

ANALYSIS AND ADAPTATION TO CLIMATE CHANGE OF MANAGEMENT TOOLS FOR THE WATER-RESOURCE SYSTEM OF THE OTTAWA RIVER WATERSHED: IMPLEMENTATION IN THE LIÈVRE RIVER SYSTEM



photo : High Falls-1, Centre d'expertise hydrique du Québec

Program
WATER RESOURCES

PROJECT STARTING DATE
AND LENGTH
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CONTEXT

The Ottawa River system requires efficient water management in order to control flooding and low water levels, both within its watershed and downstream. As climate change is expected to increase the risk and severity of these events, it is more than ever essential, to provide operational, state-of-the-art, effective and adaptable management tools. The Lièvre River sub-watershed offers an ideal pilot case study to better understand the complexity of the Ottawa River system.

OBJECTIVES

The project aims to provide climate change adapted tools for modeling and managing water resources, in the context of the Lièvre River. The selected models may provide a better integrated operation of the Ottawa River reservoirs and will be used to develop adaptation strategies for water management methods under future climate conditions.

APPROACH

An inventory of the management tools, as well as the ensemble of existing operational constraints of the Lièvre River has been prepared. Parallel to this, the most commonly used simulation and optimization models will be reviewed. A flexible management model will be adapted for the Lièvre River system, then tested and will include a study on the impact of climate change on the local and regional hydrological regime.

EXPECTED RESULTS

New water management tools for the Lièvre River watershed will be developed in the coming years. Results will include:

- A report on the most important tools developed and used to date in water management. Those tools developed specifically to cope with the impact of climate change will be especially of interest;
- Development of water resources management tools for the Lièvre River watershed. Tools will have to be flexible enough to be used in other water-resource systems and offer options that will help in the study of the impact of climate change on the entire river network;
- A report presenting the adaptation strategies for an optimal management of the dams and of the entire Lièvre River hydrographic network..

IMPACT

New modeling tools to assist in the integrated management of the dams of the Ottawa River basin will be proposed, especially in light of the increasing constraints in dam management. These new water resource optimization models will help CEHQ and ORRPB stakeholders, as well as companies involved in watershed management to better take into account the anticipated regional climatic and hydrological changes.

LEAD SCIENTIST

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- Centre d'expertise hydrique du Québec (CEHQ)
- Ottawa River Regulation Planning Board (ORRPB)

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