



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

A white paper for the Montreal Port Administration



- adaptive resource management
- the expansion of the Port of Montreal: the case of the Contrecoeur terminal

2nd session

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Photo credits: Camille Moirenc, Rochemaure dam, 13/10/2013

General introduction

On the occasion of the 2nd IFGR session organised from 18 to 21 April 2016 at Montreal, the Montreal Port Administration wanted to ask the members of the panel for their opinion on two approaches pursued over the last few years:

Adaptive resource management, consisting in a new mode of joint regulation of water resources by the United States and Canada. The process pursued is intended to make this management more reactive in a changing environment and include the numerous stakeholders affected by sharing the water, and thus the Port of Montreal. This novel approach which is now in the implementation phase, still raises questions linked to the choice of models used, the commitment of all the actors in the long term, and securing its funding.

The new terminal of Contrecoeur is a project which extends the area covered by the APM on a site acquired long ago in the municipality of Contrecoeur. Although the APM undertook an approach involving dialogue with the population neighbouring the site early on, its acceptance in the long term is far from a foregone conclusion. The project remains a “blank page” on which a large number of uncertainties remain in suspense regarding the best way of reconciling the economic development necessary with preserving the quality of life and the way in which the stakeholders and their needs should be approached.

PART 1: ADAPTIVE RESOURCE MANAGEMENT

Preamble

The purpose of the International Joint Commission (IJC) is to regulate the use of the waters shared by the United States and Canada. Extreme water levels have been observed by one of its three monitoring offices and the IJC performs binational studies to understand their causes and reduce their negative impacts. These studies provide expert opinion to the two governments, the sole authorities with the power of decision.

The recurrence of extreme water levels in recent years has led the IJC to recommend continuous evaluation in order to adapt plans to regulate the water without the need to perform expensive studies. In theory, adaptive management is a structured and iterative process intended to continually improve the results achieved by management through learning from the effects of previous policies. It consists in “imagining what the future will be by using sophisticated models involving physical variables and the way in which they impact the other components of the ecosystem” (Jean-François Quentin, Environment Canada). Although the concept has won considerable support, its implementation has come up against several difficulties linked to its innovative nature: the need for long-term funding, support from the stakeholders, the validity of the models tested, etc.

The Port of Montreal depends on water levels in order to develop its activity and is thus a stakeholder in this process. Consequently, it wanted to submit this approach of adaptive management to the opinion of IFGR's international and multidisciplinary panel regarding several issues:

- the suitability of the approach with respect to the stakes in play,
- the visionary nature of future needs,
- winning support across the board from the stakeholders,
- ensuring this management approach in the long-term.

Introduction

The approach initiated with the IJC demonstrates awareness that was hailed by the entire panel: our societies subject to perpetual motion demand the constant adaptation of management methods. From this standpoint, the concept of adaptive management was qualified as exemplary and worthy of international recognition. The members thus underlined the need to pursue this dynamic process, failing which it will lose its pertinence and lead to regret.

However, the panel expressed several opinions intended to ensure the success of the approach. For the IFGR, the scientific approach of adaptive management, as envisioned at present, would profit from enhancement at several levels.

NB: The IJC's mandate is limited due to political reasons and its international status. Although the recommendations issued sometimes go beyond the IJC's strict prerogatives, it appears that these observations are essential for ensuring sustainable water management in the region, capable of both satisfying current and future needs and achieving broad consensus in the long-term.

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

The IJC was set up to deal with problems related to the quantity, levels and sharing of water. The associated stakes are the responsibility of other governmental agencies with which the IJC collaborates.

The issue of water levels is nonetheless intrinsically related to other challenges, starting with water quality. In addition, the region of the Great Lakes and the Saint Lawrence River appear to be threatened less by the quantity of water – a subject that climate models struggle to forecast – than by its pollution, an increasingly worrying issue for both the public authorities and the population. In addition to drinking water, this question also concerns **fish populations, public health** (the introduction of new vectors of epidemics) and **access to the river by the population**. These are all challenges which, in the present approach, appear to have been pushed into the background. Water quality also raises fundamental questions regarding interactions between the city, the port and the river. **The benefits of the existing adaptive approach would be enhanced by being extended to more global management, incorporating wider concerns with regard to the future of the resource.**

Recommendation no.2: integrating new sources of information

The climatic data on which current models are based have proven to be uncertain and inadequate for forecasting tomorrow's needs. For IFGR, **adaptive management should be interdisciplinary, by integrating data on the human, social and even religious dimensions that can be collected through a detailed study of the history and culture of the sites and societies concerned.**

► The long-term history studied by archaeology shows that climatic factors are not the main factors at work in shaping the practices, lifestyles and cultures of populations. In the case of Easter Island (Pacific Ocean), the abandon of settlements and cultures had long been explained by climatic change, although in reality it was due to a wider range of factors including economics, politics, demography, etc.

Ethical, religious and spiritual dimensions are therefore important for understanding the relationship between societies and their environment. In the region of Saint Lawrence, where indigenous populations have preserved a relatively traditional social mode of life, this approach is essential for understanding the way in which they deified their environment.

► In the case of bauxite mining in Vietnam, it was the Vietnamese Catholic community that was most committed to defending a political stance, justified by environmental stakes.

Territories are fashioned by oral traditions, ancient knowhow, infrastructures and objects, all of which have given rise to landscapes and past lifestyles. Different tools can be used to investigate these facets, ranging from field work (1) to archaeological research (2).

► (1) The Accelerated Method for Participatory Research (MARP) was employed in West Africa in the framework of project planning. Now fallen into disuse, its strength relied on combining scientific methods with knowledge of the past. All projects begin with a historic profile of the villages concerned, using a large quantity of historic information (floods, brushfires, etc.). This is followed by fieldwork with the populations, to listen to the history told by the inhabitants. In particular, this method permitted SOGED, the body managing the Diama dam, to restore the watercourses that a once supplied a village.

► (2) Archaeological maps provide a kind of written and usable memory since they permit preserving a trace of different structures and networks. In the Middle East, underground drains were refilled with water to irrigate gardens. Likewise on the River Rhone, bathymetric soundings regularly reveal vestiges,

providing new knowledge on the populations that have settled along it. Geophysical prospection can also detect structures such as paleo- and ancient canals.

Recommendation no.3: associating all the stakeholders in the creation of a common vision

To both improve intergovernmental management and obtain the attachment of the population, IFGR recommends rethinking the approach by starting with the construction of a shared and long term vision of the resource's future. More than compliance, what is sought is the inclusion of the stakeholders far upstream in the process.

a- Increasing inter-institutional dialogue

In a context of complex multipartite governance such as that of the Great lakes and the Saint Lawrence River, a strong political will fuelled by efficient mechanisms is required to **forge a common destiny around the resource**. Although the IJC has a strongly rooted tradition of international cooperation linked to its international status, this particularity does not protect it against discord and institutional logjams. For instance, the dialogue between the Canadian provinces is sometimes more difficult to insure than between the two federal governments.

► In the case of the OMVS, it is the awareness of governments – in their capacity as representatives of the general interest – of the existence of a common destiny around rivers, that has led to building such a structure capable of generating consensus and overcoming deadlocks. This structure is organised around three fundamental elements: binding texts at supranational level; a clear institutional organisation, scientific tools on which to base decisions.

Three circles of decision-making coexist: when the experts cannot reach agreement on a subject, it is brought before the Council of Ministers which takes its decisions by consensus. In the case of major disagreements it is the Conference of the Heads of State that decides.

Recognition of the interests of the majority is not always achieved: the current project to build the Koukoutama dam (with a capacity of 300 MW) is blocked because it threatens a population of monkeys.

b- Associating the stakeholders in building the approach

In order to ensure that this vision is shared more widely by all the stakeholders, including the population and environmental organisations, they should be associated as early as possible in the process, both in the construction of a collective vision and in collecting the data.

Rivers have their own legends that lead them to play a role of social, mental, imaginary and artistic integration. The Mekong, the Ganges, the Brahmaputra and the Nile are all enshrined in myths that structure the territories through which they flow. In the case of the Great Lakes and the Saint Lawrence River, a legend that unifies these expanses of water has to be built using the values of the populations living around them. This vision can be understood in a literal way and be built using artworks and mockups. It can also be understood through sentiments and emotions. Seen from this angle, making very young children aware of the river is a key factor.

An approach is more likely to gain the support of the population if it stems from the territory rather than being imposed from above by the authorities. In Australia, the farmers neighbouring the River Darling were strongly opposed to the scientific position proposed by the authorities to manage the resource. Thanks to the diversification of the data suggested above, the population can become an actor in building a model that they are able to adopt more easily.

For IFGR, it would also be pertinent to encourage greater participation from indigenous peoples. Current legal provisions, set out in a judicial system developed alongside industrialisation and the birth of capitalism, are inadequate for ensuring genuine inclusion. The method of participation should be continually improved with the aid of philosophers, anthropologists, spiritual leaders and legal experts, so that indigenous communities can be full actors in the debate.

Along the same lines, in case of dispute, IFGR recommends that the project's opponents should be brought into the process from the outset. Hostility emerging at local level can now be relayed very quickly and easily take on international proportions.

This approach using a collective vision has several advantages:

- it contributes to ensuring that the general interest prevails over specific interests, despite the profusion of views expressed;
- it permits changing the message on the river and bestowing it value. Given the abundance of water in the region, this value now appears poorly recognised by the population of the Great Lakes and the Saint Lawrence River. Showing the value of the river also prepares minds to accept the idea that it is a limited resource, with the end of free water.

Recommendation no. 4: Specify the notion of adaptation

Different interpretations can be given to adaptation. Should nature be adapted to man, or should certain human practices conform to natural imperatives? This also means defining the stance adopted regarding climate change: should we fight it or adapt to it? The viewpoint adopted by the IJC should be set out more clearly in the introduction of the approach.

IFGR esteems that both approaches can coexist, with the stabilisation of water levels occurring alongside anthropic adaptation to the environment and its fluctuations. This clarification also provides the opportunity for adaptive management to tackle the issue of water saving more directly.

Indeed, this adaptive management of uses is already employed by some of the partners of the approach. Adapting navigation is one of the strategic orientations of the Port of Montreal, which emphasises the importance of electronic navigation so as to link the loading of ships with water levels. The aim is to reduce the margin of error by preserving the safety of navigation, and pump less water from the river to maintain an artificial water column.

Recommendation no.5: defining a reasonable forecasting horizon

For IFGR, it is necessary to determine a "reasonable forecasting horizon", by privileging the temporal scale of the cycle – for which we possess meteorological data – rather than that of trends studied using climate models.

Although the utility of these long term models (especially those studied by the IPCC) has been demonstrated in many regions of the world, their preponderance in the approach taken by the IJC cannot be justified. The Great lakes and the Saint Lawrence River are intertropical zones where the horizons still appear very uncertain with respect to the quantity of water available in the long-term. This uncertainty sometimes makes the models designed more complex than the reality they simulate, making it impossible to establish efficient and lasting management rules.

Adaptive management could therefore:

- extend its forecasts by 3 or 4 days and at seasonal scale.
- study extreme events in greater depth. This point also requires predicting **calls for solidarity**. Current regulations do not permit withdrawals from the water reserves of the Great Lakes and the Saint Lawrence River. However this hypothesis should be studied in an environment in which certain regions of the North American continent are subject to increasingly recurrent and critical water shortages.

NB: On the 21st of June 2016, the Great Lakes Compact Council, representing governors of the eight Great Lakes states, voted unanimously to approve a request by Waukesha, Wisconsin to divert Lake Michigan water for municipal supplies. The city becomes the first community located outside of the Great Lakes Basin allowed to take Great Lakes water since the passage of the 2008 Great Lakes Compact, a legal agreement between the states and two Canadian provinces that effectively bans out-of-basin water transfers.

Reorienting adaptive management to real concerns rather than hypothetical ones will make the redefinition of timescales more pertinent in terms of management. It will allow repositioning resource use management and adapt uses to real constraints.

PART 2: CONTRECOEUR

Preamble

Like many ports of the world since the advent of containerisation, the Port of Montreal is faced with space problems. The wharves and port facilities must progressively be either adapted, or abandoned or rebuilt. In order to address the predicted demand and in prevision of a lack of space for the containerized operations on Montreal Island, the Port Administration takes the calculated risk to build an extension at some distance from its current perimeter of operation.

The new port area is installed in a community in which APM's presence has been very discrete since the end of the 1980s. Whereas each square meter occupied by the port on the island of Montreal has been remodelled into a well-established port, the development of a new container terminal foresees a significant expansion that will have a major impact on the landscape and the life of the population of Contrecoeur. In time, the port will become a major industrial neighbour, highly visible and much more present than in the past.

As with any port project in an already developed area, whether industrial or urban, it must be socially acceptable. The Montreal Port Administration organised wide-ranging public consultation very early in the project. The social acceptability acquired up to now must nonetheless be continually nourished to ensure the smooth transition between what has been announced and the effective construction of this new terminal.

The questions the APM asked the panel concerned the following:

- What items of a successful public relations plan are indispensable?
- How can the population be persuaded to support the project during the development and installation phases?
- What good practices already exist that are capable of reconciling economic development with the quality of life in the environment?
- What methods and tools exist for reconciling the needs of the different stakeholders (port, natural habitats, population, etc.)?

Introduction

The fact that the approach taken by the Port Administration regarding the populations affected by the project was implemented at such an early stage, along with the method on which it is based, emphasises its solid culture of openness.

Experiments carried out in other countries nonetheless led the panel to make several comments intended to complete the process undertaken. These observations covered the way in which the project is presented, the choice of register chosen in the messages, the identification of the stakeholders involved and the tools used to ensure dialogue.

Recommendation no.1: Globalise the project

IFGR is convinced that the APM should seize the opportunity provided by Contrecoeur to build a genuinely federating project, by bringing together Montreal and its extension at Contrecoeur. Indeed, the challenge of the project is not located at Contrecoeur, but at the port, which cannot survive future competition without this extension. Failure to develop the port's activities will have adverse effects on Montreal, Quebec and Canada as a whole. A founding component in the history of both the city and the nation, the port represents a gateway, a point of arrival for the migrants that have helped forge the country. It still forms the hard core of the City of Montreal and a driving force of the regional economy, and as such it must retrieve its status as a pillar of the collective identity. As a central element of this global project carried out with the future in mind, Contrecoeur must succeed in stirring pride.

Several suggestions were made:

- The river must be communicated as a federating element of this collective pride;
- The commemorations planned for 2017 provide an excellent opportunity to showcase the Port as an actor oriented towards the future, rather than to glorify its nostalgic aspects.

► The Port can take inspiration from initiatives such as the Rouen Armada, where the most beautiful sailing ships in the world attract 3 to 4 million visitors, with events and parades which situate the port at the centre of a dream. In Lyon, a former port building was transformed into a museum, and a biennial of modern art is held in a former sugar warehouse.

- Furthermore, despite several current initiatives in Montreal¹, the pedagogic dimension of communication linked to the port still appears lacking in view to explaining how the port operates and the multitude of trades involved. Thus a project could be carried out with schools on the theme of "What is my river?" with a network of children in several countries. Visits to the port and the control room of the locks could be more frequent. In addition, the visit to the Musée de Pointe-à-Callières gave a glimpse of a stratigraphy detailing the port's history, though not its recent history. The panellists also expressed the idea of including the recent history of the port in this chronology.

► In Australia, a large number of approaches are being taken in view to getting the population to discover the exceptional nature of the region's flora and fauna. The feeling of pride is therefore nurtured from the earliest age.

- Create a meaningful link between the different port areas, by placing Contrecoeur to the fore as an extension of the city with a return to the countryside and getting the population to win back the river located between these two spaces. Another possibility is to develop a cycle track between the two sites.
- Make the characteristics of the port, which covers a very large surface area, an asset by drawing up a Master Plan that sets out the coherence of the development. The project must establish the link with urban development on the scale of the city: how is the river, in its role as corridor of Greater Montreal, linked to other potential developments (expressways, universities, etc.)? Such a global Master Plan would provide a tool capable of convincing the population regarding the way in which its goals coincide with those of the Montreal port Administration.
- Set up a foundation that goes beyond the sole interests of the Port of Montreal by incorporating other actors, and which could even become a Saint Lawrence Foundation.

¹ Such as the campaign "delivered by boat, thanks to my river", initiated by the SODES.

► The Total Foundation has set up a research centre in Gabon, one of Africa's largest oil producers. Wholly funded by Total, it is intended for human health and not for oil.

Recommendation no.2: Visualising the project

The Port must make its activities visible, and it must become a district recognised as belonging to the city. The colours used and the types of installations in activity are not given sufficient prominence. IFGR recommends more landscaping for the port, and the terminal at Contrecoeur. **The presentation of images and mock-ups** would allow the public to see an overview of the site and the landscaping efforts made. Such a display would alleviate their concerns.

Other paths were proposed:

- developing direct means of access to the banks of the Saint Lawrence, in the heart of the city;
- transforming industrial buildings with the help of the world's greatest architects has also proved to be a remarkable lever for allowing populations to repossess the heritage left by ports.

► In Genoa, where the possibilities for expansion are limited by the surrounding mountains, a virtual port was designed to allow everyone to visit the future installations. In Singapore, a step by step representation of planned changes was also developed. Giving this vision to the population is essential in order to gain its support. Different means can be used ranging from 3D simulations to more realistic models, and a film that could be called "Montreal 2" and include Contrecoeur.

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

All changes lead to anxiety, thus it is advisable to show what will remain the same, and that the changes which will occur will be positive, respect what existed previously and continue along existing lines. It is necessary to succeed in showing that "change is necessary so that the core remains", by bearing several elements in mind.

- Landscaping consists in changing a space without betraying its nature.
- The port must showcase transformations that have succeeded in the past in order to promote a capital of confidence.
- **All development projects must be accompanied by an exit strategy.** This allows making populations aware that other projects will follow that concerning them, since the Port of Montreal is forced to constantly adapt to market needs.

Recommendation no.4: Enriching dialogue by passing from participation to inclusion

The Port of Montreal has already demonstrated an exemplary approach of consultation with its stakeholders. IFGR nonetheless encourages it to be even more ambitious by implementing a bottom-up approach to inclusion, and by taking into account certain comments:

- Compensation, which implies guilt, must be replaced by the notion of shared benefits. The change in question is motivated by the quest for positive results for society, not only economic, but also in terms of quality of life and relations with nature. The Port of Montreal must also demonstrate its capacity, stemming from its knowhow, to share the benefits of extending Contrecoeur.
- Dialogue must be understood by the project promoter as an opportunity to improve the process and not as a cost. Experiments carried out in other countries prove that being sensitive always turns out to be constructive. It is also an imperative for solving the problem of the long run in a democracy, where the succession of mandates

limits the capacity to privilege the general interest through time. Dialogue fosters confidence in spite of policy changes and thus confers value to the long term.

- Institutions must learn to adapt to the need to establish permanent dialogue with the population.

- In Hamburg, projects lasting several decades have been pursued because institutions have maintained dialogue in spite of changes due to elections. Thus the process of converting the port, lasting some twenty years, gave rise to the progressive reinvestment by the city in the port areas. The need to maintain dialogue during this process led to institutional transformations: the person managing infrastructures became the urban development manager, while a multidisciplinary team was set up to develop new communication tools aimed at the population.

As in Hamburg, in Montreal the river crosses the city from west to east and the port authority exploits a longitudinal section of the city. Since any development of this portion is intrinsically linked to the river and the port, it is likely that these changes will impact the overall institutional functioning of the city. The port administration will therefore play a preponderant role in economic, ecological and urban development. Beyond its sole function of transport corridor, the Saint Lawrence should be seen as a whole, as a “fluvial anthroposphere”.

- It also entails being inclusive and integrating populations indirectly affected by the port development. The representatives of the First Nations also have their word to say; state education too, since children will be the first to be affected by the changes. A drawing competition with the port, ships and the extension as subjects could also be organised.

- The port must satisfy not only the rights that the communities are entitled to, but also their desires. This type of message will no doubt have a bigger impact on indigenous populations.

- In Senegal, the notion of rights is very approximate among certain populations without good knowledge of the texts. Two types of approach are linked in the framework of project management. Mitigating measures based on the law and sometimes belonging to international legislation, are conceived first. In parallel, a plan of accompanying measures is formulated to group the desires and *desiderata* of the populations concerned, which may differ from regulatory obligations. This second section sometimes involves an amount higher than that required for the mitigating measures.

- The hydroelectric development scheme of La Grande won the support of the descendants of the First Nations who felt rather proud to participate in the administration of the Grande Rivière. Indeed, the turbines increased the force of the flow eightfold, an essential aspect in their eyes.

Recommendation no.5: Go beyond a stand-off between 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.

Two political risks exist for the project. It could be held hostage during the municipal elections in November 2017, leading to a situation of sterile and inextricable confrontation. On the contrary, in the case of consensus shared by the different parties, the project could also be used as a means for combating the governmental system.

Several paths of actions were proposed:

- studying the sociology of the organisations confronting the port administration in greater depth, in order to deploy negotiating strategies and adapted forms of consultation.

- funding environmental groups to perform counter analyses.

- The WIPP project to store nuclear waste in New Mexico, for example, led to the funding of a group called the Environmental Evaluation Group, which disputed the project, so they could perform counter studies and study alternative options.

- benefiting from the intervention of a third party or guarantor to foster trust between the parties in dispute. The identification of a protected species, with the support of environmental NGOs, in order to make the project's mascot, led to wider support for the project.

- In the example of the landfill dump of Montchanin, the intervention of a third party was called for to facilitate dialogue between the project's promoter and the people concerned, whether favourable or not.

Conclusion

The Port of Montreal has five characteristics that reflect the world of today: it is urban, coastal, commercial, growing, and fragile. It is also impacted by climate change. In addition to the recommendations formulated on behalf of the APM, these reflections are also paths of action that could be transposed to other parts of the world.