

# LAKE VICTORIA REGION WATER AND SANITATION INITIATIVE

**REPORT ON MISSION TO RWANDA**  
**Sunday 18<sup>th</sup> – Saturday 24<sup>th</sup> November 2007**

## **Joint Technical Mission Report**

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Water Storage Reservoir - Rwamagana

## **1 BACKGROUND TO THE MISSION**

### **1.1 Objective of the Mission**

To carry out a preliminary technical assessment on prevailing water and sanitation conditions and the needs for interventions in the following proposed secondary towns: Rwamagana, Kayonza, Nyamata/Bugesera, Ruhengeri/Musanze, Nyanza and Nyagatare.

### **1.2 Composition of the Team**

- Mr. Robert Goodwin Chief Technical Advisor (CTA) Lake Victoria Water and Sanitation Initiative; Head of Mission;
- Ms Angela Hakizimana, Programme Officer; Lake Victoria Water and Sanitation Initiative; Water Sanitation and Infrastructure Branch
- Mr. Pieter Van Dongen, Consultant; Lake Victoria Water and Sanitation Initiative;
- Jacques Nsengiyumva, UN-HABITAT/WSIB National Programme Officer, Rwanda.

### **1.3 Anticipated Outputs**

A preliminary assessment report of the secondary towns, giving recommendations for the selection of pilot secondary towns;

### **1.4 Mission Preparation**

During the preparatory phase of this mission the UN-HABITAT Programme Manager (HPM) in Rwanda, Ms. Monique Sevumba, and Mr. Jacques Nsengiyumva made consultations with the Ministry of Lands, Environment, Forest, Water and Mines/MINITERE and in particular with the Ministry of State in charge of Water and Mines, and the Mayors of the proposed towns to prepare the mission. Furthermore, consultations were held with the Coordinator of One UN” Pilots Programme in Rwanda, UNDP Country Representative and UNDP Headquarters Office in Kigali.





## **2 GENERAL INFORMATION ON RWANDA**

### **2.1 History**

Rwanda is a small and landlocked country in Central Africa and is one of the most densely populated countries in sub-Saharan Africa with a population of 9 million and a high population density (337 people per sq. km). Kigali the capital has a rapidly growing population and within 30 years, its population has increased more than hundred times to be 604 049 inhabitants today. Rwanda is among the world's least developed countries, ranking 158 of 177 in the United Nations Development Program's 2006 Human Development Index. Some 60 percent of the population lives in poverty.

Rwanda became independent in 1962 after colonization by Germany (1899) and Belgium (1919). In 1961 its monarchical government was formally abolished by a referendum and the first parliamentary elections were held.

Political turmoil over the sharing of power and access to opportunities resulted in explosions of ethnic violence which have marked much of the recent history of the country. A civil conflict pitting the Hutu-led government against the Rwanda Patriotic Front (RPF), a Tutsi-led rebel movement, culminated in genocide, between April and June 1994. About 800,000 people (mainly Tutsis and moderate Hutus) were massacred by the army and the extremist Interahamwe militia. The RPF overthrew the regime in June 1994.

While the country is currently at peace, Rwandans continue to struggle with the legacy of genocide. National reconciliation is a long-term endeavour that has the full commitment of the Government and the support of the international community. The Rwandan Government has undertaken significant measures to consolidate reconciliation including the continuation of the demobilization and reintegration project for ex-combatants and a model of democratization focused on a decentralized administration.

Rwanda has also made significant strides, enacting a new constitution in June 2003 and carrying out the first multi-party presidential and parliamentary elections since independence in August and September 2003, resulting in the election of President Paul Kagame to a seven year term.

### **2.2 Economy**

Since 1994, Rwanda has been able to maintain overall macro stability and implement extensive reforms which have contributed to its strong growth performance. As a result of the reforms taken between 1995 and 2005, GDP growth rates averaged 7.4 percent per annum. Inflation has been contained at few than 10 percent since 1997, with the exception of 2004 when it reached 12 percent. By 1998, GDP had recovered to its pre-1994 level. Economic growth was driven by the recovery in subsistence agriculture and a construction boom during the reconstruction phase.

Macro-economic management has been satisfactory. A three year Poverty Reduction Growth Facility arrangement was approved by the IMF Board on June 5, 2006. Strong implementation of macroeconomic policies has enabled Rwanda to reach the Heavily Indebted Poor Countries (HIPC) completion point in April 2005 and qualify for the Multilateral Debt Relief Initiative (MDRI) in June of the same year. Parallel efforts have been made to put in place a sound economic governance framework, including independent

regulatory agencies, stronger public expenditure management systems with independent audit agencies, and a strong focus on anti-corruption, with strong support from the President.

Rwanda has made progress on the MDG targets in regards to drinking water. In fact, Water resources are abundant (rivers, lakes, and other artificial water reserves). From percentage coverage of 58% in 1990, Rwanda had reached 73% in 2002 with an increased coverage of 26% between 1990 and 2002<sup>1</sup>.

Despite the post-conflict rebound, Rwanda continues to be highly dependent on foreign aid to finance its development. External assistance funded 60 percent of total public expenditures on average over the last three years. The outlook for the Rwandan economy depends on peace and stability in the Great Lakes region and the economic and institutional reform program. In the absence of peace in the region or a significant reform program, growth, even under positive conditions, would remain below 6 percent per annum (which is the minimum needed to reach the poverty level of 1990 by 2020). Regional cooperation, especially in the infrastructure sectors, is therefore a pre-requisite to economic growth. Rwanda is making good progress. The country has joined COMESA and on July 1, 2007, formally joined the East African Community.

The government has developed a six-tier strategy to fight poverty; a result of a series of consultations on development challenges (as part of the broader reconciliation effort), and an integral part of their “Vision 2020,” which spells out a medium-term development strategy for the country. As a first phase of this strategy, the government prepared a Poverty Reduction Strategy Paper (PRSP) which focuses on six broad priority areas: (i) rural development and agricultural transformation, (ii) human development, (iii) economic infrastructure, (iv) good governance, (v) private sector development, and (vi) institutional capacity building.

The Government has recently completed and adopted its second PRSP, now called the Economic Development and Poverty Reduction Strategy (EDPRS). In order to achieve the Government’s long term development goals, the EDPRS has a strong focus on growth through improved economic infrastructure and greater productivity of agriculture. The EDPRS also pays particular attention to program implementation.

### **2.3 Development Assistance / Donor coordination**

Rwanda receives about US \$500 million in external assistance per year (which finances about 50 percent of public spending) from about ten significant bilateral and multilateral donors:

- About half of external assistance is provided through budget support (African Development Bank, DFID, European Commission, Sweden, and World Bank).
- The other half is provided through projects, using parallel delivery mechanisms and donor procedures (African Development Bank, Belgium, European Commission, Germany, Netherlands, UK, US, World Bank, and various UN programs and the Global Fund).

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<sup>1</sup> UNICEF: Meeting the MDG drinking water and sanitation target. A mid-term assessment of progress, 2004. Figure 5. Countries that increased coverage by at least 25 % between 1990 and 2002.

## **2.4 A Clean-up City Day**

Since 1997, a major campaign to clean up the heaps of garbage, ponds of mosquito-infested waters, has been implemented throughout in all the Districts of Rwanda, in urban and in rural areas. The campaign, dubbed "Clean-Up City Day", takes place every last Saturday of the month.

"The idea behind setting this day apart is to encourage city residents to become aware of the environmental hazard threatening their environment. Every last Saturday of the month, thousands of Rwandans take the day off work to pick up plastic bags and other garbage, as well as clean up drainage channels, as part of a government attempt to clean up the environment. Shops are banned from giving plastic bags to their customers and police are reportedly stopping plastic-bag users in the street.

The government of Rwanda is keen to keep Rwanda clean and the capital Kigali and other cities and secondary towns are much cleaner than most other African cities, where thin blue plastic bags can be seen in fields and on trees fluttering in the wind.

## **2.5 Empowering Women in Rwanda**

The following are examples of rapid changes that have taken place in Rwanda in empowering women over recent years:

- 30% of decision-making related positions are assigned to women;
- Local funds and micro-credits are provided for production projects led by women;
- In 2003 Article 187 of the new Rwandan Constitution formalised equity promotion structures such as the National Council of Women;
- A Gender Issues Monitoring Office was created, to facilitate the participation of women in public life and to ensure that development initiatives are egalitarian in generating benefits for both sexes.
- As a result of these changes many women entered public life as political leaders. In the Chamber of Deputies seats held by women increased to 48.8%. There is also a significant increase in the participation of women at ministerial and local government levels.

## **2.6 Vulnerable groups**

During this assessment, the following groups were found to be vulnerable:

### ***Returnees from Tanzania***

Since May 2006, Tanzania has sent back some 15,000 persons to Rwanda. Some have lived in Tanzania for decades or were born there and have never lived elsewhere. According to some officials, the operation is targeting a total of 60,000 persons of Rwandan origin.

Some returnees have been able to return to families and communities familiar to them, but thousands of others, remain in precarious conditions in camps because they have no land or families to return to. Many of these returnees are located in Kayonza District.

### *People living with HIV/AIDS*

Rwanda faces a generalized epidemic, with an HIV prevalence rate of 3.1 percent among adults ages 15 to 49. The prevalence rate has remained relatively stable, with an overall decline since the late 1990s, partly due to improved HIV surveillance methodology. In general, HIV prevalence is higher in urban areas than in rural areas, and women are at higher risk of HIV infection than men. Young women ages 15 to 24 are twice as likely to be infected with HIV as young men in the same age group. Populations at higher risk of HIV infection include people in prostitution and men attending clinics for sexually transmitted infections.

The Government of Rwanda has a national HIV/AIDS action framework developed collaboratively with the U.S. Government (USG) and other major partners. The USG works with the Government of Rwanda to coordinate resources in support of the Rwanda National HIV/AIDS Strategic Plan (2005-2009), the HIV/AIDS Treatment and Care Plan (2003-2007), and the National Prevention Plan. The USG also provides advisors and technical assistance to institutions in the Office of the Minister of State for HIV/AIDS and the Ministry of Health

According to UNAIDS, the situation on HIV/AIDS is as follows:

- National HIV prevalence rate among adults (ages 15-49): 3.1 percent<sup>2</sup>
- Adults and children (ages 0-49) living with HIV at the end of 2005: 190,000
- AIDS deaths (adults and children) in 2005: 21,000
- AIDS orphans at the end of 2005: 210,000

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<sup>2</sup> Figures are from the 2006 Report on the Global AIDS Epidemic, UNAIDS

### **3 BRIEF OVERVIEW OF THE WATER AND SANITATION SECTOR IN RWANDA.**

*(In this chapter excerpts have been used from the “Sectoral Policy on Water and Sanitation” published by the Ministry of Lands, Environment, Forests, Water and Natural Resources – MINITERE, October 2004)*

#### **3.1 Water Sector Policy**

Since 1996, tremendous efforts have been made to launch a national policy for the management of water and sanitation sector that consists of strategies and programmes for the construction and rehabilitation of human resources, social and economic infrastructures, and, to finally develop a long term vision in order to provide better guidance for the development and the coordination in this sector.

Based on the sector-based policy project on water and sanitation developed in 1992, revised in 1997 and as well in 2001, Rwanda consequently formulated a new policy which defines guidelines for efficient use of resources and which also integrates new aspects such as decentralisation, participatory approach, privatisation and funding through programme approach. This policy is in harmony with MDG objectives and 2020 Vision which cater that all of its population will have access to drinkable water and to sanitation services. Also, this policy takes into account commitments taken through regional and international arrangements related to water resources management and environment.

#### **3.2 Socio-economic context:**

With an estimated population of about 8,162,175 inhabitants in 2002 and an annual population growth of about 3.1%, Rwanda is one of the most densely populated countries in Africa (density estimated at 310 inhabitants per m<sup>2</sup>).

With an urban population of only about 10%, the Rwandese economy remains highly dependent on the rural sector, especially agriculture which contributes a little over 40% to the GDP and accounts for more than 80% of its export earnings. Factually, the agriculture depends largely on the effect of rain.

According to a 1998 UNICEF study, 50% of the households spend at least ½ hour per day collecting a 20-liter jerrycan of water, while a quarter more spends over an hour per day. These estimates do not even take into account the considerable energy and effort that women and children put into transporting these jerrycan. Water sources are usually found in valleys, at the foot of mountains and hills, whereas the people live on hill and mountain tops. The situation is quite worse in the east of the country, especially in the new province of UMUTARA where there are virtually no natural water sources and where it is therefore necessary for women and children to walk several kilometres before reaching the nearest water point.

Rwanda possesses abundant water resources. However, the distribution of drinkable water is still inadequate and the rate of access in the country is estimated at 54% but does not exceed 44% in the rural areas. Regarding the sanitation, even though over 80% of the country's population has access to latrines, only 8% of these meet hygienic standards.

The non-availability of drinking water has two main negative impacts on the community such as: (i) the time spent in fetching water which is lost in income generating activities and particularly the schooling of girls and (ii) the diseases caused by use of improper water with various consequences on health and social conditions of the population.



### **3.3 Socio- political context:**

The Government of Rwanda implemented a reform programs which will lead to a strong and sustainable economic growth, to the creation of new jobs and to the improvement of the social conditions of its population.

In addition, social and political reform programs, which aimed at that improving the governance and at giving more responsibility to the population through a decentralization and democratization process, were implemented.

The implementation and the application of the decentralization favour this policy through operational community structures such as the CDCs (Community Development Committees). The creation of the Community Development Fund is an example of a favourable framework that leads to the financing of beneficiaries.

Applied to the WSSS sector, this participatory approach will allow:

- to improve the level of community participation in rural infrastructure planning and management
- to entrust the management of WSSS projects to CDCs and to prepare master plans for the private sector or for the users themselves,
- to entrust the management of the installations to the users themselves,
- to avoid the subsidy of investments which are requested by communities; and
- to institute a transparent, fair and decentralized financing mechanisms.

### **3.4 Regional and International Context**

Rwanda shares two water catchments (Nile and Congo) with neighbouring countries: Burundi, Tanzania, and Uganda for River Nile and the Democratic Republic of Congo for the Congo Basin.

Rwanda, via the Akagera River, is the major source of the Nile. Indeed, the Akagera River is the most important tributary of Lake Victoria from which flows the River Nile. Regarding the Congo Basin, Rwanda contributes largely to feed Lake Kivu and Rusizi River. Rwanda must therefore collaborate with the neighbouring countries of the Nile Basin for a common development of the basin's management.

Because of the pertinent activities which take place in those basins, Rwanda has become a member of organizations whose objectives are to contribute to the regional cooperation development with neighbouring countries in order to find possible solutions such as economic development, environmental protection, etc...

Regarding the international cooperation, Rwanda is a member of regional organisations such as NEPAD, AMCOW, NBI, EAC, etc...

### **3.5 Key Institutions Involved in the Water Sector**

The main institutions active in the water sector are:

- Ministry of Lands, Environment, Forests, Water and Natural Resources (MINITERE)

- Ministry of Agriculture (MINAGRI)
- Ministry of Infrastructure (MININFRA)
- Ministry of Health (MINISANTE)
- MINALOC (Ministry of Local Government)
- RURA (L'Agence Rwandaise de Régulation des Services d'Utilité Publiques)
- ELECTROGAZ – National Electricity and Water Utility

### **3.6 Water Supply and Sanitation Sector Policy is based on:**

#### **(i) 2020 Vision**

- Access of all to drinking water and sanitation
- Integrated and sustainable water resources management with focus on secured satisfactory water needs
- Water collection, conservation and utilization for an economic development.

#### **(ii) Poverty Reduction Strategy**

The sustainable improvement of the water and sanitation sector is essential and offers many advantages:

- i) positive impact on maternal and children's health;
- ii) improvement and enrolment of schooling specially for girls;
- iii) reduction of time passed in fetching water by women ;
- iv) reduction of health expense services both for the households and for the Government, particularly for the diseases related to water like diarrhoea ;
- v) increase of productivity because of better health.

The main objectives of the sector are to: improve the water supply systems; optimize use of water in agricultural sector, energy production and transport; encourage the management of water supply infrastructure by communities; increase the access to the sanitation services; and reinforce the capacity building at all levels (central and district).

#### **(iii) National Investment Strategy**

The national investment strategy encourages studies of the conditions of involvement of the private sector and implementation of water supply systems in rural and urban areas at affordable costs for the consumers. The state will continue to play its leading role in the development of the water sector through the provision of the necessary infrastructure.

The role of the private sector, which is solicited, was limited to the construction and furniture of the construction materiel for public tender. The policy will encourage the private participation in the mobilization of investments, the development and management of drinking water and sanitation infrastructures. The promotional mechanisms will be put into place. Local financing initiatives of activities in rural areas will be sustained.

(iv) **Seven-year Government Programme**

During the 7-year government programme, the following sector-based reforms will be pursued:

***Institutional aspects***

A coordination framework of the sector that defines the role of the principal partners will be undertaken in order to avoid the dissipation of efforts. Legal and regulation instruments will delimit the responsibility of each partner.

***Decentralization***

For the water and sanitation sector, the existing implementation mechanisms will be reinforced and enabled to establish the decentralization at the lowest appropriate community level.

***Participatory Approach***

The sectoral policy of water and sanitation will develop participatory approach where the population and the stakeholders will play an active role in the planning and the execution of all activities related to the utilization and the conservation of water.

***Programme Approach***

The new policy stresses on a programme approach which takes into account all sector activities formerly devoted to projects. The advantages of this programme approach lie in the coherence of the activities and in the respect of national priorities that all partners agreed on. Also, this programme approach enables the focus of the major part of the investments on sustainable actions that greatly improve the sectoral indicators of the poverty reduction.

***Reinforcement of the Roles of women and children***

The particular situation that emerged after the war and the genocide makes the women's social group quite crucial and very vulnerable. In addition to their traditional responsibilities like fetching water for domestic use, women now acquired a new responsibility as household chiefs. This role of fetching water is shared by the infants who, at school age, waste a lot of time performing these activities instead of attending school. Thus, each project that increases the access to drinking water and sanitation services should therefore take into account the concerns of these two groups.

***Participation of the Private sector***

The policy will encourage the private participation for the mobilization of investments and the development and management of drinking water and sanitation infrastructures. The promotional mechanisms will be put into place. Local financing initiatives of activities in rural areas will be sustained.

***Capacity building***

Capacity building programs will be implemented at all levels. These programs will include the development of technical and human capacities such as training, information exchange, technology transfer, active participation in international fora, equipment acquisition in order to ensure efficient sanitation and water resources management functions.

### ***Integrated Watershed Management***

Within the decentralization, this system favours the development of coordinated management of water and related resources. It will be adopted and undertaken within the watershed. The principles of this policy of decentralization serve as proposed guidelines for necessary institutional aspects for the implementation of this integrated management by watershed.

### ***Monitoring and Assessment***

The monitoring and assessment of the implementation of the sectoral water and sanitation policy is an important aspect that will allow better resource management and to ensure that objectives, strategies and actions will attain the expected results. The monitoring and assessment organs will be put into place at all levels (beneficiaries, decentralized entities and central structures).

### **(v) International Development Goals**

During the last thirteen years, consecutive world summits and conferences on population development have established framework actions based on common goals and objectives:

- i) United Nations Conference on human environment held in Stockholm;
- ii) Rio de Janeiro conference (1972) which decided on action plans called « Agenda 21 »;
- iii) World summit on Sustainable Development held in Johannesburg; and
- iv) NEPAD summits

#### **o Agenda 21**

The United Nations Conference on environment and development held in Brazil had an objective to establish a new world balance of partnership in order to create new levels of cooperation between countries in key sectors.

Concerning water, strong interest was focused on the development and on the integrated water resources management, water resources protection, water and sustainable development in towns and rural areas, and impacts of climate changes on water resources.

#### **o Millennium Development Goals**

For water and sanitation, the United Nations has adopted, for this millennium, the following action plans:

- Reduce by half the percentage of the population that has no sustainable access to drinking water and sanitation by 2015 ;
- Develop water resources management frameworks ;
- Increase the production benefits by water in irrigation systems for food security, suppression of the pressure on environment, promotion of the possibility to use water in other productive sectors ;
- Safeguard human lives by ensuring acceptable drinking water quality ;
- Mobilize the financing of national resources investment needs in the water sector ;
- Reinforce the institutions and techniques of the country in order to implement integrated water resources management policies ;
- Protect the water surface quality and groundwater as well as the aquatic ecosystems and coastal regions.

The Rwandan Government commits itself to reducing by half the percentage of the population that has no sustainable access to drinking water supply and sanitation by 2015.

### **3.7 Overview of the Sector Problems**

#### **a) Inadequate Infrastructure**

Despite all the efforts, the level of water supply coverage (54%) is still below the desired threshold. Daily consumption per capita in rural areas is put at 8.15 litres, a figure far less than the consumption standard of 20 litres per capita. More than one third of the drinking water supply infrastructure needs to be rehabilitated.

#### **b) Insufficient Expertise**

The water and sanitation sector is characterized by a number of programmes and activities whose implementation calls for expertise which is currently not available in the country. To attain the planned performance, concerned services depend on foreign experts whose services are very expensive. This situation is much more worrisome, particularly at local administrations level which are required to implement the government policy.

#### **c) Insufficient Data on the Actual Situation in the Sector**

To date, the country's water resources are unknown. The existing database is poor. The little information that exists is scattered and sometimes badly kept. The establishment of an information system on water resources is therefore essential in order to have a reliable planning and decision making tool.

#### **d) Limited Participation of the Private Sector**

Up to now, the private sector has not yet shown interest in investing in the establishment of water and sanitation infrastructure. Only two international enterprises are involved in the management of water infrastructure, one in the rural area, and the second has just taken over the management of Electrogaz.

However, there is hope that through the sensitization efforts currently deployed by the central government, private initiative will be stimulated for increased investment in this sector.

#### **e) Decentralization Process Not Achieved**

In May 2000, the Government of Rwanda adopted a decentralisation policy and strategy with the objective of giving the population the power to make political, economic, social and technical decisions as well as decisions for the management of public property, mainly with a view to fighting poverty. The implementation of this policy and strategy is under way. In the water and sanitation sector, implementation of decentralisation had started earlier with the introduction of the participatory approach through the Rural Water and Sanitation Project. However, implementation is still dogged by lack of sufficient financial and skilled human resources to have it established firmly at the lowest level, i.e. at the grassroots level.

### 3.8 Sector Constraints and Opportunities

Today, the major obstacles that face the development of water and sanitation are the following:

- (i) The institutional framework for the coordination of water resources management as well as the mechanisms for the monitoring and assessment is weak.
- (ii) The data regarding the importance of water resources are insufficient and fragmentary. This is the same for the importance of requirements in drinking water, agriculture, and energy production and in industry. The scattered settlements don't favour easy access of water to the population. And when the drinking water is available, not all of the population have access to it because of their low purchasing power.
- (iii) The participation of women in water infrastructures is insufficient and the analysis of gender mainstreaming problems is not systematic
- (iv) The country is not yet equipped with national standards for drinking water quality, distribution and sanitation.
- (v) Rain water harvesting techniques uses are not yet mastered and disseminated.
- (vi) Water used in agriculture sector is insignificant, because irrigation is not developed. Likewise in the industrial sector where data on usage are not available and the waste water management is non-existent.
- (vii) The water use for electricity production is still very low because it represents only 68% of total needs. But ample production potential exists to satisfy the increasing demand as a result of the population growth.
- (viii) Despite the existence of watercourses and transboundary lakes open to navigation, transport and tourism are not implemented as a way to develop the efficient use of water and to fight poverty.
- (ix) The very high population growth rate (3.1%) has resulted in a remarkable reduction forest massifs and reforestation for the energy production domestic use.
- (x) Strong soil erosion in the water catchment basins doesn't favour the normal replenishment of groundwater.
- (xi) The industrial development and the demographic pressure are the main causes of chemical and biological pollution that affects the population life.
- (xii) The funds allocated for the development of the sector are still insufficient and don't meet the requirements.
- (xiii) The human capacities to develop and manage the sanitation and water sector in a satisfactory matter are not yet sufficient in term of quality and quantity.
- (xiv) The mechanisms for the implementation of the decentralization policy option as a way to achieve easily the development of all the population are not yet defined with regards to water resources development and management.
- (xv) At present, the water and sanitation sector is a prime concern for the Rwandan government. The private sector and the consumers participate poorly in the investment and the management of water and sanitation infrastructures.
- (xvi) The hygiene and sanitation culture is not yet generalized.

- (xvii) While 80% of the population have access to pit latrines, it is observed, nevertheless, that only very few respect the hygienic conditions.
- (xviii) Due to lack of appropriate facilities (collection systems for solid waste and sewage waters, drainage systems for rain water, etc ...), the health conditions remain precarious.
- (xix) Development of sanitation facilities is very expensive; however, public funds allocated for its development are scarce.

## Rwanda: Electrogaz Makes a Remarkable Turnaround

**Focus Media (Kigali)**  
**1 November 2007**

### **Teta Kayitaba**

During the first semester of 2007, Electrogaz has registered a profit of FRw 930 million, marking a notable turnaround for the company.

Marketing manager Pacifique Rugina Kabanda explained that the profit is the result by efforts made by the water and electricity company in various fields.

"The water tariff has not been commercial since 1997, and a lot of money was used on chemicals to purify it, as well as energy used to treat and distribute it; in the long run, this was not profitable," he said. Therefore, Electrogaz has rebalanced its tariff structure, and reviewed its procedures to collect money from public institutions, which were long and led to commercial losses.

Kabanda added that another part of the loss-reduction strategy is to fight fraud. Between January and June, the company collected FRw 69,532,131 in fines; for 2006, fines amounted to more than FRw 150 million.

The marketing manager said that Electrogaz is working with the police to fight fraud and vandalism, including tampering with meters and installations, which in the past was not considered a punishable offence. As for theft, which has caused enormous losses to the company, Electrogaz has been able to recover materials worth FRw 250 million francs.

Moreover, the company has also intensified measures to reduce corruption. After investigations, 16 employees were exposed and accordingly disciplined.

Apart from loss reduction, the profit is also due to an increased number of customers. At this moment, the number of registered customers for water is 47,073, against 37,641 in 2004. For electricity, there are now 82,308 clients, up from 64,093 in 2004.

Pacifique Kabanda also indicated that major efforts are made to reduce water shortages, amongst others tapping springs to supply water to areas within and around Kigali City. During the first semester, various projects have been completed to supply water to targeted areas. These sources are Cyuga in Gasabo District, Bunono in Kabarondo, Byimana in Kicukiro and Nyarukombe source.

Electrogaz is also upgrading the water network by laying more than 127 km of wide pipes to supply water to Gacuriro, Kibagabaga, Kabeza and Kimisange-Rugarama. Spring sources of Kinyinya, Rwampara, Gusuma, amongst others, will contribute about 2500 m3 of water to Kigali. The enterprise has also constructed additional storage capacity and water treatment infrastructure. This has allowed it to supply 8.7 million m3 of treated water in the period from January to June 2007. Pacifique Kabanda added that the problem of water should be solved by the end of 2008.

Electrogaz is also working hard to extend its electricity network. Electrification projects are programmed for the districts of Kirehe, Gisagara, Nyaruguru, Ngororero, Huye and Gicumbi. As for power generation, it is hoped that the Rukarara Methane Gas project will add a significant amount of electricity to the network. Transmission and distribution networks in Birembo, Gikondo, Jabana Karongi, Gasogi, to name but a few, will be upgraded.

Despite the fact that Electrogaz is steadily progressing, it still faces many challenges such as rising fuel costs, continued fraud and infrastructure vandalism, old infrastructure thus high maintenance costs, and changing the mindset among staff which includes instilling commitment to the company, integrity and a customer-centered attitude.

Economics: **Management of ELECTROGAZ**  
 Utility Management **RWANDA**



The Government of Rwanda is currently engaged in a capacious Energy Sector Reform Project. One of its key issues forms the planned introduction of private sector management into the national electricity and water utility, ELECTROGAZ.

Despite persistent efforts to improve its services through the late 1990s, the situation of ELECTROGAZ has deteriorated in recent years to a level, where commercial operations became unpredictable. Directly associated to the deteriorating operation results are impacts of a long period of social and political unrest that have destabilised and uprooted the population throughout the country. As a matter of fact, public services have periodically been interrupted and illegal practices have emerged, which in the case of ELECTROGAZ could not be overcome.

Within this context, ELECTROGAZ has awarded Lahmeyer International for five (5) years with its management, with the aim to create an enterprise in corporate form suitable for private investment and to restructure and expand the Rwandan electricity and water system, which forms a key factor for Rwanda's economic growth and social stability.

**Client:**  
ELECTROGAZ

**Main Data:**

- Installed Capacity: ca. 30 MW
- Electricity Production: ca. 130 GWh
- Water Production: ca. 15.000.000 m<sup>3</sup>
- Employees: ca. 1.500
- Clients (Electricity + Water): ca. 25.000

**Execution:** 2003-2008

**Services:**

- Baseline Assessment of ELECTROGAZ
- Power and water supply requirements; Demand Forecast; IPP options; Reduction of technical losses; Rehabilitation and expansion of distribution capacity
- Planning sustainable exploitation
- Set up of a Business Plan
- Set up of Financial planning and reporting system, Cash Management
- Concept Design of Information Management
- Monitoring of raw water quality; annual planning for management of water resources
- Customer and Installations Survey
- Loss Reduction Program
- Tariff review for Water and Electricity Services
- Detailed Mid and Long Term Investment Plans for Information Technology incl. incorporation into an MIS
- Development of an Environmental Protection Plan (including assessment of potential for additional financing from Greenhouse Gas Certificates)
- Training-Need-Analysis, workshops and seminars



## 4 FIELD VISITS TO: RWAMAGANA, KAYONZA, NYAMATA, NYAGATARE, NYANZA AND RUHENGERI

### 4.1 Itinerary

The itinerary from Kigali to the secondary towns was as follows:

- Monday 19/11/07: Kigali – Rwamagana – Kigali;
- Tuesday 20/11/07: Kigali – Kayonza – Kigali – Nyamata – Kigali;
- Wednesday 21/11/07: Kigali – Nyagatare – Kigali;
- Thursday 22/11/07: Kigali – Nyanza – Kigali;
- Friday 23/11/07: Kigali – Ruhengeri;
- Saturday 24/11/07: Ruhengeri – Kigali; Return to Nairobi

### 4.2 RWAMAGANA TOWN (19 November 2007)

Rwamagana is one of the biggest of the selected towns and has an estimated population of around 50,000 people.

#### *Meeting with Mr Valens Nteziryayo: Mayor of Rwamagana*

Upon their arrival in Rwamagana District Office, UN-HABITAT team held a briefing meeting with the Mayor of Rwamagana, Mr. Valens Nteziryayo. Mr. Robert Goodwin took this opportunity to brief him on the progress made in the implementation of LVWATSAN in Kenya, Uganda and Tanzania.

- **Initiative:** In 2004, 3 ministers from Kenya, Uganda and Tanzania met and decided to work together in secondary towns in the Lake Victoria Basin to address the problems of water and sanitation. They approached UN-HABITAT to have their project implemented. At the end of 2004, UN-HABITAT started the LVWATSAN initiative in the three countries. The intent was mainly to meet MDG 7 target 10 by improving access to water and sanitation and by promoting Local Economic Development in these secondary towns.
- **Immediate interventions:** The immediate interventions consist mainly of investments for rehabilitation of dilapidated physical infrastructure and equipment and the extension of network in selected towns, in order to bring these supply systems back to design capacity.
- **Capacity building:** The rehabilitation of the physical infrastructure needs to be accompanied by a programme of capacity building and skill enhancement for water services providers, collaborating institutions, implementing organisations, water users and other key stakeholders. Capacity building activities are being carried out from the outset of the project to ensure the maintenance and sustainability of physical infrastructures and ownership of the project by all beneficiaries.
- **Long-term interventions:** these are much larger investments in physical infrastructure. LVWATSAN is investing in total \$18 millions in the 7 towns in Uganda, Kenya and Tanzania

- **Expansion of the Programme:** The mayor was also informed that UN-HABITAT is working in partnership with EAC and AfDB to secure funding for the expansion of the LVWATSAN initiative in Rwanda and Burundi, as well as additional towns in Kenya, Tanzania and Uganda.
- **Focus of LVWATSAN in Rwanda**  
LVWATSAN initiative programme will focus on the following components:
  - (i) Improved access to safe drinking water and decent sanitation for the most poor and vulnerable groups
  - (ii) Promotion of local economic development activities related to WATSAN and protection of the environment
  - (iii) Community participation

*Gender mainstreaming, women empowerment and inclusion of vulnerable groups are considered cross cutting issues.*

After this introduction, the Mayor of Rwamagana thanked UN-HABITAT to have come to his district to assess the situation of water and sanitation. He said that the town of Rwamagana has a population estimated to 30,000 living in the following sectors: Kigabiro, Muhazi, Mwulire, Gishali and Munyige. The town is receiving water on regular basis from ELECTROGAZ. The major problem the town is facing is that ELECTROGAZ pipeline is not reaching the peri-urban areas where most of the poor people are living. Therefore, there is need to extend the network to reach these peri-urban areas.

Concerning sanitation, most households have a pit latrine in the compound, with some of the middle income population having sanitation with septic tank facilities. However, problems occur when the pits or septic tanks are full. In fact, there are no emptying facilities in Rwamagana.

Households living in the peri-urban areas have pit latrines in their compound. The major problems they face are that these pit latrines do not have an appropriate floor. In most cases the floor of the pit latrines is made of wood and the structure is not covered. Therefore, there is a danger that rotten wood sometimes collapses when people are using the latrine.

### ***Rwamagana ELECTROGAZ Office***

The LVWATSAN team was received by Madame Odette Bora Uwimana, Manager of Rwamagana Electrogaz Office. Tel: + 250 (0)883 78 23. She was with Mr. Sylvere Gatera, Head of Water Section Tel +250 (0)883 61 31.

Mr. Robert Goodwin briefed them on the LVWATSAN initiative current operations in Uganda, Tanzania and Kenya. He told them that the current appraisal mission was to be followed by a feasibility Study in the beginning of 2008.

After this introduction, the following technical information was provided:

### ***Water supply***

The raw water source is from Lake Mahazi, about 8 kms northwest of the town. Intake and treatment works were rehabilitated in 2003, funded by the Swiss Red Cross. The scheme has been kept in good operational order, and there is clear sense of good workmanship and discipline.

Average production is approx. 30,000 m<sup>3</sup>/month. There are 1,277 connections, of which 1124 metered, and a total of 14 public water kiosks. The total distribution network measures 92,961 m. Internal diameter of the main pipe going from the water treatment plant to town is 160mm.

At the treatment works there is a small but adequate laboratory for testing basic water quality parameters, Hardness (calcium, magnesium), Residual Chlorine and Turbidity. Bacteriological tests are carried out in Kigali on samples taken every month.



*Rwamagana intake works – well maintained pump station*

On average there are about 10 pipe leakages every month, mainly in the (aged) distribution network. The majority of the leakages are in the 3/4" diameter pipes. The storage capacity of the main (and only) storage tank is 600m<sup>3</sup>. (see Photo cover page). Electrogaz covers only 40 % of the town area, the peri-urban areas are not served. Electrogaz has no funds to extend the network.

During the period Jan – June 2007 there were 39 new connections installed, for a total cost of RFr 2,423,941, that is RFr 62,152 per connection (= US\$ 112 !!).

The official gazetted selling price at the kiosks is RFr 10/- per 20 litre jerrycan, but during interviews people complained that the price goes up significantly during periods of scarcity and can reach a level of 100-200 RFr per jerrycan.

Madame Bora said that there is need of 600 new connections, and Kayonza should have its provision of water from Rwamagana water treatment plant (Muhazi). Plans have

been developed to extend the distributions mains to Kayonza (about 15 kms), because the borehole source over there is insufficient.

After the discussion with Ms Odette Bora, the LVWATSAN team went to visit the water plant treatment situated at Lake Muhazi. (Technical data are included in the above text).

### ***Sanitation***

There is no sewerage network in Rwamagana. Sanitation depends entirely on on-site pit latrines and – in a few cases – the use of septic tanks; there is no exhaust service.

### ***Solid Waste Collection***

There is no organised form of solid waste collection. But in general the town looks clean, apparently as a result of the monthly Clean-Up exercise.

### ***Hospital of Rwamagana: Meeting with Dr. Avit Mutaganzwa: Director of Rwamagana Hospital. Mobil number: +250 0860 9611***

The hospital has 200 beds and the occupation rate is around 80%. After Mr Robert Goodwin's briefing about the LVWATSAN Initiative current operational activities, Dr. Avit Mutaganzwa said that the major problem faced by the hospital is the management of used water from the hospital, but also the channelling of rain water which is invading regularly the hospital. Concerning the sanitation status in the district, Dr Mutaganzwa said that special efforts were made to ensure that each household has his own pit latrine.

LVWATSAN team visited the hospital compound and realised that the used water from the medical facilities should be conducted to a secure place, where it would not be able to be a source of any undesired effects to the surrounding population. Concerning the rain water from the road, it is a result of the insufficient capacity of drainage channels along the main road which overflow into the hospital compound.

The hospital has a good functioning rainwater harvesting system, but would like to expand the system, because the storage is rather limited.

***LVWATSAN team is recommending that the management of Rwamagana hospital used water be included in the project.***



*Communal water point in Rwamagana*

***Discussions with Women: District Rwamagana: Umudugudu Bakore, Akagali Sibagire***

In the afternoon, Angela Hakizimana met a group of 6 young women (aged between 18 – 25 years). They discussed the situation of water and sanitation in Rwamagana. They said that water is not reaching their homes; they have to fetch it from at least 800m distance. In most cases, women and children are the ones responsible for fetching water. However, men do fetch water sometimes when women and children are not available.

Concerning the price of water, they are paying 10 FRw for 20 litres from the ‘bornes fontaines’ (communal water point/kiosks) build by ELECTROGAZ. .When they buy from a private household connection, they pay 30 FRw for 20 litres. In dry season when the water is not available from the Bornes Fontaines, they buy from water vendors who

are fetching water from the nearest (minimum distance 1.5 Km) spring. In such cases, they are paying between 150 – 200 FRw per jerry can.

When asked “what could be done to relieve women and children from this burden”, they suggested that ELECTROGAZ should bring water connection near their homes. Some of them suggested having some micro-loans from ELECTROGAZ to have water in their own compound.

***Discussions with women in Kigabiro.***

Ms. Angela Hakizimana discussed with women and men in the sector/Umudugudu Kigabiro in Rwamagana. The sector Kigabiro is connected to ELECTROGAZ water distribution pipeline which is placed along one side of the road crossing the sector. The major problem of the population of Kigabiro is that they cannot afford to have connection from ELECTROGAZ water network. The cost to have an individual connection is varying between 100 to 200 US Dollars depending on the distance between houses and the water pipe.

### 4.3 KAYONZA TOWN (20 November 2007)

Kayonza is a small town, about 15 kms east of Rwamagana, its population is estimated to be approximately 15,000 inhabitants.

#### *Meeting with Mr. Damas Muhororo, Mayor of Kayonza*

On 20 November 2007, the LVWATSAN team met Mr. Damas Muhororo, Mayor of Kayonza District. After the briefing of Mr. Robert Goodwin, Mr. Muhororo told the LVWATSAN team that:

- Kayonza District population is around 234,000.
- Surface area: 1,800 km<sup>2</sup>
- Kayonza district is divided into 50 cells and 132 villages.
- The distance from many poor (rural) household to the nearest water point is 5km on average.
- Women and children are the main water providers at the household level
- Kayonza town is not connected to ELECTROGAZ water network
- In the period of the mission, Kayonza had just received 900 returnees' families from Tanzania.
- As far as sanitation is concerned, the situation is critical in Kayonza.
- Problem of water collection is a concern of at least 50% of the population

After the meeting at the District office, the LVWATSAN team went to visit the Mukarange borehole scheme at Kazabazana site. This borehole will be serving 12 sectors. The project - funded by JICA - includes a new borehole (yield 12 m<sup>3</sup>/hr), booster pumps, rehabilitation of storage reservoirs, and expansion of the distribution network. Works will be completed early next year. The water supply scheme will be managed by a local cooperative KUVOMEZA: (Kuvoma amazi meza. (Fetching safe water).

Some technical data are given below:

Name of Scheme	<b>Makarange Piped Water Supply System</b>
District:	Kayonza
Sector	Mukarange
Source	Groundwater
Water collection point	New borehole
Pump - borehole	Submersible pump, head 170m, Discharge 198 l/min (= 12 m <sup>3</sup> /hr) Motor 11 kW
Pump booster	Head 65 m Discharge 198 l/min (= 12 m <sup>3</sup> /hr) Motor 5.5 kW
Transmission line:	Polyethylene pipe Diameter 110 mm, Length 1,846 m
Distribution tank (Existing)	Reinforced concrete Volume 150 m <sup>3</sup> x 2 Volume 25 m <sup>3</sup> + 50 m <sup>3</sup>
Distribution line	Material: uPVC (10K) Dia: D75mm, length L = 683m Dia D125mm, length L = 856m.

The mission was informed that as a result of the ongoing construction, there is no piped water at all in Kayonza, as the existing borehole has fallen dry as a result of the new borehole having drained the water from the old one.

The mission concludes that while this new scheme will provide relief for the town's population, it is by far not adequate to meet the needs of the whole population.

All stakeholders agree it will be beneficial to have a rainwater harvesting promotion programme in the town. Many of the public institutions do not have such facilities.



*No piped water in Kayonza*

### ***Sanitation***

There is no sewerage network in Kayonza. Sanitation depends entirely on on-site pit latrines and – in a few cases – the use of septic tanks.

### ***Solid Waste Collection***

There is no organised form of solid waste collection.

### ***Discussions with Women in Nyamirama. Akagali Ishyogo.***

On 20 November 2007, Ms Angela Hakizimana met a group of people ( 3 women and 2 men) in Nyamirama, Kayonza.

Their main concern is that the water from Kazabazana Borehole will not be affordable for the poor families. They are suggesting that Kayonza District provides them with a micro-credit scheme to facilitate connection to the water mains. Concerning the sanitation, they also suggest having small loans to improve the floor of the pit-latrines (SanPlat) and to buy some iron sheet for shelter.



#### 4.4 NYAMATA TOWN, Bugesera District (20 November 2007)

The population of Nyamata town is estimated to amount to about 15,000.

##### *Meeting with the Mayor, Mr. Gaspard Musonera*

On 20 November 2007, LVWATSAN team met Mr. Gaspard Musonera, Mayor of Bugesera District. Mobile: 0864 82 23.

After a briefing by the Team Leader, Mr. Musonera told the LVWATSAN team that the town of Nyamata will receive water from the Lake Cyohoha situated in west Bugesera. The aim is to bring water to 80% of the households at a distance of not more than 1 km. Many public institutions such as schools are at present not connected to the main water pipe and are using rainwater tanks.

The Nyamata town centre will have enough water; the only problem is that it will not reach the poor peri-urban areas.

As far as sanitation is concerned, Mr Musonera told the Mission that, in their performance contract, each Rwandan mayor has to build public toilets and to ensure that there is safe sanitation at the household level. He ensured the team that in Bugesera, each household has his/its own pit-latrines in its compound, but of course there is a lot of room for improvement.

The town has an orthopaedic hospital for children (the only in Rwanda), which would also benefit from improved water supply.

After the meeting with Mr. Musonera, LVWATSAN team visited the (huge) Nyamata water storage tank storing water pumped from Lake Cyohoha. Estimated storage >1,000 m<sup>3</sup>.

##### *Solid Waste Collection*

There is no organised form of solid waste collection in Nyamata, but it does not seem to create a serious problem.



*Discussion with the Mayor in Nyamata – Bugesera*

#### 4.5 NYAGATARE TOWN (21 November 2007)

Nyagatare is situated in the northeastern part of the country close to the borders with Uganda and Tanzania. Its population amounts to an estimated 20,000 people. In this town there is a continuous inflow of returning refugees from Tanzania who require housing, water and sanitation.

At the District Office in Nyagatare, the LVWATSAN team was received by:

- (i) Mr. Philippe Mutarambirwa, Director of Infrastructure, Habitat, Urban Planning, and Environment Protection. Mobile 08482478. Email: [mutarambirwa77@yahoo.fr](mailto:mutarambirwa77@yahoo.fr)
- (ii) Mr. Clement Nkurunziza: Manager of ELECTROGAZ in Nyagatare. Mobile: 08505245

After the briefing by the UN-HABITAT team leader, Mr. Mutarambirwa said that the District of Nyagatare was established after the 1994 War and Genocide and is not very populated. It is receiving water from Kiyombe River at a distance of about 30 kms in Kiyombe sector situated in the former Byumba prefecture. The supply is irregular and unreliable due to breakdowns of pumps, leakages and very low capacity. A feasibility study has been done to create an intake from a river at Kagitumba.

There is one small storage tank. As a consequence especially during the dry season, most people have to resort to the unsafe water collected from the river

The price of 1 Jerrycan of 20 litres varies from 10 to 20 FRw.

The distance from the households to water points is between 1 - 1.25 km. The District is planning to increase water points so that the distance between the household and the communal water points is less than 500 m.

- Nyagatare town has one concrete storage tank of 500m<sup>3</sup>
- Nyagatare District has 400 metered connections in town and 300 connections in rural zones.
- The Kiyombe scheme produces 1,500 m<sup>3</sup>/day, but less than 1,000 reaches Nyagatare town. As a result rationing has to be applied.
- Repairs and extension of the distribution network is very much needed, but Electrogaz has no funds for investment.
- Sector Rukomo, Lyabega and Rukomo are having water from Kiyombe.
- In their water policy, every public building has to have a rain water harvesting scheme.

*This information was confirmed by the residents of Nyagatare.*



*Kids enjoying a burst pipe in Nyagatare*

### ***Sanitation***

Concerning sanitation, the resident of Nyagatare are using septic tanks. They face problems of emptying when they are full. There are designated areas for low income population in the peri-urban areas where the use of pit-latrines is authorised.

Nyagatare Master Plan is under development with support from the Canadian Government.

### ***Potential Site for Water Supply near the town?***

The team went down to inspect the River Kagitumbu at the bridge. The river itself would not be a good source for water because it has a very heavy silt load and is probably contaminated with other pollutants. However, from the shape of the valley, it can be surmised that probably the valley is underlain with a thick layer of alluvial deposits and potentially a productive aquifer might be present. As far as could be ascertained no borehole was ever drilled in this valley. The presence of such an aquifer can easily be established with a geophysical survey and it is recommended to do such an investigation.

### ***Visit to Mirama Village for physically challenged people***

LWATSAN team visited Mirama village where 200 families of physically challenged people are living. Mirama Village has no water. The nearest water point is situated to 200 – 300 m from the village. There was a water point in the village but it was closed.

#### 4.6 NYANZA TOWN (22 November 2007)

Nyanza town has a population of about 40,000 people.

##### *Meeting with the Mayor, Mr. Francois Munyankindi*

LVWATSAN team was received by Mr. Francois Munyankindi, Mayor of Nyanza. Mobile +250 0830 32 94 or + 250 53 32 81, the Director of Infrastructure, Eng. Muhire, Placide, Directeur d'Unite "Terr, Urbanisme, Habitat et Infrastructure, District Nyanza (tel 08 884466, 051 05136; email: [placide2k7@yahoo.fr](mailto:placide2k7@yahoo.fr) ) and the Chief of Electrogaz, Mme Lusire Kabazayire (08529420).

Following the briefing by UN-HABITAT, the Mayor of Nyanza said that the town of Nyanza has a population of 34,000 (including the peri-urban areas. There are 924 of metered water connections run by Electrogaz. The water network is very old and there are a lot of water leakages due to burst pipes. There are 11 Bornes fontaines (Communal Water Points). The sources of water are the River Mwogo and Rukarara, supplemented with water from several springs.

The water intake and treatment works were visited and it was evident that these had been renovated recently (funded entirely by the Government of Rwanda). All was in very good condition. However, it was clear that the production capacity is very low and that expansion will be needed to meet the demand for the rapidly growing town. In dry seasons, the treatment production capacity is only 500-600 m<sup>3</sup> per day. The length of the pipe network is 89,902 m. The water provided by Electrogaz is not enough for the whole town of Nyanza. In dry seasons, there is a serious shortage of water. No plans have been developed for expansion of the system.

It could be observed that increasing the capacity of the system would be relatively straightforward. There is room for expansion of the raw water treatment, and water is sufficiently available from the river intake.



*Water treatment works for Nyanza*

### Water Supply data for Nyanza (2007)

Month	Amount supplied (m3)	Amount Billed (m3)	No. of leakages	New connections	Total no. of connections	Length network	No. of water meters	No. of customers billed
Jan	13,437	6,034	16	1	1,123	87,807	916	853
Feb	17,755	15,084	18	7	1,130	87,888	925	855
Mar	20,027	14,147	6	1	1,131	87,906	935	886
Apr	22,907	12,840	6	7	1,138	88,270	942	874
May	21,054	13,568	15	2	1,140	88,283	944	879
Jun	21,685	13,823	12	3	1,143	88,362	947	881
Jul	20,943		3	4	1,147	89,909	951	
Aug	24,591		14	5	1,152	89,962	956	

### ***Urban Mapping and Planning***

The Technical University of Muenchen, Germany, has carried out an urban mapping and planning project in Nyanza, details of which were made available to the mission. ([www.land.arch.tu.muenchen.de](http://www.land.arch.tu.muenchen.de))

### ***High Concentration of Boarding Schools***

Nyanza has a high concentration of 8 boarding secondary schools with a total student population close to 4,000. These schools are: (1) Mater Dei, (2) Christ Roi, (3) Ecole des Sciences, (4) Ecole St Emmanuel, (5) Espana, (6) Igihozo, (7) Ecole Artisanale, (8) Ecole Secondaire de Nyanza. Each school is hosting an average of 500 students.

Nyanza has the biggest prison in the country with a population of 7,500 prisoners.

All these institutions are struggling with a shortage of water supply.

### ***Visit to St Antoine Orphanage***

Ms Hakizimana visited the Centre Social St Antoine which has 103 children: 64 boys and 39 girls. In rainy season, the orphanage has enough water from Electrogaz. In dry seasons there is not enough water.

Father Eros Borile, the manager of the orphanage, (email: [padreborile@yahoo.it](mailto:padreborile@yahoo.it)) said that the orphanage and the group of school are planning to have a pumping station of 20m<sup>3</sup> per day from the spring nearby. This pumping station will provide to Mater Dei Girls Secondary School with 10m<sup>3</sup> per day, 5m<sup>3</sup> to the orphanage, and 5m<sup>3</sup> other schools and to the surrounding population.

### ***Visit to Mater Dei School.***

Ms Hakizimana visited Mater Dei School to assess their needs in water and sanitation. The school has 600 boarding students. Their monthly water consumption is 250 m<sup>3</sup> in rainy season, and 300 m<sup>3</sup> in the dry season. The volume of harvested rainwater in the rainy seasons is 50m<sup>3</sup>.

In collaboration with the orphanage and other groups, they would like to have a water pumping station from the spring nearby. Up to now they do not have donors for this project.

### ***Visit to Nyanza Market***

Before leaving Nyanza district, the LVWATSAN team visited the main public market in the district. There are only three pit-latrines/toilets in use and other three toilets are closed. When we talked to the manager of these toilets, she told us that the three closed toilets will be used when the three in use will be full. There is no washing facility after the use of the toilets.

### ***Sanitation***

Also Nyanza has no sewerage network. Sanitation depends entirely on pit latrines and – in a few cases – the use of septic tanks. The prison in Nyanza is reported to be the biggest in the country. Its water supply and sanitation is in a poor state.

### ***Solid Waste Collection & Drainage***

There is no organised form of solid waste collection in Nyanza and in the more densely populated parts in town it is a visible problem. In some parts near the market in the central part of town it was observed that the drainage was very poor and interventions would be very useful.

## **RUHANGO TOWN**

After Nyanza, LVWATSAN team went to Ruhango District. A brief discussion was held with some residents of Ruhango. They told that for them “to have access to water is like a dream”. The whole town of Ruhango has no piped water supply.

As recommended by the Minister for Water, inclusion of Ruhango in the LVWATSAN programme should be considered.

#### **4.7 MUSANZE – RUHENGERI (23-24 November 2007)**

Musanze (previously known as Ruhengeri) is situated in the northwestern corner of the country at the foot of the Virungu Mountains (home to the famous Mountain Gorillas); the town has a population of about 60,000 people.

##### ***Meeting with the Vice Mayor, Mr. Pascal Butunge***

LWATSAN team was received by:

- (1) Mr. Pascal Butunge, Vice Mayor in Charge of Social Affairs. Mobile +250 0842 46 71. Email: [butunge@yahoo.fr](mailto:butunge@yahoo.fr)
- (2) Mr. Methode Rutagungira: Chief of Electrogaz in Musanze. Mobile +250 0840 31 81
- (3) Esron Runezerwa: Chief of Mutobo Water Station . cell phone: + 08508723

After the briefing by the UN-HABITAT team on the objectives of the mission, the Vice Mayor said that the District of Musanze has a total population of 380,000 having the highest density in the country: 770 persons/km<sup>2</sup>. The Town of Musanze has a population of around 60,000. The town has 5 sectors: Musanze, Nyange, Muhoza, Cyuve and Gacaca

##### ***Water Supply for Urban Musanze***

The Mission went to visit the intake and treatment works at Mutobe. The urban centre receives water from two large springs at the foot of the mountains, Rubindi and Mutobo Springs, about 8 km northwest of the town. The entire water supply and distribution system is run by Electrogaz. Rubindi Spring has a production capacity of 400 m<sup>3</sup>/hr. Mutobo Spring produces 600 m<sup>3</sup>/hr. After treatment (only chlorination is needed) the water is transferred by two gravity pipelines of 250 and 300 mm. Part of the water is pumped to a storage reservoir on the hills (difficult to access and therefore not inspected) from where a third pipeline feeds the water by gravity into the higher parts of Musanza town. The length of the Electrogaz pipeline (mains and distribution) network is 166 km. The intake and treatment works at Mutobo have two tanks with storage capacity of 1,500 m<sup>3</sup> each. Part of the capacity is used to supply water to rural centres.

There are 2,900 household connections Musanze District. There are 48 communal water points. Each CWP is buying water from Electrogaz for 240 FRw per m<sup>3</sup>. (6 FRw for 20 litres) The CWPs are selling at 10/20 FRw for a 20 litre jerrycan.

Most of the households in the peri-urban areas are not connected to the water supply pipeline. They have to fetch water from the rivers Kigombe and Mpenge which, according to the WHO/hospital tests, contain faecal elements.

The policy of the district is to expand the Electrogaz pipeline to the peri-urban areas. However, they do not have funds (yet) available.

### ***Water Supply data for Musanze (2007)***

Month	Amount supplied (m3)	Amount Billed (m3)	No. of leakages	New connections	Total no. of connections	Length network (m)	No. of water meters	No. of customers billed
Jan	63,540	59,913	11	20	1,852	155,145	1,888	1,877
Feb	62,648	58,128	14	20	1,872	155,463	1,908	1,911
Mar	69,861	69,861	12	19	1,910	156,736	1,946	1,936
Apr	68,540	56,807	7	19	2,106	162,419	2,123	2,131
May	65,774	55,864	11	16	2,122	164,220	2,158	2,152
Jun	68,730	62,733	10	24	2,146	165,362	2,181	2,157
Jul	78,202	74,850	8	21	2,167	165,747	2,202	2,194
Aug	79,385	78,403	8	9	2,176	168,015	2,211	2,195



*Storage tank of 1,500 m3 at Mutobo intake works*

### ***Meeting with Women living in Tête a Gauche, Musanze***

On Saturday 24 November 2007, Ms Angela Hakizimana met 10 Women living in poor informal settlements in Tête a Gauche, Musanze.

They told that they collect water for domestic use from the River Mpenge and that they are always having problems of water borne diseases such as worms, diarrhoea, and typhoid. They would like to be connected to the town's water distribution pipeline, but the connection fee is very expensive.

Concerning sanitation, it is very hard to dig pit-latrines in a volcanic soil. In many cases, it is not possible to dig holes of more than a half meter due to the rocky nature of the soil.

They expressed the need to have access to micro-credit to facilitate access to piped water in their neighbourhood. They also would like to improve their pit latrines.



### ***Sanitation***

Musanze has no sewerage network. Sanitation depends entirely on pit latrines and – in a few cases – the use of septic tanks.

### ***Solid Waste Collection & Drainage***

There is no organised form of solid waste collection in Musanza.



*Children collecting water from the Mutobe Springi.*

## **5 MEETINGS IN KIGALI**

### **5.1 Meeting with Minister Prof. Munyanganizi Bikoro: Minister of State in charge of Water and Mines; 21 November 2007.**

The Team Leader Mr Robert Goodwin informed Minister Bikoro that the UN-HABITAT Mission's objective is to make a preliminary needs assessment on water, sanitation and solid waste management in the 6 proposed towns.

Mr. Robert Goodwin briefed the Minister on water and sanitation issues observed in the towns already visited on 19 and 20 November 2007: Rwamagana, Kayonza, and Nyamata. He was told that a feasibility study is planned to start in Rwanda early 2008. Concerning the selection of towns to be considered in LVWATSAN project in Rwanda, Dr. Graham Alabaster will come to Kigali to present to the Rwandan Government the LVWATSAN Mission report. After the presentation, both parties will agree upon the towns to be part of the LVWATSAN initiative programme. Minister Bikoro said that among the towns facing acute problems in water and sanitation, the town Ruhango should also be considered.

During the meeting, Minister Bikoro informed the LVWATSAN team that Rwanda has a water and sanitation strategy. The only major problem to solve is to re-adjust the master plan. In fact, the implementation of that master plan will require the destruction of many houses.

At the end of the meeting, the Minister Bikoro was also briefed on progress made in WAC II in Kigali. An important step has been made with the recruitment of a National Programme Officer for the UN-HABITAT programmes. The NPO will be supporting both programmes: WAC II and LVWATSAN in Rwanda. For this reason, the NPO is now accompanying LVWATSAN Mission in the six towns.

### **5.2 Meeting with UNDP Country Director, Mr. Anthony Kwaku Ohemeng-Boamah**

On 21 November 2007, the LVWATSAN team paid a courtesy call to Mr. Anthony Kwaku Ohemeng – Boamah, UNDP Country Director. He was briefed by Mr Robert Goodwin on the operational activities of LVWATSAN and on the purpose of the mission.

Mr. Anthony Kwaku Ohemeng – Boamah welcomed the team and said that the LVWATSAN project in Rwanda should be part of other projects of the *One UN* Pilot Country programme to test how the UN family can deliver in a more coordinated way at the country level. The objective is to ensure faster and more effective development operations and accelerate progress to achieve the Millennium Development Goals by establishing a consolidated UN presence - with one programme and one budgetary framework and an enhanced role of the UN Resident Coordinator - while building on the strengths and comparative advantages of the different members of the UN family.

## 6 CONCLUSIONS, RECOMMENDATIONS AND WAY FORWARD

### 6.1 Conclusions and Recommendations

#### *Water Supplies*

The water supply systems in the 6 towns visited are all in good operational order, but all of these serve only small part of the population. In particular the low-income peri-urban areas remain poorly served highly inadequate to meet the demand of the rapidly increasing population.

#### *Rwamagana*

The water supply for Rwamagana was recently rehabilitated and is in good operational order. However, the system needs a comprehensive upgrading to meet the demand in the rapidly growing peri-urban unplanned settlements.

#### *Kayonza*

In Kayonza a new water supply – funded by JICA – based on a production borehole is under implementation. This borehole produces 12 m<sup>3</sup>/hr and thus can supply 200 m<sup>3</sup>/day at an operational period of 16 hours per day. This amount can cover the demand only for about 25% of the population. Thus expansion is required, either by investigating the potential of groundwater in the valleys near town, or study the feasibility of connecting to the Rwamagana water works, which would require a 15 kms transmission pipeline.

#### *Nyamata*

A new water supply scheme has been developed for Nyamata, which is supposed to become operational very soon. For this town we would recommend only a vigorous campaign of connecting the poor households at affordable rates.

#### *Nyangatare*

Nyangatare is supplied from a very remote source and part of the water is needed for other schemes along the 50 km transmission pipeline. It is proposed to investigate the potential of groundwater exploitation (which is considered to be promising) in the river valley. If surveying and drilling of test wells turns out to be positive, a complete new scheme has to be designed and developed for the whole town.

#### *Nyanza*

Intake and treatment works of Nyanza water supply were recently rehabilitated and are in very good shape. However, its capacity is very small and an expansion of the treatment and transmission should be undertaken to be able to meet the needs of the low-income areas.

#### *Ruhengeri*

The water supply of Ruhengeri has a very large capacity and can easily be expanded to cover the needs for the low-income areas.

#### *Connection Fees – A New Policy Required*

The Mission would like to recommend a revision of the connection fee policy as implemented at present by Electrogaz. The amount charged is prohibitive for the poor households who simply cannot afford to spend FRw 50,000 to 100,000 on a simple connection. It should be investigated if this can be waived or highly subsidised, or in case this is not possible to be spread over a period of say two years in the customers' bills. Experience (as for instance in Uganda) is very positive and the number of connections would rapidly be increasing, thus improving the revenue base of the water service provider.

### ***Sanitation***

None of the towns has a centralized sewage disposal system. For the smaller towns, such as Kayonza, Nyamata, and Nyagatare this seems to be not yet a great problem as these are still very open-spaced and leave sufficient room for on-site sanitation. A programme to promote safe and hygienic sanitation will do for the time being.

For the central parts of three bigger towns Rwamagana, Nyanza and Ruhengeri the sewage disposal will inevitably need to be addressed. A shallow, small-bore sewerage system can be designed, which is relatively low-cost but very effective for small towns. The sewage would be treated in a lagoon system, which requires little or no energy consumption.

However, a comprehensive sanitation strategy needs to be developed to ensure that the MDGs can be achieved also for sanitation.

### ***Solid Waste***

In general the situation with regards to solid waste is not alarming. However, in some of the low-income areas of the bigger towns, waste disposal is already becoming problematic. Therefore, it is recommended that a start be made with organised garbage collection in the bigger towns, combined with efforts to privatise and stimulate recycling.

### ***Institutional Capacity***

As described in this report, the water sector reform is only just now making a start in Rwanda. Substantive inputs might be provided under the UN-HABITAT programme. This could be capacity building training programme for the water service providers, both at management and operational level, such as LVWATSAN is currently providing in Kenya, Tanzania and Uganda.

### ***Women Empowerment through Micro-Credit Schemes***

Women from Rwamagana, Kayonza, Nyanza, and Ruhengeri are suggesting to have access to micro-credit which would allow them to be connected to the water pipelines. If they could have access to micro-credit, they are also keen to improve their sanitation.

### ***Vulnerable groups***

The 200 families of war physically challenged people in Nyagatare District should be connected to piped water.

### ***Rwamagana Hospital***

The LVWATSAN project should support Rwamagana Hospital to manage used water from the medical facilities. It would be also important to re-orient the drainage of rain water which is invading the hospital compound.

### ***Nyanza***

The project should support the six boarding schools having around 4000 students to have access to running water. The market of Nyanza should have additional public toilets and washing rooms

### **Ruhango**

In view of urgent need for water supply and in particular sanitation in Ruhango, it is suggested that a proposal for Ruhango be included in the LVWATSAN Programme. The suggestion to build a pipeline from Nyanza, is probably not a good idea, as the capacity of the Nyanza W/S is not sufficient.

### **Coordination between WAC II and LVWATSAN**

Coordination between WAC II and LVWATSAN activities in Rwanda is required to avoid confusion on UN-HABITAT interventions in Rwanda, implementing the water sector reforms that are currently being formulated.

## MATRIX FOR WATER SUPPLY REQUIREMENTS OF THE SIX TOWNS

*(in the table below only the selection criteria for water supply are take into consideration as those based on on sanitation, solid waste, drainage do not differ significantly between the six towns)*

Town	Population	Coverage (%) estimates	Source	Expansion needed	W/S expansion costs (US \$)	Score
Rwamagana	50,000	30	Abundant (lake)	Intake, treatment capacity and distribution network	500,000	+++
Kayonza	15,000	25	Restricted (borehole)	New borehole sources, or 15 km pipeline from Rwamagana; expansion distribution network	600,000	+++
Nyamata	15,000	50 (?)	Adequate (lake)	Expansion distribution network	400,000	+
Nyagatare	20,000	30	Restricted (50 km pipeline)	New groundwater sources; pumping station, storage reservoirs, distribution network	1,200,000	+++
Nyanza	40,000	30	River + springs (adequate ?)	Expansion treatment works, transmission pipeline, storage, distribution network	800,000	++
Ruhengeri	60,000	30	Abundant (large springs)	Expansion distribution network	600,000	+
Ruhango	20,000 (?)	0	?	Identify new source, or pipeline from Nyanza		

## 6.2 Way Forward

1. A follow up mission is required to present the field findings and mission report to the Government of Rwanda, HE the Minister of State for Water, Prof. Bikoro, and reach consensus on the selection of 3 pilot towns to be considered for inclusion in the LVWATSAN programme.
2. Prepare a draft Memorandum of Understanding, between the Government of Rwanda and UN-HABITAT.
3. Through UN-HABITAT/WSIB National Programme Officer recruit three local consultants (Infrastructure, Environment, and Community Development), and develop terms of reference to undertake a feasibility study of required interventions, in physical infrastructures environmental protection, capacity building, community participation etc. Feasibility studies of the required interventions to be initiated before March 2008;
4. Development of local community and other stakeholders involvement mechanisms in each town e.g. by initiating a Multi-stakeholder forum to discuss in detail the proposed interventions and generate feedback from the local people.
5. Development of a comprehensive sanitation strategy to ensure that MDG goals can be achieved also for sanitation.
6. Development of micro-credit strategy to ensure that the poorest, in particular women, in selected towns may have water connections, and also have improved sanitation (e.g. introduction of the concrete sanitation platform - SanPlat).

## 7 REFERENCES

**Ministry of Lands, Environment, Forests, Water and Natural Resources** (October 2004) – Sectoral Policy on Water and Sanitation

**Nile Basin Initiative, Water Resources Planning and Management Project**, (December 2006) - Baseline and Needs Assessment of National Policies of the Nile Basin Countries – A Regional Synthesis, Water Policy Component.

**Ruberangeyo, Théophile S.** (2005) ‘Rwanda: Etat des lieux du processus de formulation de la politique et evaluation des besoins pour son amelioration et sa mise en oeuvre’, Draft, August. Kigali.

**WHO-UNICEF Joint Monitoring Programme for Water Supply and Sanitation – Coverage Estimates for Improved Drinking Water Supply** (Updated June 2006).

## ANNEX 1 - MISSION PROGRAMME



### LAKE VICTORIA REGION WATER AND SANITATION INITIATIVE Provisional Programme of Mission to Rwanda 18 – 25 November 2007

Date/Time	Activities
<b>Sunday 18 November 2007 - Kigali</b>	
13.35	Arrival at Kigali Airport (R. Goodwin & P. van Dongen)
<b>Monday 19 November 2007: Town 1 - Rwamagana</b>	
06.00 am	Departure from Kigali to Rwamagana
08.00 am	Meeting the Mayor of Rwamagana
08.30 – 12.00	<u>Field visit:</u> 1. Visit existing water infrastructure: (i) Source of water, (ii) Treatment plant, (iii) Storage facilities 2. Visit of sanitation infrastructure if applicable 3. Visit of water and sanitation facilities for public institutions and their solid waste disposal: (i) 1 Public School, (ii) 1 public hospital, (iii) prison, (iv) 1 public orphanage (if applicable), (v) 1 centre of physically challenged people (if applicable), (vi) 1 public market. (4) Visit to community based organizations located in poor informal settlement: (i) 1 women group
1200 – 12.30	Lunch
<b>(cont'd) Monday 19 Nov 07: Town 2 - Kayonza</b>	
12.30	Travel to Kayonza
13.30	Meeting the LA of Kayonza
14.30 – 18.00	Field visit's programme same as in Rwamagana



	Overnight in Rwamagana	
<b>Tuesday 20 November 2007: Town 3 - Nyamata</b>		
07.30	Travel from Rwamagana to Nyamata	
08.30	Meeting the Local authorities of Nyamata	
09.00 – 15.00	Field visits (same as above)	
15.00 – 18.00	Travelling from Nyamata to Nyagatare	
	Overnight in Nyagatare	
<b>Wednesday 21 November 2007: Town 4: Nyagatare</b>		
08.30	Meeting the Local authorities of Nyagatare	
09.00 – 15.00	Field visits (same as above)	
15.00 – 18.00	Travelling from Nyagatare to Ruhengeri	
	Overnight in Ruhengeri	
<b>Thursday 22 November 2007: Town 5 - Ruhengeri</b>		
08.30	Meeting the Mayor of Ruhengeri	
09.00 – 15.00	Field visits (same as above)	
15.00 – 18.00	Travelling from Ruhengeri to Nyanza	
	Overnight in Nyanza	
<b>Friday 23 November 2007: Town 6 - Nyanza</b>		
08.30	Meeting the Local authorities of Nyanza	
09.00 – 15.00	Field visits (same as above)	
15.00 – 18.00	Travelling from Nyanza to Kigali	
	Overnight in Kigali	
<b>Saturday 24 November 2007 - Kigali</b>		
	Meeting with Hon. Minister Bikoro	Appointment to be arranged by Monique and Jacques
	Meeting with UNDPC Resident Coordinator	Appointment to be arranged by Monique and Jacques
	Overnight in Kigali	
<b>Sunday 25 November 2007 - Kigali</b>		
06.45 am	Departure for Nairobi	

**ANNEX 2 – ABSTRACT FROM: BASELINE AND NEEDS ASSESSMENT OF NATIONAL POLICIES OF THE NILE BASIN COUNTRIES – A Regional Synthesis. Nile Basin Initiative, December 2006.**

**RWANDA**

**A. Key Institutions in the Water Sector**

Key Institutions involved in the water sector	Institutional issues identified
<ul style="list-style-type: none"> <li>• Ministry of Lands, Environment, Forests, Water and</li> <li>• Mines (MINITERE)</li> <li>• Ministry of Agriculture (MINAGRI)</li> <li>• Ministry of Infrastructure (MININFRA)</li> <li>• Ministry of Health (MINISANTE)</li> <li>• MINICOM</li> <li>• MINALOC</li> <li>• RURA (L'Agence Rwandaise de Régulation des Services d'Utilité Publiques)</li> </ul>	<ul style="list-style-type: none"> <li>• Weak management capacity and need for staff training</li> <li>• Need to balance concurrent demands (for domestic, agricultural, industrial, energy and environmental); sustainable management requires integrated decision-making taking account of the interdependence of these sectors</li> <li>• Should manage water resources intersectorally and with better coordination of donor interventions</li> <li>• Should avoid negative effects of projects on other resources or usage and take into account upstream and downstream users</li> <li>• Develop integrated water resources management (IWRM) directives and manuals for better sector coordination and policy implementation</li> <li>• Establish National Water Management Authority tasked with integrated management</li> <li>• Accelerate current national water law formulation to facilitate policy implementation</li> <li>• Undertake major dissemination of policy document, water master plan elaboration and capacity building</li> </ul>

**B. Policy Formulation Process**

Policy Formulation
<ul style="list-style-type: none"> <li>• In 1994 the government undertook development of a single national policy on water management</li> <li>• The World Bank co-convened a seminar in 1997 to discuss and outline the major features of a new policy</li> <li>• The Ministry of Agriculture produced in 1998 an outline of major areas of policy and the overall organisation of the sector</li> <li>• Completion of two documents was made possible in 2001 when the Hydrological and Water Resources Management Division was established within MINTRAP, allowing the integration of concepts of decentralisation, community participation and private sector involvement in water management</li> <li>• In February 2004 the government held a workshop to examine policy options on different water management issues, bringing together donors, ministries, NGOs, private and public sectors, and representatives from the regions</li> <li>• The Policy was finally agreed by the Council of Ministers in October 2004</li> </ul>

### C. Water Sector Policy Documentation

Key current policy documents	Status
<ul style="list-style-type: none"> <li>Water Sector Policy, Ministry of Lands, Environment, Forests, Water and Mines, October 2004</li> </ul>	<ul style="list-style-type: none"> <li>Water policy in place</li> </ul>

### D. Water Policy Content and Gap Analysis

Key policy content	Observed gaps (by national consultant)
<ul style="list-style-type: none"> <li>National Water Resources Management Policy (MINAGRI, July 1998)</li> <li>The Water and Sanitation Sector Policy (MINITERE, October 2004)</li> <li>Agricultural Transformation Strategic Plan (MINAGRI, 2004)</li> <li>The National Environment Policy (MINITERE, 2002)</li> <li>Politique Nationale de Gestion des Ressources en Eau (MINAGRI, 1998)</li> </ul>	<ul style="list-style-type: none"> <li>Does not mention new principles of water and transboundary water management</li> <li>Regionally, policy only talks about 'international co-operation' (in larger river basins)</li> <li>Water as an economic asset is sensitive; it is necessary to balance water for basic needs of the poor and water priced reasonably for agricultural and industrial use</li> </ul>

### E. Implementation Process

Implementation process	Issues arising
<ul style="list-style-type: none"> <li>To develop integrated water resources management (IWRM) directives and manuals for better sector coordination and policy implementation</li> <li>Established the National Water Management Authority whose ultimate mission is the holistic management of water resources</li> <li>Accelerate the current national water law formulation process to help in policy implementation</li> <li>To undertake dissemination of the policy document, water master plan elaboration and capacity building</li> </ul>	<ul style="list-style-type: none"> <li>The assessment stressed the weak management capacities in the water sector and underscored the need for national staff training at the Water and Sanitation Unit, Civil Engineering and Soil Preservation Units as well as staff of provincial and district structures, covering both technical and managerial aspects</li> </ul>

## ANNEX 3

### POLITIQUE SECTORIELLE DE L'EAU ET DE L'ASSAINISSEMENT

Le domaine de l'Eau est multisectoriel. Il couvre la distribution de l'eau potable et l'assainissement, le développement de l'agriculture et de l'élevage, l'industrie, le tourisme, l'hydroélectricité, le transport, etc.

#### Potentiel:

Pluviométrie	: en moyenne 1200 mm par an (entre 700 et 2000 mm par an)
Lacs	: 128 190 ha
Rivières	: 7260 ha
Eaux des Marais	: 77 000 ha
Sources	: 22 300

#### Utilisation de la ressource :

- Accès national à l'eau potable est de 54%
- Accès à l'eau potable en milieu urbain est de 66%
- Accès à l'eau potable en milieu rural est de 44%
- 15.000 sources aménagées
- 25 % de la population utilisent les sources aménagées
- Eaux mises en bouteilles : 2 692 696 litres/an (-1 l/hab/an)

#### Accessibilité à l'Eau Potable :

- Pour collecter un jerrican de 20 litres d'eau:
- 50% des ménages : une demie heure
  - 25% des ménages: plus d'une heure

#### Assainissement :

- Plus de 80% de la population Possède des latrines dont 8% hygiéniques
- Assainissement collectif des eaux usées est encore embryonnaire
- Eaux pluviales non maîtrisées
- Assainissement des déchets solides débutant

#### Orientations Générales

- Vision 2020 et Stratégie de Réduction de la pauvreté

Le secteur de l'eau et assainissement doit assurer la gestion durable et intégrée de la ressource eau, l'accès pour tous à l'eau potable et aux services d'assainissement ainsi que le stockage et la conservation de l'eau pour un développement économique

- Stratégie Nationale d'Investissement

La SNI encourage  
la participation du secteur privé  
La réalisation des AEPA à des coûts accessibles

- Programme Septennal du Gouvernement

Le Gouvernement entend poursuivre la mise en œuvre des réformes du secteur:

Aspects institutionnels  
Décentralisation  
Approche participative  
Renforcement du rôle des femmes et des jeunes  
Participation du secteur privé  
Renforcement des capacités  
Gestion intégrée des bassins versants  
Suivi et évaluation

- Objectifs de Développement International

● La Politique de l'Eau et Assainissement a adopté et fait sienne les objectifs du Millénaire et du NEPAD  
● Le Rwanda s'est engagé à réduire de moitié d'ici 2015 le pourcentage de la population qui n'a pas accès de façon durable à un approvisionnement en eau potable et en assainissement

#### Présentation du secteur

##### Problématique :

- Dégradation de l'environnement
- Manque de ressources humaines qualifiées
- Insuffisance des moyens financiers par rapport aux besoins
- Pollution
- Manque d'infrastructures d'assainissement
- Non implication du secteur privé
- Mécanismes de décentralisation non fonctionnelles
- Sous utilisation de l'eau dans les sous secteurs économiques

## Principes de la Politique

- Toute personne a droit à l'accès à l'eau
- L'eau est un bien qui a une valeur sociale et économique
- Une priorité doit être accordée à la sécurisation de la satisfaction des besoins en eau du pays
- Les hommes ainsi que les femmes doivent participer d'une façon égalitaire à la protection et à la gestion de la ressource eau
- La gestion de la ressource eau doit être intégrée et par bassin versant
- L'utilisation de la ressource doit être rationnelle et doit prendre en compte la dimension environnementale
- Les normes de qualité et de quantité d'eau doivent être respectées
- Le pollueur payeur
- La perspective genre doit être tenue en compte à tous les niveaux dans la gestion de la ressource en eau
- Les bénéficiaires prennent en charge les services d'eau et d'assainissement
- Tout projet d'alimentation en eau potable doit être accompagné d'un volet assainissement
- L'utilisation es eaux transfrontalières doit être équitable
- Tous les partenaires du secteur de l'eau doivent s'impliquer dans la gestion des ressources en eau

### Objectif global :

Améliorer les conditions de vie des populations par l'utilisation optimale de la ressource eau et par l'accès de tous à l'eau et à l'assainissement

### Stratégies :

- Mise en place d'un cadre politique, législatif et institutionnel favorable à la gestion rationnelle des ressources en eau
- Intégration du genre dans la gestion de la ressource eau
- Développement des infrastructures d'adduction d'eau potable et assainissement
- Développement des infrastructures de stockage et de conservation de l'eau pour multiples usages (agriculture, énergie, environnement, tourisme, ...)
- Promotion du transport fluvial et lacustre

## Programmes du secteur

### I. Programme de Gestion des Ressources en Eau

● En 2003, lancement d'un projet de préparation d'un programme d'investissement stratégiques pour le développement et la protection des ressources en eau

- Composantes du Projet
  - Composante institutionnelle: Etablissement d'un cadre institutionnel et réglementaire pour une gestion rationnelle des ressources en eau
  - Composante technique : (i) Etablir un Système d'information sur l'eau , (ii) évaluer les situations critiques dans les différents secteurs d'utilisations de l'eau et (iii) préparer la mise en œuvre des solutions
  - Composante développement des Ressources humaines

● Coût du projet: 1,015 millions USD/Don japonais

### II. Programme National d'AEPA en milieu Rural

● Objectif  
Accélérer l'accès des populations rurales à l'approvisionnement en eau potable et à l'assainissement

#### ● Cibles

Horizon	Actuel	2010	2015	2020
Taux d'accès EAU POTABLE	44%	66%	85%	100%
Taux Accès ASSAINISSEMENT	8%	34%	65%	100%

#### ● Coût global

925 dont 23,66 millions USD phase lancement financée / BAD, Gouvernement et Bénéficiaires

### III. Programme d'investissement d'AEPA en milieu Urbain

#### ● Objectif

Accélérer l'accès des populations rurales à l'approvisionnement en eau potable et à l'assainissement

#### ● Cibles

Horizon	Actuel	2010	2015	2020
Taux d'accès EAU POTABLE	66%	76%	85%	100%
Taux Accès ASSAINISSEMENT	10%	34%	65%	100%

#### ● Coût global:

934 millions USD dont 474 mUSD pour la ville de Kigali et 460 mUSD pour les autres agglomérations

## Prioritisation

- ✚ Alimentation en Eau potable et Assainissement
- ✚ Gestion des Ressources en Eau
  - Protection des bassins versants
  - Stockage et conservation des ressources en eau (barrages, )
  - Aménagement des lacs et rivières



**WHO / UNICEF**

**Joint Monitoring Programme  
for Water Supply and Sanitation**

**Coverage Estimates  
Improved Drinking Water**

Updated in June 2006

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**Rwanda**

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wssinfo.org

DHS	1992	
WATER	Urban	Rural
Private Tap	26	0.2
Public Tap	43.4	19.4
Spring	22.6	55.5
River/Surface Water	3.9	23.1
Other	4	1.6
Not Defined	0	0
<b>TOTAL</b>	<b>99.9</b>	<b>99.8</b>
All Spring Water	22.6	55.5
Estimate for protected springs on basis of MICS 00	18.8	39.1
Safe Drinking Water Excluding Spring	69	20
Safe Drinking Water Including 100% Spring	92	75
<b>Safe Drinking Water</b>	<b>88</b>	<b>59</b>
% House connections	26%	0%

Source: Rwandan Demographic and Health Survey 1992.

DHS	2000	
WATER	Urban	Rural
Robinet dans logement	10.7	0.5
Robinet dans la cour	23.2	0.5
Fontaine publique	41.7	27.2
Puits public protégé	3.5	6.1
Puits ouvert dans logement	0	0
Puits ouvert public	1.1	4.5
Source	14.5	46
Rivière	1.7	7
Mare/lac	1.2	7.5
Barrage	0	0.6
Camion citerne	1	0.1
Autre	1.2	0
ND	0	0.1
<b>TOTAL</b>	<b>99.8</b>	<b>100.1</b>
Protected springs estimated on basis of MICS 00	12.1	32.4
Access to improved drinking water sources	91%	67%
% House connections	34%	1%

Source: Rwanda, Enquête démographique et de santé, 2000.

<b>MICS 2000</b>			
<b>WATER</b>	<b>Urban</b>	<b>Rural</b>	<b>Total</b>
Robinet dans logement	4.9	0.1	0.8
Robinet dans la cour	25.7	0.2	4.0
Borne fontaine	51.5	41.8	43.2
Puits a pompe	1.3	1.3	1.3
Puits protégé	1.5	8.9	7.8
Source protegee ameenagee	6.0	15.3	13.9
Eau de pluie	0.0	0.0	0.0
Puits non-protégé	0.5	2.6	2.3
Source non protegee	1.2	6.4	5.6
Mare, riviere, lac	4.4	23.2	20.4
Camion citerne, vendeur d'eau	2.7	0.0	0.4
Autre	0.4	0.2	0.3
Manguant, NSP	0.0	0.1	0.1
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Ratio protected springs / all springs</b>	<b>0.83</b>	<b>0.71</b>	<b>0.71</b>
<b>Access to improved drinking water sources</b>	<b>91%</b>	<b>68%</b>	<b>71%</b>
<b>% House connections</b>	<b>31%</b>	<b>0%</b>	

Source: Enquete a indicateurs multiples, MICS 2000, Ministere des Finances et de la planification economique, Rwanda, Janvier 2001

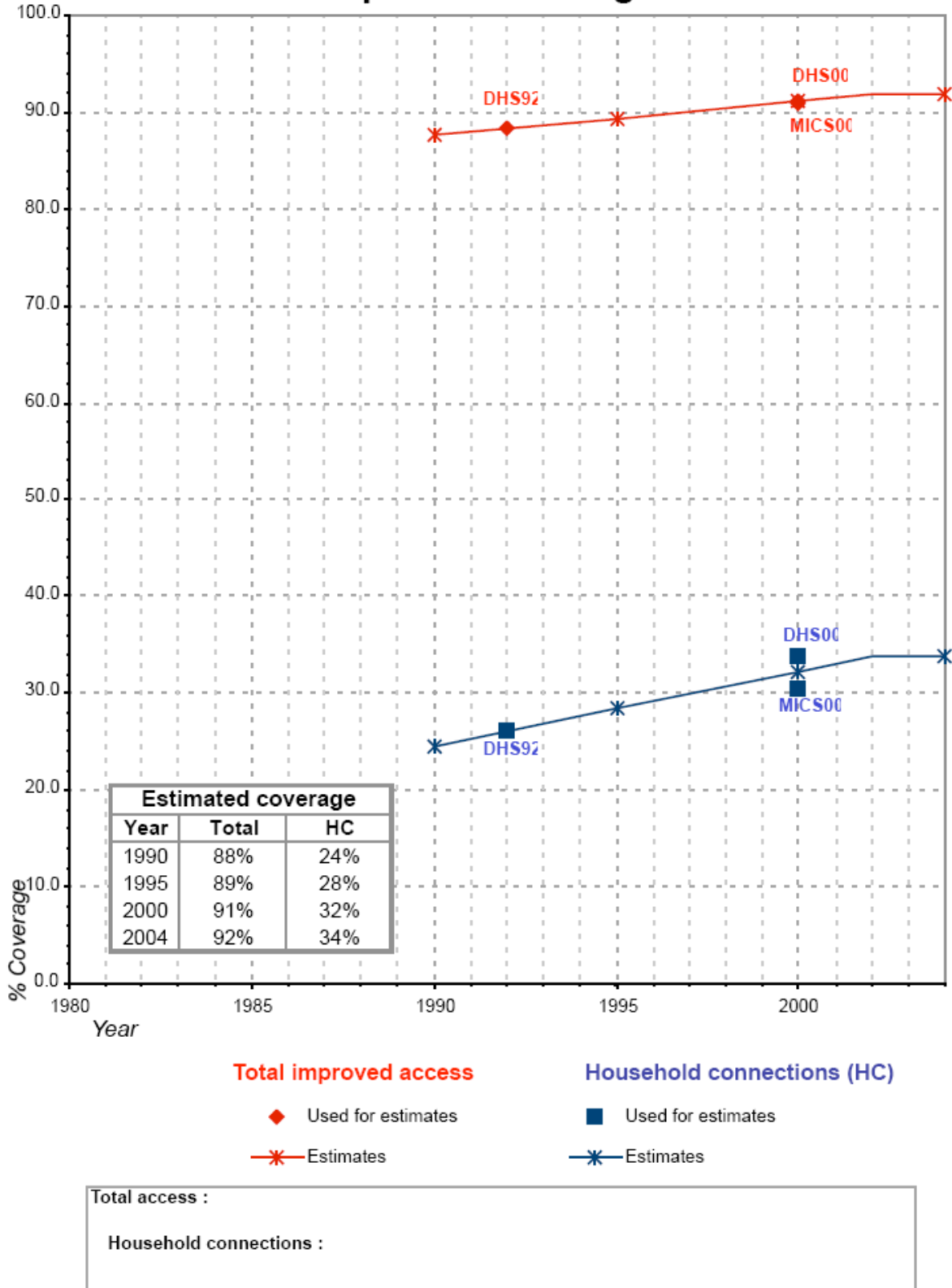
<b>FORM-6/WHO</b>	<b>1999</b>	
(Population in thousands)		
<b>Water</b>	<b>Urban</b>	<b>Rural</b>
Population served with household connection	317.464	236.695
Population without household connection but with reasonable access to a public water point	4.508	2'615.057
<b>Total population served</b>	<b>321.972</b>	<b>2'851.752</b>
Total population unserved	214.648	4'277.620
<b>Total population</b>	<b>536.620</b>	<b>7'129.372</b>
<b>Population with safe drinking water</b>	<b>60%</b>	<b>40%</b>
<b>% House connections</b>	<b>59%</b>	<b>3%</b>

Source: Global Water Supply and Sanitation Assessment 2000. Water Supply and Sanitation Sector Questionnaire - 1999. Form 6 sent to WHO.



Rwanda			DRINKING WATER							
			URBAN				RURAL			
			HC		Total		HC		Total	
Source	Code	Year	Used for estimates	Not used for estimates	Used for estimates	Not used for estimates	Used for estimates	Not used for estimates	Used for estimates	Not used for estimates
The International Drinking Water Supply and Sanitation Decade. Review of National Baseline Data (as at December 1980). WHO 1984	WHO80	1980		30.0		48.0				55.0
The International Drinking Water Supply and Sanitation Decade. Review of National Progress (as at December 1983). WHO 1986.	WHO83	1983		35.0		55.0				60.0
The International Drinking Water Supply and Sanitation Decade. Review of Mid-Decade Progress (as at December 1985). WHO 1987.	WHO85	1985		47.0		79.0				48.0
The International Drinking Water Supply and Sanitation Decade. Review of National Progress (as at December 1988). WHO 1990.	WHO88	1988		30.0		46.0				64.0
The International Drinking Water Supply and Sanitation Decade. End of Decade Review (as at December 1990). WHO1992.	WHO90	1990		32.0		84.0				67.0
Water Supply and Sanitation Sector Monitoring Report 1993 (Sector Status as of 31 December 1991)	JMP93	1991				75.0				
Rwandan Demographic and Health Survey 1992.	DHS92	1992	26.0		88.2		0.2		58.7	
Global Water Supply and Sanitation Assessment 2000. Water Supply and Sanitation Sector Questionnaire - 1999. (Form 6 sent to WHO)	JMP99	1999		59.2		60.0		3.3		40.0
Rwanda, Enquête démographique et de santé, 2000.	DHS00	2000	33.9		91.2		1.0		66.7	
Enquete a indicateurs multiples, MICS 2000, Ministere des Finances et de la planification economique, Rwanda, Janvier 2001	MICS00	2000	30.6		90.9		0.3		67.6	

# Rwanda - urban - Access to improved drinking water sources



## Rwanda - rural - Access to improved drinking water sources

