The Necessity of Integrated Water Management in Quebec

by Michel Dupras, OUQ

Among CIP affiliates, the OUQ has been particularly active in provincial water management issues. The OUQ’s Environment Committee, chaired by Michel Dupras, coordinated the affiliate’s November 24, 1999, submission to public hearings held by the provincial Bureau d’audiences publiques sur l’environnement (BAPE). Michel surveyed the submission in his presentation to Charlottetown conference. The following is based on a longer English summary of the full submission. For copies of the full English summary or the full French submission, contact OUQ.

Integrated water management in a regional/watershed planning context is considered a necessity. Our purpose here is less a critical examination of the current situation than an effort to contribute solutions. Our professional code of ethics includes the following:

Planners must take into account the equilibrium of the human, socio-economic, and physical environments concerned; they must always consider the environment (both built and natural) as a public, limited, fragile and irreplaceable resource.

OUQ believes that an integrated system of water management – one which respects the resource and makes full use of its potential for regeneration – represents the solution to many difficulties. This is possible only to the extent that water is respected and recognized as essential. Plans and management frameworks are tools that can protect the resource, minimize the nuisances related to certain activities, and plan the development of the area while taking account of socio-economic factors. At the local level, conflicts over use arise when the resource is scarce or overexploited. These conflicts are generally the result of sector-based – rather than integrated – vision of planning. The issues also tend to be felt most and earliest at the local level, generating municipal management challenges in three main areas:
I) Municipal water supply treatment: It is essential to reduce the costs of treatment while ensuring that the water supply system is protected from all forms of pollution.

II) Wastewater treatment: It is necessary to encourage the pre-treatment of industrial discharges, or to promote a "polluter pays" approach.

III) Management of surface water and runoff: In order to slow the speed of runoff and to control loads, stormwater management must be a central consideration in design and construction. However, re-profiling and channelling should be used only as a last resort, in order to avoid harming the micro-environment.

Such objectives can be attained only by establishing priorities for use that ensure the renewability or integrity of the resource. This requires the deliberate linking of regional planning and water management, via watersheds or broader basins, to facilitate the following necessary tasks.

1. The integration of multiple water uses in the municipal sector

The reconciliation of the different needs of different users must take place in a spirit of lowering costs and reducing adverse consequences for the environment. Above all, it is necessary to protect both the quality and quantity of the resource. Ensuring consistent quality, whereby the actions of one party are not compromised by those of another, is a matter of creating a watershed-based management. This common good, this renewable heritage, must be managed according to the principle of common interest, as a common-pool resource. There must be assurances that water is used for valid purposes and that it will always be available at very high quality.

2. Prioritizing different water uses

The world-wide scarcity of water for human consumption and agricultural irrigation compared to Quebec – comparatively well-endowed with water resources – is in a prominent and privileged position. Development and diversion projects will be numerous. The impression of abundance will bring about certain temptations. However, many current uses for water can be maintained only insofar as the quantity drawn is measured and the quality discharged is controlled. Waste must be reduced and pollution remedied in order to achieve acceptable levels. A regional/water-shed approach is required to share costs and benefits equitably, and to set priorities. Economic, social and demographic realities will be such that certain urban areas will see limited development while others will be privileged. Sometimes it will be a matter of making active use of the resource; in other cases it could be a matter of protecting or restoring its quality.

3. Avoiding over-exploitation of the resource

More public information, better watershed-based organization, and stronger protective measures are all required to offset current over-exploitation of the water resource, whether by foreign multinational companies or by domestic industrial interests. Urban sprawl is also responsible for overexploitation of the resource; currently in Quebec, and particularly in the suburbs north and south of Montreal, there are developments supplied by networks of aqueducts that draw water from distant sources, uncared for and unappreciated by the water consumers.

4. Avoiding the harmful impacts of conflicting water uses

The fragility of the water resource, especially groundwater, is undeniable. Moreover, it is very difficult and costly to eliminate or reduce a threat to the quality of groundwater. Many land uses and related activities threaten its quality. The absence of public sewage systems, requiring a fall-back on individual private systems, can represent a particular danger. Enormous quantities of road salt can quickly penetrate bodies of groundwater and accumulate there in large quantities. Like roadside ditches, primary extraction uses such as sand-pits are in many cases "openings" that directly expose otherwise "insulated" bodies of groundwater. The presence of golf courses – like farms with all their fertilizers, herbicides and pesticides – is a definite threat to water. Many industries can represent a definite risk for waterways and bodies of groundwater; these risks must be evaluated and reduced.

5. Regional planning for the natural regeneration of water as a resource

The human occupation of an area, its spatial organization, and the use of its resources have consequences not only for water but for every aspect of aquatic environments. A sustainable development policy must integrate the use of "water" as a resource with the realities of the broader hydrological cycle. The latter needs to be understood, and a management structure must be established to apply the knowledge. Applied hydrology addresses the full gamut: drinking water, stormwater, domestic sewage, groundwater and surface water. Taking these flows into account is a larger task than standard hydrology; water takes on unnatural features. The watershed is the most appropriate geographical basis for a necessary management response. In most municipalities or localities the watershed is usually regional in nature, and is sometimes referred to as a basin (comprised of several interconnected watersheds).

A basin management agency, on a regional scale, should be pursued wherever possible. A decision-making role should be accorded to all groups of water-users and all stewards of aquatic ecosystems. Consultation mechanisms and development review/approval procedures should be centred in such agencies. Regional management frameworks (RCM) and municipal plans should integrate water-friendly policies, nested within a broad basin perspective and an integral watershed perspective.

Water management is complex and must remain so, since a purely sector-based or mechanical approach disrupts the inherent dynamism and interconnections of the resource. OQU advocates an integrated approach to water management as the best way to reconcile the vital economic and recreational needs of diverse users with the dynamic character of water. For too long, water has been treated as a "free" resource, and especially as a means of disposing waste. Unfortunately, water management has mainly been sector-based, limiting the ability to diagnose problems and treat them (eco-)systemically. Because of the natural integration imperative of planning processes, OQU therefore stresses the importance of respecting watersheds in regional and municipal planning. It advocates a sustainable development approach as a comprehensive way of maintaining the quality of water as a resource, and a watershed-wide management approach based on organic – rather than mechanical – principles to balance human needs with the integrity of the resource.

Michel Dupras, a geographer/planner, acted as the Chair of the Environment Committee of Ordre des Urbanistes du Quebec (OQU). This article was adapted by Ian Wight from Brian Lynch's translation of the original French document.