



INITIATIVES POUR L'AVENIR
DES GRANDS FLEUVES
INITIATIVES FOR THE FUTURE
OF GREAT RIVERS

Executive Summary



2nd session

18-21 April 2016 – Montreal

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General introduction

The 2nd session of Initiatives for the Future of Great Rivers was held in Montreal, from 18 to 21 April 2016. Hosted by the Montreal Port Administration (APM), these four days of work were punctuated by a practical case situated in the receiving territory – along with a visit in the field; by workshops on two themes; and by a presentation to the stakeholders of the Port, the City of Montreal, and the Saint Lawrence River as a whole.

The session was opened by the Chairman and CEO of the APM, Mrs Sylvie Vachon, and by the Mayor of Montreal, Mr Denis Coderre. Both insisted on the role played by the river in the identity and economy of Montreal.

At the end of the works, the conclusions were presented to an assembly of the stakeholders representing towns and cities, including Montreal, located along the river, the partner companies of the port and non-governmental organisations, research institutes, federal institutions and universities. This forum contributed to enhancing the reflections of the previous days and submitting the pertinence of the project driven by IFGR to the public.

The contents of the debates led to the production of several directly applicable documents:

The white paper (Appendix 1), handed over to the APM, the IJC and the City of Montreal in particular, presents a total of ten recommendations based on concrete examples taken from experiments carried out in other parts of the world. A summary is presented in the first part of the document.

The workshops gave rise to the formulation of **major principles** (part 2) and **concrete targets** for IFGR relating to two themes: risk culture and new energy models.

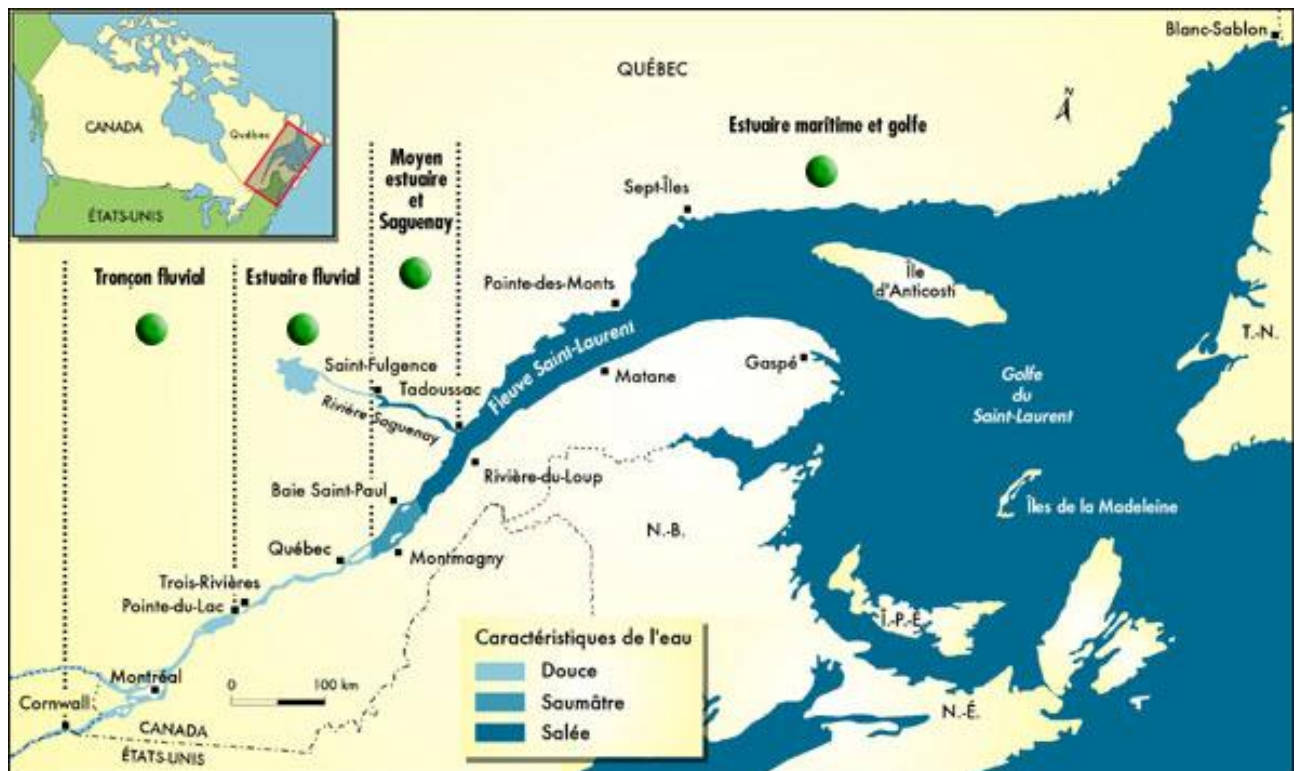
A moment of exchange on the future of the IFGR project led to the drafting of a **note** detailing the short and medium term development targets (Appendix 2).

Lastly, regarding the practical cases dealt with in the workshops, a certain number of experiments conducted in the field – both successful and unsuccessful – were brought to light. They will be the subject of a **collection of good practices** that will be fuelled continually and made available on the Internet site.

PART 1: A PRACTICAL CASE

The Port of Montreal and the Saint Lawrence River

The Montreal Port Administration wanted to know the opinion of the members of the panel regarding two approaches taken in recent years: the adaptive management of the resource and the extension of the port through the construction of a new terminal. To this end, a visit in the field was organised by the Port of Montreal to discover by boat the extent of the territory covered by the port and the operation of the Saint-Lambert lock.



Map of the Saint Lawrence River. Source: Centre Saint-Laurent, Environnement Canada.

NB: the full descriptions of the recommendations, illustrated by concrete examples, can be found in the white paper, in the appendix.

I- Adaptive resource management

Adaptive resource management consists of a new mode of combined water resource regulation between the United States and Canada. The process implemented is aimed at increasing the reactivity of this management in a changing environment and including a large number of the stakeholders affected by sharing water, one of which is the Port of Montreal. Thus the latter wished to submit its adaptive management approach to IFGR's international and multidisciplinary panel.

Our constantly moving societies oblige us to adapt our management methods all the time. Consequently, the approach launched by the IJC was qualified as exemplary as it demonstrated genuine awareness. IFGR nonetheless suggested that the scientific and statistical approach taken by adaptive management should be enhanced at several levels.

Recommendation no.1: Tackle the issue of water quality more directly

The advantages of the existing adaptive approach would benefit further from being extended to a more global form of management, incorporating broader concerns starting with water quality, which is threatened and which has consequences not only on drinking water but on fish populations, public health (the emergence of new vectors of epidemics) and access to the river by the population.

Recommendation no.2: Integrate new sources of information

The climatic data used by current models prove to be uncertain and inadequate for forecasting the needs of tomorrow. IFGR considers that adaptive management must be interdisciplinary, by integrating the data relating to human, social and even religious dimensions which can be collected through work in the field and in-depth studies of the history and cultures of places and peoples.

Recommendation no.3: Associate all the stakeholders in creating a common vision

To improve intergovernmental management and obtain the support of the population, IFGR recommends rethinking the approach by starting with the construction of a shared and long-term vision of the future of the resource. This involves both increasing inter-institutional dialogue and associating all the communities concerned in building the approach.

Recommendation no.4: Specify the notion of adaptation

Adaptation can refer to different rationales. Should nature be adapted to Man, or should certain human practices conform more to natural necessities? This also involves defining the stance to be adopted in the face of climate change: should we combat it or adapt to it? The IJC should be more explicit in the introduction to the approach.

Recommendation no.5: Define a reasonable forecasting horizon

IFGR calls for a precise determination of “reasonable forecasting horizon”, by privileging the time-scale of the cycle – for which meteorological data are available – rather than that of the trends studied by climate models.

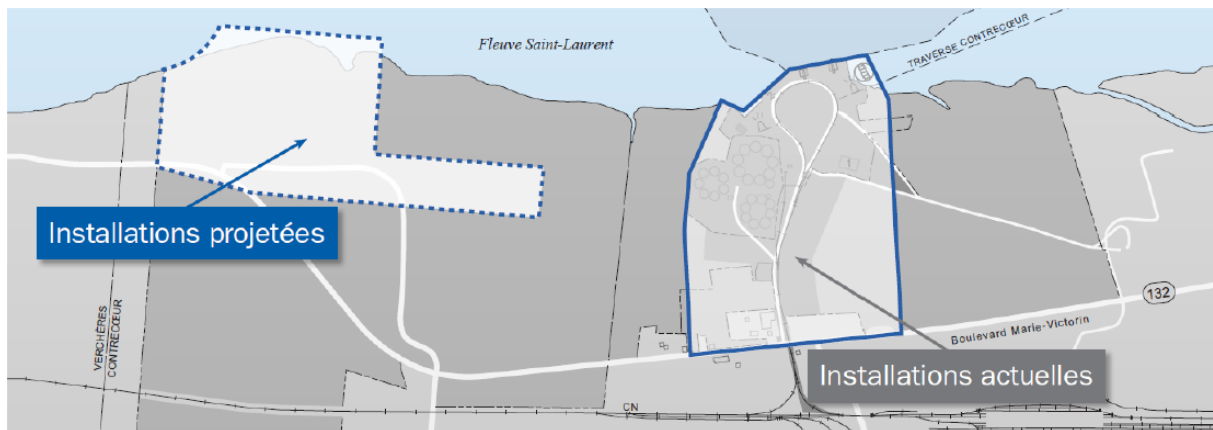
Adaptive management could therefore:

- increase its forecasts to 3 to 4 days as well as to the scale of seasons.
- focus more on extreme events. The latter point also involves demands for solidarity. Regulations do not at present permit withdrawals from the water reserves of the Great Lakes and the Saint Lawrence River. This option should nonetheless be studied in the context in which certain regions of the North American continent are subject to increasingly recurrent and critical water shortages.

II- The extension of the port territory: the example of the new terminal of Contrecoeur

The new terminal of Contrecoeur is a project to extend the port on the land of the APM on a site acquired long ago, in the municipality of Contrecoeur. Although the APM started early on to engage dialogue with the population around the site of the new terminal, its acceptance in the long term has not yet been won. The project remains a “blank page” containing a large number of uncertainties such as how to best reconcile the necessary economic development of the city while preserving the quality of life, and the best way of approaching the stakeholders and their needs.

The early stage at which the Port Administration implemented its approach with the populations concerned by the project, and the method on which it relies, belie a real desire for openness by the APM. However, the panel referred to experiments carried out in other countries to formulate several comments aimed at enriching the process engaged.



Recommendation no.1: Globalise the project

IFGR is convinced that the APM should seize the opportunity offered by the Contrecoeur project to make it a genuinely inclusive endeavour. Indeed, the challenge of the project is not so much the development of Contrecoeur, as that of the port, which will not be able to match the competition of the future without the extension. The same goes for the city, the province and the country. As an essential element of a global project oriented towards the future, Contrecoeur must succeed in generating pride.

Several suggestions were expressed: use the river as a national narrative, seize the opportunity presented by the commemorations scheduled for 2017, carry out teaching projects, set up a foundation whose objectives reach beyond the Port of Montreal, etc.

Recommendation no.2: Visualise the project

The port must make its activities visible, and give more attention to landscaping its territory and installations. Showcasing images and mock-ups would allow the public to see the global design of the site and the efforts made to landscape it, and by doing so reduce the anxieties generated. Other paths were evoked: that of developing direct access points to the bank of the Saint Lawrence, at the heart of the city, and transforming industrial buildings with the help of major architects.

Recommendation no.3: Reassure by showing what will remain the same

All changes give rise to anxiety: thus there is a need to show that not everything will change and that the changes that will occur will be positive and take into account that which exists already, continuing from existing rationales. Showing examples of previous successful transformations is another way of building a foundation of trust. Systematically having an exit strategy available is another means of showing that the port is part of a long term scheme.

Recommendation no.4: Enrich dialogue

Compensation, which implies guilt, should be replaced by the notion of shared advantages. The Port of Montreal must show its capacity to share the advantages of the Contrecoeur extension. Moreover, dialogue must be considered as a chance for improving the process and not as a cost. Lastly, the approach should be more inclusive and integrate the populations affected indirectly by the port development. The representatives of the First Nations and State education have their word to say. It is

therefore necessary to adapt the message: the port must not only respond to the rights that communities are entitled to claim, but also to their desires.

Recommendation no.5: Go beyond the confrontation between the APM and civil society

With respect to what could be seen, a certain lack of symmetry was observed between a clearly identified entity, composed of the Montreal Port Administration, its councillors, engineering offices and consultants, and a relatively nebulous mass of stakeholders, all with very different standpoints and interests. For the IFGR, this dissymmetry could only lead to arduous dialogue. To go beyond this confrontation, the panel suggested funding environmental groups so they can perform counter analyses or call on a third party to build trust between the players. The identification and monitoring of a protected species with the support of environmental NGOs would also attract wider appreciation.

PART 2: WORKSHOPS

Workshop 1: New energy models

Can production be decentralised down to local and even individual scale?

Seven principles identified

1. Different approaches must be integrated: the **technological** and **economic**, the **cultural** and **social** and the **standardised** and **specific**.
2. Account must be taken of the **economic difficulty of placing the technological solutions to the fore**. In Laos, the unit cost of some of the solutions proposed by Japan and European countries, a priori pertinent, was very high and finally undermined the result expected.
3. It is necessary to bear in mind that **the public authorities are unable to decide** between the necessity of covering all the zones in deficit on the one hand, and ensuring general economic development on the other. Some choices relating to the production of large volumes of electricity ensure general economic development, especially through the sale of the electricity produced, as is done in Laos and Senegal.
4. The **viewpoint of the consumer and final client should be placed to the fore**.
5. It is necessary to underline the importance of **interconnection and the logic of the network**. More effective solutions may exist in improving the network rather than over-focusing on the development of production tools, whether centralised or not.
6. Upstream of energy production questions, it is necessary to integrate those of **energy saving and energy thriftiness**. Certain rules, methods and policies developed for other utilities have led to changes in the behaviour of users. For example, regarding water, billing differentiated according to use has been set up. These uses are known as first need (essential needs), comfort (everyday needs) and luxury (filling swimming pools and car-cleaning).
7. It is necessary to carry out **integrated reflection on the waterway** in the service of the uses made of it.

Debates in need of territorialisation

Is it possible to accept the establishment of territories autonomous in energy, in terms of both production and supply?

Supplying electricity to very remote villages raises the question of the pertinence of installing lines over several hundred kilometres in deserted areas.

Regarding resilience, interconnection to the network is not necessarily optimal as it makes it more vulnerable to risks (e.g., terrorist attacks).

► Australia is currently undergoing an energy crisis between Tasmania and Victoria. The government abrogated legislation on carbon, which, up to July 2014, allowed the hydroelectricity producers of Tasmania to benefit from large tax credits on the sale of renewable electricity. The latter released large quantities of water before the change in legislation in order to maximise their sales receipts. However, due to the drought the dams were not recharged, leading to a shortage of electricity, and in turn the disconnection of the network from that of southern Australia.

Furthermore, although implemented at individual scale, decentralised energy production is a means of increasing the feeling of empowerment of each individual regarding their energy use.

The improvement of energy storage will rely on this trend. The development of inexpensive batteries is a solution but it creates other problems such as the rarefaction of resources in lithium. The most reliable form of energy storage today is the reservoir dam, though other solutions are available: power to gas and gas to power, flywheels, etc.

Other subjects may be dealt with in forthcoming sessions:

- Why not integrate other production sources? In Senegal, the exploitation of typha is under study and has been the subject of many projects launched by foreign companies, though none has come on stream up to now.
- Can the energy mix in Bangladesh be diversified by installing turbines in its many rivers to harness their flow rates?

Two actions to be implemented in parallel

Project 1: draw up a state of the art on studies of centralised and decentralised models, by relying on groups of three to four students on different continents, in order to establish a ten page synthesis.

Advantage: it would take only a short time and be of potential interest for students at the end of their university studies.

Project 2: measure for a territory covered by us the possible development of energy in the area considered, according to whether hydroelectricity production is centralised or decentralised, by taking a differentiated and multidisciplinary view.

Choice and portion of river: identify a project of the future, not yet completed.

The first step to be taken: mobilise several students to start the analysis of the territory studied.

Workshop 2: Social resilience and risk culture

How is it possible to adapt to diversified and globalised risks, whereas their existence appears to be increasingly absent from individual preoccupations?

Main points

1. The notion of risk has a subjective dimension and differs according to national culture.

In France, the aversion to risk is obvious. In Bangladesh the situation is different and its population exhibits exceptional resilience in the face of floods, helped by the improvement of warning systems and procedures. In Australia, risk is perceived through a mixture of liberalism and management by the federal authorities, for example, in the case of conflicts related to the scarcity of water. Finally, Japan embodies a state of awareness and social cohesion confronted by the most dramatic events.

2. The different types of risk.

There are different types of floods:

- rapid rises in water levels following storms which only become problematic due to the sealing of surfaces (French example of Ardèche);
- floods that occur in regions where water tables are already saturated, and where water levels rise slowly (example of the Somme valley);
- submerging waves (Vendée).

In addition to floods, risks are becoming diversified and globalised, associated with pollution, the modification of ecosystems, climate change and the destruction of flora and fauna. They also involve health with the propagation of epidemics and impacts on mental health. In Australia, the number of farmers committing suicide has increased due to the drought.

Thus warning systems must be adapted to risks, as a function of their punctual (floods) or gradual (propagation of epidemics) nature. They must also be adapted to the populations targeted. For example, most of the sailors in Bangladesh are illiterate.

3. Certain factors increase the probability of risk

Demographic pressure and failure to maintain installations exacerbate our debt to future generations.

Non-conformity with the law is another factor. In Bangladesh, some people obtain the opportunity to prove their ownership of part of a river, and then carry out management operations that have catastrophic effects on other rivers nearby. Likewise in France, non-conformity with construction regulations is a problem. A solution was proposed to prevent such shortcomings: land ownership in the form of a coastal conservatory.

Nonetheless, the tools available to governments are often faced with changing worlds and legal instruments intended to afford protection are insufficient. Today, property developers and legal experts have the means to find loopholes in regulations so they can build on floodable land, thereby explaining why, in developed countries, the first victims of floods are not always the poorest.

4. The transfer of responsibility to an authority is a major challenge for our societies

The individual in our societies increasingly tends to outsource their responsibility to the State, which is supposed to protect them against extreme events. This process is accelerated by urbanisation: popular wisdom in urban areas is replaced by political wisdom: we are witnessing a phenomenon in which risk management is subcontracted to an authority.

The total elimination of risk is neither possible nor necessarily desirable. Thus it is necessary to study the issue of individual re-appropriation of the notion of risk: what part of risk can be transferred to an authority? What part of it falls to individual responsibility?

5. Studying the value of the river

To answer this last point, the panel suggested that the value of a river should be based on economic and symbolic terms. In the Australian system, purchasing land is linked to a right to water, which can be rented if not used; in the case of shortage, a federal agency can rent this right to the owners without producing the water in question. Vietnam is currently examining the possibility of using this system as well.

On the symbolic level, this entails returning to issues related to the river, by studying its history. A more organic relationship must be sought, like that which populations had in bygone times: for the people of Mesopotamia, risk was part of everyday life and managed according to a clearly specified hierarchy from the farmer to the king, who was responsible to the entire community for the upkeep of the dikes and canals.

Actions to be carried out

PROJECT 1: Carry out a comparative study of existing warning systems in different areas (meteorology, hydrology, pollution and health) and draft a summary intended for political decision-makers.

Objective: identify countries in advance and disseminate good practices.

Means: draft a questionnaire to be sent to all the members, and then produce a synthesis of the results. Furthermore, the Rockefeller Foundation has published a collection on the 100 most resilient cities confronted by risks.

PROJECT 2: An official call for CNR's expertise by Cdre Mozammel Haque, regarding questions of navigation and floods.

THEME TO BE PLACED ON THE AGENDA: The river as a source of disease, including a study of the links between dams and public health. The Diama reservoir in Senegal is intended to prevent salt from infiltrating into the River Senegal. In French Guyana, small reservoirs lead to the dispersion of water into the forest, modifying ecosystems and causing the emergence of hantavirus.