Local Water Management in Low-Income Urban Neighborhoods: The Case of Kinshasa.

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Summary

This study deals with the question of access to drinking water and sanitation services in the low-income neighborhoods of cities in developing countries. In particular, it evaluates access to drinking water and sanitation services in the city of Kinshasa (Democratic Republic of Congo), focusing specifically on the case of the commune of Kisenso (250,000 inhabitants). It describes the system, current practices and capacities of local associations involved in water management. It also attempts to identify systemic limitations and proposes possible solutions for improving access to drinking water for low-income populations.

Chapter 1 addresses the institutional framework of the water management and sanitation sector by providing a brief overview of the city of Kinshasa. Chapter 2 describes the research methodology adopted in this study. The techniques and methods used for data collection are described (i.e., observation, administration of the questionnaire, organization of focus group meetings and interviews). Chapter 3 presents the main results of our research.

For instance, our research shows that the average monthly income of almost half of the households surveyed is US $50, with an average of seven people per household. This amounts to a monthly income of US $7 per person. The level of drinking water supply to households is 10%. The main drinking water suppliers are Saint-Étienne parish (34%); REGIDESO (32%); private organizations (15%); and NGOs (10%). Water scarcity entails a cost in terms of money, time and energy and is one reason for the emergence of water-borne diseases (typhoid fever, diarrhea, amoebiasis, etc.). Our survey shows that that the average household spends US $0.27 per day to obtain water ($8.10 per month). The average amount of time spent in the search for water is two hours, depending on the geographic location of the household; on average, the drinking water source is located 960 metres from residential homes.
With respect to drinking water needs, the World Health Organization has established 50 litres per day per person as the standard; our study shows that 92% of households have to make due with less than the minimum requirement.

Finally, Chapter 4 describes the obstacles and solutions identified by survey respondents. The obstacles are related to institutional, technical and financial constraints and environmental deterioration (soil erosion). The proposed solutions include the creation of a special fund for financing water infrastructure projects; support for the informal sector and urban agriculture, which represent sources of income for numerous households; training; management decentralization; development of a Water Code; and the creation of a ministry with exclusive responsibility of water resources management.
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Background

The goal of this study is to evaluate water management practices in one of the low-income neighborhoods of the city of Kinshasa (Democratic Republic of Congo). This study specifically deals with “water and sanitation,” which is one of the themes of the new Urban Poverty and Environment (UPE) program initiative of the International Development Research Centre (IDRC), and will add to our understanding of the problem of access to safe drinking water and sanitation services in the cities of developing countries.

Water management in Congo

In the Democratic Republic of Congo, urban drinking water management is the responsibility of the Régie de distribution d’eau, known as REGIDESO. The financial and technical dimensions of this public enterprise are overseen by the Energy Ministry and the Portfolio Ministry respectively. Its mandate is to produce, distribute and sell drinking water in all cities and urban centres.

However, institutional, financial and technical limitations are obstacles to drinking water provision, especially in outlying urban areas. Another obstacle is the inordinate power wielded by the central authority; this power limits the possibilities of local communities and citizens to become involved in water management.

Budgetary constraints are another ongoing impediment facing the drinking water and sanitation sector. The water authority and sanitation services often find themselves in a situation of dependence in relation to the State and bilateral and multilateral partners. Governments lack the financial resources to upgrade and replace deficient infrastructure and equipment.

Furthermore, the inordinate power held by the central authority limits the possibilities of local communities and citizens to become involved in water management. These communities are not involved in water management. Everything is concentrated at the
central government level. With small budgets and an on-lending structure that is often not clear and not applied, local administrations find themselves unable to intervene in this sector.

In addition, the general public is not directly or indirectly involved in the development of drinking water policies, programs or projects. Water scarcity obliges women to spend time, money and energy on the search for water. Children are particularly affected by water scarcity and unsafe drinking water which have contributed to the resurgence of certain diseases (malaria, cholera, typhoid fever, diarrhea, amoebiasis, etc.). These diseases are the main causes of increased mortality in Africa (WHO, 2001).

Problem

As is the case with other cities in Congo, the situation of Kinshasa in terms of water and water quality is hardly exemplary. Founded as a port city, Kinshasa developed along the Congo River. The population was estimated at 400,000 in 1960 and has increased to an estimated 7 million inhabitants in 2005 (City Administration, Kinshasa, 2005).

Overall, the city’s safe drinking water needs are below the real needs of the population. REGIDESO is only able to provide 360,000 m³/day of the estimated requirement of 600,000 m³/day. The level of water supply for the city is 53% and a Kinshasa resident consumes on average 17 litres of water daily (Regideso, 2004). In most outlying neighborhoods of the city, residents are not connected to the public drinking water distribution network. As a result, the means of water supply vary: underground wells; stormwater collection; recourse to neighbours connected to the official water network; and retail purchase.

Stormwater run-off causes serious soil erosion problems in some outlying neighborhoods. In the valleys, stagnant water predominates after a rainfall and provides an ideal breeding ground for Anopheles mosquitoes which are vectors for malaria. According to the National Water and Sanitation Committee (CNAEA, 2003), sanitation infrastructure
covers only 11% of the entire national territory. In urban areas, this proportion is 8% compared to 12% in rural areas.

Because of the low levels of drinking water coverage and sanitation services, some NGOs, associations and private sector stakeholders have become involved in the sector. However, there has so far been very little information available on the formal and informal stakeholders currently working in the sanitation and drinking water supply sector, especially in low income neighborhoods. Existing data, collected from socio-economic or demographic studies, is neither complete nor entirely reliable.

In our view, this warrants an analysis of the situation that exists in the commune of Kisenso – the poorest in the city of Kinshasa – in order to evaluate the capacities of local stakeholders in the management of water services. Particular attention will be paid to analyzing the operating principles of the organizations and local groups, both formal and informal.

**Objectives of the study**

The main objective of this study is to assess water management (drinking water, excreta, wastewater and stormwater) in the city of Kinshasa, focusing on the case of the commune of Kisenso. The specific objectives are to:

- Describe the system and current practices used in the management of drinking water, excreta, wastewater and stormwater;
- Identify the institutional and technical constraints affecting drinking water supply and sanitation in outlying urban areas;
- Describe the capacities of local associations from the perspective of communities’ taking charge of water management services; and
- Identify possible solutions for facilitating the access of low income people to drinking water and sanitation services.
**Work plan**

Aside from the introduction and conclusion, this study includes four chapters. Chapter 1 describes the institutional framework in place for the management of drinking water and sanitation the Democratic Republic of Congo; specific attention is paid here to a presentation of the city of Kinshasa. Chapter 2 focuses on the research methodology and provides a detailed description of each stage of the study. Chapter 3 evaluates the study results. Chapter 4 looks at institutional, technical and financial constraints, obstacles to water accessibility and offers some possible solutions.
Chapter 1. Institutional Framework of Water Management

Before examining the institutional framework of water management in the Democratic Republic of Congo, it is necessary to provide some context for our research topic by giving an overview of the city of Kinshasa and briefly describing the commune of Kisenso, which is our specific area of investigation.

1.1. Brief overview of the city of Kinshasa

The city of Kinshasa, capital of the Democratic Republic of Congo, is characterized by a hot and humid tropical climate. The precipitation values include a seven-month rainy season, from mid-September to mid-May; a dry season from mid-May to mid-September and a rise in rainfall between December and February. The average temperature is 26° C. The soil is generally sandy with granular elements. The vegetation in Kinshasa consists essentially of savannah, interspersed with small trees.

As for its hydrographic profile, the city of Kinshasa is surrounded by several waterways, including the Ndjili with a basin of 2,000 km²; the N'sele (basin of 6,000 km²); the Maindombe; and the River Congo, which borders the city itself.

Founded as a port city, Kinshasa developed along the river. Around 1919, Kinshasa already had a population of 14,000, occupying a territory of 650 hectares. At the time of independence, in 1960, the city, which had been the capital since 1923, had an estimated population of 400,000 people occupying an area of 5,500 hectares (UNDP and UNOPS, 1998). Today, the population of Kinshasa is around 7 million with an annual growth rate of 4.7% (City of Kinshasa, 2005). Despite an economic recession, the city has an annual growth rate above 6% and the outlying areas are growing annually by 12% (Stren and White, 1993).

The city of Kinshasa, which today covers a territory of approximately 9,968 km²,
encompasses 24 communes that can be grouped as follows: the **outlying, semi-rural and rural communes** (Kimbanseke, Masina, N'sele, Maluku, Mont Ngafula and Ngaliema (in part)); the **southerly communes** (Bumbu, Selembao, Makala, Ngaba, Kisenso and Limete (in part)) and the **old, new and planned cities** (Barumbu, Kinshasa, Lingwala, Kasa-Vubu, Kintambo, Bandalungwa, Kalamu, Lemba, Matete, Ndjili (in part), and Ngiri-Ngiri) (UNDP/UNOPS, 1998).

**Commune of Kisenso**

This study focuses on the commune of Kisenso (250,000 inhabitants spread out in 17 neighborhoods with an average population density of 15,241 habitants per km²). Kisenso belongs to the category of the outlying communes of the city of Kinshasa. Access to it is difficult because of soil erosion; the level of drinking water supply is equivalent to 10% of households.

**1.2. Institutional framework of water management in Congo**

In the Democratic Republic of Congo, the drinking water supply and sanitation sector is divided into four sub-sectors: urban drinking water supply; rural drinking water supply; urban sanitation; and rural sanitation.

Demographic criteria are used to distinguish between rural and urban areas. For instance, any population centre with 5,000 or more inhabitants is considered an urban centre, whereas areas with fewer than 5,000 inhabitants are considered rural. The planning unit of the rural water sub-sector is the health zone (National Action Committee for Water and Sanitation, CNAEA, 2004).

**Stakeholders**

The drinking water supply and sanitation sector includes various stakeholders such as public institutions, NGOs and private organizations. The National Action Committee for Water and Sanitation (CNAEA) coordinates the activities of the stakeholders in the sector. The CNAEA comes under the Ministry of Plan, which holds the presidency. The
vice-presidency is held by the Environment Ministry and the Executive Secretariat, at REGIDESO. The role of this Committee is to coordinate all activities related to drinking water and sanitation.

In fact, CNAEA’s coordination role entails the identification of major options, priorities and development strategies for the drinking water supply and sanitation sector; mobilizing financial resources for executing different projects; and the development and monitoring of rehabilitation, development and training programs related to the objectives that the country has established for the sector.

**Figure 1. Institutional framework for water and sanitation management**

**Drinking water in urban and semi-urban areas**

In urban and semi-urban areas, the provision of drinking water is the responsibility of the water authority of the Democratic Republic of Congo (REGIDESO). It is responsible for the production, distribution and sale of drinking water in urban centres. REGIDESO is a public enterprise with management authority that comes under the Energy Ministry for
technical matters and the Portfolio Ministry for administrative matters. However, some NGOs undertake drilling with motorized pumps in often difficult to access outlying urban neighborhoods, which are not covered by REGIDESO.

**Urban sanitation**

This sub-sector includes a number of public institutions such as the *Office des voiries et drainage* (OVD), the *Programme National d’assainissement* (PNA), the ministries of Health and the Environment, NGOs and private sector organizations. They are responsible for the excreta disposal; stormwater and domestic wastewater removal; solid waste collection; disease prevention; water quality monitoring; and health education. The OVD, an administratively autonomous public enterprise that depends financially on the Ministry of Public Works and Land Use Planning, is responsible for the maintenance of sewage and drainage systems.

The National Sanitation Program (PNA) comes under the purview of the Environment Ministry and is responsible for sanitation planning; disease prevention; solid waste disposal; excreta and liquid waste disposal; pollution prevention and control; domestic and industrial hygiene; drinking water quality; and education.

In addition, the ministries of Health and the Environment work in the areas of environmental health; monitoring of diseases linked to unhealthy environments; public health education. The NGOs and private sector organizations generally work in the areas of excreta disposal; solid waste disposal and disease prevention.

**Conclusion**

This chapter has focused on the description of the institutional framework for water and sanitation management in the Democratic Republic of Congo. A brief description of the city of Kinshasa was also given. Before presenting the results of our research, we will describe in the following chapter the methodological approach adopted throughout this study.
Chapter 2. Research Methodology

The methodological approach adopted in this study, apart from the observation of water sourcing and distribution sites, consists of a survey; focus groups; and interviews with representatives involved in the drinking water and sanitation sector. Particular attention has been paid to the participation of women in this sector.

2.1. Survey

The survey was carried out between April 16 and May 9, 2005, by a team of investigators composed of a lead researcher and approximately ten members of the staff of the Kisenso Health Zone. A survey questionnaire was administered to 104 households in 10 neighborhoods of the Kisenso commune (Regideso, Kumbu, Mbuku, Amba, Mission, Mujinga, Libération, 17 mai, Nsola and Bikanga). A preliminary version of the questionnaire was developed in order to clarify certain questions.

2.1.1. Sample

In cases where it was not possible to draw a probability sample, because there exists no exhaustive list of all the subjects involved, we have used a non-probability sample and the quota method. We therefore established a matrix in which the population of the different stratified neighborhoods was segmented according to the following criteria: position of the neighborhood (situated on high-sloped terrain or low-sloped terrain); presence or absence of a plumbing system; and demographic weight of each neighborhood.

Given the geographic profile of the commune of Kisenso, which is characterized by hills and plains, the question of access to drinking water and sanitation services is perceived differently according to whether the household is connected to the official network or not and according to the physical location of the house in the neighborhood. The residents of
the neighborhoods, for example those located on a steep slope, can experience difficulties accessing drinking water as a result of soil erosion; by contrast, problems associated with stagnant wastewater and stormwater may be more severe in neighborhoods located on a gentle slope.

In addition, residents who are connected to the network of the Water Production and Distribution Agency of the Democratic Republic of Congo (REGIDESO) have a plumbing system in place. Regardless of the condition of the plumbing system, difficulties associated with access to water can be perceived differently depending on whether a given household is located in a neighborhood without an official connection (plumbing system) or whether residents obtain their drinking water from wells or standpipes.

As a result, the households to be interviewed were selected at random by means of a systematic geographic lottery based the demographic weight of each neighborhood. On each street or avenue, the first household was selected as well as the tenth one that followed. In the event the owner or the woman of the tenth household was absent, the woman of the preceding (i.e., ninth) or following household (i.e., eleventh) was interviewed. In the event all three persons were absent, the investigator was obliged to make a return visit another day.

Therefore, the households to survey were selected at random through a systematic geographic draw based on the demographic size of each neighbourhood. Moreover, in the event no specific avenue or street existed, the investigator had to draw up a rough map of the neighborhood beforehand and carefully divide the research area into different sections. The questionnaire was then administered to the households that were located along the mapped-out route established by the investigator. In this case, the selection of households depended on the investigator’s judgment as to whether the households were spread out or concentrated in one area.

2.1.2. Survey summary
The unit of investigation in this study is therefore the household. Women were interviewed in households selected for the survey, eventually in the company of their husbands. In households in which no women lived (i.e., woman absent or home occupied by an unmarried, divorced or widowed male), the male occupant was interviewed. The investigators worked in teams of two: while one administered the questionnaire, the other took notes. This role was reversed every two interviews. Each team stayed at least one week in each neighborhood to administer the questionnaire and record observations. It is important to note that during the investigation, the chief researcher traveled many kilometers on foot throughout various neighborhoods to ensure the investigation was being conducted as planned, motivate the investigators and resolve certain problems (e.g., relations between investigators and neighborhood representatives). The entire team gathered at the Kisenso Health Zone at the end of each day, where a room was reserved for them. Investigators attended a training session prior to starting fieldwork and each one received a binder and small bonus for their work.

2.2. Focus groups

We chose the focus group method because it is compatible with African predilections and is therefore well suited to the mentalities of our survey area (Simard, 1998). Focus group sessions were held on May 10 and June 4, 2005.

2.2.1. Recruitment of participants

To facilitate the recruitment of participants, we first advised the relevant political and administrative representatives (i.e., burgomaster, neighborhood leaders) of the nature of our research and the method to be adopted, which involved inviting certain people to participate in discussion groups on the theme of drinking water management and sanitation services. Neighborhood representatives, through their group chiefs, helped select the men and women to participate in the focus groups. The choice of each participant was contingent on his or her prior involvement in the development activities of their respective neighborhoods. Additional selection criteria included factors such as age, gender, marital status, income, occupation and location. Recruitment took place one
week prior to the first focus group meeting so that participants would not forget the date of the meeting and attendance would be as high as possible. Eight groups were formed, each with an average of nine people: five groups of women (mothers from Kimpa Vita and mothers from the Regideso, Amba, 17 mai and Kumbu neighborhoods) and three groups of men (Amba, Kumbu and 17 mai neighborhoods). In fact, women assume the largest share of domestic work and are mainly in charge of searching for water. The water shortage obliges them to spend a lot more time and energy (and money) in the search for this resource.

2.2.2. Groups discussions

Each focus group session lasted a maximum of two hours. The date of the session depended on the availability of the participants. The discussions took place at various locations: school (Salvation Army, Kimpa vita), parish (Saint-Etienne) and outdoors. Refreshments were offered to participants. We personally led discussions with the help of two colleagues who took notes and transcribed the contents of the audio cassettes. All meetings were conducted in the local language (Lingala).

2.2.3. Analysis of results

The results were analyzed as follows: grouping of discussion themes; approximate amount of time allocated to each sub-theme; and content analysis in light of research objectives.

As for the synthesis of results, we proceeded as follows: identification of common issues and priorities as measured against the research topic; proposal of solutions and description of the ways residents plan to implement them; and a comparison among groups with a view to identifying differences and common options among different categories of persons.

2.3. Interviews
The interviews took place between May 5 and July 10, 2005, with representatives involved in water management. An interview guide was developed with a focus on: regulatory framework; citizen participation in drinking water management; management of drinking water services; and public health advocacy.

For instance, we met the following people: The Minister of Energy; Assistant Burgomaster of the Commune of Kisenso; Permanent Secretary General of the National Water and Sanitation Committee (CNAEA); Surgeon General of the Kisenso Health Zone; President of Parish Council (Saint Etienne Parish); National Coordinator of the Centre Misericordia (NGO); and President of the Union des sages admirés de Kisenso (USADEK, also an NGO).

**Conclusion**

This chapter focused on the description of the techniques and methods used to collect data in the field. We briefly detailed the techniques adopted to administer the questionnaire, organize meetings with focus groups and conduct interviews with people involved with local water management. The data gathered was analyzed using a global and interdisciplinary approach. The results are presented in the following chapter.
Chapter 3. Survey Results

This chapter presents the results of our investigation. We will focus on the following elements: household profile; access to drinking water; costs of water; environmental deterioration; and management of water services at the local level.

3.1. Household profile

Our sample consisted of 104 households. The questionnaire was administered to 72 women and 32 men. Most respondents belonged to the 35 to 49 age group at 47%, followed by the 20 to 34 age group which represented 25% of the population surveyed. The 50 to 64 age group and the over 65 group represented 23% and 5% of respondents respectively.

As for occupation, 43% of those surveyed were female homemakers, followed by business owners at 24% and public servants at 9%. The high number of business owners can be explained by the emergence of an informal commercial sector in the commune. It is above all women who are working. Teachers and vegetable farmers make up 4% of respondents, just ahead of tailors and drivers at 3%. Finally, electricians, construction workers and the unemployed make up 2%. Masons, watchmen, doctors and nurses make up separately 1%.

The survey revealed that 61% of respondents were high school graduates and 21% had finished primary school. The rate of illiteracy is 9%. The low incomes could explain the increase in the number of illiterate people in the population surveyed. In addition, the proximity of institutions of higher learning and universities (University of Kinshasa,
Institut supérieur des techniques médicales, etc.) and the low rents in the area help to explain the high number of university students living in the commune.

The average household size is 7.3 people. Dependent children aged 0 to 5 represent 23% of households, children aged 6 to 10 make up 22% and those aged between 11 and 18 account for 26%. Dependents aged 18 and over represent 29%. This high percentage of dependents over the age of 18 can be explained by the high rate of youth unemployment: once they have finished high school, many young people are forced to seek casual employment to earn income (e.g., in small stores or telephone kiosks or as street vendors, etc.).

3.2. Access to drinking water

3.2.1. Household income

3.2.1.1. Breakdown of income

The survey revealed that 49% of households earn a monthly income between US $10 and $50; 38% earn between $51 and $100; and 13% of households have an income greater than $100 per month. As a comparison between different neighborhoods, the following table is revealing.

<table>
<thead>
<tr>
<th>Neighborhoods</th>
<th>$10-50 US</th>
<th>$51-100</th>
<th>$101-200</th>
<th>$201 &amp; more</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Amba</td>
<td>5</td>
<td>10</td>
<td>4</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Mission</td>
<td>9</td>
<td>18</td>
<td>1</td>
<td>2,5</td>
<td>0</td>
</tr>
<tr>
<td>17 mai</td>
<td>7</td>
<td>14</td>
<td>4</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Mbuku</td>
<td>8</td>
<td>16</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Nsola</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Regideso</td>
<td>6</td>
<td>12</td>
<td>4</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Kumbo</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Bikanga</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Mujinga</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Libération</td>
<td>9</td>
<td>18</td>
<td>1</td>
<td>2,5</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 1 demonstrates the extent of poverty in the commune of Kisenso. For example, the highest concentration of households with monthly incomes in the $10 to $50 range are located in the neighborhoods of Mission (18%), Libération (18%), Mbuku (16%), 17 mai (14%), Regideso (12%) and Amba (10%). In the second income range, the Mujinga stands out with 20%, followed by Kumbu and Bikanga at 15% each. The percentage of households in this low income range is 10% for the neighborhoods of 17 mai, Nsola and Regideso.

As for the $101 to $200 income range, the Nsola neighborhood tops the list at 42%, followed by Amba, Bikanga and Mujinga which each have 8%. For this category, we would be inclined to believe that a correlation exists between occupation and income level. However, at this stage of our analysis, we can neither confirm nor reject this hypothesis without first being able to demonstrate a statistically significant link between these two variables.

Moreover, the higher level of income in Nsola can be explained in part by the development of informal activities, which is aided by the existence of the railroad that provides a regular link between Kinshasa and Kasangulu in Bas-Congo. This is also the case in Amba, Bikanga and Mujinga where there is a higher concentration of homemakers. Aside from domestic tasks, women homemakers often engage in the sale of staples (e.g., sugar, corn flour, fish, salt, oil, etc.). As a result, the combined income of both the husband and wife contributes to the well being of the household. Finally, only one household in the Amba neighborhood falls within the highest monthly income range of more that $200.

In fact, one of the two poverty levels established by the World Bank in terms of minimum annual income per person is $370, which comes to $30.83 monthly. Our survey shows that the average income of close to half of the households (49%) in the commune
of Kisenso is $50 monthly with an average of 7.3 persons (i.e., 7 family members per household); this works out to $7 per person per month. The real income of residents minus the World Bank’s theoretical poverty level income gives a negative number, that is, $23.83 short of the required minimum. This $50 income can hardly sustain two people according to the poverty line posited by the World Bank.

Moreover, more than 38% of households have an income that can reach $100. In this case, one person per household can earn $14 per day. There also exists in this case a deficit of $16. Only the households that are close to earning $200 monthly actually approach the minimum income level, which is equivalent to 12% of households surveyed. An increase in income can be achieved by promoting vegetable farming, in particular by helping women to acquire farm land; by introducing a savings and credit system to foster the development of informal activities; and by adopting a family planning policy to reduce family size.

In addition, if one considers the household expenses associated with obtaining drinking water, one can easily understand why so many people avail themselves of water from unimproved sources. However, urban agriculture can be exploited as a means of supplementing household incomes.

3.2.1.2. Urban agriculture: a potential source of new income

Vegetable farming represents the main source of income for some households in the commune of Kisenso. This commune is known for the vegetables that is supplies to the capital’s main markets of the capital (Matete, Ngaba, Central Market, Maman Apengé, Simba zikita, etc.). Among the most commonly sold vegetables are manioc leaves, sweet potato leaves, pigweed, spinach, Chinese cabbage, corn, etc. Certain products can be cultivated during both the rainy and dry seasons. This is the case of manioc leaves which can be found in almost all of the plots visited (95%). A project named *Jardins et élevage des parcelles* (JEEP) was formerly in place to help develop this sector and combat food scarcity. The project is currently experiencing difficulties in re-establishing its activities.
With respect to the practice of urban agriculture in this municipality, aside from small private gardens, the low lying areas are the most common places for vegetable farming. It is mostly women who take part in this type of agriculture. However, the difficulty of acquiring land hinders the development of this sector, which during the current economic hardship would represent an alternative in the fight against food scarcity and malnutrition. According to some farmers we met, there has been a clear decrease in yields. This situation is apparently due to an overuse of the soil. In this case, the use of wastewater or excreta (through composting) would help produce greater yields. Farmers also have to deal with additional difficulties in the form of a lack of seeds and farming tools and materials. Given the population increase in Kinshasa and the continuing high demand for foods products, the creation of a farming cooperative would facilitate the sharing of resources (financial, human and material) needed to increase agricultural output. A cooperative structure such as this would only be feasible after a thorough study of the obstacles that hinder the development of urban agriculture.

3.2.1.3. Another income source: land ownership

Land ownership could be used as a source of additional income for households. The survey revealed that 75% of households own land compared with 25% of those who rent. Among owners, out of the 26 surveyed, 62% possess a second property. They are concentrated in the neighborhoods of Amba, 17 mai, Kumbu, Mission and Mbuku. In addition, renters are more common in the neighborhoods of Mission, 17 mai, Amba, Mujinga and Bikanga. The low cost of rent could explain this situation. The average monthly rent for a house with one or two rooms varies between US $10 and $30.

Regarding the means of property acquisition, 83% of households declare having purchased it compared to 10% who acquired it through inheritance and 5% through a sharecropping arrangement. Only 2% of households report having received their property as a gift. The prior or current occupation of the head of the household might have had an influence on the decision to acquire the property. In fact, the salary situation at the
beginning of the 1970s allowed some public servants to acquire a property. Compared to other communes, it should be noted that the cost of purchasing a property in Kisenso was relatively modest in light of its geographical relief.

In fact, some public servants and private sector managers found it more advantageous to invest in property after the period of spiraling inflation but also because of the weak social security system. Once the property is purchased, a tenant is designated to look after it. More often than not, the person so designated is a family member or close friend.

3.2.2. Right of access to water resources

The fact of owning a property guarantees some people the possibility of access to water resources. In fact, those in charge of individual wells located on their land sometimes require payment in exchange for access to water. In April 2005, UNICEF in cooperation with the Kisenso Health Zone installed a standpipe on a plot of land in the 17 mai neighborhood. In addition, operators in the water sector (NGO, Saint-Étienne parish) do not have guaranteed access to a water source. However, there do exist unimproved water sources that could be developed to facilitate access to drinking water for the majority of Kisenso residents. On the other hand, there is reason to fear that the owners of these sites might claim their ancestral rights to these lands. One consequence of this would be that some residents would risk losing their access to water or that a price increase would deprive the poor of access to the resource.

In fact, property law in the Congo remains ambiguous with respect to customary authority over the rights and privileges to certain lands. In conjunction with the State, the hereditary chief intervenes in the distribution of land. Given the absence of a water code and the place occupied by the third sector (NGOs, religious and other associations, individuals, etc.) in the production, distribution and sale of drinking water in the low-income neighborhoods of Kinshasa, and given the population increase and the poverty level, won’t poor people be excluded in the long run from access to drinking water?
Faced with a scarcity of public resources, poor public sector management of infrastructure and services (central and local authorities), a lack of private sector capital to finance water infrastructure in the low-income neighborhoods of large African cities (profitability), do third-sector organizations represent an asset or an obstacle in terms of enabling the poor to gain access to public services? Does this space between the public and private sector not act to promote the environment? Perhaps subsequent investigations may be able to shed light on these questions.

3.2.3. Different sources of access to drinking water

Households have at their disposal a variety of sources of drinking water. Figure 2 provides a detailed breakdown of these sources.

![Figure 2. Sources of drinking water supply for some households in Kisenso in 2005](image)

Source: Survey conducted in the commune of Kisenso, April-July 2005.

Figure 2 shows that 46% of the population obtains its drinking water supply from REGIDESO; 31% uses water from wells or sources mainly developed by Saint-Étienne.
parish, the Kisenso Health Zone and some NGOs; and 5% get their water from standpipes.

It should be noted that during the rainy season, stormwater is used for daily household chores. Some households that get their drinking water from REGISDESO, improved sources or standpipes also make use water from unimproved sources for doing dishes, clothes washing and the toilet.

Similarly, the survey shows that the residents of the Regideso neighborhood get their drinking water from REGIDESO, followed by those of Mbuku, Mujinga and 17 mai. This situation can be explained by the existence of the plumbing system put in place by REGIDESO. Even if the water is distributed late or irregularly, the residents of these neighborhoods prefer to get their drinking water from REGIDESO. For some households, this water comes from neighbouring communes. For instance, women and children from the Regideso neighborhood go to the commune of Matete; residents from 17 mai go to the commune of Lemba (Salongo); and the residents of Mbuku travel to the campus of the University of Kinshasa (commune of Lemba) in search of drinking water.

The residents of the neighborhoods of Mission, Amba, Libération and Kumbu, among others, more often obtain drinking water from wells or other improved sources. This is the case for the drinking water supplied by Saint-Étienne parish. It was in this neighborhood that UNICEF, in collaboration with the Kisenso Health Zone, helped to develop two standpipes in May 2005; for a fee, these standpipes provided the local population with a reliable source of drinking water.

However, households with insufficient resources obtain their drinking water from unimproved sources. This is the case in the neighborhoods of Kumbu, Amba, Nsola, Mbuku, etc. The daily cost of water in these low-income neighborhoods is prohibitive.
Regardless of the cost, drinking water is consumed untreated in 90% of cases. Only 10% of the households surveyed state that they treated their water prior to consumption; the most common forms of treatment were boiling (90%) and filtration (19%).

Various reasons put forth for consuming untreated water. Irregular or non-existent sources of electricity was the reason stated by 55% of households surveyed, while 24% said that they trusted the water supplied by REGIDESO. It is important to note that the residents of this municipality generally use wood and coal as energy sources because of the unpredictable electricity service.

Finally, 2% of households are of the opinion that it is unnecessary to treat water before drinking it. This viewpoint may be due to a lack of information about the diseases that can be caught from drinking untreated water; this is all the more true in light of the different possible sources of drinking water and the different means of water transportation and storage.

3.2.4. Main drinking water suppliers

Aside from REGIDSO, there are other stakeholders involved in the production, distribution and sale of drinking water. The main suppliers in the commune of Kisenso are: Saint-Étienne Paris (34%); REGIDESO (32%); private owners of individual wells (5%); local NGOs (10%); REGIDESO water resellers (9%). In the case of resellers, it is estimated that REGIDESO water is resold at a 39% markup.

What is the situation in different neighborhoods? The following table provides some elements of an answer.

Table 2. Main water suppliers operating in the commune of Kisenso in 2005

<table>
<thead>
<tr>
<th>Neighborhoods/ Water sources</th>
<th>Regideso</th>
<th>Local NGOs</th>
<th>Private (well owners)</th>
<th>Resellers (Regideso water)</th>
<th>Saint-Étienne Parish</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Amba</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 2 illustrates that households from the Regideso neighborhoods get their water supply from REGIDESO (28%), followed by 17 mai (22%) and Bikanga (19%). The neighborhoods of Nsola (50%) and Libération (40%) obtain their drinking water with the help of local NGOs. On the other hand, Saint-Étienne parish is the main drinking water supplier to the neighborhoods of Kumbu (29%), Amba (26%), Mission (2%) and Mujinga (15%).

### 3.2.5. Water consumption levels

Figure 3 represents water consumption levels for households in the commune of Kisenso.
Figure 3. Niveau journalier de consommation d'eau par les ménages de la commune de Kisenso en 2005

If one posits that a household belonging to the 51-100 litres per day category consumes 100 litres daily and that its average size is 7 persons, then it follows that the average daily consumption per person for this category is 14.3 litres per day. Compared to the 101-150 litres per day category, where the daily per person consumption reaches 21.4 litres, the daily consumption is barely 7 litres per day per person for those in the 10-50 litres per day category.

The WHO has established a standard of 50 litres of water per person per day. On this basis, 92% of households live below the minimum standard. This represents a significant shortfall to fill, namely 43 litres for the category of less than 50 litres; 35.7 litres for the 51-100 litre category; and 28.6 litres for households whose consumption varies between 101 and 150 litres per day.
Our survey shows that in terms of water consumption across neighborhoods, the neighborhoods of Amba, 17 mai and Regideso have difficulty reaching 50 litres per day, each having a consumption level of 18%.

In the case of Kumbu and Bikanga, this level is zero. This situation can be explained by the fact that the residents of these neighborhoods frequently obtain their water from unimproved sources (Kumbu) and because of the existence of a plumbing system (Bikanga). In the latter case, even though there is water flowing at night, these households make their own arrangements to obtain water.

With respect to the second category (51-100 litres), the dominant neighborhoods are 17 mai (14%), Mission (13%), Amba (11%), Nsola (11%), Libération (10%) and Mujinga (10%). In fact, this situation can be explained by the presence of unimproved water sources (17 mai and Amba), the proximity to the water depots of Saint-Étienne parish, and the standpipes installed by the Kisenso Health Zone and the Union des jeunes sages de Kisenso (USADEK, an NGO) in collaboration with the Centre Misericordia (CEMI).

Finally, the neighborhoods of Kumbu (23%), Nsola (14%) and Mbuku (14%) place first in water consumption in the 101-150 litre category. Similarly, this trend could be explained by the fact that water is obtained from unimproved sources.

3.3. Costs of water

3.3.1. Financial cost

For households, obtaining water carries a cost in terms of money, time and energy. Our survey shows that 38% of households spend between $5 and $10 monthly to obtain drinking water; 28% spend between $2 and $5; and 29% spend less than $2. Only 5% of households spend more than $10 monthly on water. To have a realistic idea of the real cost of water, we examined the daily expenditure per household to obtain getting drinking water and time devoted to this task among neighborhoods.
Table 3. Financial cost, time and average distance traveled by a household to reach a water source in Kisenso

<table>
<thead>
<tr>
<th>Neighborhoods</th>
<th>Cost of water per household and per day</th>
<th>Time in hours</th>
<th>Distance traveled (in metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amba</td>
<td>165</td>
<td>3.27</td>
<td>435</td>
</tr>
<tr>
<td>Mission</td>
<td>138</td>
<td>1.3</td>
<td>241</td>
</tr>
<tr>
<td>17 mai</td>
<td>175</td>
<td>1.9</td>
<td>2,000</td>
</tr>
<tr>
<td>Mbuku</td>
<td>124</td>
<td>1</td>
<td>2,500</td>
</tr>
<tr>
<td>Nsola</td>
<td>100</td>
<td>1</td>
<td>914</td>
</tr>
<tr>
<td>Regideso</td>
<td>200</td>
<td>2.4</td>
<td>407</td>
</tr>
<tr>
<td>Kumbu</td>
<td>143</td>
<td>2.2</td>
<td>502</td>
</tr>
<tr>
<td>Bikanga</td>
<td>100</td>
<td>0.5</td>
<td>713</td>
</tr>
<tr>
<td>Mujinga</td>
<td>82</td>
<td>2.6</td>
<td>1,170</td>
</tr>
<tr>
<td>Libération</td>
<td>107</td>
<td>1.5</td>
<td>715</td>
</tr>
<tr>
<td>Moyenne</td>
<td>133</td>
<td>1.8</td>
<td>960</td>
</tr>
</tbody>
</table>

Source: Survey carried out in the commune of Kisenso, April-July 2005.

Table 3 shows that the average amount of money spent per day to obtain drinking water in the commune of Kisenso is 133 Congolese Francs (CF) or US $0.27. The daily expenditure required to obtain drinking water is higher in some neighborhoods. For example, in Regideso and 17 mai the daily cost of water was 200 CF ($0.40) and 175 CF ($0.35) respectively. This situation can be explained by the fact that the households in these neighborhoods have to travel to neighboring communes (Matete, Lemba) to get drinking water. In this case, the price of water is arbitrarily fixed by the owner of the pump, who is generally a reseller of REGIDESO water. A 20-litre container of water at Saint-Étienne parish, for example, costs 20 CF or US $0.04.

In other neighborhoods such as Amba (165 CF or $0.33) and Kumbu (143 CF or $0.29), there seems to be a correlation between the high cost of water and the distance that separates the houses from the water outlets; the cost is also influenced by the water consumption habits and the size of the household. The larger a household is, the more water it requires.

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1 Taux de change : 1 SUS = 500 Francs Congolais (FC) (Source : Le Château, Kinshasa, juin 2005)
However, the low daily cost of obtaining drinking water in some neighborhoods such as Mujinga (82 CF or $0.164) can be explained by the frequent use made of unimproved sources, which are often free; water from these sources is used for doing dishes, clothes washing and the toilet. Drinking water is only purchased for personal consumption.

If each household is spending $0.27 a day on drinking water (133 CF), then the cost of drinking water for that household is $8.1 monthly.

Regarding income, the survey revealed that the average monthly income of close to half (49%) of the households in the commune of Kisenso was equal or inferior to $50. As a result, close to half of the households in Kisenso devote 16% of their income to water. This percentage reached 24% for the households that spend 200 CF per day to obtain water.

3.3.2. Time lost in the search for drinking water

The search for water in the commune of Kisenso is a burden for residents, above all for women. Women find themselves obliged to work into the night and even to spend long hours at the pump in search of the precious liquid. The average time spent seeking water is close to 2 hours (1:50), depending on the location of the neighborhood. In some neighborhoods, it takes sometimes two or three hours or even more to bring water back home. This is the case in Amba (3:16), Mujinga (2:36), Regideso (2:24), Kumbu (2:12), etc. In fact, in Amba, many homes are not connected to the REGIDESO network; in Mujinga, a plumbing system exists but water rarely flows and in Regideso, the network is in place but the water supply is irregular.

Some neighborhoods spend less time obtaining water. For example, in Bikanga, an average of 30 minutes is spent; this can be explained by the fact that taps exist in each plot of land despite the late supply of water (generally in the evening). In Mbuku, an average of 51 minutes is spent; this is due to the neighborhood’s proximity to water sources, namely the campus of the University of Kinshasa.
At this stage of our research, we cannot ascertain how much time could be recuperated from the many hours that women and children spend in the search for drinking water; however, we are convinced that this time could be better spent in the production of other goods and services.

3.3.3. Distance traveled to obtain drinking water

Similarly, table 3 shows that it is necessary to travel close to 1 kilometre to reach a source of drinking water. On average, the source of drinking water is located 960 metres from homes. Only the neighborhood of Mujinga falls within the standard established by the WHO, which requires an equivalent distance of less than 300 metres. From this perspective, we are inclined to deduce that the people of Kisenso do not have access to drinking water. Mbuku and 17 mai seem to be further removed from sources of drinking water, at 2,500 and 2,000 metres respectively. We should note that women and children from these two neighborhoods are obliged to travel to neighbouring communes to find water. We can imagine the suffering that the children must endure who have to travel such long distances carrying a heavy load on their heads or backs, often having to navigate the hilly terrain that is typical of their surroundings. As well, there are occasionally fights at the different water sources. On one occasion a fight at one of the wells resulted in the death of a young girl in the city of Kinshasa. Even though the event did not take place in Kisenso, it does give us pause.

In fact, a 12-year-old girl named Ninga died in a fight at the well at Kindele (close to the University of Kinshasa). The unfortunate event took place on September 24, 2005, in the Nga Nsele neighborhood. The victim was with her sisters when another child delivered a fatal bow to the head as they were next to the well. Service at the well is usually on a first-come, first-served basis. However, given the large number of households, those who have to wait in line often lose patience and fights ensue, particularly among children (Radio Okapi, September 28, 2005).

3.4. Impact of the lack of water on quality of life

3.4.1. Prevalence of water-borne diseases
Water scarcity contributes to the emergence of certain diseases in the region. The survey demonstrated that malaria (45%) is most prevalent, followed by typhoid fever (22%), diarrhea (14%) and amoebiasis (13%); the other diseases represent 5%.

In fact, inadequate sanitation and poor hygiene, both on a personal and public basis, appears to favour the proliferation of Anopheles mosquitoes, which are carriers of malaria.

In the rainy season, the holes dug out for the purpose of collecting stormwater become breeding grounds for disease vectors, mosquitoes in particular. The situation is perceived differently depending on whether one lives in an area that is on a steep slope or in an area that is relatively flat. Flatter areas are often swamppy and the water is stagnant all year long, regardless of whether one is in the rainy or dry season. There risk of contamination of individual wells in areas such as these is very high. This is the case in 17 mai, where the water table level is reached at about one metre. Given the existence of unimproved latrines, there is reason to fear that dirty or “gray” water could mix with well water.

Moreover, the lack of drinking water might also explain the high level of typhoid fever (22%). Along with diarrhea (14%) and amoebiasis (13%), typhoid fever belongs to the class of so-called “dirty hand” diseases. Despite the efforts of the Kisenso Health Zone and some NGOs to supply drinking water and provide hygiene education, a concerted action on the part of all stakeholders is a prerequisite to more effective and efficient public health education.

Among the different neighborhoods, we are witnessing a high level of malaria in Bikanga (62%), followed by Mbuku (57%) and Mission (50%). As for typhoid fever, it is most prevalent in the neighborhoods of 17 mai (35%), Kumbu (33%), Regideso (33%) and Amba (26%). Diarrhea is most severe in Libération (27%) and Mujinga (20%). Finally, cases of amoebiasis are also the worst in Mbuku (36%) and Libération (20%). The neighborhoods that have a high rate of diarrhea also seem to have a high rate of amoebiasis. This is the case with the neighborhood of Libération. Lack of drinking water,
poor transportation and storage might have an effect on the development of these diseases.

These results are comparable to the data provided by the Kisenso Health Zone in 2004. According to the agent from the Kisenso Health Zone who is responsible for epidemiological monitoring, there has been an increase within the health zone in water-borne diseases such as cholera, malaria, typhoid fever, diarrhea and amoebiasis. The most worrisome case is the neighborhood of 17 mai which has the highest mortality rate. Table 4 below draws a more exact picture.

### Table 4. Epidemiological profile of the Kisenso Health Zone in December 2004

<table>
<thead>
<tr>
<th>Diseases</th>
<th>0-59 months</th>
<th>More than 5 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Deaths</td>
<td>Cases</td>
</tr>
<tr>
<td>Malaria</td>
<td>11,700</td>
<td>59</td>
<td>10,500</td>
</tr>
<tr>
<td>Typhoid fever</td>
<td>300</td>
<td>1</td>
<td>1,000</td>
</tr>
<tr>
<td>Simple diarrhea</td>
<td>1,900</td>
<td>11</td>
<td>600</td>
</tr>
<tr>
<td>Bloody diarrhea</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Amoebiasis</td>
<td>500</td>
<td>0</td>
<td>1,100</td>
</tr>
<tr>
<td>Schistosomiasis</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>14,410</td>
<td>71</td>
<td>13,220</td>
</tr>
<tr>
<td>%</td>
<td>52</td>
<td>84</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: Annual report of the Kisenso Health Zone, 2004.

Table 4 shows that many deaths are primarily attributable to malaria, diarrhea and typhoid fever. Cases of diseases in children between 0 and 59 months represent 52% of cases and the death rate for these cases is 84%. The Kisenso Health Zone is trying to reduce this level by educating the local population and by developing additional water sources, such as the drilling project in the 17 mai neighborhood.

### 3.4.2. Deterioration of the urban environment

Water scarcity has a considerable impact on the health and quality of life of the population. The main sanitation-related problems encountered in the commune of Kisenso have to do with unimproved latrines (24%), soil erosion (20%), the presence of unimproved water sources (13%), and the deterioration of road infrastructure (13%). In addition, a lack of public garbage receptacles (9%); the presence of stagnant water (7%);
lack of resources to combat soil runoff (5%); the lack of municipal hygiene services (6%); and the weak social fabric (2%) are all factors that contribute to the deterioration of the home environment.

Soil erosion also represents a dangerous threat to the commune of Kisenso. This situation is due to overuse of the soil. The consequences are serious. Entire neighborhoods have been swept way and others are under threat of disappearing. Considering the seriousness of the problem, the population is working with NGOs to combat erosion. A number of measures have been implemented. One measure consists of digging holes or detention ponds in each plot of land to retain stormwater (42%), building water retainers (40%), planting bamboo (13%), and educating the public about the dangers of soil erosion (5%).

**Figure 4. View of soil erosion in Kisenso**

Source: Survey conducted in Kisenso. Photo, June 2005.

### 3.5. Local management of water services

#### 3.5.1. Perception of stakeholders in the water sector

Close to 88% of people interviewed are of the view that REGIDESO is incapable of providing a regular supply of drinking water to the low-income neighborhoods of Kinshasa. In this group, 7% of households believe that the monthly water bill is high. Respondents hold the same opinion about the Office des voiries et drainage (OVD) and
the *Programme national d’assainissement* (PNA), two organizations whose mission is to deal with sanitation. Their visibility in the field is non-existent.

Apart from REGIDESO, there are other stakeholders in this sector who do have the confidence of the local population. This is the case of Saint-Etienne parish, the Union des jeunes admirés de Kisenso (USADEK, an NGO), the Kisenso Health Zone, and the Centre Misericordia (CEMI). The work of these organizations in the field is very much appreciated. In order to know who should manage the water sector, we first wanted to know to what group or entity the population wanted the water management confided.

In fact, 40% of households are of the opinion that the private sector should assume the primary role in water management. In fact, the population is referring at the same time to specifically private stakeholders, that is, a designated investor but also NGOs, faith-based organizations, etc.

However, 25% of households point out that this responsibility should be assumed by the State. The same percentage believes that the responsibility for water management should be assumed by the local population.

A number of arguments are put forth to justify support for one sector over another. For instance, close to 34% of households believe that the State should above all assume its responsibilities (daily drinking water provision). According to respondents, it is up to the State to ensure that REGIDESO (a public enterprise) is properly managed and hence contribute to improving the well-being of the population. From this point of view, 28% of respondents believe that the municipality of Kisenso should be closely involved in water management. Through the neighborhoods leaders, the municipality is thought to be better suited to educate the population. We should note that a significant number of these leaders are directly or indirectly related by lineage to the first occupants of this territory. Finally, 5% of households mention low incomes as a reason why the State should be responsible for managing the water sector.
Moreover, 18% of households subscribe to the belief that the private sector is better suited to manage the water sector in the outlying urban areas. According to respondents, the private sector has a better sense of organization, attempts to better manage its investment and ensures the proper follow-up of development projects.

Regarding projects initiated by the commune itself, almost 34% of respondents are not informed about projects underway; 27% are of the opinion that these projects are of no concern to them; 18% justify their indifference by arguing that those responsible do not take the general interest into account; 14% speak about the lack of transparency in municipal management; and 7% point to a lack of information about the projects initiated and implemented by the commune.

Overall, a number of factors could explain the reluctance of residents to participate in the life of the commune: the inadequate municipal budget; the absence of a development plan and town plan; the lack of a policy governing communication between the population and local authorities; and favouritism in the choice of leaders. For the Assistant Burgomaster of the commune of Kisenso, his administration’s lack of involvement in development projects is essentially linked to the lack of financial resources at the communal level.

3.5.2. Local organizations active in water management

3.5.2.1. Saint-Étienne Parish

Since 1968, water has been collected from a source located 2 kilometres from Saint-Étienne parish, which is in the Mission neighborhood. The work itself comes under the archdiocese of Kinshasa, but the management and responsibility are assumed by Saint-Étienne parish, which is represented by the Minister (who is the President of the Parish Council).

Underground water is pumped from the ground to a reservoir located in the parish of Saint-Étienne (480 metres above sea level). The capacity of the cisterns currently in place is 115 m³. The parish sells 75 m³ per day to a population estimated at 20,000. The water extracted from the boreholes is of good quality and is not processed in any way. From the
reservoir, underground PVC distribution pipes feed the water to public standpipes, each equipped with five taps.

Generally speaking, the choice of location of the standpipes and the number of taps should take into consideration a ratio of 250 residents per tap and users should not have to travel more than 500 meters to obtain water. This is not the case in Kisenso, where one tap supplies more than 1,000 people; women and children often have to travel long distances to obtain drinking water. The underground pump is powered by electricity supplied by the national electricity grid. Because there are unpredictable cuts in electricity, the parish uses an oil generator, which entails an additional cost.

**Figure 5. Water outlets at Saint-Étienne parish/Kisenso**

Source: Survey carried out in Kisenso. Photo, June 2005.

As of June 30, 2005, five water outlets were in operation and were serving the neighborhoods of Kumbu, Amba and Mission as well as the maternity clinic, Saint-Étienne parish and the Kisenso State Hospital. The managers of these sales outlets are considered employees and receive a monthly salary. As for price, a 20-litre container of water costs 20 CF, compared to 50 CF for one-litre package of drinking water.
In addition, the parish is faced with the problems of replacing spare parts, inflation and unpredictable cuts in electricity. The current installation requires new valves and one kilometer of pipe (i.e., 170 PV23 pipes at $22.50 each).

Another problem has to do with the operation of the water collection sites. The different water sources are overrun by residential homes and it therefore becomes difficult to ensure a connection to certain areas and to maintain the network.

3.5.2.2. Kisenso Health Zone

A few projects have been put in place in the eastern part of the Health Zone, not far from the valley of the Ndjili River: five water outlets and five sources, in Kisenso-Gare, and 15 outlets and three sources in the Kabila neighborhood. Thanks to support from the Urban Social Foundation (*Fonds social urbain*), five standpipes were installed in the Ngomba neighborhood and two wells in the Libération neighborhood.

Overall, the level of supply of drinking water is equivalent to 10%. Only the neighborhood of La Paix seems to lack drinking water supplied by REGIDESO, with a coverage level close to 100%. The neighborhoods of Révolution, 17 mai, Regideso, Kitomesa, Dingi-Dingi and Kisenso-Gare have a level that is equal or less than 10%, whereas the other neighborhoods have a zero coverage level.

3.5.2.3. Centre Misericordia (NGO)

The Centre Misericordia (CEMI) was created in 1999 and provides expertise at the local and national levels in the installation of lift pumps. With the assistance of OXFAM Great Britain, 115 lift pumps and five drinking water sources were installed.

In 2002, with the help of the Belgians, CEMI built two wells and three drinking water sources. A seven-member water committee was formed to manage these installations. They receive 20% of sales as salary, CEMI earns 10% and the remaining 70% is saved for the purchase of spare parts or for future investment. The owner of the plot of land must give his authorization before replacing the pump in his concession and is a member...
of the water committee. He obtains 20% to 30% of the amount earned. On the technical level, the wells are more than 5 metres deep and are installed over 20 metres from latrines. There are currently seven wells in operation, producing 25,000 litres. However, there are problems associated with managing the pumps. The first difficulty has to do with the lack of payment for water consumption on the part of the local population. At the outset of the project, 900 households were counted and the monthly cost was evaluated to be the equivalent of a bottle of cola (100 CF). The pumps were running day and night. After a certain time, they realized that people had stopped paying. A token system was put in place to solve the problem. Despite the efforts, the income of some households was not sufficient for them to be able pay the monthly water bill.

3.5.2.4. Union des jeunes admirés de Kisenso (USADEK)

This organization is devoted to helping unemployed youth, fighting poverty, protecting the environment and improving sanitation. Among its accomplishments, we can mention the drilling of two wells and the construction of a water source in the Libération neighborhood.

3.5.3. Participation in water management

Only 7% of households report having actively participated in a water system project in their neighborhoods. This participation took several forms: purchase of pipes (29%), premium payments (57%) and membership in the water committee (14%). This participation seems to be effective in the neighborhoods of Amba, Regideso and Libération. In the case of the first two, respondents stated that they had paid a premium to solve the problem but that the money went missing. In contrast, in Libération, participation took the form of helping with the installation of waters sources, in collaboration with two NGOs: USADEK and AFSAI.

Various reasons were advanced to explain the lack of participation in water system projects: 44% of households mentioned a lack of information; 25% claimed never to have been contacted when projects were being initiated or implemented; and 14% pointed to a lack of leadership. Only 8% of households mentioned a lack of money as a limiting factor.
and 6% of households did not participate out of a desire to avoid conflict with other members.

With respect to community associations, 82% of households state that they are not affiliated with any association at the local level. Based on their personal experiences, the reasons stated for not becoming involved in a local community development organization are: personal reasons (30%); lack of money (29%); lack of time (29%); conflicts with other members (10%); refusal of the husband (6%); dishonesty of members (3%); and the difficulty in getting an association recognized by the municipality (3%).

However, small groups have formed, especially of women, on the basis of religious affiliation, ethnic origin or professional membership; these groups must be taken into account in defining any local development strategy.

Regarding the financing of water infrastructure, 71% of respondents state that they are ready to participate, specifically through the payment of regular premiums. The monthly premium per resident is estimated at 1.025 CF ($2.05 monthly). However, respondents state that increased participation in development projects would depend on a number of factors: premiums commensurate with household incomes; transparent management of premiums; and direct involvement of neighborhoods leaders in setting a special water premium.

**Conclusion**

In this chapter, we have summarized the survey results by focusing on household profiles; level of access to drinking water; costs of water; impact of water scarcity on quality of life; and local management of drinking water services. An observation emerges: a good number of neighborhoods in Kisendo do not have access to drinking water and their environment is continuing to deteriorate. What are the factors that inhibit the development of the water sector in the low-income neighborhoods of the city of Kinshasa? How can the local population contribute to improving the availability of
drinking water? The following chapter will attempt to offer some elements of an answer to these questions.
Chapter 4. Suggestions for the Sustainable Improvement of Water Provision

The provision of drinking water in the low-income neighborhoods of Kinshasa is fraught with various constraints (institutional, technical, financial, etc.). This chapter describes these constraints and makes a number of suggestions for improving water provision and sanitation in the poor neighborhoods of Kinshasa.

4.1. Institutional, technical and financial constraints

4.1.1. Institutional constraints

In the Democratic Republic of Congo, the management of the urban drinking water sector is the responsibility of REGIDESO. The State continues to keep a close eye on this public enterprise which manages what is considered to be a strategic area – given its direct impact on people’s lives. It is the State, through the Economy Ministry, that establishes water rates. Since the political regimes that succeed one another are not always elected, the State often freezes water rates in an effort to avoid arousing public ire. However, REGIDESO, as an enterprise, must respect management standards that take into account the socio-economic environment. The lack of a permanent adjustment of rates results in grants, although payout is often problematic. This situation has a considerable impact on the worth of the enterprise and explains the weak investment budget. It also explains the lack of hard currency for purchasing the chemical products and spare parts that the enterprise needs to ensure the production and delivery of drinking water.

In addition, there is overlap among different sectors of the administration. The Energy Ministry is in charge of managing energy resources and the water sector. The Environment Ministry is responsible for promoting and coordinating all environmental and nature conservation activities; managing forest and marine resources; developing guidelines and standards for the health of the human environment; and developing and managing ecosystems, bodies of water and forests. The Health Ministry is responsible for public health and hygiene, standards for the health of the human environment and the
analysis and monitoring of food and medication. The Democratic Republic of Congo does not yet have clear and precise legal and regulatory framework in the areas of water sector management and sanitation. Most of the texts date back to the colonial period and are obsolete in the current context.

4.1.2. Technical constraints (production)

According to the National Water and Sanitation Committee (2005), surface water accounts for 72% of REGIDESO’s total output. This requires significant quantities of chemical products, given the strong concentrations of suspended matter in surface water and the inadequate knowledge of groundwater. There are other technical constraints: the problem of soil stability and permeability; the run-down of transport vehicles; the rapid expansion of shantytowns around the large cities; the rust-out of installations.

4.1.3. Financial constraints

On the financial level, the REGIDESO treasury reports a very significant deficit which adversely affects on the enterprise’s investment capacity. This situation results from the late adjustment of water rates, which are impacted by the inflation rate; the late and sometimes difficult recovery of debts owed to REGIDESO by the State (the State uses 40% of the water produced by this enterprise); and the level of poverty of the majority of the urban population.

According to REGIDESO (2005), its rates are too low and its revenues only barely cover operating expenses. At the national level, there exists a committee in charge of monitoring rates. The committee proposes a rate schedule for water and electricity. The rate is currently below cost. On average, the price is $0.65/m³ against $0.72/m³, which does not cover operating expenses (1 m³ = 78 CF).

Furthermore, large businesses, which used to seek the authorization of REGIDESO (which holds a monopoly) to gain access to natural sources (drilling), now go through the Energy Ministry. As a result, some private operators are getting into the business of reselling REGIDESO water. From a legal standpoint, no mechanism exists to prevent
them form doing so. This situation deprives REGIDESO of considerable financial resources.

4.2. Barriers to drinking water provision

In order to better understand the main problems that prevent water from being supplied regularly to the commune of Kisenso, we will examine the results from the focus group meetings. This will allow us to discuss the solutions put forward by households for improving the access of the urban poor to drinking water.

In fact, the problem of providing drinking water to the commune of Kisenso is acute. Women and children suffer in their effort to obtain water. During the meetings organized with different groups, residents discussed the major problems preventing them from obtaining drinking water and the possible solutions. We will address these issues here by examining the problems related to drinking water, sanitation and the informal sector, which is a source of income for many households.

4.2.1. Deficiencies in drinking water provision

The water from REGIDESO does not flow regularly in the commune of Kisenso. Households can spend days and even months without water. When it does flow, it is usually at late hours, generally between 1:00 a.m. and 4:00 a.m. This nocturnal search for water poses safety risks as there are cases of home break-ins and frequent encounters with robbers. Despite these problems, REGIDESO continues to send very high water bills, varying between US $5 and $10 monthly.

In addition, households have to travel to neighbouring communes to obtain drinking water; for example, some travel to Lemba and Matete where they buy water at the sales outlets managed by Saint-Étienne parish or from standpipes installed by NGOs. In the neighbouring communes, REGIDESO water resellers fix the price as they see fit. The daily cost of water per household is 200 CF (US $0.25). At the local level, even though the parish supplies water, the number of sales outlets is not enough to serve all residents. With a small production capacity (75 to 115 m³ per day), the search for water becomes
very difficult, all the more so during the dry season. Women can spend more than five hours to bring water back home.

Moreover, households that do not have sufficient resources obtain their drinking water from unprotected sources. The quality of the water is dubious, as it is from individual wells, because of the campus cemetery and numerous unimproved latrines upstream. During the rainy season, polluted water overruns the neighborhood and one suspects that it seeps into the soil and contaminates well water and water from unimproved sources. The result is water-borne diseases (typhoid fever, amoebiasis, malaria, etc.) and increased child mortality. For example, in 2000, a cholera epidemic affected the 17 mai neighborhood. It should be noted that drinking water is not treated prior to consumption and that some wells are located beside unimproved latrines. Irregular or lack of electrical power has a significant adverse impact on water treatment.

In addition, it is important to mention that during the rainy season, the presence of stagnant water (stormwater detention ponds, installed in each plot of land to capture rainwater) favours the breeding of mosquitoes (including Anopheles mosquitoes) which are malaria vectors. Communal authorities offer no assistance to the population and are slow to respond to their complaints. This is the case for the project of the local consultation committee of the Kumbu neighborhood which asked for approval from the municipality to begin fundraising to help solve the water problem. The commune has still not responded to the request of residents. On more than one occasion, households have paid premiums for water, but nothing was done. For example, no information was provided regarding the whereabouts of money collected for the purchase of pipes.

Furthermore, the daily transportation of water over long distances has an impact on women’s health and particularly on the health of young girls. Women state that they have aged as a result of having to transport water on their heads and backs, in some cases for over a decade.

Households state that there is no collaboration between the different local stakeholders in the water sector. Each NGO or association works independently and does not consult
with other groups, even though they are working toward the same goal. As well, owners of individual wells are starting to charge for water, following the lead of Saint-Étienne parish and some local NGOs.

4.2.2. Deterioration of the urban environment

According to respondents, the main problems behind the deterioration of the urban environment are soil erosion and the lack of improved latrines. In fact, the lack of drainage pipes for collecting stormwater, coming from the roofs of houses, leads to soil erosion. However, with support from some NGOs and the *Fonds social urbain*, residents learned about how stormwater detention ponds could be installed in each plot of land. However, people were reticent about this initiative, because these ponds can become breeding grounds for mosquitoes. The consequences of soil erosion are sometimes calamitous: entire houses have been carried away; a cemetery was destroyed; roads have become impassable; and entire neighborhoods are under threat of disappearing.

Toilets also represent a serious problem. Many latrines are constructed from non-durable materials (bags, scrap metal, pal leaves). The lifespan of a toilet is about two months. The situation becomes dramatic when it rains. Graywater seeps into neighbouring plots of land and causes conflict between families. Hygiene services, which used to service the latrines, are no longer operational. Finally, residents fear that downstream well water will become contaminated; this is particularly the case during the rainy season when stormwater mixes with graywater and overruns the inhabited areas. In the valleys, residents fear that some wells have become contaminated because of the lower groundwater table (around two metres). The result is the transmission of a number of diseases (amoebiasis, ascariasis, typhoid fever, malaria, etc.) and even some deaths.

4.2.3. Lack of support to the informal sector

The informal sector represents a significant source of income for many women living in the commune of Kisenso. Aside from vegetable farming (manioc leaves, amaranth, spinach, tomatoes, lentils, etc.), some households get involved in the sale of staples (soap, sugar, manioc flour, corn flour, salt, etc.). However, their businesses are not prospering
because of the steady rise in wholesale prices for these products and because of the lack of land for the development of large-scale vegetable farming. Their small businesses cannot generate large profits because of inflation. Making matters worse is the fact that the husbands of some of these women are unemployed while others are civil servants who have not been paid in four months. The meager buying power of the local population consequently means that products go unsold for longer periods of time.

Furthermore, the unavailability of land is a real problem for women. Even though they want to develop vegetable and fish farming, they find themselves unable to produce vegetables, aside from those produced on the family’s own plot of land. Some hereditary chiefs are said to be involved in the illegal distribution of land. Another problem is the lack of farming tools (hoes, pails, buckets, rakes, sprinklers, etc.) which are indispensable for urban agriculture.

4.3. Solutions

4.3.1. Local partnerships

This study shows that there are many stakeholders working in the local sanitation and drinking water sector. However, they are working independently and the lack of concerted effort is not conducive to efficient and effective development actions. In order to increase the synergy among stakeholders, we advocate the creation of a communal water consultation committee in each low-income commune in the city that would include representatives from the commune, the Health Zone, NGOs or local associations and members of the local population (sages, people involved in local development projects). Women should also be represented. The task of this committee would be to define priorities at the communal level, according to the needs expressed by the local consultation committees in each of the neighborhoods.

4.3.2. Financing water infrastructure

A consensus emerged in light of the difficulty in finding access to drinking water: undertake a special fundraising effort to increase the number of water outlets in the capital. The payment of premiums should not be confided to the commune itself.
Neighborhood leaders, particularly the group leaders, would only intervene to educate the population. A committee of elders would be created to manage the fund. Its mission would be to support the work of Saint-Étienne parish, develop water sources already identified locally and regularly purchase locally available chemical products to disinfect the individual wells. The contribution per household would vary between 100 and 500 CF monthly (US $0.25 and $1). With an average of 50,000 homes in the commune, this is a significant means of mobilizing local financial resources. In order to avoid a collective well being taken over by an individual, it is necessary to first hold a meeting of all members of the community before the work begins.

In addition, households propose that REGIDESO transfer water management in the poor neighborhoods of Kinshasa to faith-based organizations and NGOs or to associations on the basis of specific criteria such as experience in the field, number of members, honesty of management, etc. From this viewpoint, respondents insist on the revitalization of the Local Consultation Committee (LCC). The goal of this committee, made up of elders from each neighborhood, was to approve the nomination of water committee members on the basis of their ethics and their commitment to local development projects. The population wishes that the communal authority recognize this initiative which is in the public interest.

In conclusion, because of the inaccessibility of drinking water for the majority of households, a special fund should be created to support the efforts of Saint-Étienne parish, NGOs, local organizations and individual involved in the production, distribution and sale of water. The management of this fund should be confided to a committee of elders, in each neighborhood. The commune should adopt regulatory measures to ensure that the money raised is well used. In carrying out its work, the commune should make use of local expertise, such as the Centre Misericordia (CEMI), which specializes in drilling. Specific criteria should be clearly defined before funds are granted to any other organization (experience, quality of members, integrity of management).

4.3.3. Local involvement
Reforming the law on decentralization is necessary in order to increase people’s participation in development projects. Legal, financial and management autonomy should be given to the municipalities to enable them to act more effectively at the local level. Each commune should adopt a policy to educate the local population about environmental development, making use of local media and formal and informal channels (church, prayer groups, schools, etc.).

4.3.4. Environmental health

As a means of countering environmental decline, respondents expressed the view that they should become more involved in the fight against soil erosion. To accomplish this, greater access to farming tools (hoes, pails, buckets, rakes, etc.) could have a positive impact on results, especially by helping to control stormwater in each plot of land. These tools can also be used to start community gardens. The municipality should work to provide women homemakers (whether or not they belong to local associations) with plots of land, based on the criterion of experience. An awareness campaign is required to allow people to assimilate the measures put forth for environmental protection and soil management. Residential housing should be prohibited in areas that present a risk of erosion or flooding.

In addition, installing toilets in every neighborhood, street by street, could contribute to reducing some diseases and encourage the promotion of improved latrines. All stakeholders should work together to avoid duplications of efforts. Excreta should be disposed of in a way that respects public health regulations. A better awareness of personal and public hygiene should be promoted; to be effective, this awareness education should get its message out with support from group leaders, local media (radio, television), and take advantage of formal and informal channels (churches, women’s associations, youth groups).

4.3.5. Developing a water code
Developing a water code is indispensable for bringing the legal and regulatory framework into step with current realities. Attention should be paid to ending the practice of confiding water management in low-income neighborhoods to third parties, under certain conditions. Also required is a clear definition of mechanisms for the protection of water resources as well as of practices governing the production, distribution and sale of drinking water in urban areas. We also recommend the creation of a ministry devoted exclusively to water resources management.

4.3.6. Innovation and training

Frequent changes in the environment make innovation a necessity for any organization that wishes to grow. Organizations involved in the production, distribution and sale of water at the local level can acquire from foreign sources experience and knowledge about the acquisition and implementation of lower-cost technologies. The training of staff is critical for the daily management of projects and network maintenance.

4.3.7. Support for the informal sector

Support for the informal sector would help increase the incomes of some households. The commune should endeavour to distribute lands, even on a lease basis, to women’s organizations whose members are involved in urban agriculture. The possibilities of establishing a credit and savings cooperative should also be studied in order to give women access to credit, a prerequisite to business development. One could look to the local experiences of mutual-aid associations (likelemba, tontine), in which women are actively involved, in order to study the mechanisms for the reimbursement of loans. Access to credit would build on the prior experiences of each woman participant. Likewise, an education campaign centred on techniques for managing small gardens would help promote urban agriculture.

Conclusion
The emphasis in this chapter has been on the barriers to the development of the drinking water and sanitation sector in the low-income neighborhoods of Kinshasa, specifically in the commune of Kisenso. We examined institutional, technical and financial constraints; environmental deterioration; weaknesses in water provision; and the lack of support to the informal sector. Respondents proposed several solutions for ensuring sustainable access to drinking water. Among them are proposals for the creation of a special fund for the financing of water infrastructure; the promotion of innovation and training; support for the informal sector; and the creation of a ministry specifically tasked with water resources management.

Conclusion

In this study, we have attempted to evaluate how drinking water services are managed in the city of Kinshasa, focusing on the commune of Kisenso. Our analysis shows that there exists at the local level organizations involved in the production, distribution and sale of drinking water. This situation can be explained by the inability of REGIDESO to supply the clients within its territory. Despite the punctual interventions of NGOs and local associations, a significant segment of the population still does not have access to drinking water and sanitation services. The result is an increase in water-borne diseases and the continued deterioration of the environment.

In fact, faith-based organizations, like Saint-Étienne parish and NGOs, find themselves confronted with the problem of a lack of financing to increase their production capacity. A number of factors explain the spiraling cost of water: the very low or non-existent levels of outside assistance; the conflict between REGIDESO and Saint-Étienne parish and NGOs; and the unpredictability of electrical service. Although REGIDESO tries to have households assume the cost of water service, their meager buying power means that some households have to make use of unimproved sources and women are obliged to travel long distances every day in search of water.
Given the seriousness of the situation, a number of possible solutions should be envisaged. One possible solution involves the creation of a special fund, supplemented by contributions from households. The fund would serve to support the actions of existing organizations; help build new drinking water sources; assist the development of urban agriculture (main source of income for women farmers); establish a water consultation committee in each neighborhood; and create a ministry tasked specifically with water resources management.

Furthermore, with the help of the community sector, it is very likely that these interventions would have a measurable effect on the low-income populations of large African cities. However, studies must be undertaken to evaluate the sustainability of interventions carried out by NGOs and associations involved in water management in low-income urban environments.

Furthermore, adopting alternative approaches – closer to some existing practices and more in keeping people’s ability to pay – would allow residents themselves to take charge of the development of their own neighborhoods. The choice of equipment would be up to them; they would also have control over its operation and maintenance. In the short and medium terms, residents would be able to bring about tangible improvements to a currently unacceptable environment (Blary et al., 1997).

Throughout this study, we have noted the success of some initiatives in the area of water provision and sanitation in an outlying neighborhood of the city of Kinshasa. These initiatives are the fruit of efforts by private organizations, faith-based organizations, NGOs, etc. However, the policies and methods of local administrative bodies and of government tend to hinder rather than help the efforts and investments of local associations. In light of the number of people without access to drinking water – a common situation in many African cities (with all its consequences on the health of local populations) – what types of institutional mechanisms could be put in place, including private-public partnerships, to bring about a sustainable solution to the provision of water services to low-income urban residents? What methods can one adopt in support of effective solutions to drinking water management at the community level? How can local
authorities be made more attentive to the importance of participatory planning? We need to explore the equitable and sustainable ways and means available to improve access to drinking water among the urban poor and to improve the use of natural resources with a view to better water and income security.
Bibliography