

## Assessment of Water Availability and Quality in the Climate Change Context in Urban Areas

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**Abstract :** Water is vital for life. Access to drinking water and sanitation for humans is one of the Sustainable Development Goals (specifically the sixth) approved by United Nations Member States in September 2015. There are various problems identified relating to water: insufficient fresh water, inequitable distribution of water resources, poor water management in certain places on the planet, detection of water-borne diseases due to poor water quality, and the negative impacts of climate change on water. One of the major challenges in the world is finding ways to ensure that people and the environment have enough water resources to sustain and support their existence. Thus, this research project aims to develop a tool to assess the availability, quality and needs of water in current and future situations with regard to climate change. This tool was tested using threshold values for three regions in three countries: the Metropolitan Community of Montreal (Canada), Normandie Region (France) and North Department (Haiti). The WEAP software was used to evaluate the available quantity of water resources. For water quality, two models were performed: the Canadian Council of Ministers of the Environment (CCME) and the Malaysian Water Quality Index (WQI). Preliminary results showed that the ratio of the needs could be estimated at 155, 308 and 644 m<sup>3</sup>/capita in 2023 for Normandie, Cap-Haitian and CMM, respectively. Then, the Water Quality Index (WQI) varied from one country to another. Other simulations regarding the water availability and quality are still in progress. This tool will be very useful in decision-making on projects relating to water use in the future; it will make it possible to estimate whether the available resources will be able to satisfy the needs.

**Keywords :** climate change, water needs, balance sheet, water quality

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