

WATER POINT MAPPING IN DR CONGO: Analysis of the functionality of water points and the water quality

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CONTEXT

The 2011 report of the United Nations Environment Programme (UNEP) on Water issues in the Democratic Republic of Congo: 'Challenges and Opportunities' states that "Africa's most "water rich" country, the Democratic Republic of the Congo (DRC), is facing an acute drinking water supply crisis. Only an estimated 26 per cent of its population has access to safe drinking water, well below the approximately 60 per cent average for Sub-Saharan Africa. Due to the deteriorated state of its water infrastructure –undermined by years of underinvestment and conflict – and a rapidly growing population, the trend in water supply coverage was until recently in regression. Social and public health consequences of water service breakdown have been considerable. The poorest sections of society have been disproportionately impacted by the decline in service delivery and rising water costs, both in rural areas but increasingly in rapidly urbanizing cities".

In DRC two out of five people consume drinking water from an improved source. There is a significant disparity in access to safe drinking water between urban and rural area, only 31% of the rural population uses sources of clean drinking water compared to 83% of the urban population¹.

Although commonly accepted, these data are not very reliable due to the lack of access to geographical information in DRC and multiplication of different data that is poorly harmonized, structured and documented. Furthermore there is a lack of information on the current status of water points, including water supply coverage, functionality, management systems and particularly the water quality.

In the context of its support to actors in the water, sanitation and hygiene sector SNV in DRC piloted the Water Point Mapping (WPM) exercise, which is a data collection tool addressing the challenges above. The WPM exercises strengthen the capacity of governmental institutions in the provinces of Bas Congo, Equateur and Kinshasa that are responsible for rural water supply and the coordination of the water and sanitation sector.

CLIENTS

The WPM exercise was executed by SNV governmental partner institutions: the Provincial Committee for Water and Sanitation Action (CPAEA) and the National Rural Water Service (SNHR).

CPAEA is part of the National Committee for Water and Sanitation Action (CNAEA) that falls under the Ministry of Planning. Their role is to coordinate Water, Sanitation and Hygiene (WASH) sector interventions. SNHR under the authority of the Head of the Provincial Department of Rural Development plays a role in planning at provincial level and decides upon strategic intervention. It is an operational actor in charge of water supply in rural areas.

In the province of Bas Congo SNV conducted the WPM exercise with the SNHR Provincial Office while in the provinces of Equateur and Kinshasa SNV worked mainly with CPAEA. The National Rural Water Service in Equateur and Kinshasa were involved in improving the intervention coordination in collaboration with CPAEA and to be able to make use of the collected data from the WPM exercise.

¹ Translation from: République Démocratique du Congo Enquête par grappes à indicateurs multiples MICS – 2010, *Résultats Préliminaires*; Ministère du Plan Institut National de la Statistique en collaboration avec Le Fonds des Nations Unies pour l'Enfance (UNICEF); September 2010.

INTERVENTION APPROACH

To strengthen the capacity of CPAEA and SNHR in the three provinces, SNV oriented, trained and assisted these institutions in conducting the first stage of the Water Point Mapping to improve their coordination role and planning of WASH activities. The WPM exercise began with an introduction of the basics of the Water Point Mapper tool for clients and the creation of questionnaires. Trainings for the interviewers (clients) took place including both theoretical and practical sessions on the use of a Global Positioning System (GPS), the WPM tool, mapping through Geographic Information Systems (GIS) and processing data collection.



Training on the use of GPS

The data collection on water points took place in 10 Health Zones within the provinces of Bas Congo, Equateur and Kinshasa, with an average duration of two weeks per Health Zone (August November 2011). In Bas Congo and Kinshasa bacteriological tests were taken from each water point, with the use of quick and easy field tests (H₂S powder) obtained from UNICEF to check the water quality with respect to potability. The software WPM, MapSource, Epidata, SPSS and ArcGIS were used for data processing, analysis and the production of thematic maps.



Data collection in Kinshasa

SNV realised all the activities in the three provinces with the support of a consultant expert in Geographic Information Systems (GIS). In Bas Congo the WPM was conducted by a local capacity builder called CEPROMOR "Centre pour la Promotion du Monde Rural" instead of CPAEA and SNHR.

In 2012, three reports were finalised and discussed with stakeholders of the respective Health Zones that were covered by the water point mapping exercises to verify and validate the results.

OUTCOMES

35 members of client institutions were trained on the use of a GPS, data analysis and water point mapping.

In the 3 provinces of Bas Congo, Equateur and Kinshasa, the governmental structures, the local capacity builder and the consultant with support from SNV conducted the WPM in 10 Health Zones and identified 2051 water points (295 in Bas Congo, 480 in Equateur and 1276 in Kinshasa).

Data analysis shows that in the province of Kinshasa 58% of the water points are protected in contrast to 45% in Bas Congo and only 32% in the Equateur province. The different types of water points with the main analyses can be found in the table below.

Within the three provinces, the water point functionality problem is more serious in Bas Congo where 68% of the protected water points are non-functional or partially functional as compared to 24% in Kinshasa and 14% in Equateur. Furthermore, most of the boreholes with hand pumps in Bas Congo are non-functional and require rehabilitation. This is mainly due to the lack of an effective management system (in 41% of the protected water points) and the lack of a water payment mechanism (66%). In the Equateur province the number of none or partially functional boreholes is also very high, 52% compared to 33% in Kinshasa. In these two provinces the level of management of protected water points and water payment is better than in the Bas Congo province and even some non-protected water points are being managed.

In the peri-urban areas of Kinshasa the water quality has a huge impact on the health status of the population where only 32% of the water points provide clean drinking water. In Bas Congo 39% of the water points provide potable water. In

Equateur the bacteriological tests were not conducted, but the bacteriological situation is probably in line with the percentages of Kinshasa and Bas Congo.

The results and recommendations of the WPM exercises will be taken into account by the various clients to improve the planning and coordination of water, sanitation and hygiene activities as well as the rehabilitation and construction of hydro sanitary installations in each province.

"The WPM questionnaire in the field made me understand the difference between potable and non-potable water. After conducting the bacteriological tests I do not drink just any water anymore, even when it looks clean to me" .

Emilienne Aloma, Assistant of the Provincial Executive Secretary of CPAEA-Kinshasa

IMPACT

The Water Point Mapping exercise resulted in governmental structures (CPAEA and SNHR) better understanding of the WPM tool and acquiring knowledge of the status of water points based on defined indicators, including functionality and the water quality provided to the population. This knowledge will enable them to:

- Produce rehabilitation plans to improve the water supply and usage;
- Carry out regular updates of the indicators to ensure better planning, coordination and effective sector management;
- Conduct advocacy towards their ministry and donors to mobilise resources to finance the sector.

LESSONS LEARNT

The lessons learnt in the three different provinces are as follows:

- In different Health Zones, the number of water points is insufficient in relation to the population density. WPM maps show an unequal distribution of water points, generally concentrated in easily accessible instead of remote and practically inaccessible areas. Based on these observations, priority should be given to the planning of water activities to populated areas that have a low water supply.
- Bacteriological tests have shown that even when the water looks clean it does not mean it is potable. Even protected water points do not always provide clean drinking water. As a result of the WPM exercises the beneficiaries involved were sensitized on the importance of treating their drinking potable water.
- The percentage of water points providing non-potable water is very high and may have a possible impact on the population's health. Because many people do not treat their water the problem of water quality requires special attention.
- The high percentage of non-functional water points is related to a weak management system and non-payment for water related services. To ensure the sustainability of water supply and improve the functionality of water points, it is necessary to rehabilitate water points that were identified as non-functional or partially functional and put functional operation and maintenance systems in place involving the National Rural Water Service and the private operators.
- Before starting a WPM exercise it is important to define a common language on the information that needs to be collected and the different indicators being used. For example, it is important to agree upon the procedure to be used in case a river that consists of several collection points needs to be identified. Should this be considered as one or more water points? Or, how do we define functionality?
- Conducting the WPM exercise by the governmental institutions (CPAEA) give them the advantage to train others on the WPM tool and transfer their expertise. Where the local capacity building organisation was involved the reinforcement of the government institutions did not have the same effect.



Bacteriological test and data collection in Equateur

Table with main results of the Water Point Mapping exercises

Percentages / numbers	Province Bas Congo	Province Equateur	Province Kinshasa
Health Zones	1 Health Zone: Inga	1 Health Zone: Bikoro	8 Health Zones in 4 Municipalities: Kisenso, Kimbanseke, Nsele and Maluku
Identified water points	295	480	1276
Types of water points	<ul style="list-style-type: none"> - 42% unprotected natural sources - 24% protected natural sources - 14% fountains (<i>bornes fontaines</i>) - 12% surface water (rivers, streams, dams, lakes, etc.) - 7% boreholes with hand pump - 1% unprotected wells 	<ul style="list-style-type: none"> - 42% unprotected natural sources - 19% protected natural sources - 15% unprotected hand dug wells - 7% boreholes - 5% protected hand dug wells - 12% others (protected and unprotected hand dug wells with cement rings, boreholes without equipment, surface water, etc.) 	<ul style="list-style-type: none"> - 25% boreholes - 18% protected hand dug wells - 18% unprotected hand dug wells - 12% unprotected natural sources - 7% rivers / streams - 5% protected hand dug wells with cement rings - 4% protected natural sources - 11% others (rainwater tanks, water tank towers, fountains, unprotected hand dug wells with cement rings, boreholes without equipment, etc.)
Protected water points	45%	32%	58%
Unprotected water points	55%	68%	42%
Non-functional or partially functional (broken, not providing water during certain periods within the year) of protected water points	68%	14%	24%
Non-functional or partially functional boreholes	100%	52%	33%
Potability of protected water points based upon bacteriological tests	39%	N.A.	32%
Protected water points without management system	41%	22%	10%
Protected water points without a water payment mechanism	66%	28%	35%