

The issue of access to clean water in The Democratic Republic of Congo

1. INTRODUCTION

Most of the water resources of the Democratic Republic of the Congo (DRC) are stored in the Congo River basin. This is one of the biggest global water reserves. Based on its geography and landscape position the DRC belongs to two hydrographical waters derived, namely 61% of the Congo River basin and the Nile River Basin whose springs are based in Lake Edward.

Located in the heart of Africa and straddling the equator, the DRC is one of the wettest countries in Africa. The territory receives significant rainfall throughout the year, which is about 1,200 mm per year on average. The annual rainfall volume is estimated at more or less 6,000 billions m³ with a runoff coefficient of 21.6%.

The water resources wealth of the country is relatively clear. The Congo River's average flow per second is 42,000 m³. Its minimum and maximum flows are respectively 23, 000 m³ and 80,000 m³; while the maximum flood peak observed in 1961 was 83,050 m³/s and the most noticeable low water recorded in 1905 is 21,490 m³/s. Therefore, given the size of its catchment (3,822,000 km²) and its average rate, with 38 % of drainage to the oceans at the continent level, the Congo River is the first in Africa and the 2nd in the world behind Amazon Rio (6,300,000 km² and 100,000 m³ / sec), with 3.4% of world drainage to the oceans.

With its 4,700 km length the Congo River has about 20 tributaries, some on the right bank and the other on the left bank. It is the second in Africa after the Nile and the 5th in the world by its length.

One the third of the basin is located in the northern hemisphere and two-thirds (2/3) in the southern hemisphere, so much so that the flooding of the rivers in the South tropical zone match in time with the low waters of the rivers of the North tropical zone and vice versa. This geographical distribution has a beneficial effect added to the large basins' inertia (floods and retention) and propagation delays of hydro grams producing a significantly regular regime downstream. Its floods are largely buffered by the presence of vast flood zones in the center of the Central Basin which cover more than 200,000 sq km (Lake Tumba and Mai-Ndombe) and extend partially in the country (DRC, Code of Water,2010).

Nevertheless, qualitatively the challenge of potable water supply in DRC, which had a 2,345,409 km² surface and a population approaching 60 million people in 2006 is still a problem. In fact, in order to serve its population with quality drinking-water, the DRC created the Board of Water Supply of the DRC (REGIDESO,) which is a public service and the National Service of Rural Water, SNHR, a specialized structure of the Congolese government. Unfortunately, REGIDESO is not present throughout the country, and in places where it is present, the problem remains unresolved because its services are often inadequate. As for it, SNHR lack of means does not allow them meet all requests.

In addition, it can be noted that the Congolese people do not care about having a good source of drinking water. A critical look at their priorities reveals that potable water is the least of their worries. As a matter of fact, in 2010 a FSRDC monitoring and evaluation report on the World Bank

funded Emergency Social Action Project (PASU) evidenced on 647 sub-projects implemented throughout the Republic for a value of USD 38 million, 74 (0.11%) relate to potable water while 357 (55%) deal with the education sector. (FSRDC, PASU Monitoring and Evaluation Report, 2009).

2. DATA SOURCES AND STUDY RELEVANCE

To conduct this study, we used THE DRC data from the Demographic and Health Survey 2007 (DHS-DRC-2007). This survey was carried on all the Congolese territory and is a quality source of data worth for social and economic analyses.

In addition, in our humble opinion the DRC-DHS 2007 data have not been exploited yet to highlight the development relationships detectable between the quality of potable water used the and population's health. This research will provide the decision makers involved in the drinking water sector with useful data.

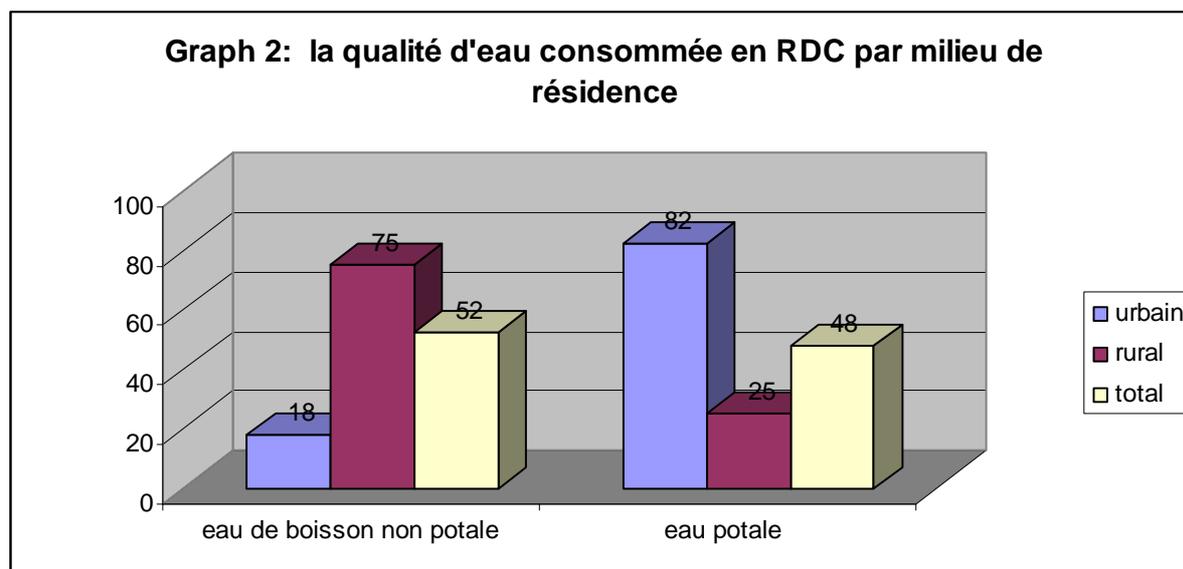
3. THE QUALITY OF DRINKING WATER USED BY THE DRC POPULATION

Table 1: Quality of drinking water by place of residence and provinces in DRC in 2007*

Quality of water used by province		Place of residence		Total
		urban	rural	
Kinshasa	Non potable water	8.2%		8.2%
	Potable water	91.8%		91.8%
Bas Congo	Non potable water	18.7%	69.7%	56.7%
	Potable water	81.3%	30.3%	43.3%
Bandundu	Non potable water	32.8%	80.2%	66.3%
	Potable water	67.2%	19.8%	33.7%
Equateur	Non potable water	76.3%	91.9%	87.5%
	Potable water	23.7%	8.1%	12.5%
Orientale	Non potable water	15.1%	62.7%	46.3%
	Potable water	84.9%	37.3%	53.7%
Nord-Kivu	Non potable water	3.5%	55.2%	39.1%
	Potable water	96.5%	44.8%	60.9%
Maniema	Non potable water	29.2%	85.2%	65.2%
	Potable water	70.8%	14.8%	34.8%
Sud-Kivu	Non potable water	13.7%	62.0%	49.4%
	Potable water	86.3%	38.0%	50.6%
Katanga	Non potable water	15.2%	88.4%	55.1%
	Potable water	84.8%	11.6%	44.9%
Kasai oriental	Non potable water	9.0%	76.3%	52.0%
	Potable water	91.0%	23.7%	48.0%
Kasai occidental	Non potable water	67.7%	93.9%	84.4%
	Potable water	32.3%	6.1%	15.6%

*Table designed based on data from DRC-DHS 2007.

It appears clearly in Table 1 that only the people from Kinshasa and North Kivu provinces in the DRC have quality drinking water. In all the remaining provinces, a small proportion of the populations have access to drinking water, whose 12.5% and 15.6% respectively in Equateur and Kasai Occidental. It is also clear that rural populations in all provinces in general constitute the majority of users of unsafe water. These differences are better shown in Figure 2 below:



*Graphics designed based on data from DRC-DHS 2007.

4. RELATIONSHIP BETWEEN DRINKING WATER QUALITY AND HEALTH OF CHILDREN UNDER THE AGE OF 5 IN THE DRC

Based on DRC-DHS 2007 data, a positive relationship appears between drinking water use and the frequency observed in diarrheal diseases presented by children in the DRC with a highly significant p-value, i.e., < 0.000 .

In fact, apart from those in Kinshasa city and Bas Congo, children living in all other provinces with high access to unsafe drinking water have higher frequencies of diarrhea diseases. In the Kasai Occidental the rate reached nearly one child out of 4.

Table 2: Relationship between water consumption and diarrhea in children aged less than 5 years in the DRC in 2007 *

Provinces	NO (in %)	YES (in %)	p-value
Kinshasa	86.5	13.5	<0.000
Bas-Congo	89.8	10.2	
Bandundu	86.1	13.9	
Equateur	85.1	14.1	
Orientale	86.2	13.8	
Nord-Kivu	83.3	16.7	
Maniema	83.3	16.7	
Sud-Kivu	82.1	17.9	
Katanga	83.9	16.1	
Kasaï-Oriental	78.4	21.6	
Kasaï-Occidental	75.9	24.1	
Total	83.5	16.5	

***Table designed based on data from DRC–DHS 2007**

5. RELATIONSHIP BETWEEN WATER FETCHING AND CHILDREN'S SCHOOLING

Children are subjected very early to fetch water in both rural and urban areas. Based on data from DRC-DHS 2007, there are rates of children repeating the classes and dropout among children aged 5 to 24 years who attended school the year before the survey. Repetition rates are higher in the first grade. Overall, 14% of children repeated the first grade. This rate reached 25% in Kasai Occidental, 20% in Orientale Province and 15% in Maniema and North Kivu. As for it, school dropout is much higher in rural areas regardless of the grade. And in three provinces -- Equateur, Katanga and Kasai Occidental the 6th grade is more affected while in the Province Orientale and Maniema the 5th grade is much affected (DRC DHS -2007). Knowing that children of these age groups work on water fetching, a positive link between school dropouts and the inaccessibility to water.

6. DISCUSSION

This study results demonstrate that despite quantities of valuable freshwater resources, the drinking water supply is low in the DRC and access to drinking water is a persistent issue for the DRC. These results confirm those of the study by the United Nations Environment Program (UNEP) stating that 51 million Congolese have no access to clean water. It's a real paradox: a country with more than half of water reserves in Africa has its $\frac{3}{4}$ of the population without access to drinking water. (AFRIKARABIA, *RDC: 51 million des congolais sans eau potable*. March 2011 / 51 Million People Lack Clean Water.).

These results further demonstrate a positive relationship between consumption of unsafe water and the incidence of diarrhea among children in the provinces where non-potable water was consumed in comparison to Kinshasa provincial city, where a larger number of people have a source of safe drinking water. In addition, diarrhea frequencies are observed more in rural than urban areas. To this end, UNICEF believes that about 37 million rural residents in the DRC run the risk of contracting a disease because they have no other choice but to fetch untreated water directly from contaminated rivers or lakes. A child living in a Congolese village is four times more likely to drink contaminated water than someone living in urban areas (Pierrette Vu Thi, UNICEF DRC, in UN News Centre, DRC, 51 Million People Lack Clean Water. March 2011).

CONCLUSION

Reaching the Millennium Development Goals (MDGs) by 2015 is an aspiration of all developing countries. In addition, access to drinking water, which is the 7th Millennium Development Goal -- which the DRC agreed to, is a right that every State must guarantee for its citizens. Moreover, the DRC enshrined this in its Constitution whose Article 48 states that the right to have access to drinking water and electrical energy is guaranteed.

Yet, Hassan Partow, Director of UNEP in the DRC said that despite recent progress, including water sector reforms, and given the magnitude of current challenges, the country will not be able to achieve the Millennium Development Goal (MDG) regarding access to drinking water which aims at reducing by half the proportion of people with no access to safe drinking water by 2015 worldwide. The challenge is enormous because the DRC has one of the highest urban growth rates in the world, which is not accompanied by an increase in water services and adequate sanitation. In addition, water supply networks are so old and overcrowded that they require restoration.

Problems arise, both in terms of quality and access to drinking water. To do, it is necessary to multiply initiatives and augment investments for the improvement of this sector.

The study entitled "Water Issues in the Democratic Republic of Congo: Challenges and Opportunities" highlights that an investment of about \$70 million over a five year period is needed to help to strengthen the water sector (UN Environment Program, Democratic Republic of the Congo (the). Water Problem in Democratic Republic of Congo: Challenges and Opportunities - Technical Report. March 2011.)

These funds will help to strengthen the REGIDESO capacity to cover the national need for water by renewing existing equipment and serve other cities and villages in order ease "**the yellow cans war and burden**" in DR Congo. Also, other systems to serve the population with drinking water should be developed, including developing a municipal water distribution system, arranging water sources and, awareness on water quality, conservation and transportation of drinking water sessions among the populations.

Initiatives have already been created but not enough. Donors pledged more than \$ 500 million but the disbursement pace was not sufficiently supported, so delaying the projects' implementation. In addition to the \$ 2 billion needed for infrastructure projects necessary to achieve the MDGs on water, UNEP assessment recommends an investment envelope of approximately \$ 69 million in order to develop public policy and regulation, data collection, capacity building and local technological

solutions for the next five years. These include, for guidance, the Water Sector Program (PRASECO) by the German Cooperation. This program which began in 2007 with the KfW with Euros 39.5 million covers only 15 cities and villages (UN News Centre, DRC, 51 Million People Lack Clean Water. March 2011).

The city of Kikwit in Bandundu province for example, which is also part of this project, is still subject to the «**the yellow cans war**," as we call the war of the water research in the DRC (Source: Field experience with PASU Project, funded by the World Bank and managed by the FSRDC).

Finally, this study attempted to evidence the paradox of water supply in the DRC in order to propose some recommendations. It did not have the pretension to exhaust the issue. Future research will complement it and make available as much as possible other useful information.

BIBLIOGRAPHY

1. Madungu T. P., Access Of The Congolese population to basic infrastructure in the fifth African Population Conference Organised By The UAPS, Arusha, 2007.
2. DEMOCRATIC REPUBLIC OF CONGO [DRC-DHS-2007] Demographic and Health Survey (DHS-2007 DRC), Kinshasa, DRC-2008 {DHS-2007}
3. United States Agency for International Development (2002) The Democratic Republic of Congo. Retrieved March 30, 2010 from <http://www.usaid.gov/pubs/cbj2003/afr/cd>
4. UN ENVIRONMENT PROGRAMME, Democratic Republic of the Congo (the). Water issues in the Democratic Republic of Congo: Challenges and Opportunities - Technical Report, March 2011 from <http://www.unep.org/documents.multilingual/default>
5. UN News Centre, DRC, 51 Million People Lack Clean Water. On the occasion of World Water Forum held in Kinshasa, March 24, 2011,
6. AFRIKARABIA, DRC: 51 million Congolese without drinking water. On the occasion of World Water Forum held in Kinshasa, March 24, 2011,
7. UNICEF DRC, Map of persons without access to drinking water in the DRC 2010. Unpublished.
8. German Technical Cooperation Congo (GTZ) & National Action Committee on Water and Sanitation (CNAEA), "Reform of the Water Sector" Proposed legislation on national water code in the Congo Republic, Kinshasa, July 2007. Inedit Code.
9. FSRDC, Monitoring and Evaluation Report of the Emergency Social Action Program (PASU) 2009. Kinshasa, June 2010.