WWCH 2018 PROBLEM DESCRIPTION

Problem Title	
Water Insecurity in Manoka	
Contact Information	
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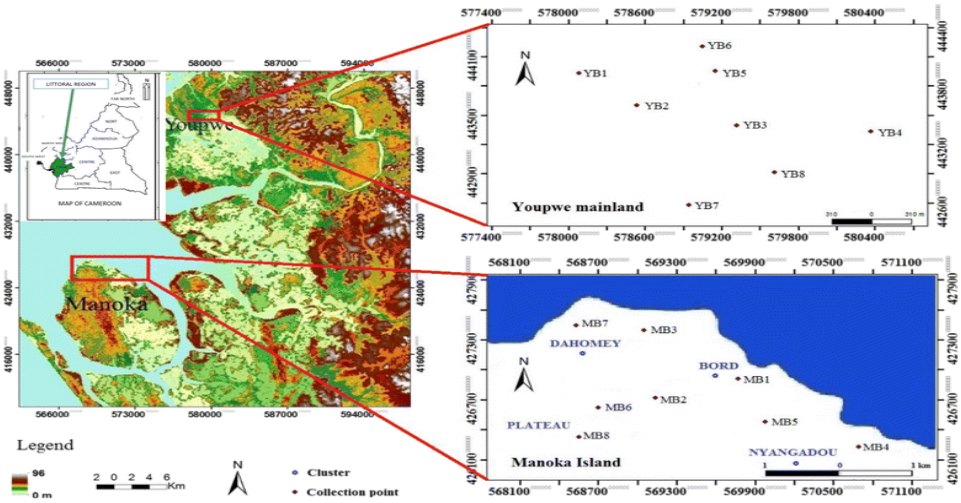
1. Basic information

Manoka is Cameroon Island located in the Littoral Region, in Wouri Sub- province. It lies between 3 ° 51 '19 "N, 9 ° 36' 53" E and an altitude of 38 m above sea level. According to the National Statistical Institute (INS), the Island has a population of 20,000 inhabitants. The prevailing climate is known to be of tropical type. With significant rainfall especially for the Island. Even during the driest month there is a lot of rain. The Köppen-Geiger climate classification is classified as Am, with an average temperature is 26.0^{0}C and average annual rainfall of 3249 mm. High precipitation rate coupled with rising sea level within the Island has resulted to major soil erosion. Manoka experienced a great deforestation during the colonial era after the arrival of the Germans in Cameroon. This targeted exploitation of noble species such as Azobe and Tali testifies the constructions of the houses in the city center of Manoka. After the arrival of transborder riparian peoples like Nigerians, deforestation has increased to a very high level. About 5000 cubic meters of mangrove wood were cut daily for fish smoking, which is the main activity of the inhabitants together with fishing. The urbanization is modeled according to a master plan of the city and the level of proximity of the sea. Precarious houses built on piles with local materials such as white wood (Ilomba) are found all around the sea. These houses are sometimes flooded during high tide. In the center of the city, the majority of the houses of the authorities are built of cement bricks. The area of Manoka is reduced, which makes it difficult to redistribute land to agriculture. Nevertheless, some groups of private initiatives have been formed to create community fields.



2. Water Circumstances (Optional)

No industrial complex has been developed to date. Nevertheless oil exploitation is located not far from the district. The sources of pollution are numerous. Those are: waste fish, plastics, and used fishing nets. The Ministry of the Environment and Sustainable Development has provided in its 1994 law sanctions and fines for structures that pollute the environment. Water treatment by plants has not yet been considered. Mangrove forests naturally play the role of clarifiers.

3. Problem description

Manoka island suffers from the salinity of the water. The region is faced with water insecurity causes by the rising sea level due to global warming. This climate change within the continent has also influence high precipitation rate. Research has shown that:

- The sea is risen up to 70% at the speed of 3mm/year since the last decades;
- Severe flooding destroyed about 120 villages in 2012;
- The intrusion of the sea water in the ground influences the underground water salinity level which could be around 35G/L at some places.

Access to drinking water is not always a reality. According to the local elders, the present water tower, which is a donation from the Chantal Biya Foundation and realized by FEICOM (Special Council Support Fund for Mutual Assistance), only worked for 30 minutes after installation, the taps of the water supply network financed by the Town Hall are still dry, the pumping system of the dozen holes made by the Electrification is still a mirage despite the installation of a generator of 100KW offered by the Urban Community in the Rural Municipality of Manoka in 2002 for a cost of 116 million US$. Traditional water points (wells) are dug by hand at a shallow depth (2 to 4 m). These water points do not reach the water table; they are fed by the brackish water. The consumption of this water causes the inhabitant frequent diseases; gastroenteritis, amoebiasis, ascariasis, eczema and cholera. The water for domestic uses is dirty, muddy and salty because sea water intrusion. Access to potable water at a distance of 23 Km from the neighboring city of Douala cost 3500 FCFA (US$ 6.22) of transport, of which 1000 FCFA (US$ 1.78) for personal transportation and 10 FCFA (US$ 0.017)/ liter.

The salinity of the water as well as the lack of energy lead to the migration of the people, to the dysfunction of the administrative structures, to the fall of the rate of literacy because of the repeated absence of teachers during the year. Children accompany their parents in daily activities or go to Douala or neighboring camps, friends or relatives to catch up with their schooling. Few schools exist on the island. The one that worked in 2006 had only primary school. In order to ensure the sustainable improvement of access to water on this permanently inhabited island, and to organize the establishment of a sustainable and autonomous service, the municipality has developed a decentralized cooperation project within the framework of AIMF.C to carry out a mini AEP (Drinking water supply) in Manoka, consisting of 02 motorized boreholes, a tank of $10M^3$, a treatment system feeding 05 standpipes and trains management and operational officers. But these efforts are insufficient and even some of these boreholes are no longer producing the precious liquid.