is to *strengthen the resiliency and sustainability of East African economies, trans-boundary freshwater ecosystems, and communities*. PREPARED targets three key development challenges of the EAC region: increased resiliency to climate change; transboundary freshwater biodiversity conservation; and improved access to drinking water supply and sanitation services.

PREPARED has three integrated objectives:-

- ❑ Climate change adaptation technical capacity, policy leadership and action readiness of regional institutions improved;
- ❑ Resilient and sustainable management of biologically significant trans-boundary freshwater ecosystems in the EAC region strengthened; and
- ❑ Resilient and sustainable water supply, sanitation, and wastewater treatment services in the Lake Victoria Basin enhanced.

NON-REVENUE WATER IS A REGIONAL ISSUE

Non-Revenue Water (NRW) is defined as water that is processed and supplied by a water utility provider, but cannot be accounted for physically or commercially. Globally, according to a 2006 World Bank study, nearly 45 million m³ of water is lost daily from leakage¹ (enough to serve nearly 200 million people) and 30% of that is accounted for within developing countries.

According to the International Water Association (IWA)/ American Water Works Association (AWWA), and illustrated in Figure 1, seven factors contribute to NRW:

- Unbilled metered consumption;
- Unbilled unmetered consumption;
- Unauthorized consumption;
- Customer metering inaccuracies and data handling errors;

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	Revenue Water		
			Billed Unmetered Consumption			
	Water losses	Unbilled Authorized Consumption		Unbilled Metered Consumption	Non Revenue Water	
				Unbilled Unmetered Consumption		
		Real losses	Apparent losses	Unauthorized consumption		
				Metering inaccuracies and Data Handling Errors		
	Leakage on Transmission and Distribution Mains					
		Leakage and Overflows at Storage Tanks				
		Leakage on Service Connections up to point of Customer Meter				

Figure 1: IWA and AWWA Water Balance

¹ <http://siteresources.worldbank.org/INTWSS/Resources/WSS8fin4.pdf>

- Leakage on distribution mains;
- Losses at utility storage tanks; and
- Leakage from service connections up to the customer meter.

These losses cost water utilities approximately USD \$14 billion every year (World Bank, 2006). It is particularly noteworthy that the estimate of what is lost every year in developing countries through commercial losses (that is, water that is actually delivered to a portion of the population, but not invoiced) is estimated at US\$2.6 billion.

This is approximately a quarter of the total yearly investment in potable water infrastructure for the entire developing world. It is also more than the World Bank (the largest water financier among international financial institutions) lends every year in aggregate for water projects in developing countries.

The NRW Cycle (Figure 2) is the one responsible for poor water utility performance and results in both commercial and physical water losses. The challenge therefore is for water managers to break this cycle by putting more effort to reduce NRW through allocating more resources in operations and maintenance (O&M) of water distribution networks. The net result of this is increased revenues, which are then re-invested in initiatives that reduce NRW.

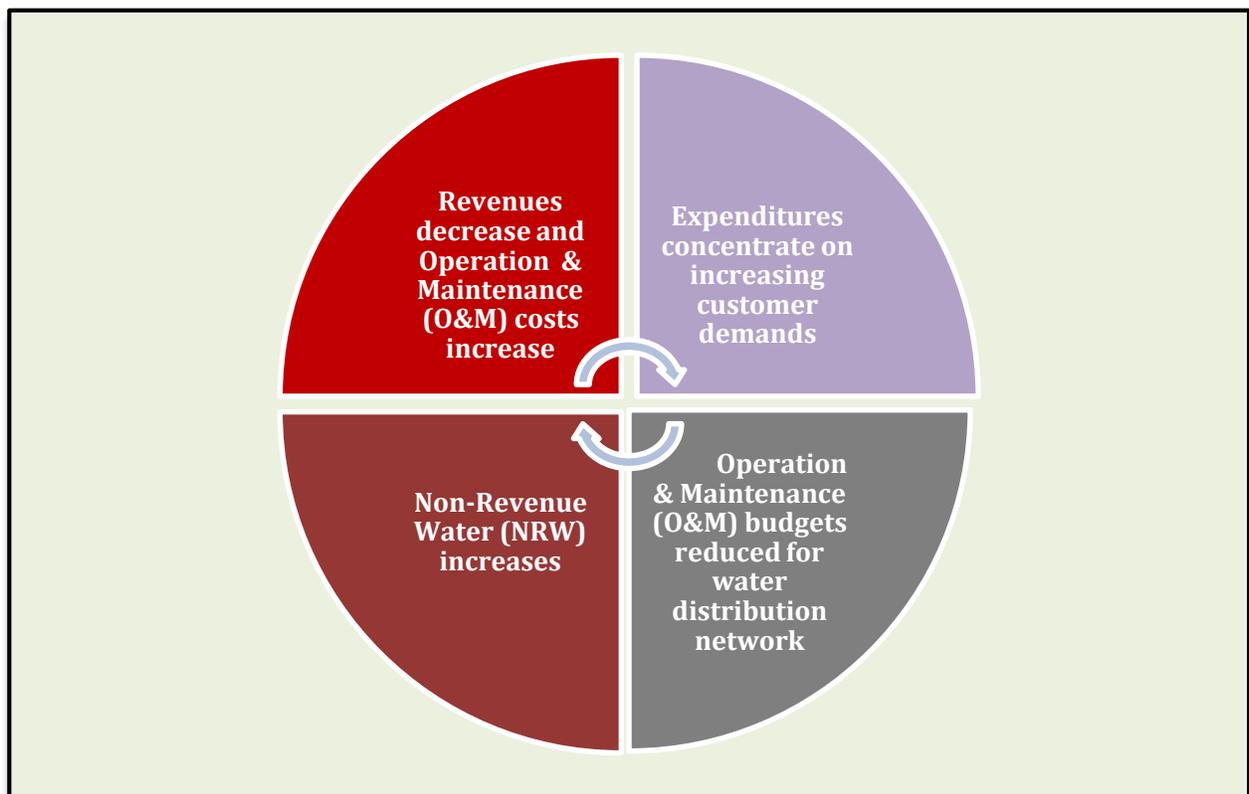


Figure 2: NRW Cycle

In the East African region, the average NRW disaggregated by country in year 2013 stood as follows: Uganda 33%², Tanzania 36³, Burundi 41%⁴, Rwanda 42%⁵, and Kenya 44%⁶. On a conservative estimate, the average NRW in the East Africa region therefore stands at 37%.

Water utilities within the region are striving for additional revenue to expand services. In some cases, water is rationed while much is being wasted. The NRW problem is likely to be compounded in the near future by declining available water resources, compromised water resource quality that will be expensive to treat to drinkable standards, increasing costs of energy to pump treated water, high rates of infrastructure deterioration, inadequate investment budgets, and increasing pressure from the effects of urbanization, climate change, and population growth.

More so, water utilities are under increasing scrutiny from citizens, government, and other stakeholders to use water resources more efficiently by reducing water losses in their distribution systems and ensuring sustainable service delivery.



National Water and Sewerage Corporation (NWSC) Jinja water intake in Lake Victoria

² The Water Herald, Volume 4, Issue 3, October-December, 2013. NWSC, Kampala, Uganda.

³ PREPARED Project Baseline Report 2014

⁴ PREPARED Project Baseline Report 2014

⁵ PREPARED Project Baseline Report 2014

⁶ Impact 2013, A Performance Review of Kenya's Water Services Sector 2011-2012, WASREB, Nairobi, Kenya

FOCUS OF THE JINJA NON-REVENUE PILOT

The NWSC has formulated a 5-Year Strategic Direction (2013-2018). The 5 –Year Strategic Direction is therefore aimed at gearing the NWSC for sound transformational changes within its operational and geographical mandate and was prepared by aligning it to the NWSC Corporate Plan 2012-2015 and avoid conflicts with the aspirations of the plan; contextualizing the NWSC futuristic goals in a longer term perspective, which implies that the next Corporate Planning cycle will seamlessly flow in tandem with the Strategic Direction; taking into account the strategic and dynamic overarching Government Policy direction of transforming the Ugandan economy from a peasantry to a modern and prosperous economy as enshrined within the National Development Plan (NDP) and the Vision 2040; aligning to the ambitious and achievable urban water sector goal of achieving 100% water coverage in the medium term through building of synergies via the expansion of the mandate of the Corporation to cover all the urban areas. The Strategic Direction was formulated professionally through a consultative process involving all stakeholders, implying that the buy in process was comprehensively addressed.

It should be noted that the undertakings and aspirations of the Strategic Direction are in alignment with the Corporate Plan and Performance Contract and are all geared towards achieving financial sustainability, infrastructure growth, increased coverage for water and sewerage services, learning and growth, improving customer care and meeting stakeholder expectations.

Key among the strategic focus areas will be increased coverage and supply reliability, improved asset management aimed at tackling the current water losses (non-revenue water), improved customer interface and satisfaction coupled with enhanced collaboration with stakeholders, increased revenue growth and mobilization of resources for investment, improved staff capacity development and welfare, and enhanced research and innovation. The USAID/EA PREPARED Project target three key development challenges among them improved access to drinking water supply and sanitation services, which fit well within the overall NWSC 5-Year Strategic Direction. This Strategy specifically endorses the principles and proven approaches of reducing NRW in Utilities and encourages the use of all appropriate technologies and tools in achieving those objectives.

The purpose of the Strategy is to guide NWSC, ITRON, PREPARED Project and MTN Non-Revenue Water (NRW) activities in National Water and Sewerage Corporation (NWSC) - Jinja, to inform the implementation of engineering as well as ICT solutions and development of interactive customer support and outreach framework and approaches in order to address the NRW challenges, to guide decision-making on budgeting and resource allocation, and to highlight priority areas for the NRW reduction. Over the duration of the Strategy there will be greater focus and selectivity among partners leading to greater impact.



Nile River outlet from Lake Victoria Nile

2.0 STRATEGIC OBJECTIVES

(JULY 2014-AUGUST 2015)

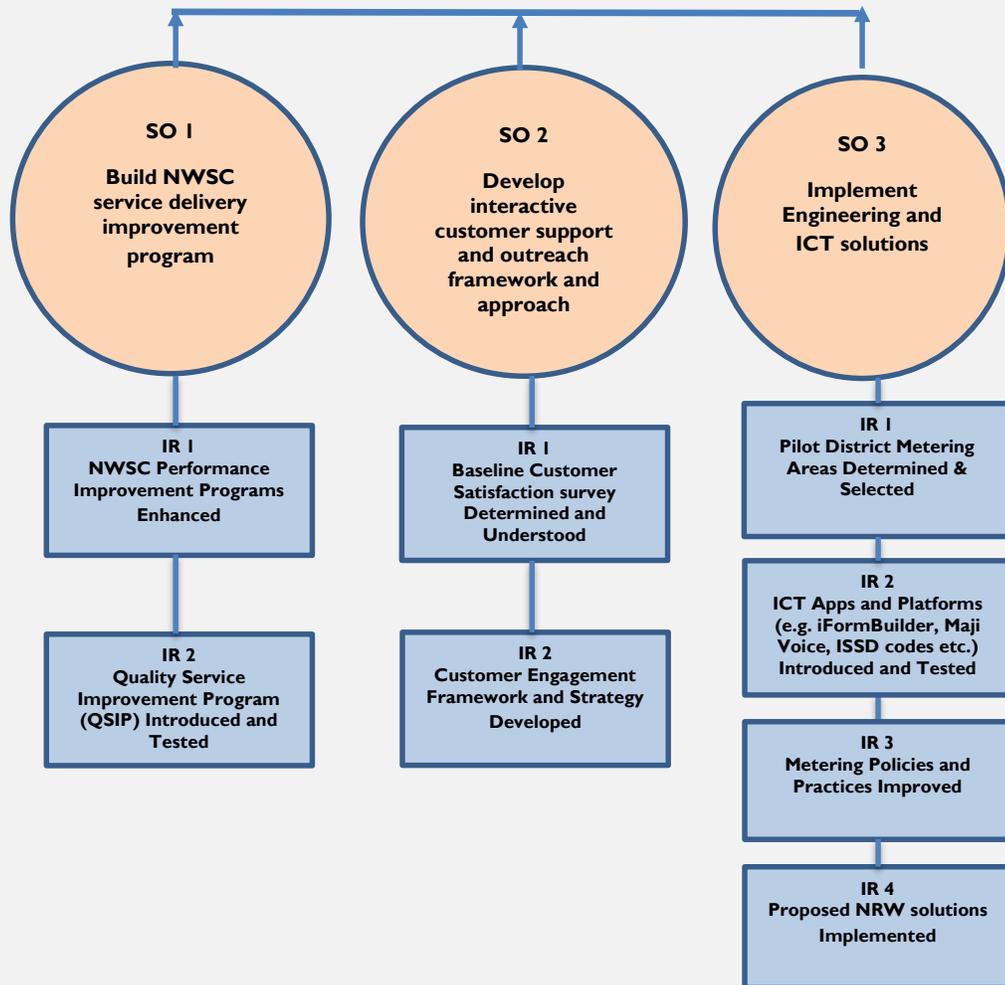
The overarching goal of this Strategy is ***“To improve the quality of water supply services of National Water and Sewerage Corporation (NWSC)-Jinja through sound management of appropriate ICT tools, performance improvement programs and customer engagement”***. To achieve this goal, a partnership comprising of NWSC, ITRON, PREPARED Project and MTN will pursue three Strategic Objectives:

- SO 1 Build NWSC service delivery improvement program
 - IR 1: NWSC Performance Improvement Program enhanced.
 - IR 2: Quality Service Improvement Program (QSIP) introduced and adopted.
- SO 2 Develop interactive customer support and outreach framework and approach
 - IR 1: Baseline customer satisfaction survey determined and understood.
 - IR 2: Customer Engagement Framework and Strategy developed.
- SO 3 Implement Engineering and ICT solutions
 - IR 1: Pilot DMAs determined and selected.
 - IR 2: ICT Apps and Platforms (e.g. iFormBuilder, Maji Voice, ISSD Codes etc.) introduced and tested.
 - IR 3: Metering policies and practices improved.
 - IR 4: Proposed NRW solutions implemented.

NWSC-JINJA NON-REVENUE WATER REDUCTION STRATEGY FOR 2014-2015

Goal

“To improve the quality of water supply services of National Water and Sewerage Corporation (NWSC)-Jinja through sound management of appropriate ICT tools,



To accomplish the SOs, intermediate results (IRs) have been identified that will guide the planning and implementation of this effort.

SO 1 BUILD NWSC SERVICE DELIVERY IMPROVEMENT PROGRAM

SO 1 Measures of Success July 2014 – August 2015

- ❑ NWSC ISO Certification maintained and strengthened
 - ❑ Increased generation of new and innovative ideas in the organization
-

Performance improvement is measuring the output of a particular business process or procedure, then modifying the process or procedure to increase the output, increase efficiency, or increase the effectiveness of the process or procedure. In organizational development, performance improvement is organizational change in which the managers and governing body of an organization put into place and manage a program which measures the current level of performance of the organization and then generates ideas for modifying organizational behavior and infrastructure which are put into place to achieve higher output. The primary goals of organizational improvement are to increase organizational effectiveness and efficiency to improve the ability of the organization to deliver goods and/ or services.

The proposed NRW interventions and Services Improvement Programs in NWSC Jinja will thoroughly analyze both internal and external environments of the NWSC Jinja and roll out an ICT solution based on the iFormBuilder. How the customers perceive the services being provided by NWSC is also important to be investigated in order to deepen our understanding of why some disconnected customers don't want to re-connect to the network.

In addition, the interventions shall attempt to assess the NWSC Jinja water network systems through diagnostic analyses in order to ascertain the accuracy of both the bulk and revenue meters and come up with a meter replacement policy as well as replacing some of the malfunctioning meters.

Understanding the NWSC Jinja water network systems should contribute to the body of knowledge regarding NRW programs in the Republic of Uganda and the other East Africa Partner States. This we hope will improve the design, the introduction and the implementation of future NRW Programs and policies in Uganda and in other EAC countries in light of the Uganda experience in this regard.

The NWSC has a 5-Year Strategic Direction (2013-2018). The 5-Year Strategic Direction is aimed at gearing NWSC for sound transformational changes within its operational and geographical mandate. The Strategic Direction is to be implemented through a tactical Performance Improvement Program (PIP) code named the STEP-UP 90 Program premised on four perspectives of the balance score card: (i) business process and growth, (ii) customer perspective, (iii) financial perspective and (iv) learning and people perspective. Following is a brief account of the NWSC 5-Year Strategic Direction and Corporate Plan.

IR 1 REVIEW THE NWSC PERFORMANCE IMPROVEMENT PROGRAMS

NWSC planning framework is based on the Corporate Plan which is a three year planning cycle document. In tandem since 2000, the NWSC has operated within the framework of Performance Contract with Government of Uganda. Within the overall framework of the Corporate Plan and the Performance Contract with the Government, the NWSC has over the years adopted several high impact short term

performance improvement programs. The programs include: 100 Days Program, Service and Revenue Enhancement Project (SEREP) I and II; Area Performance Contracts I, II and III; Stretch Out Program; One Minute Management Concept; and the Internally Delegated Area Management Contracts (IDAMC's). This was accompanied by financial and commercial reforms which comprised of strengthened Management of Information Systems (MIS) and tariff structure changes.

The NWSC long term planning framework is defined by five catalysts among them SMART goals and strategies which are grouped into long term and short term approaches aimed at discerning between quick wins and long term goals and strategies. The 5 –Year Strategic Direction is therefore aimed at gearing the NWSC for sound transformational changes within its operational and geographical mandate and was prepared within the following context:-

- a) First, it is aligned to the NWSC Corporate Plan 2012-2015, and therefore does not in any way conflict with the aspirations of the goals of the organization;
- b) Second, it contextualizes the NWSC future goals in a longer term perspective, which implies that the next Corporate Planning cycle will seamlessly flow in tandem with the Strategic Direction;
- c) Third, it takes into account the strategic and dynamic overarching government policy direction of transforming the Ugandan economy from a farming society to a modern and prosperous economy as enshrined within the National Development Plan (NDP) and the Vision 2040;
- d) Fourth, it is also aligned to the ambitious and achievable urban water sector goal of achieving 100% water coverage in the medium term through building of synergies through the expansion of the mandate of the Corporation to cover all the urban areas;
- e) Finally, the Strategic Direction was formulated professionally through a consultative process involving all stakeholders, implying that the buy-in process was comprehensively addressed.

It should be noted that the undertakings and aspirations of the Strategic Direction are in alignment with the Corporate Plan and Performance Contract and are all geared towards achieving the following key outputs:-

- Financial sustainability;
- Infrastructure growth;
- Increased coverage for water and sewerage services;
- Learning and growth;
- Improving customer care; and
- Meeting stakeholder expectations.

Key among the strategic focus areas will be increased coverage and supply reliability, improved asset management aimed at tackling the current water losses (non-revenue water), improved customer interface and satisfaction coupled with enhanced collaboration with stakeholders, increased revenue growth and mobilization of resources for investment, improved staff capacity development and welfare, and enhanced research and innovation.

The USAID/EA PREPARED Project will by the use of a facilitator will facilitate a visioning workshop in early September, 2014 and then carry out a service audit and implement a performance improvement plan for the remaining ten months of this Strategy starting November, 2014.

IR 2 INTRODUCE QUALITY SERVICE IMPROVEMENT PROGRAM (QSIP)

Quality Service Improvement Program (QSIP) is an inter-locking series of activities within an organization to move it towards a more service- /and customer – focused culture. Sometimes called “organizational culture change” campaign, it attempts to change attitudes, behaviors, and the actual practices within an organization.

There are five phases to the QSIP. These are:

1. **The Visioning and Values Workshop:** commitment from the top is an absolute necessity if quality service and customer satisfaction are to be more than a slogan. The NWSC officials and senior management team conduct a one –day workshop in which they develop a clear vision of their approach to service and excellence, a service strategy, and a service credo of organizational values relative to service excellence. These managerial expectations will be further developed and communicated throughout the organization during the implementation of QSIP. This workshop is planned to take place in Jinja during the first week of September, 2014.
2. **The Service Audit Workshop (in two stages):** A small, committed team of NWSC employees form the service audit team with a critical role to play will be expected to:
 - Assess key points of contact in their service delivery processes;
 - Conduct an employee survey to identify opportunities for improving service;
 - Design and implement one or more customer feedback instruments to get direct feedback from citizens and customers on how they can improve their services;
 - Finalize the service credo;
 - Develop service improvement recommendations that could be realistically implemented within the NWSC Jinja area of operation; and
 - Create performance pledges in the different departments for display to the customers.

The service audit team presents their recommendations for service improvements to senior management and work with management to implement the improvements. The service audit will be carried out on day two after the Visioning and Values Workshop in Jinja in September, 2014.

3. **The Action Planning Workshop:** Senior management along with the service audit team develops a plan on how to implement the recommended improvements. For the subsequent two or three months, they implement the improvements. This will be implemented in the remaining ten months of the Strategy from November 2014 to August, 2015.
4. **Building Customer Service Skills:** Training department staff is an important part of service management. This phase includes a skill-building training workshop for those staff interacting directly with citizens and customers. During the workshop, management will communicate the service vision and values, and the service audit team will present their service recommendations. Generally, all staff who have some contact

with citizens attend this workshop. This phase of QSIP will be implemented in the remaining ten months of the Strategy from November 2014 to August, 2015.

5. **Follow-Up and Celebration of Results:** A final event is held to report on the accomplishments of the QSIP; this is usually held about four or five months after QSIP is initiated. Staff is recognized for their work in improving their services to customers. Management reports on their accomplishments. The Managing Director of NWSC and Management members will attend to show their appreciation to the staff. Media coverage will be encouraged to improve the understanding of citizens on how the NWSC Jinja is improving their service, and to show the positive efforts being undertaken. This will take place in August, 2015.

PREPARED will introduce, demonstrate, and institutionalize a Quality Service Improvement Program (QSIP), which will foster a service culture by involving managers, staff who provide the service, and customers (or service users) in establishing service standards and defining the means to achieve them. PREPARED will train the NWSC Jinja in QSIP and assist in piloting it within its area of operation. The NWSC Jinja will implement QSIP by conducting service audits and prepare service improvement strategies.

SO 2 DEVELOP INTERACTIVE CUSTOMER SUPPORT AND OUTREACH FRAMEWORK AND STRATEGY

SO 2 Measures of Success July 2014 – August 2015

- Baseline Customer Satisfaction Survey
 - Workable Customer Engagement Framework and Strategy
-

The PREPARED Project intends to support the NWSC, to begin addressing the issue of NRW by improving the culture of service provision by building the Performance Improvement Program, and more broadly through the development of an effective Customer Engagement Framework and Strategy. The PREPARED Project expects to work with NWSC-Jinja, in partnership with ITRON (France), to begin addressing engineering aspects of NRW. Under this grant, the following specific activities will be accomplished:

- Develop a methodology of conducting the baseline Customer Satisfaction Survey;
- Conduct baseline Customer Satisfaction Survey by use of Focus Groups Discussions (FGD's) to collect the data;
- Analyze the Customer Satisfaction Survey data gathered and write a Customer Satisfaction Survey Report;
- Develop a workable interactive Customer Engagement Framework and Strategy;
- Test and institutionalize the Customer Engagement Framework and Strategy;
- Develop the capacity of special groups/communities through sensitization and awareness creation; and
- Carry out evaluation of the interactive Customer Engagement Strategy by the stakeholders.

IR 1 CONDUCT BASELINE CUSTOMER SATISFACTION SURVEY

In their NWSC Jinja NRW 2013 Audit, the African Water Association and the USAID Further Advancing the Blue Revolution Initiative (AfWA-USAID/FABRI) recommended that there is a need of establishing regular customer surveys to identify missing customer connections and to strengthen billing procedures. In April, 2014, USAID/East Africa PREPARED Project observed that the management of NWSC Jinja prioritized NRW reduction and issues of meter theft and illegal water connections as key areas to be addressed. Other areas of concern involved tampering and the huge work load for meter readers, as they are 285 meters a load on average per day during the 7 day monthly billing cycle. NWSC has also identified a trend where disconnected customers don't want to reconnect to the network even after the Utility has instituted customer friendly measures.

Using the USAID Grant Program, PREPARED Project will hire a local NGO (Grantee) to conduct a baseline customer satisfaction survey in the utility area of operation during the month of August, 2014. The survey will use focus group discussions (FGD's) to collect the required data and present the findings in a Baseline Customer Satisfaction Survey Report. The results of the survey will be presented in a stakeholder workshop in October, 2014.

IR 2 BUILD CUSTOMER ENGAGEMENT FRAMEWORK AND STRATEGY

The AfWA-USAID/FABRI NRW Audit Report 2013 proposed several recommendations in order for NWSC Jinja to address the high levels of NRW. However, despite implementing these recommendations, the level of NRW in Jinja still remains high. NWSC Jinja documents over 30 cases of illegal water connections every month and it is seen that customers do not chose to reconnect to the network. Currently, NWSC Jinja NRW levels are higher than the World Bank and country specific targets.

In order to deal with these challenges, NWSC Jinja has implemented several institutional arrangements that enable it to interact with water users to improve service provision. These include supporting the following groups:

- **Local Water User Committee**, which is composed of the District Water Engineer, Representatives from the Customers and NGO's, Municipal Council, District Environment Officer (DEO), Local Council (LC) I and the NWSC Jinja;
- **Water Safety Plan Committee** (Jinja is the pioneer of this committee, which focuses in the Lake Victoria EAC Partner States towns of Kisumu, Jinja and Mwanza. The aim of this committee is to find ways of protecting the water sources from pollution). Its membership include DEO, Municipal Engineer, Town Clerk, Resident District Commissioner (RDC's), Finance Officer, Representatives from Customers and big industries-Breweries, Bidco and Nile Agro plus five members from the NWSC Jinja;
- **Stakeholder Management Committee**, which is between NWSC Jinja and different stakeholders for planning and reporting on progress.

The local NGO hired under IR 1 above will develop, test and institutionalize a Customer Engagement Framework and Strategy in September and October, 2014 and develop the capacity of special groups/communities through sensitization and awareness creation as well as carry out evaluation of the interactive Customer Engagement Strategy by the stakeholders at the end of August, 2015.

SO 3 IMPLEMENT ENGINEERING AND ICT SOLUTIONS

SO 3 Measures of Success July 2014 – August 2015

- NRW level in NWSC-Jinja reduced by 5%
- Mobile Apps and Platform are part of NWSC ICT communication tools

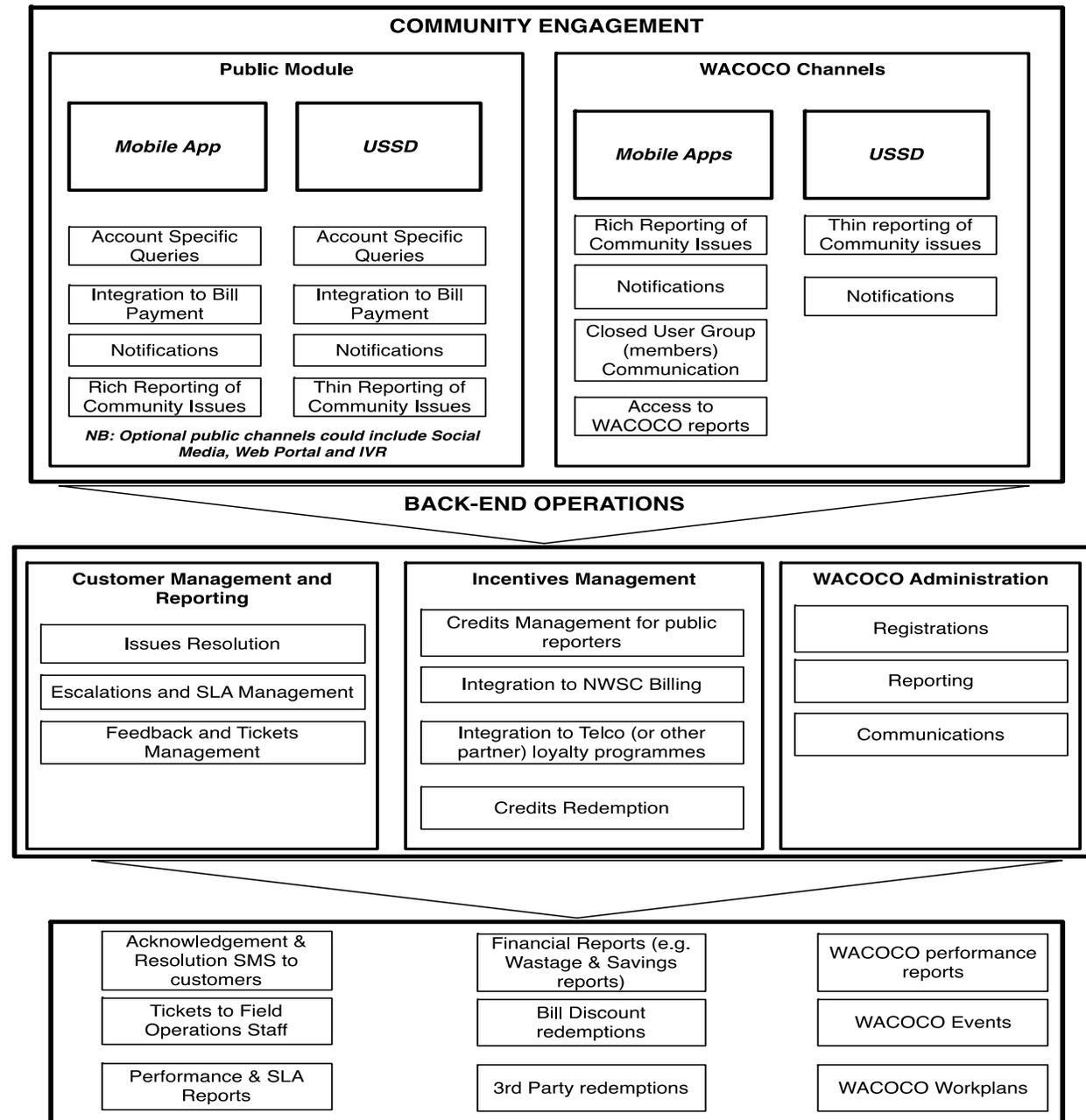
Too frequently, countries try to address water demand gaps by developing new water supplies. A utility's highest priority should be that they are making efficient and productive use of as much of the water entering the system as possible by reducing water losses. Lower cost interventions to reduce water losses can yield impressive gains without substantial new investments. One of the major challenges facing water utilities in the developing world is high level of water losses caused by leakage, theft, and problems with billing. High rates of NRW significantly reduce the amount of water available for allocation and impact the financial viability of water utilities through lost revenue and increased operational costs. NRW also reduces a utility's capacity to fund service expansion, especially to the poor.

Information and Communication Technologies (ICT) such as mobile phones and computers in combination with geographical information systems (GIS) can be used innovatively by Water utilities to obtain information in real time about water leaks, water thefts, unauthorized water consumption and metering inaccuracies, data handling errors and undertaking customer satisfaction surveys. The availability of information about current conditions in a particular situation on a timely basis is crucial for decision making in water utility management. ICT provides a unique opportunity for Water Utility Managers to obtain information in near real time about the premises meter number, physical location of a pipeline burst/leakage and other variables such as DN size of pipe, material type of pipe, and others through web enabled mobile phone softwares and communication networks, and can thus have accurate information about the situation at hand (without physically being there) for their decisions.

IR 1 DETERMINE DISTRICT METERING AREAS (DMA'S)

The National Water and Sewerage Corporation (NWSC) Jinja area of operation produces about 513,239m³ of water monthly from Lake Victoria to supply to 15,712 household connections in the areas of the Central Business District (CBD), Njeru and Bugembe along the Iganga Road with a total population of 280,000 people. The big factories in Jinja that get water from NWSC are Nile Breweries, Bidco and Nile Agro. The Utility has 11 DMA's and in order to help NWSC Jinja tackle the NRW challenges, the PREPARED Project with funding from USAID East Africa and in conjunction with ITRON France has embarked on a partnership to reduce the high levels of NRW. The partnership will introduce management and technical tools and systems that will enable the water utility reduce its water losses. The concept will use the **Pareto's Principle - The 80:20 Rule**, which means that 80 percent of the partnership outcomes (benefits) will come from 20 percent of our inputs (efforts) to reduce the NWSC Jinja NRW. The Project will determine the DMA's that contribute 80% of the problem and try to tackle 20% of the issues to have an 80% maximum impact on NRW reduction. This activity is planned to take place together with the other activities from September 2014 to August 2015.

IR 2 INTRODUCE ICT APPS AND PLATFORMS (E.G. IFORMBUILDER, MAJI VOICE, ISSD CODES)



The ICT Framework under this Strategy aim at linking the community to the Utility via the Water Community Communication (WACOCO) channels by the use of mobile Apps and USSD codes. PREPARED Project will implement this ICT framework in NWSC headquarter offices in Kampala, with emphasis on NWSC-jinja. The entire ICT framework implementation is proposed to start in July, 2014 and be completed in March 2015.

IR 3 IMPROVE METERING POLICIES AND PRACTICES

NWSC Jinja has different types of meters that include Kent, Arad and Socam, and are also of different ages. Procurement of the meters is done centrally at NWSC head office in Kampala within the relevant Government of Uganda Procurement Act. Meter customer information includes customer name, address, meter type, serial no, size, installation date, age, and average consumption. Such information is very useful, especially in meter management, and in serving as an input when the meter policy has to be revised. Also, this data comes handy when using the Itron Intelligent Software to analyze the various parameters which inform which meter are not function properly. Meter replacement is based on verified non-functioning of the meters. There is a meter replacement policy in place, which states that the age of a customer meter should not exceed 15 years. NWSC is in the process of reviewing the maximum age of meters downwards to 10 years.

PREPARED project in partnership with Itron will develop a meter replacement policy which is not based on age limit, but on the data being generated by the meter after being analyzed by the Itron Intelligent Software. The acquisition of customer data with Itron Intelligent Software will be done in July and August, 2014. Validation of this data will also be carried out in the month of August and 1st week of September, 2014. After analyzing this data, Itron will develop a NRW Engineering Solution Action Plan by October, 2014 and implement it between October 2014 to August 2015.



IR 4 IMPLEMENT PROPOSED SOLUTIONS FOR NRW

The results generated from the analyzed data by Itron Intelligent Software will give guidance on the choice of interventions to achieve greater impact on NRW in NWSC Jinja. As indicated earlier in the 2.0 on Strategic Objectives, SO 3, IR 1, PREPARED Project in partnership with Itron, will use the **Pareto's Principle - The 80:20 Rule** in order to meet the objectives of reducing the NRW in Jinja from the current level of 44% to 39% or even less by August, 2015.

Most of the proposed NRW interventions (solutions) will be implemented from October 2014 to August, 2015.



3.0 OPERATIONAL PRINCIPLES

The Strategy's operational principles provide the foundation of how Non-Revenue Water issues will be integrated into NWSC programming. These principles, consistent with the NWSC Policy Framework, are essential to improving the quality of water supply services to its customers within the Republic of Uganda and the National development agenda on increasing water security.

OPERATIONAL POLICIES

- ❑ Support NWSC ownership
- ❑ Build in sustainability from the start
- ❑ Leverage “solution holders” and partner strategically
- ❑ Promote gender equality and female empowerment
- ❑ Leverage science and technology
- ❑ Measure and evaluate impact
- ❑ Achieve resilience

SUPPORT NWSC OWNERSHIP

PREPARED Project should be responsive to NWSC's development path, in accordance with the principle of Uganda's led development. The Project should seek out and support NWSC Board of Directors and Management so that they can help promote NRW water policies and programs in the Utilities. The Project investments should build on existing efforts, assessments, and programs that NWSC and/or other donors may have already taken. PREPARED will invest in social analysis, capacity building and developing the capacity of institutions at the appropriate governance level. PREPARED will ensure that its programming is inclusive and transparent, and that planning processes involve a range of stakeholders, including men and women, youth, indigenous peoples and other vulnerable and marginalized populations.

BUILD IN SUSTAINABILITY FROM THE START

Approaches that support sustainable improved quality of water supply services are indispensable to meet long-term development objectives. Globally, the water community is moving beyond a simple focus on supporting first time water supply access to a more thoughtful consideration of ensuring that such access is sustained over time. The Partners (NWSC, Itron and PREPARED

Project) have been on the cutting edge of sustainable WASH service delivery in urban and rural areas, and this Strategy emphasizes our continuing commitment to this critical dimension of the water challenge. Sustainability of water supply systems is the key to long-term water security. The pillars of sustainability for water programs include: water demand management, sound governance and citizen participation, inclusion of the unique roles, responsibilities, needs, and access concerns of women, appropriate environmental design, and long-term behavior change.

To support sustainability, the Strategy seeks to strengthen governance and institutional capacity building in such areas as adapting to the water supply related impacts of climate change, delivering potable water to families, ensuring adequate supplies of water available to support economic growth, and mitigating potential conflict around water scarcity at the local, national, and regional levels. This Strategy supports building the capacity of women to lead in water governance, calls for greater support for professional trainings and courses for local professionals in water related fields, and emphasizes the development of technical and leadership capacities among local stakeholders. Additionally, through the implementation of the NWSC Jinja Non-Revenue Water Reduction, The Partners will seek to invest in longer term monitoring and evaluation of its water activities in order to assess sustainability beyond the typical PREPARED Project Cycle and to enable reasonable support to issues that arise post implementation.

LEVERAGE “SOLUTION HOLDERS” AND PARTNER STRATEGICALLY

Partnerships are a critical component to achieve the objectives and desired results of this Strategy. These partnerships will help develop innovative approaches to financing, specifically focused on achieving the Strategy’s core objectives.

The Strategy encourages coordination with new and existing partners and key “solution holders”, particularly non-governmental organizations, civil society, the private sector, local and national governments, and international donors. The Strategy supports a more concerted effort to encourage strategic relationships with ongoing programs within NWSC Jinja. Achieving the Strategy’s goals will require concerted effort to leverage support through the tri-party partnership between NWSC, Itron and PREPARED Project in financing equipment and infrastructural developments.

PROMOTE GENDER EQUALITY AND FEMALE EMPOWERMENT

The Strategy ensures that project interventions meet women’s needs. This includes safety and security issues, specific concerns related to disaster risk reduction for women and children, and

leveraging women's leadership. In both the home and the community, the role women play in ensuring the success of water supply programming and access to safe water is paramount.

Women, in much of the developing world, are responsible for finding and providing water for their families. This is in addition to their responsibilities related to crop production and livestock care.

Women and girls also bear the significant time burden and risk of collection from distant water sources. Particularly in poor rural areas, improving access to safe water, and thereby reducing the time women and girls spend on collection can lead to increased girls' attendance at school and women's involvement in income generating community and leisure activities.

The Strategy seeks to ensure that women are empowered to effectively advocate for their perspectives and priorities, and that they are able to fully engage as managers, and partners and entrepreneurs in water related activities and enterprises. The PREPARED Project can draw upon guidance provided in the USAID's Gender Equality and Female Empowerment Policy for integrating gender equality objectives in project design and gender advisors for technical support when developing and implementing water programs.

LEVERAGE SCIENCE AND TECHNOLOGY

When designed appropriately for the local context, and with attention to inclusiveness and gender sensitivity, innovations in science and technology can dramatically improve water supply and the management of water resources at regional, national, and local scales. Investments in technologies such as "maji voice", iFormBuilder, smart phone billing; ICT and geographic information systems; as examples, can help NWSC better manage water supply facilities, extend or improve access, promote quality services, and operate more transparently. The data collected through these sources can be used in hydrologic, hydraulic, and water supply demand management modeling software to predict the possible outcomes of water uses, assisting in a range of policy issues and utility water management systems.

MEASURE AND EVALUATE IMPACT

The Project will establish a NWSC Jinja Joint Task Force that defines key Non-Revenue Water and development challenges to be addressed as part of the Strategy implementation process and determine how impact will be measured and evaluated. This learning agenda will identify and disseminate lessons learned and best practices, including developing quantitative indicators and models related to the three Strategic Objectives. This should include collaborative research on the most effective integrated projects that combine service improvement programs. This we hope will improve the design, the introduction and the implementation of future NRW Programs and policies in Uganda and in other EAC countries in light of the Uganda experience in this regard. The NRW interventions related results and lessons learned from this project will be identified and widely shared within Uganda and the broader international water community.

ACHIEVE RESILIENCE

Through increased efforts to support improved quality water supply services and water demand management practices, the Strategy seeks to strengthen adaptation and resilience to climate change, in accordance with the East Africa Community Climate Change and Development Strategy. USAID's policy and program guidance on Building Resilience to Recurrent Crisis will further guide the project implementation and development approach.

4.0 ORGANIZATIONAL ROLES AND RESPONSIBILITIES

This section highlights organizational elements necessary to ensure effective implementation of the Strategy's activities. This Strategy will have short-term implications beginning in FY 2014 and continuing for the duration of this Strategy. The PREPARED Project, NWSC Jinja, ITRON, Mobile Telephone Companies in Uganda (MTN) and the Joint Task Force will coordinate the implementation of the Strategy.

The partnership will establish monthly targets for each organization using the indicators from the action points. The systems will be established to monitor the progress on a monthly basis.

- Indicators to measure progress in reducing NRW,
- Develop standards and prioritize investments.
- Develop Infrastructure Leakage Index (ILI) to monitor physical loss.
- Develop Apparent Loss Index (ALI) to monitor commercial loss.

The Joint Task Force will monitor and evaluate the progress regularly and will have memberships from:

- (1) The Ministry of Water and Environment, Uganda (Regional WASH Task Force Member/Focal Point)
- (2) General Manager, NWSC-Jinja
- (3) Technical Manager, NWSC-Jinja
- (4) Itron
- (5) PREPARED Project WASH Technical Advisor
- (6) PREPARED Project Partnership Specialist
- (7) PREPARED Project ICT Consultant
- (8) PREPARED Project M & E Specialist

The Chairmanship of the Joint Task Force will be under the Ministry of Water and Environment Uganda, and the Secretary will be NWSC-Jinja. The Task Force will meet at the end of July 2014 in Jinja to draw up its Terms of References (ToR's). The first Task Force meeting will be held as a side event during the consultative meeting with NWSC management and NWSC ICT team in Kampala in July, 2014. The Joint Task Force (JTF) meeting will hold five (5) Regular Meetings (RM) spread as follows:-

- TF RM I: 1st Week, September, 2014
- TF RM II: 4th Week, October, 2014
- TF RM III: 4th Week, December, 2014
- TF RM IV: 1st Week, April, 2015
- TF RM V: 2nd Week, July, 2015

3.1

PROPOSED ROLES AND RESPONSIBILITIES.

<p>PREPARED Project</p>	<ul style="list-style-type: none"> • Coordination of the partnership activities/ Partnership secretariat. • Development of the partnership concept. • Facilitate the design, formation and operationalization of the Water Community Communication (WACOCO) Network and the ICT platform. • Organize and develop community outreach program. • Based on agreed final design of NRW reduction program, co- fund the procurement of equipment's. • Provide support for monitoring progress/ success of the project. • Provide capacity building of the utility companies through Performance Improvement Program (PIP) and/ or Quality Service Improvement Program (QSIP). • Introduce a Water Utility iFormBuilder to address NRW and assist in data collection and reporting.
<p>ITRON</p>	<ul style="list-style-type: none"> • Conduct feasibility study for NRW. • Undertake Water Balance Audits • Design a NRW reduction Programme including zoning and DMAs. • Project development and implementation of a complete billing system, live/ complete billing solution • Monitoring and management of the big and strategic consumers • Modeling and implementation of ITRON NRW solution. • Monitoring of Water Production Plant and distribution / reticulation network. • Prepare action plan for NRW improvement. • Based on agreed final design of NRW reduction program, co- fund the infrastructure.
<p>NWSC</p>	<ul style="list-style-type: none"> • Participate in partnership activities such as training workshops and studies. • Implement the NRW reduction strategies. • Avail the data and statistics needed for the studies. • Based on agreed final design of NRW reduction program, co- fund the required infrastructure for NRW including the cross overs and DMAs. • Ring-fence the monies recouped from NRW solutions and re-invest it into NRW reduction initiatives (“close the loop”).

	<ul style="list-style-type: none">• Procure and maintain the Short code, the infrastructure and equipment's (Network, SIM Cards, and Smart Phones etc.) for the WACOCO Network.
Mobile Phone Operators in Uganda (MTN, etc.)	<ul style="list-style-type: none">• Provide infrastructure and equipment's (Network, SIM Cards, and Smart Phones etc.) for the WACOCO Network to function.• GSM/GPS Apps development.• Facilitate procurement of the Short code.• Support in publicity of the WACOCOC Network.

5.0 WORK PLAN

The National Water and Sewerage Corporation (NWSC)-Jinja Work Plan is to run for a period of fourteen (14) months in the Calendar Years 2014 and 2015 starting July, 2014 and ending August, 2015.

The Work Plan has four (4) Key Result Areas (KRA's) namely:

- (1) NWSC-Jinja Service Improvement Programs Built;
- (2) Interactive Customer Support and Outreach Framework Developed and Tested;
- (3) Engineering NRW Solutions Implemented; and
- (4) ICT NRW Solutions implemented.

There is provision for NRW Jinja Project management, where a joint Task Force comprised of staff from Ministry of Water and Environment Uganda, NWSC-Jinja, Itron and PREPARED Project will Monitor and Evaluate progress of implementing the Work Plan.

KRA I: NWSC-JINJA SERVICE IMPROVEMENT PROGRAMS BUILT

This KRA will commence on the first week of September, 2014, where PREPARED Project will facilitate a two day customer support program/visioning workshop in Jinja, Uganda with a view of targeting NWSC top Management to develop a clear vision and focus for organizational quality and service to “customers”, develop a strategy of service and prepare a draft of a “Service Credo”. By the time of going to this workshop, NWSC-Jinja will have constituted a team from each key department, which will undertake services audit after the workshop.

During the last week in the month of October, 2014, PREPARED project will facilitate a stakeholder validation workshop that develop a Service Improvement Action Plan to be implemented throughout the entire NRW reduction work plan period. By the end of August, 2015, PREPARED Project together with the NGO (Grantee under the Request for Applications - RFA) in KRA bellow, will facilitate a stakeholder evaluation exercise to evaluate the effectiveness of the Services Improvement Program.

KRA II: INTERACTIVE CUSTOMER SUPPORT AND OUTREACH FRAMEWORK DEVELOPED AND TESTED

PREPARED Project, by the use of USAID Grant Program, will engage a Ugandan Non - Governmental Organization (NGO), which will be tasked with three tasks:-

- Carry out baseline customer satisfaction survey and present the results
- Develop a customer engagement framework and strategy; and
- Develop the capacity of special groups/communities through sensitization and awareness creation.

The NGO will develop the customer engagement framework/ strategy in September and October, 2014 and present the results in the last week of October, 2014, during PREPARED project facilitated stakeholder validation workshop. The NGO will then test and institutionalize the framework/strategy in the remaining part of the NRW reduction work plan period. The stakeholders will have a chance to evaluate the framework /strategy implementation in at the end of August, 2015.

KRA III: ENGINEERING NRW SOLUTIONS IMPLEMENTED

During the months of July and August, 2014, Itron will acquire NWSC Jinja customer data and analyze it with Itron Intelligent Solution software. Itron will validate the customer data with field visits to Jinja and share the results during the first week of September, 2014, where PREPARED Project will facilitate a two day customer support program/visioning workshop in Jinja, Uganda. After the workshop, Itron will develop together with the Task Force a NRW Engineering solution Action Plan, which will be ready for implementation starting the second week of October, 2014. Together with the Task Force, Itron will Monitor and Evaluate the implemented NRW activities bi-monthly up to August, 2015.

KRA IV: ICT NRW SOLUTIONS IMPLEMENTED

The PREPARED Project ICT Consultant will finalize and share with NWSC the ICT Concept in July, 2014. During the last week of July, 2014, the PREPARED team will hold a consultative meeting with NWSC management and NWSC ICT team in Kampala. After this consultative meeting, the team will engage the mobile telephone providers (MTN, Airtel, etc.) in order to present t them the ICT concept on the use of ICT mobile Apps and Platforms to address NRW in Jinja and to request them to partner with NWSC, Itron and PREPARED Project to address the challenges of NRW in Uganda. The ICT Consultant will then finalize the concept and PREPARED Project will procure and engage an ICT Apps and Platform Developer, who will develop the Apps in the months of September, October and November, 2014. The pilot of the Apps and platform will take place during the month of December, 2014 and full roll out and publication of the Apps use will be in the last two weeks of December, 2014. Support and stabilization of the ICT Apps and handing over to NWSC will be done for three months starting January, 2015. There will be two months to monitor and evaluate the effectiveness of the developed ICT Apps and Platforms in mid-May and end of August, 2015 before the closure of the NRW reduction work plan. See detailed work plan in the next page

5.1 DETAILED WORK PLAN

NRW - Jinja Work Plan																		Responsibility	Resources	Comments/Remarks	
Component 3-WASH																					
Results	Specific Activities	Calendar Year 2014						Calendar Year 2015						Responsibility	Resources	Comments/Remarks					
		July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				Jul	Aug			
A NWSC-Jinja Service Improvement Program Built	A1	Review NWSC-Jinja Customer Service programs/Visioning Workshop																PREPARED	Faciliator		
	A2	Carry out Services Audit																			
	A3	Facilitate Stakeholder Validation Workshop with Results of Baseline Customer Satisfaction Survey																	PREPARED		
	A4	Develop Service Improvement and Action Planning																			
	A5	Implement Service Improvement Plan																	NWSC		
	A6	Develop the Capacity of NWSC-Jinja Staff																	PREPARED		
	A7	Carry out Evaluation of the Services Improvement Program by the Stakeholders																	PREPARED & NGO		
B Interactive Customer Support and Outreach Framework Developed and Tested	B1	Carry out Basline Customer Satisfaction Survey (i) Design the survey/Validate the tool; (ii) Conduct the Survey; (iii) Present Results;																	NGO		
	B2	Develop the Customer Engagement Framework and Strategy																	NGO		
	B3	Test and Intitutionalize the Starategy																	NGO		
	B4	Develop the the Capacity of Special Group/Communitie through Sensitization and Awareness Creation																	NGO		
	B5	Carry out Evaluation of the Interactive Custmer Engament Strategy by the Stakeholders																	NGO		

6.0 CONCLUSION

Achieving low levels of NRW for the East Africa region, and individual utility's is a great development challenge confronting the five EAC Partner States today.

At the individual and community levels, nothing is more fundamental to a safer and more secure future than ensuring the health of each and every child in a family and in their community. Nothing is more important than providing those same children with access to clean and safe water. At a regional level, this Strategy addresses the many challenges of improved quality to safe water services for all, as well as the EAC definition on access to improved water supply services. This Strategy reflects the commitment of the PREPARED Project to work in partnership with the global community such as Itron to meet these challenges and aims at building upon the slogan used during the Urbanization and Water Symposium in Mumbai Feb 2013, of **“Not All Water for Some”, but “Some Water for All”**, which has been adopted by NWSC in their water supply Strategic Focus.

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