

*a source of wealth and
pride for us all*



2018-2030


 Québec
Water Strategy

COORDINATION AND DRAFTING

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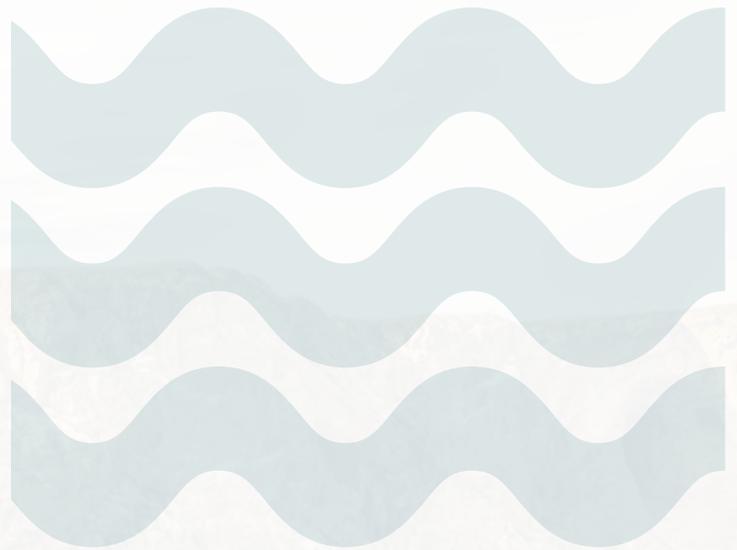
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2018-2030


 Québec
Water Strategy

Message from the Premier

Philippe Couillard

Québec is fortunate to possess 3% of the world's fresh water, flowing in the St. Lawrence River and our tens of thousands of streams and lakes. The St. Lawrence is a remarkable river. Together with the watersheds of the Great Lakes, it forms one of the largest waterways on the planet and drains more than 25% of the world's fresh water reserves. It is inextricably linked to our history and economic development.

To preserve this remarkable asset, we have been proactive in passing legislation to protect drinking water sources, control water withdrawals, and conserve wetlands and water. Today, we are taking another step with the release of the 2018–2030 Québec Water Strategy. We are taking action to prevent risks related to water while harnessing its economic potential. The strategy reaffirms the central role that water plays in our lives and sets out the priorities and objectives necessary to ensure its ongoing sustainability. Once again, we are acting in accordance with the sustainability principles Québec adopted under the *Sustainable Development Act*.

The success of this strategy relies very much on our partners, other public organizations, and our citizens. Together, we can make this indispensable collective resource a source of collaboration and development. United around the same issue, we can draw upon the power of our combined ideas to lead this profound societal transformation and reduce the negative impacts associated with climate change.





Message from the Minister

Isabelle Melançon

Water is part of Québec's collective wealth. It has shaped our past and present, and will continue to play a decisive role in our future. It defines our landscapes and influences our social and economic dynamics. Water is the origin of life and the source of our identity.

It is therefore with great pride that we present the 2018–2030 Québec Water Strategy. In the face of the challenges we must all tackle together, the strategy will continue pointing the way toward a prosperous, water-friendly future.

The result of broad consultation, this new strategy prioritizes meeting the needs of the public. It recommends effective ways to ensure quality water for all Quebecers. Concrete actions are proposed to better prevent and manage water-related risks. It also aims to reconcile the needs of aquatic ecosystems while building on the economic potential of water. The strategy encourages and supports sustainable water use, as well as the acquisition and sharing of knowledge to ensure sustainability. Lastly, it calls for the strengthening of integrated water resources management, a practice already well established in Québec.

To properly protect and preserve water, we must develop and use the land sustainably and adapt to the impacts of climate change that also threaten our most important resource. The strategy invites us to work together to protect it so that Québec's future can be built on this collective treasure and invaluable resource.

The 2018–2030 Québec Water Strategy is a tremendous opportunity to join forces and tackle this major societal challenge in order to guarantee a legacy for future generations. Québec's history was built on our waterways, as our future will be as well—a future of respect and recognition for this precious collective resource.

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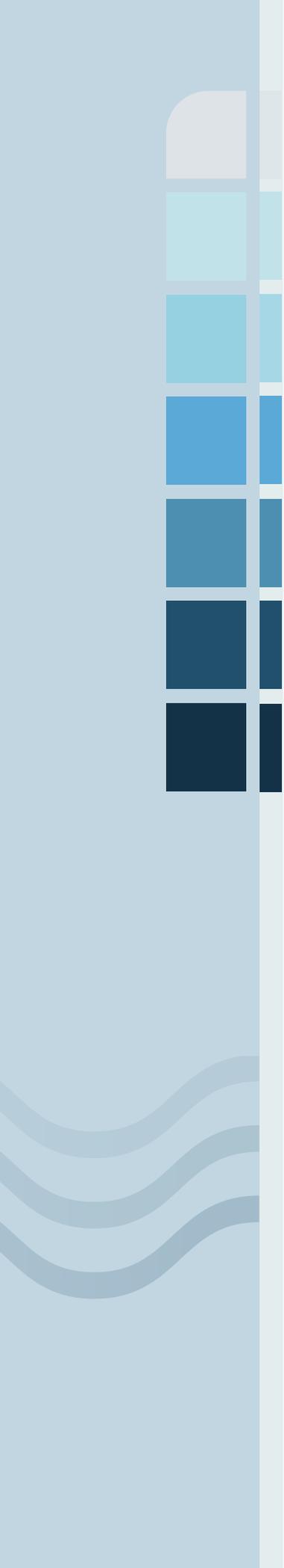
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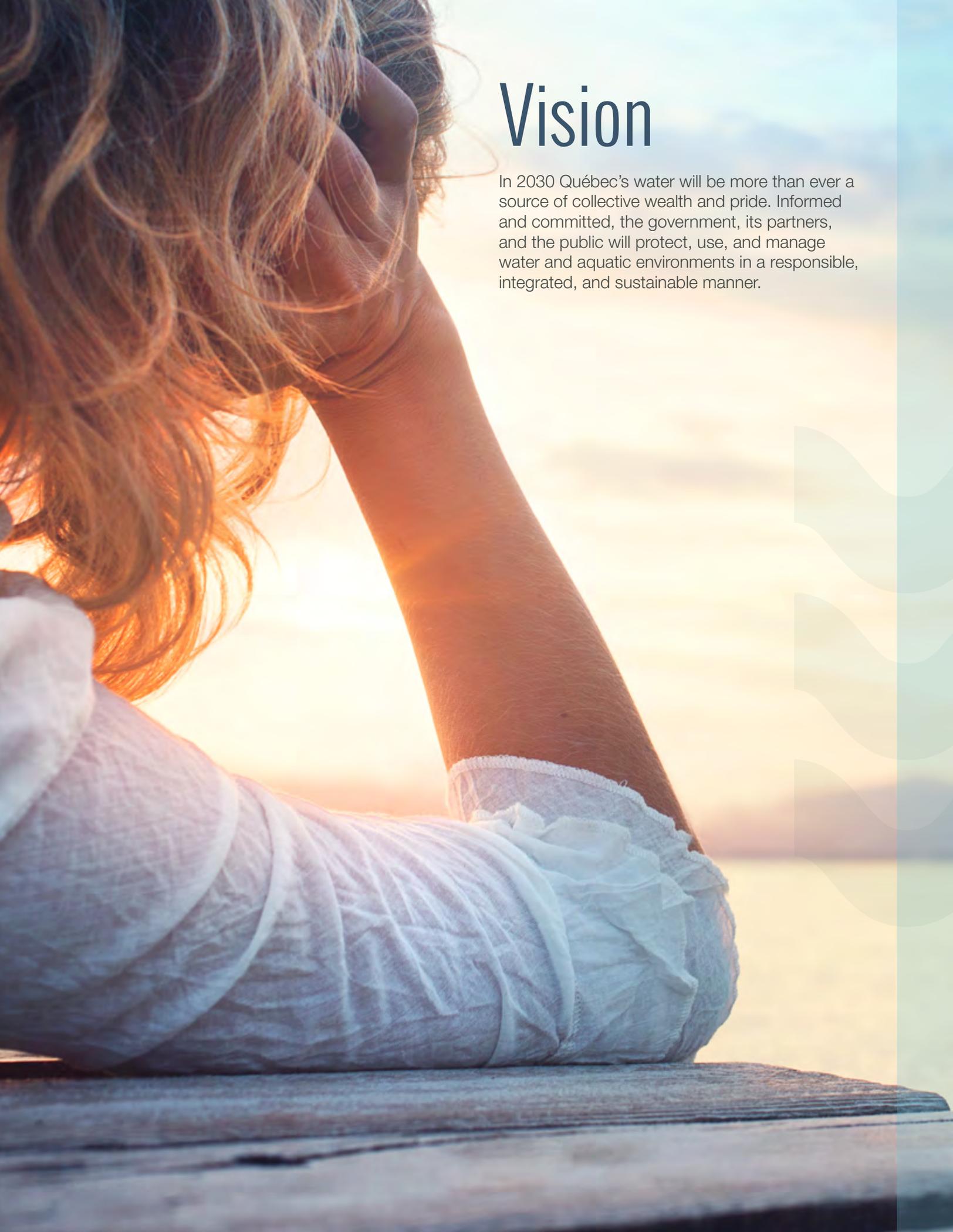
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Vision

In 2030 Québec's water will be more than ever a source of collective wealth and pride. Informed and committed, the government, its partners, and the public will protect, use, and manage water and aquatic environments in a responsible, integrated, and sustainable manner.

At the source

Water nourishes Québec's cultural and collective imagination by virtue of its abundance. Some 3.6 million freshwater bodies of water, tens of thousands of rivers and streams, and the St. Lawrence River cover an area representing 22% of Québec's immense territory of 1,667,712 km², from the Ottawa River to the Îles de la Madeleine, to the Inuit village of Ivujivik in Nunavik.

Great strides have been made in water governance since the Québec Water Policy was published in 2002. The legal framework has been strengthened, first in 2006 with the amendment to the Québec Charter of Human Rights and Freedoms affirming the right of every individual to live in a healthy environment that respects biodiversity, then more specifically in 2009 with the adoption of the *Act to affirm the collective nature of water resources and to promote better governance of water and associated environments* (commonly known as the *Water Act*), and in 2017 with the *Act respecting the conservation of wetlands and bodies of water*.

The *Water Act* reaffirms water's legal status as part of our collective heritage and sets out the government's responsibilities as custodian of the interests of the nation in water resources. The *Water Act* also establishes a new authorization regime for water withdrawals. It recognizes the necessity of meeting the basic needs of the population first and subsequently reconciling the needs of ecosystems and economic activities.

The *Act respecting the conservation of wetlands and bodies of water* provides for the conservation, restoration, and creation of new wetlands to offset unavoidable losses of wetlands and bodies of water. It also supplements the environmental authorization regime Québec adopted the same year when it amended the *Environment Quality Act*. In an effort to curb the loss of wetlands and bodies of water in Québec and make net gains in this area, the legislation emphasizes the principle of "no net loss."

***“ Our future, and that
of all living things on this Earth,
is dependent on our ability
to better manage
our water resources. ”***

HUBERT REEVES

Integrated water resources management

At the local and regional levels, Québec implemented the integrated water resources management process for the watersheds of southern Québec through watershed organizations (organismes de bassins versants, or OBVs) and for the St. Lawrence River through regional round tables (tables de concertation régionales, or TCRs). At this level, integrated management relies on voluntary participation and cooperation by water users to reconcile diverse interests and concerns about water resources and aquatic ecosystems in impacted regions.

New challenges ahead

As a result of these efforts, water quality has improved over time. However, new issues are emerging. We can no longer ignore the environmental accumulation of new contaminants such as pharmaceuticals and plastics. International trade facilitates the spread of invasive alien species. The effects of climate change are evident and impact all of Québec, from north to south.

The 2014 Rapport sur l'état de l'eau et des écosystèmes aquatiques (Report on the State of Water and Aquatic Ecosystems) significantly contributed to efforts to update government guidelines for integrated water resources management. By having a better understanding of the water situation in Québec, the government can more effectively and efficiently guide collective decisions on managing this resource.

It is in this context that the 2018–2030 Québec Water Strategy picks up where the Québec Water Policy left off. The strategy is the result of extensive strategic thinking by government that takes all these experiences into account. It is also based on an extensive round of consultations with 140 water organizations across Québec and the comments expressed by some 300 citizens during an online public consultation. It therefore sets forth a unifying vision for 2030, as well as the main priorities that will make it possible to manage Québec's water resources in an integrated, sustainable, and equitable manner. The strategy will be implemented via three successive action plans. The combined measures in the 2018–2023 Action Plan represent investments of more than \$552 million.

Pillars of the Québec Water Strategy

SUSTAINABLE DEVELOPMENT ACT

The Québec Water Strategy takes into account the 16 sustainability principles that Québec adopted with the *Sustainable Development Act*. All of these principles relate directly or indirectly to the strategy. Key principles include health and quality of life, prevention, biodiversity preservation, environmental protection, respect for ecosystem support capacity, participation and commitment, economic efficiency, access to knowledge, intergovernmental partnership and cooperation, and responsible production and consumption. The strategy tries to strike a balance between the social, environmental, and economic factors underlying these principles.

WATER ACT

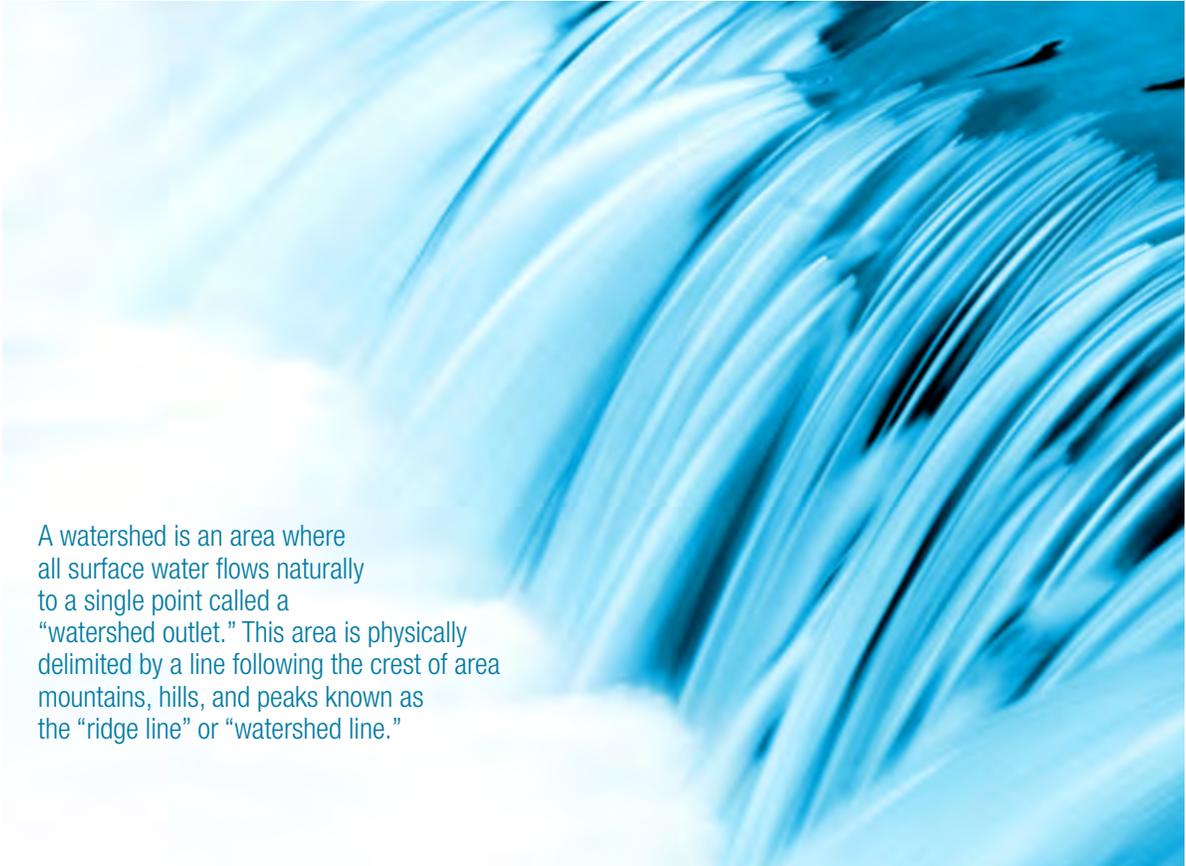
The Strategy builds on the principles of the 2009 *Water Act*. In particular, it incorporates three of the fundamental principles of this piece of legislation, namely the collective nature of water resources, integrated water management at the watershed level, and the reconciliation of water uses.

The collective nature of water resources

Water is a vital resource that is part of Québec's common heritage, and it must be preserved and better managed to meet the needs of present and future generations. The State is custodian of the interests of the nation in water resources.

Integrated watershed management

The integrated management of water resources and the environments associated with them must be promoted according to the support capacity of these environments and their watersheds. This is the water management method Québec has chosen.



A watershed is an area where all surface water flows naturally to a single point called a “watershed outlet.” This area is physically delimited by a line following the crest of area mountains, hills, and peaks known as the “ridge line” or “watershed line.”



Reconciling water uses

Everyone should have access to water of sufficient quality and quantity to meet their basic needs. This is also a key principle of the *Environment Quality Act*. Population needs in terms of health, sanitation, civil security, and drinking water supply must be prioritized and reconciled with other needs such as ecosystem protection, agriculture, the pursuit of traditional Indigenous activities, energy production, and industry and tourism.

CONDITIONS FOR SUCCESS

Successful implementation of the Québec Water Strategy depends in part on the commitment and cooperation of partners and the public, on sustainable land use and development, and on adaptation to the impacts of climate change.

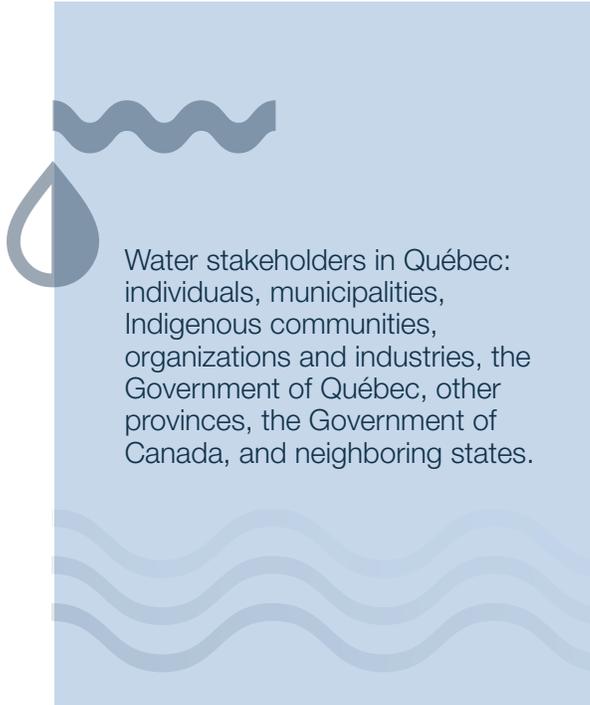
Commitment and cooperation

We must all be committed to protecting water. Every action—even the most basic—taken to protect and conserve drinking water or to promote best practices can make a real difference and contribute to the preservation of this precious resource, hence the importance of water governance that directly engages individuals and local decision-making bodies.

In Québec, coordination of integrated water resources management is the responsibility of Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC). Integrated water resources management, in particular through watershed organizations and regional round tables, encourages the participation and cooperation of all water stakeholders. It also brings local and regional issues to light. Indigenous communities are key players in integrated management because of the cultural and identity dimensions of their

relationship with the land and its resources and the knowledge that flows from them. They are invited to play a role in water governance and join with consultation and consultative organizations to share their experiences and knowledge and express their needs.

The commitment and cooperation of other ministries in water management is also essential, particularly for information sharing and coordination of effort. Similarly, the government must act in conjunction with Canadian and international water management organizations. It must also continue sharing expertise with countries and jurisdictions committed to improving water management. There are regular opportunities for exchange with the federal government, as well as with the neighboring provinces and states with which Québec shares rivers and lakes. This cooperation can result in special agreements. Finally, in the spirit of Québec's International Policy, the government must take an interest in the multilateral forums dealing with these issues, particularly at the sub-state level.



Water stakeholders in Québec: individuals, municipalities, Indigenous communities, organizations and industries, the Government of Québec, other provinces, the Government of Canada, and neighboring states.

Sustainable land use planning

Sustainable land use planning is fundamental to water management in order to maintain water quantity and quality, promote access to water bodies and watercourses, and minimize water-related risks to communities. Municipalities play a critical role in this by preventing conflicts of use through a land use approach and guidelines that better integrate water management considerations.

Southern Québec is characterized by population density and a concentration of different industrial, agricultural, and recreational activities. But water quality and access issues can limit its potential. Conversely, human activity sometimes causes the loss and degradation of wetlands and aquatic habitats, leading to the decline of a number of species. All these factors, not to mention climate change, demonstrate the importance of sustainable land use planning.



Photo: Enviro Foto

Adapting to climate change

Climate change is a major challenge for the 21st century. It has and will continue to have serious repercussions for Québec's water resources. In southern Québec, for example, changes in precipitation influence the timing and intensity of flooding. Also, low water periods (the lowest average annual level of a watercourse) tend to be longer and more pronounced. In northern Québec, precipitation and surface and groundwater flow are disturbed, affecting permafrost integrity, infrastructure, and natural environments. Finally, coastal communities in the Estuary and Gulf of St. Lawrence are more vulnerable to erosion and flooding as storms intensify, ice cover decreases, and sea levels rise.



The Government has invested over \$125 million in the 2013–2020 Climate Change Action Plan to develop knowledge and expertise on the impacts of climate change on water resources and on the prevention and management of water-related natural hazards. It has also established a civil security risk management approach that sets out the key conditions and measures that communities and organizations must implement to better protect people, property, and the environment from disasters. Water issues in the context of climate change will become increasingly important in the future. That is why the government will continue its efforts and investments, including support for the development and implementation of adaptation solutions, as part of the fight against climate change in Québec for the post-2020 period.

Climate change impacts will intensify. Inaction is not an option, as it will end up costing much more. Moreover, natural disasters can have serious consequences for public safety if land use planning and infrastructure do not take climate change into account. Extreme weather events in Québec in recent years, such as the 2017 floods, have had a significant impact on communities and demonstrate the need to adapt to climate change. Every dollar invested in prevention and adaptation is well spent if it helps us avoid property damage, social and psychological impacts, and the costs involved.



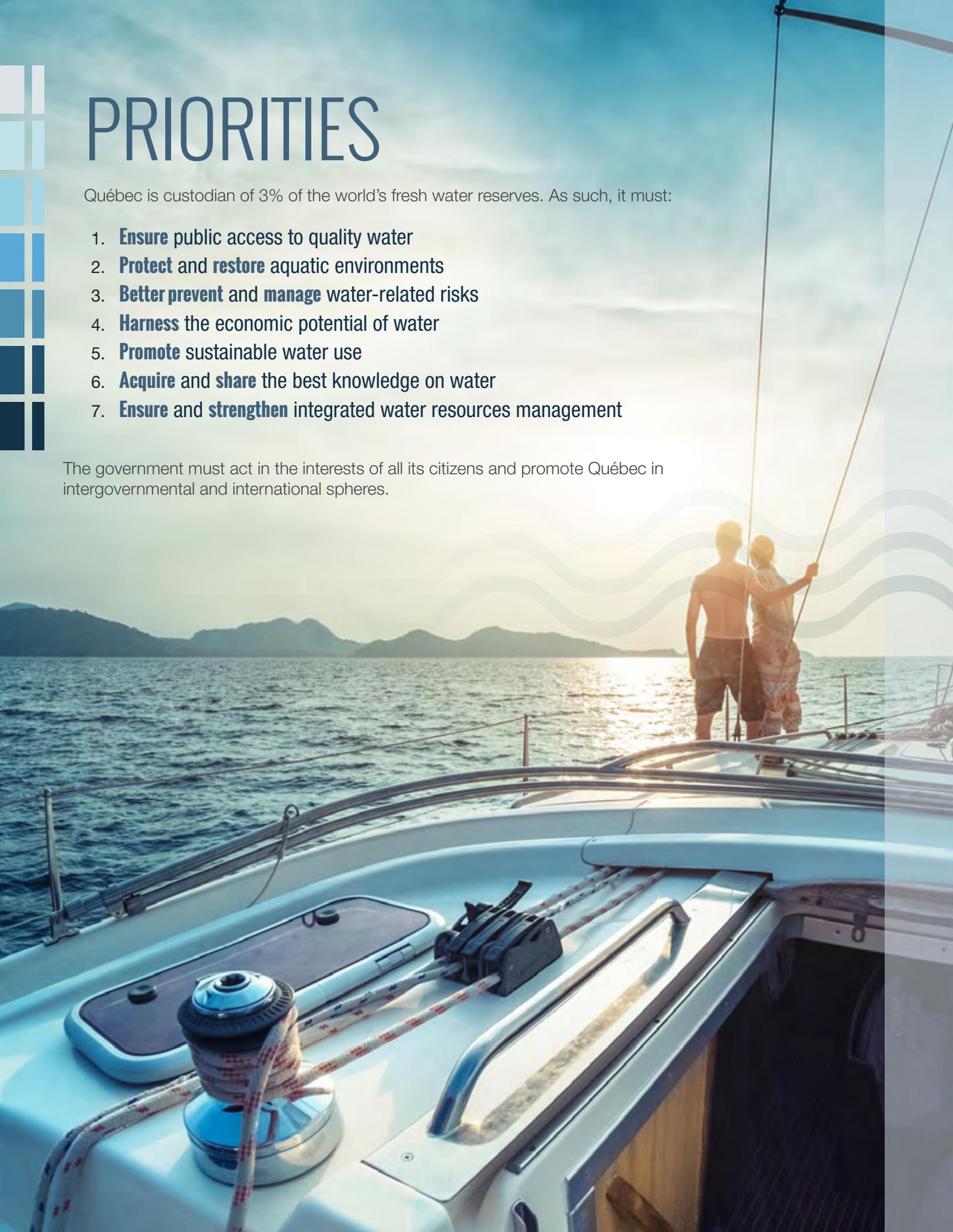
A 2017 report from the U.S. National Institute of Building Sciences shows that every dollar invested in prevention saves \$6 in damage from disasters. The Government of Québec recognizes the benefits of this approach and intends to share it with the communities most vulnerable to disasters.

PRIORITIES

Québec is custodian of 3% of the world's fresh water reserves. As such, it must:

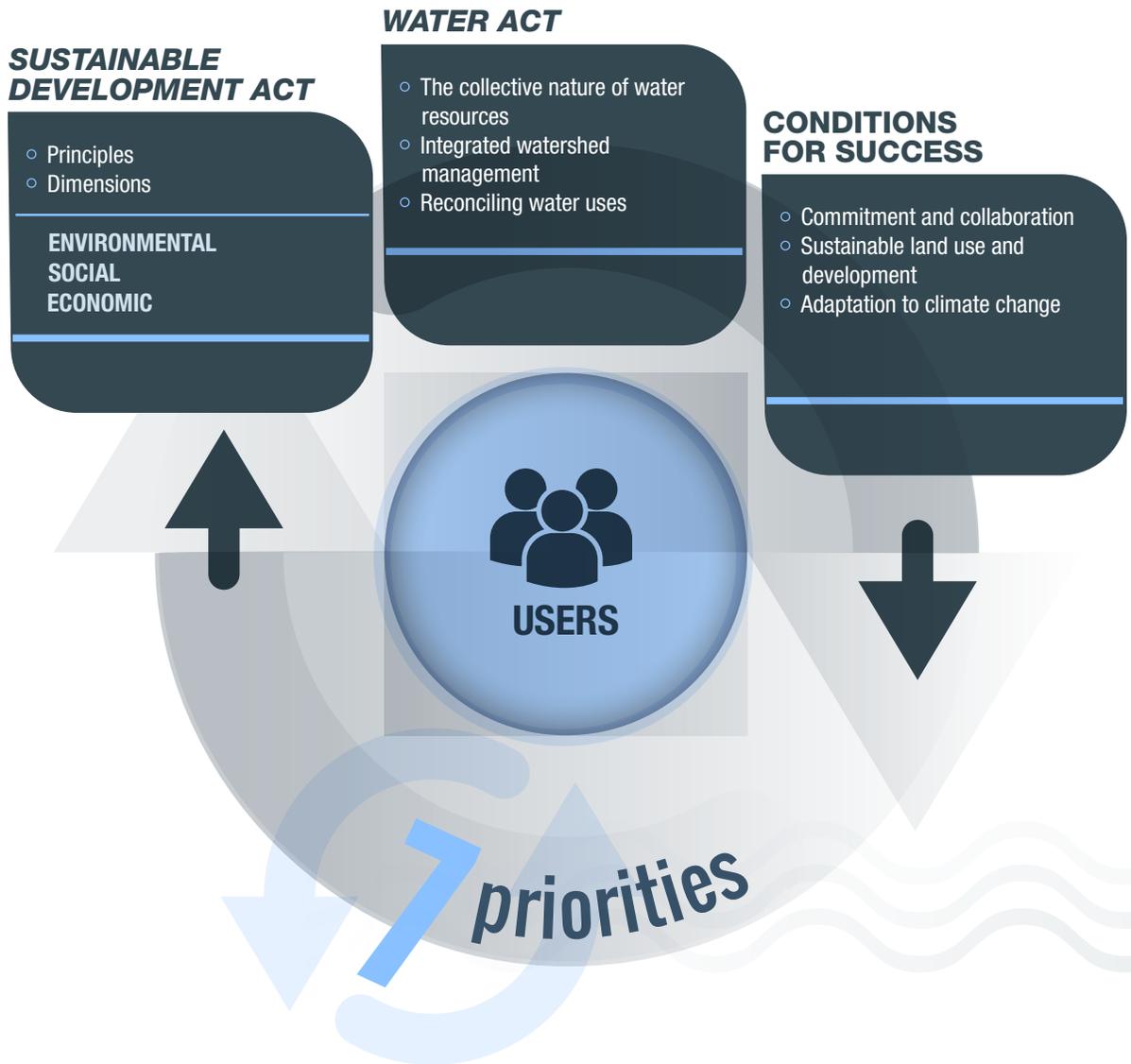
1. **Ensure** public access to quality water
2. **Protect and restore** aquatic environments
3. **Better prevent and manage** water-related risks
4. **Harness** the economic potential of water
5. **Promote** sustainable water use
6. **Acquire and share** the best knowledge on water
7. **Ensure and strengthen** integrated water resources management

The government must act in the interests of all its citizens and promote Québec in intergovernmental and international spheres.





Drawing on the principles and provisions of the *Sustainable Development Act*, the founding principles of the *Water Act*, and the three conditions for success, the Water Strategy sets forth seven principles that will enable the government to assume its water custodian role and mobilize relevant stakeholders.

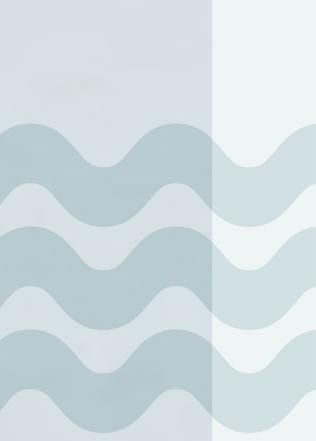


PRIORITY 1

Ensure public access to quality water

Drinking water in Québec is generally of very good quality but remains vulnerable to pollution and issues related to climate change. Water is subject to protective measures to ensure quality before it can be used. After use, it must be adequately treated before being released into the environment. Efforts to improve wastewater treatment and drinking water protection, production, and distribution are and must remain top priorities to ensure the health of the population and protect aquatic environments.





Objectives

Protect community drinking water sources.

Ensure access to water of sufficient quality and quantity.

Continue to upgrade infrastructure and foster best practices across Québec.

Promote the transition toward environmental sustainability and responsibility within agriculture.

TARGETS

By 2030, all municipalities in southern Québec will have access to quality drinking water that meets the highest standards.

By 2030, over 90% of municipalities will meet wastewater treatment standards.

In Québec, nearly 70% of the population, or 5.7 million people, get their drinking water from surface water (rivers, lakes, or streams). The St. Lawrence River, for example, is the water source for 2.5 million people. Groundwater, for its part, is the source of drinking water for more than two million Quebecers. It is therefore essential to ensure that water sources are properly managed to ensure their protection and long-term sustainability.

It is in this context that the *Water Withdrawal and Protection Regulation (WWPR)* was adopted in 2014. To ensure the protection of drinking water sources, the regulation includes a set of some of the most stringent, scientifically-based provisions to regulate various activities, including oil and gas exploration and development. For example, the minimum horizontal separation distance from a drilling site to any source of drinking water is 500 m and may be increased depending on specific local characteristics. The government also intends to ensure that all oil and gas activities are regulated according to the strictest North America standards in order to protect public health and safety.

The regulation provides a framework for municipalities to conduct vulnerability analyses of their drinking water supplies. These analyses will serve as a basis for drawing up protection and emergency plans and amending municipal by-laws and development plans, as needed. Having water sources that are of the best possible quality drives treatment costs down and protects public health. To help municipalities meet their obligations in this regard, the government will provide technical and financial support to help municipalities conduct vulnerability analyses of their drinking water sources, especially through a program to enhance drinking water source protection. A specific component of this program will be designed to compensate agricultural producers for potential lost income resulting from measures to protect municipal drinking water sources.

Drinking water and small communities

The popular misconception is that water is so abundant that everyone in Québec has ready access to quality water. Unfortunately, some 100 small communities, some of which have more fragile economies, experience frequent or occasional difficulties in securing access to water or in making their water drinkable. This compromises residents' quality of life and puts a strain on the communities' economic growth. It is vital to find solutions (technical or otherwise) that are economically suited to the realities of all communities, including those in the North. The government will identify alternatives to ensure an adequate supply of drinking water, particularly for communities with small distribution systems and inadequate water quality for which conventional solutions are not feasible.



Most villages in Nunavik have drinking water production plants, but permafrost limits the construction of distribution systems. Water is trucked to homes, where it is stored in tanks. The Regulation respecting the quality of drinking water contains specific provisions for monitoring water quality in these communities and carrying out infrastructure projects. The government also supports the purchase of equipment. Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC) works with the Kativik Regional Government to monitor compliance with regulatory requirements in the 14 northern villages. In addition, the Kativik Environmental Advisory Committee, an organization composed of members appointed by the Kativik Regional Government, the Government of Québec, and the Government of Canada, works to help communities maintain the quality of drinking water stored in residential tanks in Nunavik.

Drinking water and individual wells

About one million people rely on individual wells for their drinking water. Like all water intended for human consumption, well water must be of good quality and meet the standards set out in the *Regulation respecting the quality of drinking water*. Well owners must therefore be educated about the importance of maintaining the quality of the water they consume and informed of any issues specific to their region and the necessary precautions they must take. Although there is no regulatory requirement to test water from individual wells, homeowners must ensure that they provide good quality drinking water to their families and visitors. The government will raise public awareness of the importance of testing well water.

Upgrading infrastructure and fostering best practices

Surface water provided by municipalities must be treated before being made available to the public for consumption. Some facilities will require additional treatment equipment in the coming years, while others will require remedial work. Since 2001, municipalities have had to make the required investments themselves. The Government of Québec, through its Québec Infrastructure Plan, offers financial assistance programs to maintain basic municipal services for residents, improve the quality of life in communities, and protect the environment.

In addition to efficient and compliant treatment facilities, it is important to ensure that distribution systems are properly designed and operated. Treatment facilities also need qualified operators to function properly. The vast majority of Indigenous communities in southern Québec have a drinking water distribution system. Although these communities are not subject to the *Regulation respecting the quality of drinking water*, the Government of Québec works with them and Health Canada to promote the exchange of information and provide technical support and training to water system operators in these communities.

The design and repair of drinking water distribution systems must also be properly supervised and take into account technological advances in order to make them easier to operate and extend their lifespan. The government will examine the best solutions to improve treatment facility design and operation.



Québec has stringent drinking water requirements in place to reduce the risk of contamination, which can be harmful to human health (e.g., cause gastroenteritis). Millions of drinking water test results show that the water distributed in the province is generally of superior quality. However, samples sometimes exceed prescribed standards. When a quality standard is exceeded, water system managers are duty-bound to respond quickly, take measures to protect the health of the people they serve (e.g., by issuing a boil water advisory), and remedy the situation.

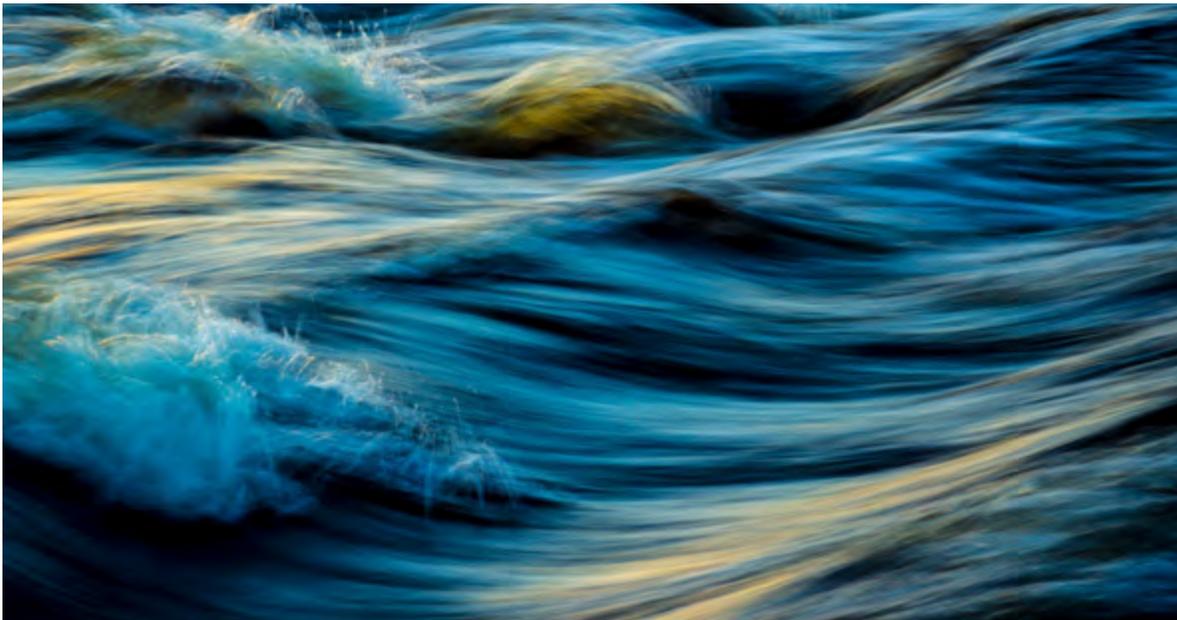
Protecting water against pollution

It is essential that water be managed properly to protect public health, preserve watercourses, and protect the environment. Over the past few decades, Québec has made significant efforts to respond to situations involving the poor quality of water discharged into the environment, such as lake eutrophication, blue-green algae blooms, the decline of certain wildlife and plant species, the loss of wetlands and water bodies, the presence of pesticides and contaminants, shoreline and agricultural soil erosion, and conflicts of use. Despite these efforts, preserving water, aquatic ecosystems, and biodiversity remains an ongoing challenge. The government will exercise greater control over the discharge of untreated water to reduce its impact on the environment.

Continued efforts to clean up municipal wastewater

Domestic wastewater is water from toilets and gray water (kitchen, bathroom, laundry, etc.). In community and municipal sewage systems, it may be combined with industrial waste. Direct contact with or ingestion of contaminated water can be harmful to human health. Reduction of domestic wastewater contaminants at the source is therefore one way to improve water quality.

The majority of municipalities have systems in place to treat water before it is discharged into the environment. Major wastewater treatment programs implemented since the 1980s have led to the construction of some 900 treatment plants and a significant improvement in water quality over this period. However, some 100 small municipalities do not have treatment plants or do only basic treatment before discharging minimally treated wastewater into the environment. Although these municipalities represent less than 1% of Québec's population, the Regulation respecting municipal wastewater treatment facilities, adopted in December 2013, will help remedy these situations.



However, efforts must continue for homes and cottages equipped with individual wastewater treatment systems that may affect the quality of groundwater or surface water. Wastewater from isolated dwellings can also pose significant risks to human health and the environment if not properly treated. To prevent these risks, the Regulation respecting waste water disposal systems for isolated dwellings governs the design, construction, and operation of treatment systems for isolated residences. The government will develop tools to support this regulatory framework.

Wastewater overflow management

A number of wastewater overflows occur every year, generally due to rain or snowmelt. Some are caused by upgrade, repair, or maintenance work on municipal wastewater infrastructure. For this reason, the *Regulation respecting municipal wastewater treatment works* aims to improve the quality of water discharged by municipalities and control wastewater overflows. Given the scope of the work required to meet the objectives and the new discharge and overflow standards, and to stay within budget, the regulation lays the groundwork for efforts in the area of municipal wastewater management for the next 30 years. Depending on the level of risk identified, wastewater treatment plants that do not currently meet the performance standards will have until 2040 to do so. Consequently, all municipal facilities should meet wastewater treatment standards by 2040.

Investments will still be needed to reduce municipal pollution. Proper rainwater management will also help with better overflow control, particularly in the context of climate change. Efforts to reduce wastewater pollution will generate a number of environmental, societal, and economic benefits. With a view to continuous improvement in water resources management, the government will develop tools to guide the municipal sector in adopting practices conducive to stormwater management and wastewater overflow control.

A greener agricultural sector

Québec farmlands are vital to community development. However, farming activity is not without risk for water. Monitoring water quality and improving knowledge and practices will reduce adverse environmental effects.

Since the early 1980s, financial support programs and new regulations have fostered progress and helped mitigate the impacts of the agricultural sector on water and aquatic environments. Conscious of its footprint, the agricultural community has begun to adopt an agri-environmental approach based on sustainable development. These efforts must continue because many watersheds have been degraded, particularly in areas where farming is concentrated. Nonpoint and point source pollution of watercourses and groundwater by fertilizers (e.g. phosphorus and nitrogen) and pesticides is still a concern. Efforts will be made to promote cooperation between agri-environmental experts and stakeholders to ensure that water quality is sufficient to protect aquatic ecosystems while preserving its multiple uses.

The use of high-risk pesticides in farming remains an issue in certain regions where they are detected in watercourses year after year. The Québec Pesticide Strategy sets out new requirements to encourage farmers to work with agronomists and limit the use of these pesticides. The government will finalize the measures proposed in the strategy, including modernizing the *Pesticides Act*, increasing the number of active ingredients banned in urban areas, and curbing the use of high-risk pesticides at the golf courses that use them most. The use of economic instruments is one of the avenues to be explored for financing measures that would promote the reduction of high-risk pesticides and the acquisition of knowledge, such as funding for programs to monitor pesticides in surface and ground waters. The government intends to follow up the Québec Pesticide Strategy with subsequent strategies to further reduce pesticide use. Targets for the next strategy will be established based on results from the 2011–2021 Québec Agricultural Phytosanitary Strategy, the 2015–2018 Québec Pesticide

Strategy, and the monitoring of pesticides in water. Expansion of the list of pesticides covered by the current regulations will also be considered. Between now and 2030, health and environmental risk indicators and monitoring of pesticides in surface water will be used to assess government efforts to reduce pesticides by measuring significant reductions in risk indices and in the presence of initially targeted pesticides (e.g., atrazine, chlorpyrifos, and neonicotinoids) in watercourses.

The impacts of climate change are increasingly obvious in agriculture. For example, new crop pests have emerged, which tends to encourage greater use of pesticides. Climate change can affect water levels and increase dry periods and the duration of low-water periods, limiting the quantity and quality of water available for crop irrigation. Conversely, periods of higher precipitation can occur and affect crop yields. Farmland must therefore be managed in a sustainable manner to promote adaptation to climate change and integrated watershed management. The government intends to strengthen measures fostering climate change resilience in the agricultural sector, in particular by taking pesticides and their effects into account in projects related to watersheds and by implementing solutions to reduce soil erosion and strengthen riparian strips.

More environmentally responsible industrial sectors

Industrial pollution in watercourses has decreased considerably since the 1970s. These gains are mainly attributable to tighter regulations in certain industrial sectors, reclamation of abandoned mining sites, and implementation of the Programme d'assainissement des eaux du Québec (Québec Clean Water Program), the Programme de réduction des rejets industriels (Industrial Discharge Reduction Program), and the St. Lawrence Action Plan.

Gains will be made in this area as new knowledge emerges and clean technologies are developed. More and more consumers and shareholders are concerned about the environmental footprint of the industries they deal with. Companies that invest in water management and sound waste management can gain an edge by differentiating themselves in an economy where the future depends on environmental sustainability.

The regulation of practices in key industrial sectors must better address new environmental problems such as adaptation to climate change. The government will therefore continue to evaluate best practices to be implemented to promote better water management in the industrial sector.

Adopting an approach adapted to degraded watersheds

Over the years, surface water quality appears to have deteriorated as a result of industrialization, urbanization, intensification of agricultural activities, cottaging, and the absence or inadequacy of certain wastewater treatment systems. Major strides have been made in the agricultural, industrial, and municipal sectors, but water quality remains an issue in some watersheds.

Municipalities located in the watersheds of rivers whose phosphorus carrying capacity has been exceeded are designated in the *Agricultural Operations Regulation*. Special measures limiting phosphorus losses apply to farms in these municipalities. For the aquaculture sector, specific environmental requirements have been developed based on the receiving environments, including watersheds with a phosphorus surplus. These municipalities must also comply with the government's new discharge requirements. The affected watersheds are given special attention, in particular to control phosphorus inputs from various sectors of activity and sustain progress.

The industrial sector is also required to reduce phosphorus discharges according to the capacity of the receiving environment. For example, the Industrial Discharge Reduction Program aims to gradually reduce the discharge of contaminants—phosphorus in particular—by big industry.

Since there are multiple sources of phosphorus, the multisectoral approach must be strengthened in order to identify the actions that will have the greatest impact in degraded watersheds and make further environmental gains. Other jurisdictions, particularly in North America and Europe, have adopted similar approaches that have paid off in areas targeted for special intervention. In keeping with this approach, the government will ensure that planning tools and recognized best practices are better integrated and adapted to the regions concerned.



Photo: Enviro Foto





Our actions matter more than we think.

Together, we can conserve water through small everyday gestures:

- Collecting rainwater to water the flowers
- Turning off the tap when we brush our teeth
- Filling the dishwasher completely before running it
- Choosing low-flow toilets to reduce the amount of water we use

We can limit water contamination by making wise choices:

- Choosing products without plastic microbeads
- Using green cleaning products
- Returning expired or unused medications to the pharmacy
- Disposing of household hazardous waste (oils, paints, etc.) at ecocenters.
- Opting for organic garden fertilizers
- Reducing the use and disposal of single-use plastics (bags, straws, bottles, etc.)

Remember: Everything we pour down the drain or flush down the toilet goes directly into wastewater that must be treated.



PRIORITY 2

Protect and restore aquatic environments



Aquatic environments — which include wetland, water, and marine environments — provide valuable services to Quebecers. They also support economic and traditional Indigenous activities such as fishing, aquaculture, and recreational tourism. They contribute to the quality of living environments by maintaining biodiversity and health through water quality, and safety through flood control. Aquatic environments thus fulfill valuable ecological functions. It always costs more to restore or compensate for the loss of aquatic environments and their functions than it does to protect them. It is important to look beyond the short term: The protection of aquatic environments is both a necessity and a long-term investment for Québec.



Objectives

Conserve and **restore** aquatic environments.

Protect species at risk.

Expand the network of aquatic protected areas.

Promote the control of invasive alien species.

TARGET **By 2030**, there will have been no net loss of wetlands and water bodies in Québec since the adoption of the *Act respecting the conservation of wetlands and bodies of water* in 2017.

Aquatic environments make a valuable contribution to everyone's well-being because of the ecological services they provide. These services, which may sometimes seem intangible, are the chemical, physical, and biological functions and activities that take place in these ecosystems and that are of benefit to humans. For example, wetlands such as peatlands sequester greenhouse gases (GHGs) over the long term, marshlands limit the risk of flooding, bogs filter water, and lakes and rivers are used for recreation and traditional Indigenous activities. Aquatic environments also support an important part of Québec's economy. In return, economic development projects must be designed to limit their impact on natural environments and help maintain ecological services and biodiversity. Protecting all types of aquatic environments will help preserve the functions essential to biodiversity and our collective well-being.



Biodiversity, a contraction of “biological diversity,” refers to all living beings (all species, from the microscopic to the very large) that live and evolve in a particular environment. In its broadest sense, biodiversity is synonymous with “life on Earth.”

An ecosystem includes living things and the natural environment in which they live, as well as the interactions they have with each other and with the environment. An ecosystem contains living things such as animals, plants, and organisms as well as non-living things. Lakes, peatlands, and forests are examples of ecosystems.



Conserving Québec's wetlands and water bodies

Urban sprawl and human activity have altered, fragmented, and destroyed numerous aquatic ecosystems and caused the decline of many species. In addition, anthropogenic pressure (caused by human activity) from various sources, such as the establishment and spread of invasive alien species, the proliferation of cyanobacteria, and the eutrophication of lakes, throws ecosystems out of balance, and fosters phenomena that harm the quality and integrity of aquatic environments. Wetlands and water bodies cover much of northern Québec. The quality of these environments remains a major concern because of the many health and other benefits they bring to communities.

Certain little-known problems are emerging and will require action. For example, the accumulation of plastic in Québec's ecosystems is a problem of increasing magnitude whose impacts must be assessed. There are many challenges ahead, particularly in southern Québec, home to more than 80% of Québec's population.

The government is committed to developing more tools to establish and meet ambitious water resource protection objectives and to more easily reconcile different forms of land use with the protection of aquatic environments. For example, the Sustainable Forest Management Strategy published in 2015 includes clear objectives for protecting and enhancing aquatic resources in forest environments. The *Regulation respecting standards of forest management for forests in the domain of the State*, in force since

2018, addresses these objectives by introducing provisions for the protection of wetlands and riparian areas. Another noteworthy advance was the adoption in 2017 of the *Act respecting the conservation of wetlands and bodies of water*, which recognizes the essential functions of wetlands and is a decisive step toward their protection and restoration. The law sets a no-net-loss objective for these environments. Thus, their destruction is now limited to exceptional cases and unavoidable losses are offset by restoration or by the creation of an equivalent environment. The law also reasserts the pivotal role that municipalities can play in conserving biodiversity within their boundaries. The Act makes regional county municipalities (RCMs) responsible for implementing regional wetland and water body plans to better take into account issues related to these environments at the regional level. It also delegates management of restoration programs offsetting unavoidable wetland and water body losses to RCMs that so wish. The government will provide financial support and guidance to RCMs so that they can implement their plans by 2022.



Photo: Jean Lemire

The Québec government is also very active with respect to protected areas. It has made a clear commitment to Québec, Canada, and the world: to protect 17% of Québec (terrestrial and aquatic environments) by 2020. This network of protected areas, which continues to grow, will ensure the protection of several major rivers and their watersheds as well as a multitude of other aquatic environments across Québec.

Conserving the marine environment

Québec's marine environment is exceptionally rich from a biological standpoint. Furthermore, the Estuary and Gulf of St. Lawrence are of particular economic, social, and cultural importance to coastal communities. This is especially true for Indigenous communities that fish and hunt (activities intrinsically linked to aquatic environments) to feed themselves and their families.

However, like wetlands and water bodies, the ecological health of the St. Lawrence is under intense pressure that needs to be reduced. Water quality at lower depths is deteriorating, causing acidification and oxygen depletion and reducing some species' ability to reproduce and live there. In the context of climate change, this pressure will increase, testing the resilience of marine life.

In its Maritime Strategy, Québec committed to protecting at least 10% of its marine environment (St. Lawrence Estuary, Gulf of St. Lawrence, and northern coastal waters) by establishing a network of marine protected areas by 2020. In 2018 Québec signed a cooperation agreement with the Government of Canada to establish this network. These multifaceted initiatives contribute to the achievement of Québec's objectives and stem from international commitments in the area of biological diversity.



The Strategic Plan for Biological Diversity 2011–2020 comprises the global Aichi Biodiversity Targets, which were adopted by numerous countries under the Convention on Biological Diversity in 2010. Aichi Target 11 specifies that, by 2020, at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas are conserved through effectively and equitably managed, ecologically representative, and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape. Québec is committed to the principles and objectives of this convention and is working to achieve the Aichi Targets.

Protecting threatened and vulnerable species

Québec's aquatic environments are rich in biodiversity, but a number of species are threatened or vulnerable. These species (also known as at-risk species) are more sensitive and vulnerable to the disappearance or disruption of their environment. Urbanization and the exploitation of natural environments cause habitat loss and fragmentation and threaten these fragile populations. These threats are likely to be exacerbated by climate change, which is already altering environmental conditions. Preserving the biodiversity of aquatic environments is essential and will be based on measures designed to protect species and, more particularly, their habitats.

In Québec, the conservation of threatened and vulnerable species is regulated by legal protections based on their status, but also by the designation of certain protected habitats (e.g., protection of certain wildlife habitats under the *Act respecting the conservation and development of wildlife*). Some species benefit from recovery plans containing measures to restore target populations to the greatest extent possible. For aquatic wildlife, habitats (e.g., fish habitats) can be designated, which allows the government to impose certain conditions before authorizing projects in these environments. For example, habitat damage may need to be offset by environmental restoration. Other means of protection exist to ensure the conservation of sensitive habitats and populations, such as the designation of "wildlife sites of interest." The government and its partners will continue to develop and implement protective measures, particularly those established under the administrative agreement for the protection of threatened or vulnerable wildlife and plant species and other elements of biodiversity in Québec forests.

Invasive alien species

The introduction and spread of invasive alien species threatens the integrity of Québec's aquatic and riparian environments and the uses associated with them due to negative impacts on the environment, the economy, and society. While it is essential to restore or maintain natural links between aquatic and riparian environments, it is equally important to protect our waters from the arrival of certain invasive alien species such as the Asian carp, water chestnut, and common reed. Prevention, control, and eradication of these species requires early detection, knowledge acquisition, and cooperation among stakeholders. New technologies such as mobile apps will continue being used to allow citizens to play an active role in prevention (participatory science), to identify undesirable species, to issue alerts when they are identified, and to document their presence.

Asian carp are fish originating from the great rivers of Asia. Unfortunately, certain characteristics of the St. Lawrence River make it vulnerable to the establishment of this invasive species. Québec has been preparing for the carp's arrival since 2016 through the various phases of the Québec Program to Fight Asian Carp. Asian carp generally grow quickly and have a voracious appetite and feeding habits that can severely damage and disturb aquatic ecosystems and degrade water quality. Their presence in the St. Lawrence River could have a significant impact on tourism, recreational boating, waterfront property values, safety, and public health. Therefore, live Asian carp should not be purchased, stocked, or kept in captivity. It is illegal to possess live Asian carp or use them as bait.



An aerial photograph of a river winding through a landscape. On the right bank, there is a golf course with several green fairways and a clubhouse. The left bank is densely wooded. The sky is clear and blue. On the far left, there is a vertical decorative element consisting of a grid of squares in various shades of blue and white. On the far right, there is a vertical decorative element consisting of wavy, horizontal lines in shades of blue and white.

PRIORITY 3

Better prevent and manage water-related risks

Like other societies around the world, Québec is already feeling the impacts of climate change on its water resources. Changes in the hydrologic regime due to climate change increase the risk of flooding, erosion, and surface water contamination from stormwater runoff (e.g., sewer overflows), pose a threat to public health and safety, and generate significant costs. These risks must therefore be prevented and managed. Lakes, rivers, and other waterways such as the St. Lawrence River also drive various industries and are critical to economic development. Climate change and the increased frequency and intensity of extreme weather events are likely to have a negative impact on these sectors.



Objectives

Integrate climate change more effectively into water-related risk management.

Improve tools for forecasting and preventing water-related risks.

Modernize dam management.

TARGET **By 2030**, all Québec municipalities will have identified their vulnerabilities and be prepared for water-related natural disasters.

Climate change is causing changes in the surface water flow regime, primarily from increasingly intense extreme weather events (torrential rains, severe thunderstorms, coastal storms), which increase the risk of flooding, shoreline erosion, and sewer overflows. Similarly, rising sea levels combined with changing storm patterns can increase coastal erosion problems in the Estuary and Gulf of St. Lawrence.

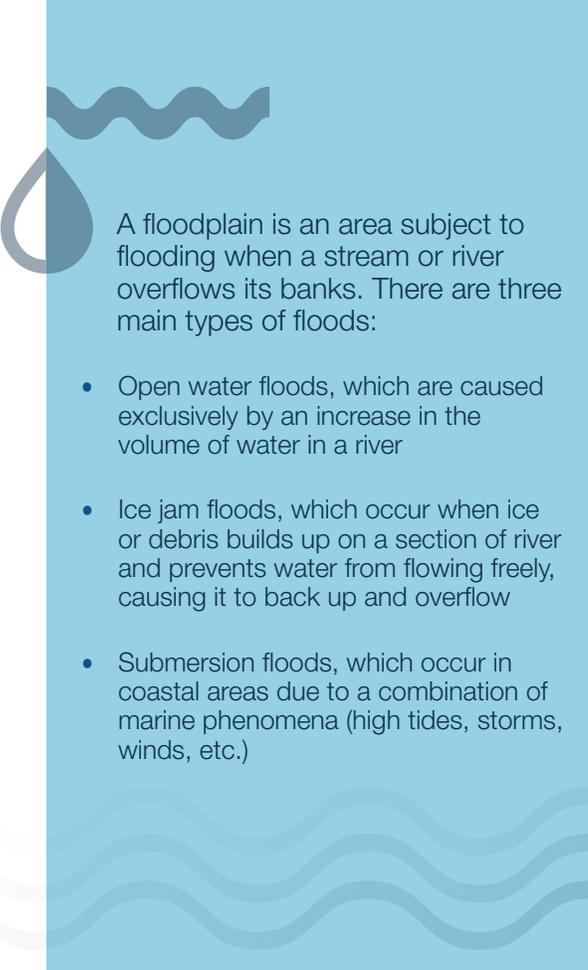
Water-related natural hazards

A large part of the population lives near the St. Lawrence River and other bodies of water. This means that many homes are built in high-risk (particularly flood-prone) areas. Climate change may increase the frequency and intensity of flood events, which require significant human, logistical, and economic resources and measures to restore order and provide support to victims. Municipalities are responsible for civil protection planning on their territory. Adopted in 2018, the *Règlement sur les procédures d'alerte et de mobilisation et les moyens de secours minimaux pour protéger la sécurité des personnes et des biens en cas de sinistre (Regulation respecting alert and mobilization procedures and minimum emergency measures to protect the safety of persons and property in the event of a disaster)* sets out certain municipal obligations and applicable procedures so that municipalities can deal with anticipated or actual emergencies. The Plan d'action en matière de sécurité civile relatif aux inondations (Flood Action Plan) issued by Ministère de la Sécurité publique also provides

for financial support to municipalities to improve disaster preparedness, including development of special flood response plans. Through these initiatives, the government will step up flood preparedness and prevention, develop a new approach to recovery management, and implement more advanced civil security practices.

Ice jams cause water to back up and can generate a strong flood wave downstream when they break apart. Ice jams are quite common in Québec and are relatively unpredictable because they don't form every year or in the same place and can also vary considerably in size. Since climate change will likely have an impact on ice flow formation, research will continue to better determine what the effects will be





A floodplain is an area subject to flooding when a stream or river overflows its banks. There are three main types of floods:

- Open water floods, which are caused exclusively by an increase in the volume of water in a river
- Ice jam floods, which occur when ice or debris builds up on a section of river and prevents water from flowing freely, causing it to back up and overflow
- Submersion floods, which occur in coastal areas due to a combination of marine phenomena (high tides, storms, winds, etc.)

Climate change also affects shorelines and coastlines. In eastern Québec, coastal municipalities and Indigenous communities are struggling with submersion and coastal erosion due in part to reduced winter ice cover and rising sea levels. In addition, most municipalities and provincial highways are located near the Estuary and Gulf of St. Lawrence. Yet the *Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains* is designed primarily for inland waterways; it must therefore be adapted to the coastal environment. Inland rivers are not immune to erosion. With increasing flows, many rivers pose flooding and erosion risks that are a threat to people, property, and infrastructure.

In northern Québec, infrastructure in permafrost zones and coastal areas is particularly vulnerable to the impacts of climate change. A number of projects have been carried out to date, notably under the 2013–2020 Climate Change Action Plan. These efforts aim to monitor permafrost conditions and risks to transportation infrastructure in these areas, as well as to track, analyze, and model changes in shore ice and wave conditions in Nunavik. We will continue to develop knowledge and know-how, particularly through projects related to the Plan Nord, in order to contribute to the sustainable development of the North.

Risk prevention through sustainable land use planning

Prevention is the best approach to minimizing flood-related impacts. To that end, the government intends to produce better large-scale maps. In partnership and in tandem with other government initiatives, the INFO-Crue project will identify and delineate floodplains, especially in southern Québec. Analyzed in the context of climate change, the maps produced by INFO-Crue will provide an idea of the size of these areas in coming years. INFO-Crue will also help us forecast flood zones and show their size in real time. The tool will help inform land-use planning decisions and limit new construction in flood-prone areas.

To reduce risks and ensure the safety of people and property, Ministère de la Sécurité publique also produces maps of areas prone to coastal erosion and landslides along the Estuary and Gulf of St. Lawrence. The maps identify areas where the regulatory framework for the control of land use should apply.

Land use planning decisions can amplify natural phenomena such as flooding and erosion or, conversely, lead to better prevention and risk management. By virtue of their responsibilities, municipal and regional authorities are key players in ensuring sustainable access to water resources. The overhaul of government land use planning priorities aims to ensure water governance at different levels of regional planning. The vulnerability of water resources, especially in relation to climate change and usage conflicts, should be taken into greater account in municipal planning tools, as should biodiversity conservation.

Adapting protective structures and restoring shoreline and marshes that can absorb water and mitigate heavy flooding are some of the ways in which land can be developed to reduce the risk of flooding and erosion. In order to progress further in land use planning, the government will adapt its approach, notably by updating the *Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains*.

Role of dams

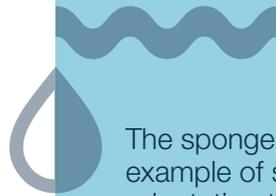
Retaining structures such as dams can meet many needs, including water supply, navigation, power generation, recreation and tourism, and wildlife conservation and enhancement. Some dams help attenuate flood flow and thus provide a certain level of protection to people and property downstream. Some 40 of Québec's dams are operated by MDDELCC in real time (24 hours a day), primarily for the purpose of flood control, but also to satisfy other users and uses. The purpose of Québec's *Dam Safety Act*, which applies to over 5,900 dams, is to increase the safety of the dams that are subject to the Act and thereby protect persons and property against the risks associated with the presence of dams. The Act requires that owners of high-capacity dams routinely verify that the structures comply with the standards and rules in force, carry out regular monitoring, and obtain prior authorization for certain work. The government will continue to modernize dam governance to improve its methods and will initiate a broader reconsideration of its dam management practices and procedures.



Rainwater

Land use planning has a significant influence on the quantity and quality of stormwater (rainwater or snowmelt) that is often discharged directly into watercourses and bodies of water. Taking stormwater into account in the land use planning process allows us to identify the best solutions to minimize its impact. Deforestation, drainage system development, soil compaction and grading, loss of wetlands, and the addition of impermeable surfaces can all modify the flow regime and level of stormwater contamination.

In urban areas, sewer overflows caused by precipitation are an increasingly common water quality issue. These events are further amplified by increased precipitation due to climate change. We must rethink the way in which development is carried out to better manage rainwater. Land planning and management tools will be adapted to better manage these waters.



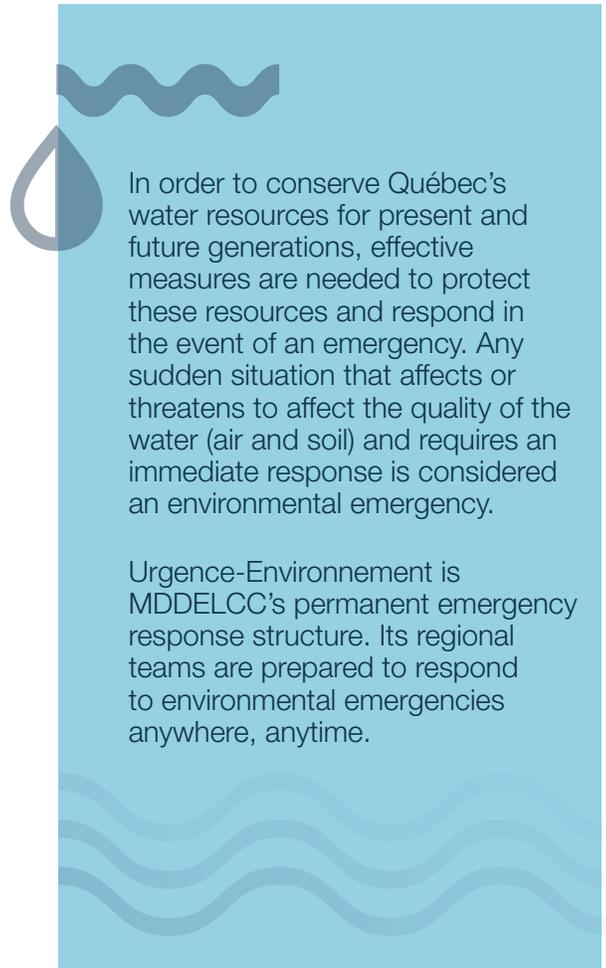
The sponge city concept is a perfect example of sustainable land use, adaptation to climate change, innovation, and risk management through better water management.

Sponge neighborhoods or sponge cities imitate nature by establishing urban wetlands that can absorb flood waters and runoff in situ, without drainage pipes. Some neighborhoods do not even have drainage pipes; instead, strips of vegetation line sidewalks and streets.

When covered with suitable vegetation, these floodplain areas reduce the risk of neighborhood flooding and provide natural air conditioning. Unlike paved areas, which form urban heat islands, these wetlands cool ambient air as the water they contain evaporates. Green roofs help cool and manage water by capturing rain, and the overflow can be used to water green spaces or community gardens.

Environmental and human health and safety

The health and quality of life of the population are key factors in decisions regarding water management and aquatic ecosystem protection. Environmental health is the prevention and management of human health problems related to environmental pollution or deterioration. Ministère de la Santé et des Services sociaux (MSSS), regional public health departments, and Institut national de santé publique du Québec work with MDDELCC and other relevant bodies to prevent and manage health problems related to drinking water and recreational water quality and disseminate information to the public on these issues. Efforts will continue to raise awareness on water-related health issues, especially measures that can be taken to reduce risks.



In order to conserve Québec's water resources for present and future generations, effective measures are needed to protect these resources and respond in the event of an emergency. Any sudden situation that affects or threatens to affect the quality of the water (air and soil) and requires an immediate response is considered an environmental emergency.

Urgence-Environnement is MDDELCC's permanent emergency response structure. Its regional teams are prepared to respond to environmental emergencies anywhere, anytime.

PRIORITY 4

Harness the economic potential of water

With its water resources and expertise, Québec is well positioned to develop water-related activities, products, markets, and technologies. It must promote a cleaner, greener economy that fosters job creation, innovation, and regional growth while at the same time safeguarding the well-being of the population and aquatic environments.

Partnerships between water research centers and entrepreneurs in Québec should also be promoted to develop innovations capitalizing on this renewable but fragile resource.





Objectives

Develop sustainable economic activity related to water.

Encourage application of the highest environmental standards in commercial shipping.

Support the development of water-related technologies.

Promote access to water bodies and watercourses

TARGET **By 2030**, the water sector's share of the Québec economy will have increased.

Water is a sustainably manageable resource. It is a source of raw energy that Québec has successfully developed throughout its history. Hydropower production has contributed significantly to Québec's economic and social development. In addition to generating significant collective wealth and supporting thousands of jobs, hydropower offers numerous development opportunities for Québec in the global context of the fight against climate change as a form of renewable energy with very low greenhouse gas emissions. Many other sectors depend on water, including the maritime, recreation and tourism, bio-food, paper manufacturing, and mining industries. The Maritime Strategy focuses on the economic potential of water and aims to promote sustainable growth of the maritime economy while protecting the integrity of river and marine ecosystems and improving the well-being of communities located in Québec's maritime regions. Water—by its quality, quantity, energy, and the services it provides through aquatic ecosystems—is essential to today's economy and tomorrow's development.

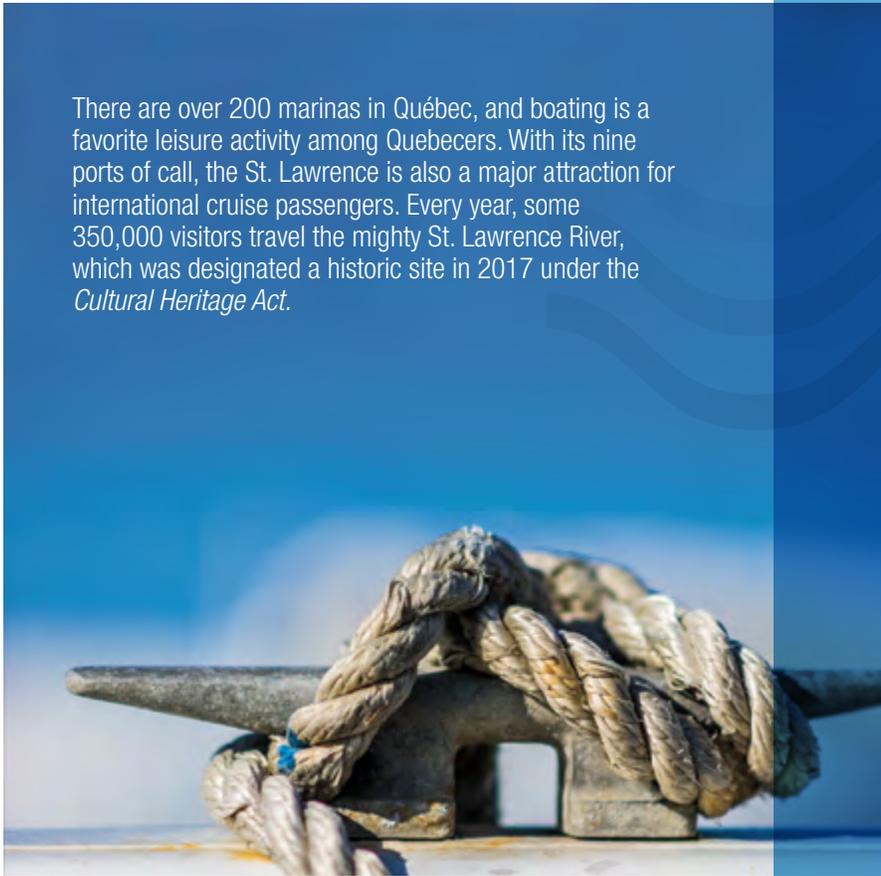


Hydropower has been a cornerstone of Québec's socioeconomic development since Hydro-Québec was created in 1944. It involves research and innovation, low-cost electricity distribution across our grid, and the development of new markets, and also supports thousands of jobs, particularly in rural areas.

It is a clean, renewable form of energy and represents almost all of Québec's electricity production. GHG emissions from this sector represent less than 1% of the province's total emissions. Hydroelectricity is used to promote the development of products with a low carbon footprint and attract companies and industries looking to leverage these benefits and our extensive expertise. The electrification of transportation by replacing oil with hydropower is another way forward in the fight against climate change.

Recreation and tourism development

Québec's regions have rivers and lakes of remarkable beauty that deserve to be enjoyed and enhanced. Recreation and tourism is a way to promote sustainable activities, as in the *Stratégie de mise en valeur du Saint-Laurent touristique 2014–2020* (the tourism component of the Québec Maritime Strategy), which aims to make the St. Lawrence a world-class tourism destination generating considerable economic benefits. The promotion of international cruises on the St. Lawrence has given thousands of international visitors an opportunity to discover Québec's myriad tourist attractions. Efforts under the Maritime Strategy and other initiatives will continue to further develop water-related recreation and tourism.

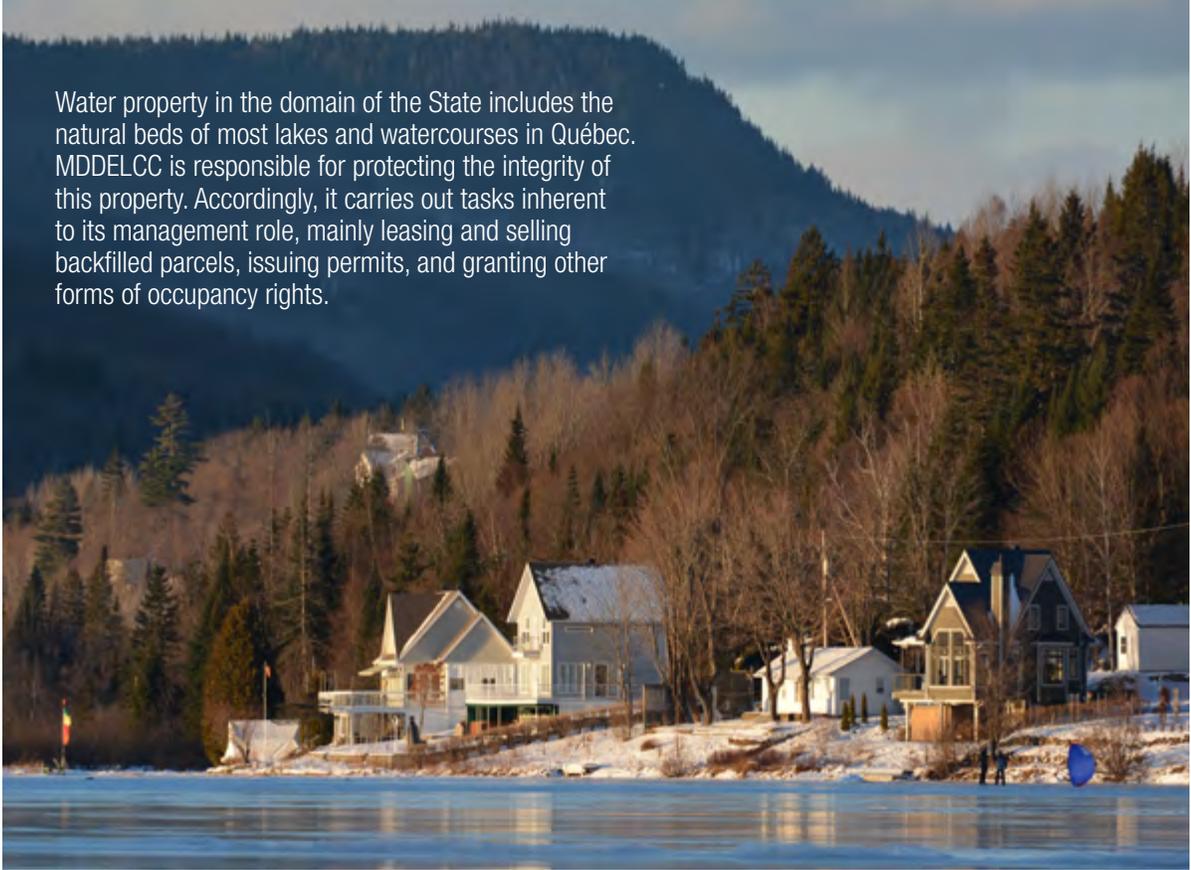


There are over 200 marinas in Québec, and boating is a favorite leisure activity among Quebecers. With its nine ports of call, the St. Lawrence is also a major attraction for international cruise passengers. Every year, some 350,000 visitors travel the mighty St. Lawrence River, which was designated a historic site in 2017 under the *Cultural Heritage Act*.

Access to water bodies and watercourses

Access to bodies of water in Québec is sometimes restricted or impossible, due in large part to the private ownership of waterfront properties—a situation difficult to reconcile with sustainable and inclusive recreation and tourism. Most of Québec's watercourses are water property in the domain of the State whose integrity is protected under the *Watercourses Act and the Regulation respecting the water property in the domain of the State*. Gaining a better understanding of waterfront land use and establishing priorities to regulate it, especially uses that improve access to Québec's bodies of water, are among the key concerns that must guide the management of water as a natural resource. The overhaul of government land use planning policies is specifically aimed at promoting better public access to water. The government will also review the regulatory framework governing water property in the domain of the State in an effort to reconcile the economic, social, and environmental uses.

Sport fishing is another popular recreational activity on Québec's lakes and rivers. According to data from Ministère de la Forêt, de la Faune et des Parcs (MFFP), this industry generates annual expenditures of over \$1 billion and supports over 8,600 full-time jobs. Sport fishing, particularly on the St. Lawrence, has significant untapped potential because of the diversity of fish species and proximity of urban centers. We must promote sport fishing and foster related initiatives, such as the protection of fish habitats, species reintroduction, and recovery of at-risk species. Promotion of sport fishing and other recreational and tourism activities is one of the avenues envisaged for developing a water-based economy.



Water property in the domain of the State includes the natural beds of most lakes and watercourses in Québec. MDDELCC is responsible for protecting the integrity of this property. Accordingly, it carries out tasks inherent to its management role, mainly leasing and selling backfilled parcels, issuing permits, and granting other forms of occupancy rights.

Commercial fishing and aquaculture

Aquaculture can be a catalyst for development in rural areas when sustainably managed according to best environmental protection practices and in harmony with other water uses. Fish farming for human consumption meets only a fraction of the demand in the Québec market, which is currently dominated by imports. Measures under the sustainable development strategy for freshwater aquaculture have reduced phosphorus emissions from this sector by 40% in recent years. The growth potential of Québec's commercial fisheries and aquaculture industry is considerable and is based on recent advances in marine biotechnology. However, continued knowledge acquisition and innovation is required in order to reconcile aquaculture development with the protection of the aquatic environment. The government will support innovation in this sector, particularly the design and development of new products and processes, and continue to encourage aquaculture businesses in their efforts to reduce their environmental footprint.

Maritime transport

As a vital transportation corridor and sustainable mobility option that emits fewer GHGs than ground transportation, the St. Lawrence River is a major driver of socioeconomic development. Environmental practices in the maritime transport industry have undergone a major shift and continue to evolve. The government supports these efforts to prioritize maritime transport over road transport, increase energy efficiency, and reduce GHG emissions in this sector. Québec's maritime industry has also adopted the voluntary Green Marine program, under which participating maritime companies in Canada and the United States are committed to reducing their environmental footprint through concrete, measurable action. The industry has also adopted a voluntary measure to reduce ship speeds on certain sections of the St. Lawrence River in order to mitigate shoreline erosion caused by wave action. In addition, a Navigation Coordination Committee made up of representatives from the maritime industry, the environmental sector, the governments of Québec and Canada, and civil society is working to reconcile commercial navigation and recreational boating with the need to protect water resources.



Photo: Enviro Foto

Québec benefits from the development of efficient, safe, and environmentally- and user-friendly maritime transport. But vigilance is necessary, especially given the increase in ship traffic. Shoreline erosion due to ship-generated waves, the protection of marine mammals, the introduction of invasive alien species, and the risk of hazardous material spills pose significant challenges. These challenges will also increase in northern regions, where ecosystems are particularly vulnerable. Ensuring ecosystem and water protection, the safety of people and ships, and the harmonization of uses requires everybody's input, including coastal communities and consultative organizations. These principles are cornerstones of the second Sustainable Navigation Strategy.

these research centers and businesses in order to maximize the impact of innovations and boost competitiveness at home and abroad.

The marine biotech sector shows strong economic potential, as do markets for drinking water production and distribution technologies and new wastewater treatment technologies. One of the objectives of the Government Sustainable Development Strategy 2015–2020 is to promote clean technologies in the water sector among ministries and agencies. The development of water-related technologies will be supported by encouraging technology purchases by government, private companies, and the general public.

Potential of water-related technologies

More and more research is being done in the water sector, where Québec has developed special expertise. Québec boasts tremendous assets for positioning itself as a key player in the water technology sector, including a diverse array of surface waters (St. Lawrence River, lakes and rivers, and ocean waters in the north), strict environmental regulations, advanced industrial expertise, and a strong university research network. Québec is home to many research centers specializing in water. The government will work to ramp up collaboration between



Photo: Enviro Foto

PRIORITY 5

Promote sustainable water use

The availability of water poses a challenge even in Québec, where it is unevenly distributed across the province. The apparent abundance of water can be misleading. Water is a fragile resource that must be protected and conserved. Changes in behavior and the adoption of best practices in sustainable water use will prevent shortages, reduce pollution, and cut costs associated with water treatment, as well as preserve aquatic environments.





Objectives

Encourage the development and adoption of sustainable water use and conservation practices.

Promote the reduced use and elimination of single-use plastics.

TARGET **By 2025**, Québec will have reduced its water consumption by 20% compared to 2015.

Quebecers perceive water as being easily accessible, abundant, inexpensive, and inexhaustible, so they tend to use it carelessly, which is why sustainable water use practices have been slow to take root in Québec. Yet water requires complex treatment systems. Tap water from a water source must be pumped, stored, and treated before being distributed. Water is also lost through leaks and breaks in supply and distribution systems that ultimately need to be repaired. Municipalities use property taxes to cover these costs. We need to invest in and encourage people to adopt best practices (which often take the form of simple actions) to limit the major financial repercussions associated with water shortages and treatment and ensure an adequate water supply across Québec, now and in the future.

“
Without water, there would be nothing: no clouds to drink from the oceans and irrigate the land, no climate, and no life as we know it, spawned by and adapted to this vital resource.”

JEAN LEMIRE



According to the World Health Organization (WHO), a minimum of 20 liters of water per person per day is needed to meet basic hydration and hygiene needs, 50 liters to live decently, and 100 liters to be truly comfortable.

Yet Quebecers consume more than 570 liters of drinking water per day on average (2015), compared to daily consumption of 447 liters for Canada as a whole and 370 liters for Ontario. In France and the United Kingdom, average water consumption per person per day is 130 to 160 liters.

Water withdrawals

Municipalities withdraw the most water for distribution purposes, so this is where most water conservation efforts have been focused in recent years. Launched in 2011, the Québec Strategy for Drinking Water Conservation has produced encouraging results by fostering a reduction in water consumption per person and boosting efforts to limit leaks in drinking water distribution systems. This resulted in a 26% reduction in the amount of water distributed per person per day between 2001 and 2015.



Photo: Jean Lemire



Water around the world

- Water shortages affect four out of ten people in the world.
- In addition:
 - › 3.6 billion people, half the world's population, live in areas where water is scarce for at least one month a year.
 - › 2.1 billion people lack access to safely managed drinking water services.
 - › 4.5 billion people lack safely managed sanitation services.
 - › 80% of wastewater returns to the ecosystem without being treated or reused.
 - › 340,000 children under age five die each year from diarrhoeal disease.
- Agriculture accounts for 70% of the world's water withdrawals.
- Water management is one of the UN's Sustainable Development Goals adopted by UN member countries and states—a goal to which Québec has voiced its commitment.

As custodian of 3% of the world's fresh water reserves, Québec must show international leadership in growth sectors. Industrial water withdrawals are better documented because this sector is subject to a levy on water that is withdrawn. Statistics for agriculture and fish farming are piecemeal, but since 2015, many businesses in these sectors have been required to collect data on their water withdrawals. It is important to continue collecting this data to draw as complete a picture of our water use as possible and find concrete solutions to reduce it. The government of Québec will encourage the development and maintenance of water conservation practices and extend them to the industrial (e.g. mining) and agricultural sectors.

Cumulative impacts of water withdrawals

The government must ensure that withdrawals do not exceed capacity and have relatively little impact on the environment and water users. Cumulative impacts refer to the impacts on the environment and on all resource users caused by a water withdrawal, combined with the impacts of past, present, and upcoming withdrawals, and taking climate change into account.

To account for these cumulative impacts, the *Environment Quality Act* and the *Water Withdrawal and Protection Regulation* (adopted in 2014) require MDDELCC authorization for all withdrawals over 75,000 liters per day. For authorization to be granted, water must remain available and withdrawals must not jeopardize water use or ecosystem health. In some cases, authorization to withdraw water is conditional on the implementation of effective conservation and use measures. This water withdrawal authorization system is relatively recent in Québec. The government will ensure that it is maintained by focusing on knowledge acquisition and the development of effective tools.



In order to provide its 8.5 million residents with clean water, New York City has a policy in place protecting its three watersheds. The city also participates in forest conservation programs and encourages farmers to adopt best practices. Through these efforts, New York gets clean water and saves about \$300 million a year on water treatment.

Use of economic instruments

Economic incentives can be used to encourage effective practices in sustainable water use and conservation as well as changes in behavior. These can take the form of water fees, financial assistance programs, environmental compliance (a mechanism linking public funding for businesses to compliance with environmental standards), and environmental taxation, which can be based on the user-pay or polluter-pay principles. Such measures may also spur the development and implementation of new technologies.

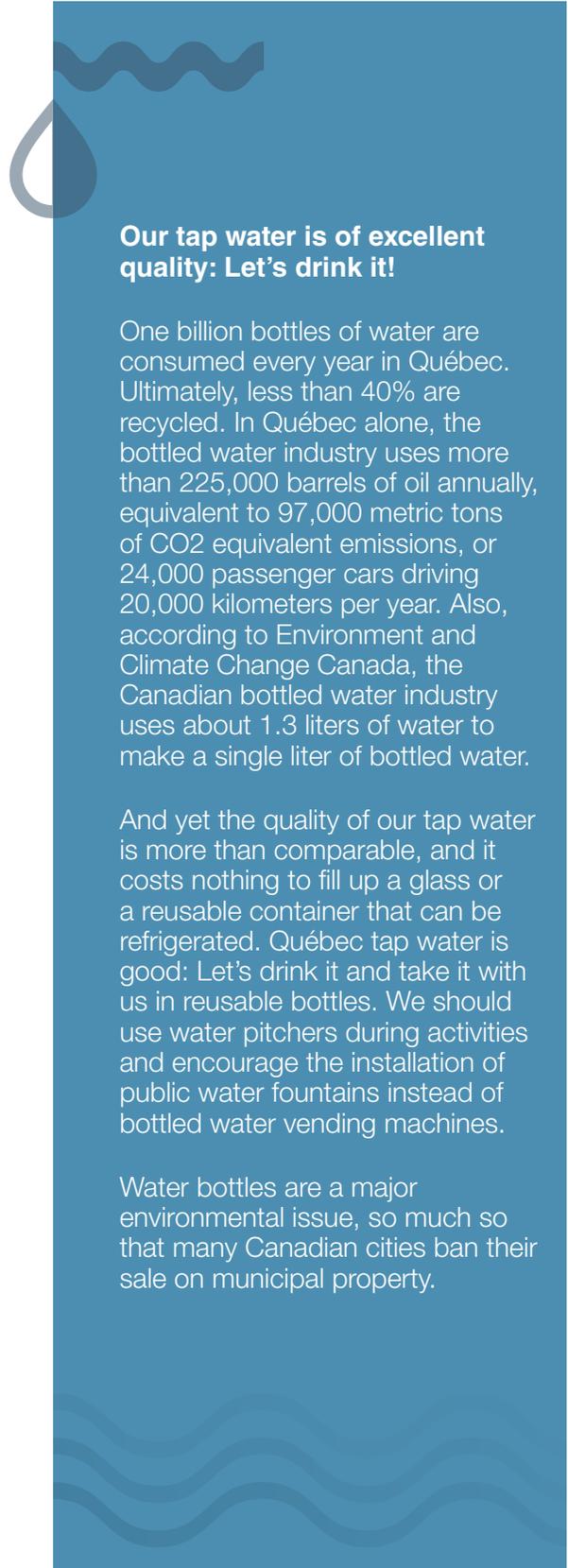
In Québec, there is a water use charge for activities such as water bottling that use an average of 75,000 liters of water or more per day, whether the withdrawal is made from the natural environment or a water distribution system. The water use charge is an effective water management tool and raises companies' awareness of the value of water. Revenues from use charges are paid into

the Green Fund and reinvested in integrated water resources management projects and knowledge acquisition. No changes have been made with respect to the application of the charge since it came into effect in January 2011.

Reduction of single-use plastic waste

Single-use plastics are a source of waste and pollution in Québec and around the world. Ocean pollution from plastics has become a major international issue that challenges societies to change their behaviors and practices. A number of countries have committed to reducing this type of pollution. In Québec, waste management helps limit water and ecosystem pollution from single-use plastics, provided that consumers dispose of them properly. Nonetheless, cutting down on the use of these plastics, including single-use water bottles, would help generate less waste and less pollution from their production, transportation, and disposal, while contributing to the international effort to reduce water pollution.

The government will look more closely at economic instruments such as water use charges and water container charges as a means to encourage changes in behavior, including reducing plastic use and waste. The government will also support solutions to promote tap water and reduce the use of plastic water containers.



Our tap water is of excellent quality: Let's drink it!

One billion bottles of water are consumed every year in Québec. Ultimately, less than 40% are recycled. In Québec alone, the bottled water industry uses more than 225,000 barrels of oil annually, equivalent to 97,000 metric tons of CO₂ equivalent emissions, or 24,000 passenger cars driving 20,000 kilometers per year. Also, according to Environment and Climate Change Canada, the Canadian bottled water industry uses about 1.3 liters of water to make a single liter of bottled water.

And yet the quality of our tap water is more than comparable, and it costs nothing to fill up a glass or a reusable container that can be refrigerated. Québec tap water is good: Let's drink it and take it with us in reusable bottles. We should use water pitchers during activities and encourage the installation of public water fountains instead of bottled water vending machines.

Water bottles are a major environmental issue, so much so that many Canadian cities ban their sale on municipal property.

PRIORITY 6

Acquire and share the best knowledge on water

Integrated water resources management and protection requires us to hone our knowledge and share it effectively to serve stakeholders and the public. There is a solid data acquisition network in place to monitor water quality and quantity and the status of aquatic environments. The data is essential for making informed decisions related to public health and safety and ecosystem protection.



Objectives

Expand and **strengthen** the acquisition of knowledge essential for the protection and management of water and aquatic environments, including for intergovernmental and international cooperation.

Develop tools adapted for integrated water resources management and conducive to sharing and disseminating knowledge.

Strengthen research and the sharing of expertise in the water sector.

TARGET **By 2030**, water stakeholders will have better access to knowledge and decision-making tools.

Integrated water resources management involves acquiring new knowledge and sharing it with all stakeholders. Surface and groundwater data collection and future climate modeling are useful for making informed decisions and consistent with the desire to develop and manage the land in a sustainable manner that takes climate change into account.

Acquisition of essential knowledge

There are several monitoring programs that help provide an overview of water quality in Québec. Data is used to identify watersheds requiring interventions and to evaluate the effectiveness of water treatment programs. For example, Réseau-rivières monitors total phosphorus levels in 185 rivers in approximately 100 watersheds. Other networks assess the health of lakes and rivers, including the status of fish populations or the presence of invasive alien species and pollutants. The government will expand and strengthen water quality monitoring, including pesticide monitoring in surface and groundwater in terms of the number of watercourses, wells, pesticides, and sampling sites tracked.

Contaminants that can now be more easily detected in water, also known as emerging contaminants, are of potential concern. Their impact on water quality, human health, and ecosystems must be studied in order to determine appropriate actions to treat water and better protect the population and ecosystems. Likewise, knowledge of hydrology and groundwater is limited in some parts of Québec. We must also improve our understanding of marine ecosystems.

“
Water is a precious and fragile resource threatened by pollution, global warming, and plastics. The blue waters of our planet still hide many secrets and riches. We can't protect them if we don't understand them. The stakes are high, but with our collective creativity, anything is possible.
”

LYNE MORISSETTE, PhD. Marine Ecology

The Québec Hydrometric Network, a river water data collection network, consists of 230 monitoring stations. It continuously collects information on water levels and flows in Québec's main rivers. The data is used to help make decisions on dam operation, flood zone determination, drinking water supply, and hydropower generation. It is also used to forecast water levels and flows for Québec's rivers in 2050. These projections are crucial in a context where adaptations to climate change are needed across the province, particularly in northern environments where observed and expected increases in average temperatures are most pronounced.

The study of community vulnerabilities with respect to water supply and species movement in response to temperature increases, particularly invasive alien species, is essential. The data collected is crucial for making informed decisions that improve Québec society's resilience in the face of new climate realities. The government will support efforts to maintain and ensure the effectiveness of data acquisition networks.

In the interest of expanding knowledge, Québec maintains cooperative relations, particularly with neighboring provinces and the New England states. We must pursue and strengthen intergovernmental dialogue and our participation in international forums to learn about international best practices and promote our own.



Disseminating knowledge

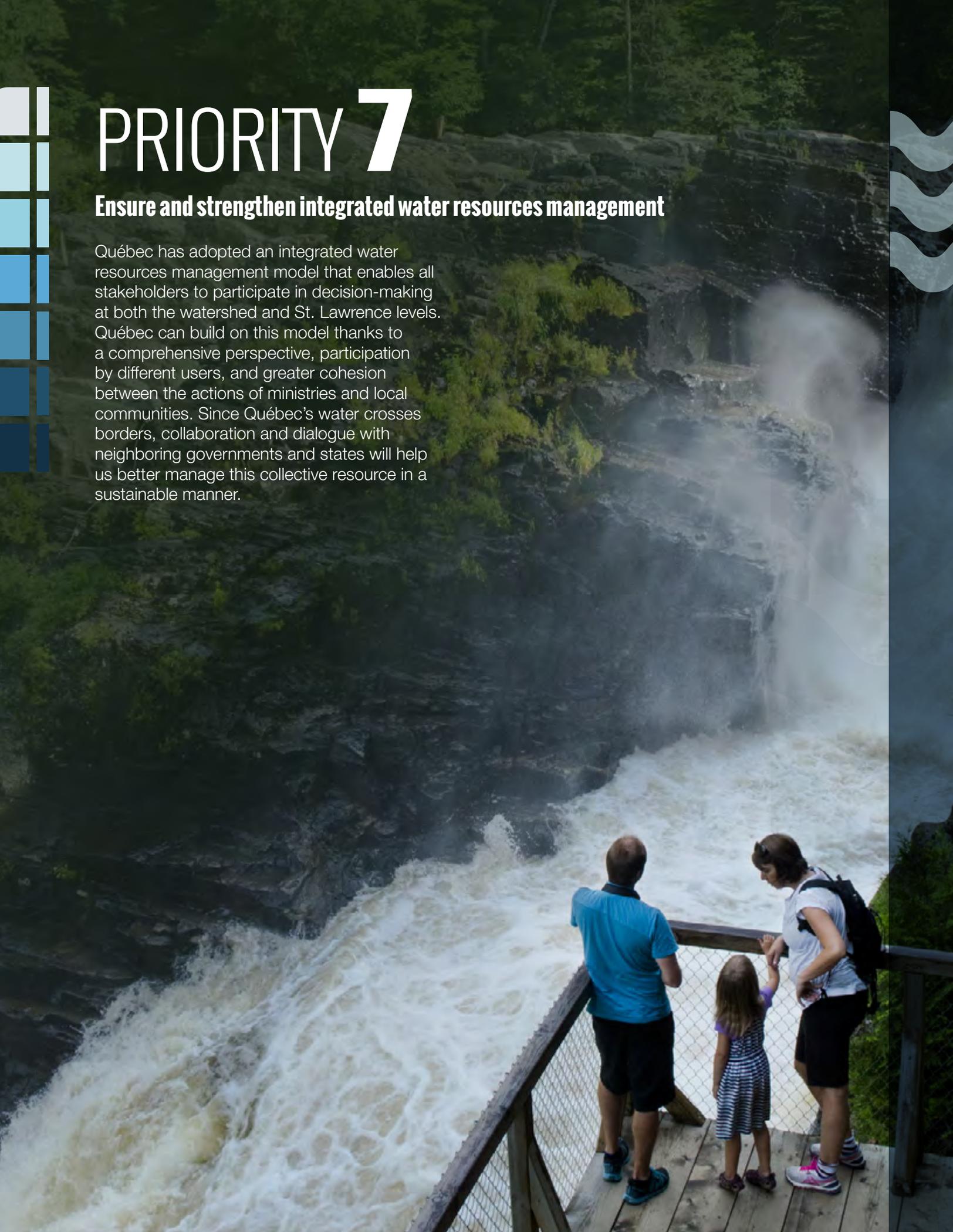
The ability to make effective and efficient integrated water resources management decisions also depends on the dissemination of knowledge. To promote participatory management, we must ensure that water stakeholders have access to the best available knowledge, in forms that are useful to them. The government will continue its efforts to ensure that new and existing knowledge is effectively shared and communicated with stakeholders, in particular through the use of new technologies and greater cooperation among research groups. In addition, the government will continue to cooperate with countries and states that are working to improve water management, in particular by transferring expertise and helping them establish advanced analytical laboratories, which are essential to maintaining quality drinking water.



PRIORITY 7

Ensure and strengthen integrated water resources management

Québec has adopted an integrated water resources management model that enables all stakeholders to participate in decision-making at both the watershed and St. Lawrence levels. Québec can build on this model thanks to a comprehensive perspective, participation by different users, and greater cohesion between the actions of ministries and local communities. Since Québec's water crosses borders, collaboration and dialogue with neighboring governments and states will help us better manage this collective resource in a sustainable manner.



Objectives

Strengthen integrated water resources management in Québec.

Maintain and **strengthen** intergovernmental and international cooperation to promote Québec's interests and foster integrated water management.

Promote land use planning with a view to integrated regional water and watershed management.

TARGET **By 2030**, all regional county municipalities (RCMs) will have regional water master plans and integrated management plans as part of their land use planning toolbox.

By 2030, Québec will be a leader in integrated water management.

The focus of this priority, which encompasses all the other priorities of the Québec Water Strategy, are the people who depend on and use water, affect water quality and quantity, and can benefit from it in a sustainable manner. Everyone is invited to participate in the integrated management of this resource, notably through watershed organizations (OBVs) and regional round tables (TCRs). These bodies are made up of citizens and representatives from municipalities; Indigenous communities; the agricultural, forestry, energy and tourism sectors; and health, education, and cultural organizations. Together, they embody the democratization of water governance desired by the Government of Québec. In particular, they help bring local and regional issues to light and find solutions. To be effective, this form of shared governance requires participants to accept their responsibilities and actively play their part.

Water governance in Québec is characterized by a large number of government and non-government stakeholders involved in decisions affecting water and aquatic ecosystems (Appendix 1). The challenge is to ensure coordination and collaboration among water management authorities at all levels, including ministries, public agencies, municipalities, Indigenous communities, and local and regional organizations.

The government intends to maintain and strengthen the sharing and dissemination of knowledge among all partners.

Water regulation and management

There are a number of laws and regulations that impact water management and protection in Québec (Appendix 2). With the adoption of the Québec Water Policy in 2002, the government set out to implement water management at the watershed level, based on citizen participation. In 2007 Québec bolstered this commitment with the adoption of the Plan d'intervention sur les algues bleu-vert (Blue-Green Algae Response Plan), which divides southern Québec into 40 integrated water management zones by watershed. The adoption of the *Water Act* in 2009 introduced the idea of integrated water management into legislation. It is in this context that the government established management zones and formally recognized watershed organizations and regional round tables as organizations responsible for integrated water resources management (IWRM) at the regional level. In addition, the signing in July 2012 of the *Agreement on Governance in the Eeyou Istchee James Bay Territory between the Crees of Eeyou Istchee and the Gouvernement du Québec* confirmed the parties' intention to implement an integrated water resources management mechanism in certain sections of the territory covered by the agreement south of the 55th parallel.



Other regulations have been adopted to strengthen the water management framework. For example, the introduction of the water withdrawal authorization regime in 2014 beefed up protection of the resource and recognized the need to first meet the drinking water needs of the population and to reconcile the needs of ecosystems with economic activities.

Integrated management at the watershed level

Consultative organizations (watershed organizations and regional round tables) are responsible for devising planning tools for their management zone. The action plans they produce guide water management priorities at the local and regional levels. The Regroupement des organismes de bassins versants du Québec (ROBVQ) facilitates and supports the integrated management work of watershed organizations and acts as interlocutor with the government.

It is essential to strengthen this type of collaborative planning. Land use planning decisions must take into account priorities established for each watershed. To do so, better links are required between land use planning tools (metropolitan and RCM land use and development plans), water master plans, and regional integrated management plans for the St. Lawrence. The government is committed to providing more mission support to organizations responsible for integrated water resources management.

Conseil québécois de l'eau

In order to strengthen integrated water management across Québec, the Conseil québécois de l'eau will be formed to ensure that all stakeholders have a voice in the process. It will bring together representatives from the municipal, agricultural, environmental, industrial, community, and university sectors, as well as ministries participating in the 2018–2030 Québec Water Strategy. The Government of Québec will work with Indigenous communities to define the nature of their participation in this initiative.

The Conseil québécois de l'eau will help ensure the success of the strategy by fostering greater coherence between the efforts of government and non-government entities and by ensuring that information is properly disseminated among all stakeholders. The Council will serve as a forum where non-governmental partners can contribute to implementing the Strategy and the resulting measures. Its main mandate will be to make recommendations to the Government of Québec on priority issues to be addressed and measures to be implemented in action plans. The Council will play an important consultative and coordinating role and will serve as the preferred forum for Québec water governance representatives to discuss issues affecting water management as a whole.



Photo: Enviro Foto

Intergovernmental and international collaboration

Since water knows no borders, its integrated management requires collaboration with the governments of neighboring provinces and U.S. states with which Québec shares watersheds.

Partnership agreements facilitate this cooperation, so they must continue to be implemented. The *Canada-Québec Agreement on the St. Lawrence*, a collaboration celebrating its 30th anniversary in 2018, aims to pool the efforts of the governments of Québec and Canada to protect and develop the St. Lawrence River. Québec is also a signatory to the *Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement*. In addition, it is a stakeholder in the Maritime Strategy of the Conference of Great Lakes and St. Lawrence Governors and Premiers, especially respecting its application within the regional maritime entity created to protect and strengthen the St. Lawrence-Great Lakes maritime transportation system. It also works with the Water Management Committee of the Canadian Council of Ministers of the Environment (CCME), which provides a multilateral forum for dialogue between the provinces, territories, and federal government.

Québec has been working for many years with international partners whose decisions can affect Québec's waters and aquatic environments. This includes direct participation as a member of the Great Lakes Commission, the Great Lakes-St. Lawrence River Basin Water Resources Council, and the Conference of Great Lakes and St. Lawrence Governors and Premiers. These organizations bring together Ontario, Québec, and the eight Great Lakes states in the United

States. The government also supports the activities of the International Joint Commission (Canada-U.S.), for instance by participating on the International Lake Ontario-St. Lawrence River Board to manage water levels and flows, or contributing to the Lake Champlain Richelieu River Study Board's work on flood-related phenomena. Québec will continue to actively collaborate with these bodies in order to promote its interests and foster integrated water management, including at relevant international forums

“

Water, by virtue of its quality and abundance, is an invaluable resource. It is the source of life and a source of peace for the soul, and we have the duty to protect it for present and future generations.”

CAROLINE BRODEUR
(Regroupement des organismes de bassins versants)





Staying the Course: Implementation, Monitoring, and Reporting

The 2018–2030 Water Strategy sets out the government's vision and main priorities through to 2030. It will be deployed via three successive action plans that will define specific measures to be implemented. The first of these, the 2018–2023 Action Plan, will lay the groundwork for the strategy to ensure the coherence of government actions to protect water.

The objectives and measures of the action plans will be monitored in a transparent, structured way to ensure the strategy's successful implementation. To this end, the lead ministries and partners involved in implementing the measures will work closely to monitor the action plans. Oversight will be handled by a coordination office under the purview of MDDELCC. Monitoring of the strategy will be results-driven. It will also be based on partner accountability for the action plan measures within their respective mandates.

Every year, the government will publish an action plan progress report based on previously established indicators. The government will also monitor overall progress under the strategy by means of a more comprehensive impact assessment to be published midway. This approach will make it possible to assess changes in water resource protection and management issues and Québec's progress in this area.

2018-2030

Québec
Water Strategy
At a Glance



PRIORITY 1

Ensure public access to quality water

Objectives

Protect community drinking water sources.

Ensure access to water of sufficient quality and quantity.

Continue to upgrade infrastructure and foster best practices across Québec.

Promote the transition toward environmental sustainability and responsibility within agriculture.

TARGETS

By 2030, all municipalities in southern Québec will have access to quality drinking water that meets the highest standards.

By 2030, over 90% of municipalities will meet wastewater treatment standards.

PRIORITY 2

Protect and restore aquatic environments

Objectives

Conserve and **restore** aquatic environments.

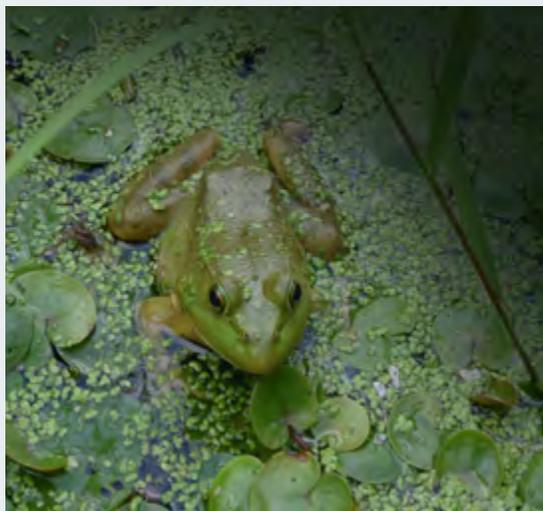
Protect species at risk.

Expand the network of aquatic protected areas.

Promote the control of invasive alien species.

TARGET

by 2030, there will have been no net loss of wetlands and water bodies in Québec since the adoption of the *Act respecting the conservation of wetlands and bodies of water* in 2017.



PRIORITY 3

Better prevent and manage water-related risks

Objectives

Integrate climate change more effectively into water-related risk management.

Improve tools for forecasting and preventing water-related risks.

Modernize dam management.

TARGET

By 2030, all Québec municipalities will have identified their vulnerabilities and be prepared for water-related natural disasters.



PRIORITY 4

Harness the economic potential of water

Objectives

Develop sustainable economic activity related to water.

Encourage application of the highest environmental standards in commercial shipping.

Support the development of water-related technologies.

Promote access to water bodies and watercourses.

TARGET

By 2030, the water sector's share of the Québec economy will have increased.

PRIORITY 5

Promote sustainable water use

Objectives

Encourage the development and adoption of sustainable water use and conservation practices.

Promote the reduced use and elimination of single-use plastics.

TARGET

By 2025, Québec will have reduced its water consumption by 20% compared to 2015.





PRIORITY 6

Acquire and share the best knowledge on water

Objectives

Expand and **strengthen** the acquisition of knowledge essential for the protection and management of water and aquatic environments, including for intergovernmental and international cooperation.

Develop tools adapted for integrated water resources management and conducive to sharing and disseminating knowledge.

Strengthen research and the sharing of expertise in the water sector.

TARGET

By 2030, water stakeholders will have greater access to knowledge and decision-making tools.

PRIORITY 7

Ensure and strengthen integrated water resources management

Objectives

Strengthen integrated water resources management in Québec.

Maintain and **strengthen** intergovernmental and international cooperation to promote Québec's interests and foster integrated water management.

Promote land use planning with a view to integrated regional water and watershed management.

TARGET

By 2030, all regional county municipalities (RCMs) will have regional water master plans and integrated management plans as part of their land use planning toolbox.

By 2030, Québec will be a leader in integrated water management.





APPENDICES

APPENDIX 1

Integrated Water Management Roles and Responsibilities

Government of Québec

Generally speaking, integrated water management on Québec territory falls under the purview of the Québec government. Several ministries share responsibilities in this area. Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques is responsible for coordinating government action in integrated water management.

MINISTRY	ROLES AND RESPONSIBILITIES RELATED TO WATER
Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC)	<ul style="list-style-type: none"> • Contribute to Québec's sustainable development by protecting the environment, preserving biodiversity, and fighting climate change. • Enforce the <i>Environment Quality Act</i>, the <i>Watercourses Act</i>, the <i>Dam Safety Act</i>, the <i>Act to affirm the collective nature of water resources and provide for increased water resource protection (Water Act)</i>, the <i>Natural Heritage Conservation Act</i>, the <i>Pesticides Act</i>, and the <i>Act respecting the conservation of wetlands and bodies of water</i>, and other water-related legislation. • Implement the <i>Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains</i>, the <i>Soil Protection and Contaminated Sites Rehabilitation Policy</i>, and the 2015–2018 Québec Pesticide Strategy. • See that water resources are managed in an integrated and coordinated manner in the designated hydrographic units. • Observe and understand ecosystems to ensure their quality is maintained. • Ensure implementation of the <i>Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement</i> for Québec. • Oversee implementation of the St. Lawrence Action Plan, which aims to conserve and develop the St. Lawrence River. • Assume responsibility for various action plans and strategies directly or indirectly related to water and aquatic ecosystems. • Perform its role in other areas of intervention related to drinking water, wastewater, stormwater, surface and groundwater, water bodies, wetlands, dams, and various water uses, including withdrawals. • Develop government policy guidelines on land use planning with respect to integrated water resources management and help implement it by supporting municipalities, in collaboration with MAMOT. • Ensure that the rights and interests of Indigenous communities are taken into consideration. • Support and increase Indigenous community participation in integrated water resources management.

<p>Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ)</p>	<ul style="list-style-type: none"> • Develop the bio-food sector, which encompasses the following economic activities: agricultural production, commercial fishing and aquaculture (saltwater and freshwater), and food and beverage processing. • Put agricultural land and marine resources to good use. • Implement the Stratégie phytosanitaire québécoise en agriculture 2011–2021 (2011–2021 Phytosanitary Agricultural Strategy) and 2018–2025 Bio-food Policy. • Manage financial assistance programs and knowledge acquisition in crop and animal production and the agro-environment. • Actively support agro-environmental best practices in animal and plant production, especially with regard to fertilizer management, soil conservation, field water management, and safe, rational pesticide management.
<p>Ministère des Affaires municipales et de l'Occupation du territoire (MAMOT)</p>	<ul style="list-style-type: none"> • Oversee application of the <i>Act respecting land use planning and development</i> and other related legislation. • Coordinate implementation of government land use planning priorities. • Manage the various financial assistance programs related to water infrastructure.
<p>Ministère du Conseil exécutif (MCE – Secrétariat aux affaires maritimes)</p>	<ul style="list-style-type: none"> • Oversee coordination of government action in maritime affairs. • Facilitate cooperation between partners in the maritime sector and ensure implementation of Québec's Maritime Strategy.
<p>Ministère du Conseil exécutif (MCE – Secrétariat aux affaires autochtones)</p>	<ul style="list-style-type: none"> • Act as a liaison between Indigenous peoples and the Government of Québec. • Coordinate all government action in Indigenous communities. • Ensure that Québec ministries and organizations involved in this area are consistent in their policies, actions, initiatives, and positions.

Ministère de l'Énergie et des Ressources naturelles (MERN)

- Support the sustainable development of Québec's energy and mineral resources and land.
- Develop public land use plans and oversee the issuance of land rights for lands in the domain of the State.
- Assume responsibility for Québec's energy issues and take the lead on the 2030 Energy Policy.
- Manage the use of water resources in the public domain and hydraulic power vested in the domain of the State under the *Watercourses Act*, as well as the rights to use that power.
- Oversee the monitoring and restoration of oil and gas exploration, drilling and hydrocarbon and brine storage sites in order to protect water resources.
- Coordinate, as manager of the Québec government's Geomatics Plan, the acquisition, production, sharing, and dissemination of government geographic information, including information required for water management.
- Establish and manage official geodetic mapping and networks in Québec, including mapping of waterways and surface deposits.

Société du Plan Nord

- Oversee the Plan Nord.

Ministère des Forêts, de la Faune et des Parcs (MFFP)

- Manage public forests, wildlife and wildlife habitats, including fish and other aquatic habitats, and the collective natural heritage.
- Manage activities related to wildlife harvesting and wildlife monitoring and surveillance.
- Ensure the conservation and recovery of wildlife species at risk, and the conservation and restoration of quality wildlife habitats. MFFP fulfills these roles by enforcing of the Act respecting the conservation and development of wildlife and implementing protection measures under the *Entente administrative concernant la protection des espèces menacées ou vulnérables dans le territoire forestier du Québec*.
- Ensure the sustainable management of public forests and the development of forestry activities, forest products, and private forests. Management is carried out under the *Sustainable Forest Development Act*. Management priorities, objectives, and mechanisms are set out in the Sustainable Forest Management Strategy and the *Regulation respecting the sustainable development of forests in the domain of the State*.
- Plan and develop Québec's national parks system and oversee park management in accordance with the *Parks Act*.

<p>Ministère de la Santé et des Services sociaux (MSSS)</p>	<ul style="list-style-type: none"> • Ensure the prevention and management of health problems related to environmental pollution and deterioration in collaboration with the public health system and various partners. • Protect health and create conditions for the maintenance and improvement of the health and well-being of the population under the <i>Public Health Act</i>. • Work with MDDELCC and other relevant organizations, including Ministère de la Santé et des Services sociaux (MSSS), its network of regional public health departments (DRSPs), and Institut national de santé publique du Québec (INSPQ), to prevent and manage health problems related to the quality of drinking water and recreational water. • Contribute, with INSPQ, to updating and developing the water quality standards set out in the <i>Regulation respecting the quality of drinking water and the Regulation respecting water quality in swimming pools and other artificial pools</i> (RQEPABA). • Conduct epidemiological (and other) investigations when outbreaks or intoxications potentially related to drinking water or bathing water are reported. • In collaboration with MDDELCC, monitor the application of the Regulation respecting the quality of drinking water, particularly with regard to exceedances of chemical or microbiological standards and the issuance of boil water or no consumption advisories in the event of significant drinking water contamination.
<p>Ministère de la Sécurité publique (MSP)</p>	<ul style="list-style-type: none"> • Coordinate the actions of ministries and agencies provided for under Québec's civil protection plan to respond to disasters, including those related to water (flooding, erosion, shortage of drinking water, etc.). • Support local and regional authorities in critical aspects of civil security planning, i.e., prevention, emergency preparedness, response to actual or imminent disasters, and recovery. • Administer government financial assistance programs for disaster victims. • Implement government priorities and objectives with respect to civil security as set out in the <i>Politique québécoise de sécurité civile 2014-2024</i> (2014–2024 Québec Civil Security Policy) adopted in 2014, aimed at making society more resilient to disasters. • Ensure implementation of the <i>Plan d'action en matière de sécurité civile relatif aux inondations</i> (Civil Security Action Plan on Flooding).

Ministère des Transports,
de la Mobilité durable et de
l'Électrification des transports
(MTMDET)

- Ensure the development and maintenance of efficient transportation systems with a view to sustainable mobility throughout Québec.
- Oversee the management of the road and rail network under Québec's jurisdiction.
- Assume certain responsibilities with respect to maritime transport, in particular under the *Act respecting the Société des traversiers du Québec*.
- Ensure that the construction of new road networks and the maintenance, repair, and operation of the existing network is carried out with a view to the sustainable management of our water resources (protection of watercourses and wetlands).
- Coordinate the *Stratégie québécoise pour une gestion environnementale des sels de voirie* (Québec Strategy for Environmental Road Salt Management).
- Promote the modal shift from road to maritime or rail transport in order to reduce GHG emissions and pollutants. Promote energy efficiency in maritime, air, and rail transport to reduce GHG emissions, climate change, and pollutants.
- Co-chair and coordinate the Navigation Coordination Committee and assume responsibility for the implementation of a sustainable navigation strategy.

Ministère du Tourisme (MTO)

- Promote the development of Québec's tourism industry with a view to economic prosperity and sustainable development.
- Foster and support the tourism potential associated with Québec's water resources. MTO encourages the implementation of sustainable tourism and ensures diversified tourism offerings in aquatic and shoreline environments.
- Coordinate implementation of the *Stratégie de mise en valeur du Saint-Laurent touristique* (Strategy to Develop Tourism along the St. Lawrence River) and the *Stratégie touristique québécoise au nord du 49e parallèle* (Québec Tourism Strategy North of the 49th Parallel).

Ministère des Relations
internationales et de la
Francophonie (MRIF)

- Promote and defend Québec's interests internationally.
- Support cooperation with international partners in international watershed management involving Québec.
- Support MDDELCC in implementing international agreements with states bordering the Great Lakes or Québec.
- Ensure that water management is one of the issues addressed in the fight against climate change.

Ministère de l'Économie, de
la Science et de l'Innovation
(MESI)

- Promote and defend Québec's interests internationally.
- Support cooperation with international partners in international watershed management involving Québec.
- Support MDDELCC in implementing international agreements with states bordering the Great Lakes or Québec.
- Ensure that water management is one of the issues addressed in the fight against climate change.

Municipalities

Municipal organizations play a critical role in Québec's local and regional development and, consequently, in integrated water management.

BODY	ROLES AND RESPONSIBILITIES RELATED TO WATER
Montréal and Québec City metropolitan communities	<ul style="list-style-type: none"> • Produce and regularly update a metropolitan land use and development plan in accordance with the <i>Act respecting land use planning and development</i>. • For the Montréal Metropolitan Community, which has jurisdiction over water treatment, establish wastewater management standards. • For the Québec Metropolitan Community, act as a regional round table for the integrated management of the St. Lawrence
Regional county municipalities (RCMs)	<ul style="list-style-type: none"> • Produce and regularly update a land use and development plan in accordance with the <i>Act respecting land use planning and development</i>. • Take into consideration water master plans and regional integrated management plans affecting their territory when producing land use and development plans. • Regulate and ensure the flow of water in watercourses under municipal jurisdiction. • Implement regional wetland and water plans.
Local municipalities	<ul style="list-style-type: none"> • Assume operational responsibility for drinking water production, wastewater treatment, and stormwater management. • Adopt planning, environmental, and health regulations under the <i>Act respecting land use planning and development and the Municipal Powers Act</i>. • In particular, apply the <i>Regulation respecting waste water disposal systems for isolated dwellings and the Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains</i>.

Indigenous communities

In 1985 and 1989, the National Assembly of Québec adopted resolutions recognizing the eleven Indigenous nations and their specific characteristics. Québec is home to 55 Indigenous communities representing ten First Nations and the Inuit nation. The Government of Québec recognizes the need to build harmonious relationships with these communities and has a constitutional obligation to consult them when a proposed action may infringe upon their established or claimed rights.

BODY	ROLES AND RESPONSIBILITIES RELATED TO WATER
Band councils	<ul style="list-style-type: none"> • Contribute to integrated water management by bringing to bear their vision, values, and knowledge about traditional activities on their respective territories. • Be a voice for their communities at round tables and consultations or delegate spokespersons accordingly. • Oversee the activities and actions of community members with regard to water environments in their respective territories.
Indigenous environmental organizations	<ul style="list-style-type: none"> • Ensure environmental monitoring and actively participate in the dissemination of knowledge. • Foster environmental best practices. • Help communities mobilize.

Government of Canada

The federal Parliament has passed several acts that have an impact on water, including the *Fisheries Act*, the *Navigation Protection Act*, the *Oceans Act*, the *Species at Risk Act*, and the *Canada Shipping Act, 2001*. Canada's Marine Oil Spill Preparedness and Response Regime is also governed by some of this legislation.

The Government of Canada has responsibilities:

- Over water management on federal lands, particularly on Indian reserves, where it is responsible for drinking water supply and wastewater treatment for Indigenous communities;
- On other federal lands, such as Canada's national parks, and in international waters;
- Under the *Boundary Waters Treaty of 1909*, signed with the United States. This treaty established an implementing body, the International Joint Commission, to prevent and resolve disputes related to international boundary waters;
- Under intergovernmental agreements such as the *Canada-Québec Agreement on the St. Lawrence*, and on an ad hoc basis for issues on which the governments of Québec and Canada must collaborate.

Other partners

Integrated water resources management requires contributions from many stakeholders. Individuals and organizations all have a role to play in achieving the Strategy objectives.

ORGANIZATIONS	ROLES AND RESPONSIBILITIES RELATED TO WATER
Watershed organizations (OBVs)	<ul style="list-style-type: none"> • Develop and update a water master plan for their water management area to identify priority water management issues and actions for the region. • Promote their master plan and monitor its implementation in collaboration with other stakeholders. • Carry out their work while ensuring balanced representation of users and stakeholders (including government, Indigenous, municipal, economic, environmental, agricultural, and community representatives) in the makeup of the organization.
Regional round tables (TCRs)	<ul style="list-style-type: none"> • Develop and update a regional integrated management plan for their St. Lawrence Integrated Management Area to identify issues and priority actions for the management of the St. Lawrence in their region • Promote this plan and monitor its implementation in collaboration with stakeholders. • Carry out their work while ensuring balanced representation of users and stakeholders (including government, Indigenous, municipal, economic, environmental, agricultural, and community representatives) in the makeup of the organization. <p>Note: The Government of Québec, in collaboration with regional stakeholders, delegates coordination and facilitation of the regional round tables to a regional organization capable of carrying out this mandate.</p>
Companies in the commercial, agricultural, industrial, tourism, maritime transport, and other sectors	<ul style="list-style-type: none"> • Ensure effective and efficient use and management of water resources in Québec. In order to foster economic and tourism development in Québec, water of sufficient quantity and quality must be available to all. These companies must also ensure the quality of water discharged after use.
Hydro-Québec Production (HQP)	<ul style="list-style-type: none"> • Ensure a reliable, low-cost electricity supply for Québec. • Harness the hydraulic power of rivers. • Control water levels in the reservoirs that supply generating stations (HQP owns approximately 600 reservoir dams).
The general public	<ul style="list-style-type: none"> • Be aware of their responsibilities with regard to the protection of water resources. • Use water responsibly and protect this collective resource.

APPENDIX 2

Non-Exhaustive List of Legislation, Regulations, and Policies Related to Water Management

QUÉBEC LEGISLATION	FEDERAL LEGISLATION
<ul style="list-style-type: none"> • Québec Charter of Human Rights and Freedoms • Civil Code of Québec • <i>Act to affirm the collective nature of water resources and to promote better governance of water and associated environments</i> • <i>Act respecting the conservation of wetlands and bodies of water</i> • <i>An Act to amend the Environment Quality Act to modernize the environmental authorization scheme and to amend other legislative provisions, in particular to reform the governance of the Green Fund</i> • <i>Sustainable Forest Development Act</i> • <i>Act respecting land use planning and development</i> • <i>Natural Heritage Conservation Act</i> • <i>Act respecting the conservation and development of wildlife</i> • <i>Environment Quality Act</i> • <i>Dam Safety Act</i> • <i>Sustainable Development Act</i> • <i>Cultural Heritage Act</i> • <i>Watercourses Act</i> • <i>Municipal Powers Act</i> • <i>Act respecting threatened or vulnerable species</i> • <i>Parks Act</i> • Sustainable Mobility Policy • <i>Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains</i> • Energy Policy • Québec's International Policy • Québec Water Policy • <i>Regulation respecting the framework for authorization of certain projects to transfer water out of the St. Lawrence River Basin</i> • <i>Regulation respecting the sustainable development of forests in the domain of the State</i> • <i>Regulation respecting the extension of a storm water management system eligible for a declaration of compliance</i> • <i>Regulation respecting the declaration of water withdrawals</i> • <i>Regulation respecting the protection of waters from pleasure craft discharges</i> • <i>Land Protection and Rehabilitation Regulation</i> • <i>Regulation respecting the quality of drinking water</i> • <i>Regulation respecting the charges payable for the use of water</i> • <i>Water Withdrawal and Protection Regulation</i> • <i>Regulation respecting contaminated soil storage and contaminated soil transfer stations</i> • <i>Regulation respecting private waterworks and sewer services</i> • <i>Regulation respecting industrial depollution attestations</i> • <i>Agricultural Operations Regulation</i> • <i>Regulation respecting pulp and paper mills</i> • <i>Fertilizing Residuals Regulation</i> • <i>Regulation respecting municipal wastewater treatment works</i> • <i>Règlement sur les procédures d'alerte et de mobilisation et les moyens de secours minimaux pour protéger la sécurité des personnes et des biens en cas de sinistre (Regulation respecting alert and mobilization procedures and minimum means of rescue to protect the safety of persons and property in the event of a disaster)</i> • <i>Règlement sur les travaux relatifs à une installation de gestion ou de traitement des eaux (Regulation respecting water management or treatment facilities)</i> • Maritime Strategy 	<ul style="list-style-type: none"> • <i>Canadian Environmental Protection Act</i> • <i>Canadian Environmental Assessment Act</i> • <i>Canada Shipping Act, 2001</i> • <i>International Boundary Waters Treaty Act</i> • <i>Canada Marine Act</i> • <i>Navigation Protection Act</i> • <i>Coastal Fisheries Protection Act</i> • <i>Marine Transportation Security Act</i> • <i>Species at Risk Act</i> • <i>Oceans Act</i> • <i>Fisheries Act</i> • <i>Canada Water Act</i> • <i>Wastewater Systems Effluent Regulations</i> • <i>Dominion Water Power Regulations</i>

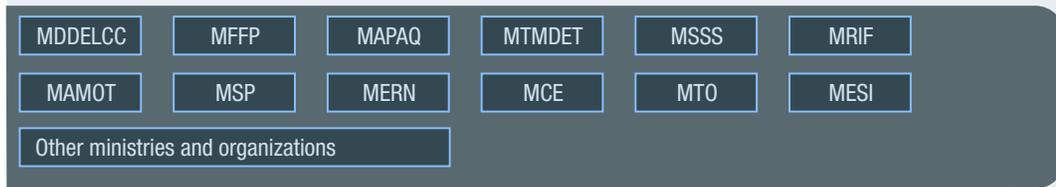
APPENDIX 3

Water Stakeholders

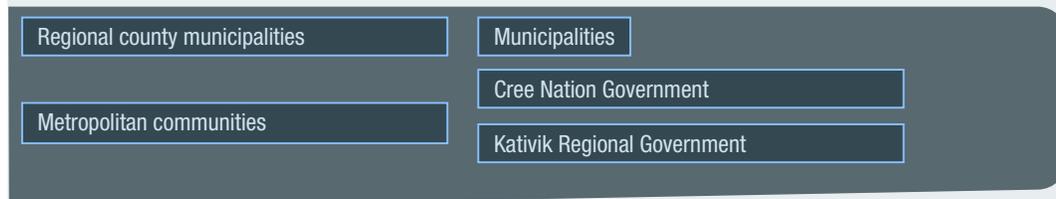
INTERGOVERNMENTAL AND CROSS-BORDER STAKEHOLDERS



GOVERNMENT OF QUÉBEC



MUNICIPAL STAKEHOLDERS



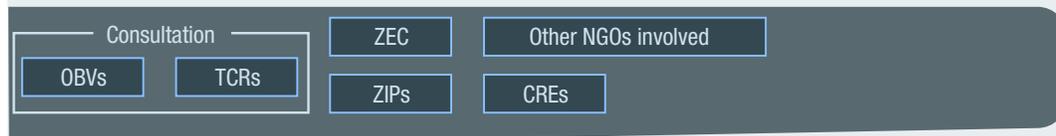
INDIGENOUS STAKEHOLDERS



NATIONAL ORGANIZATIONS



LOCAL ORGANIZATIONS

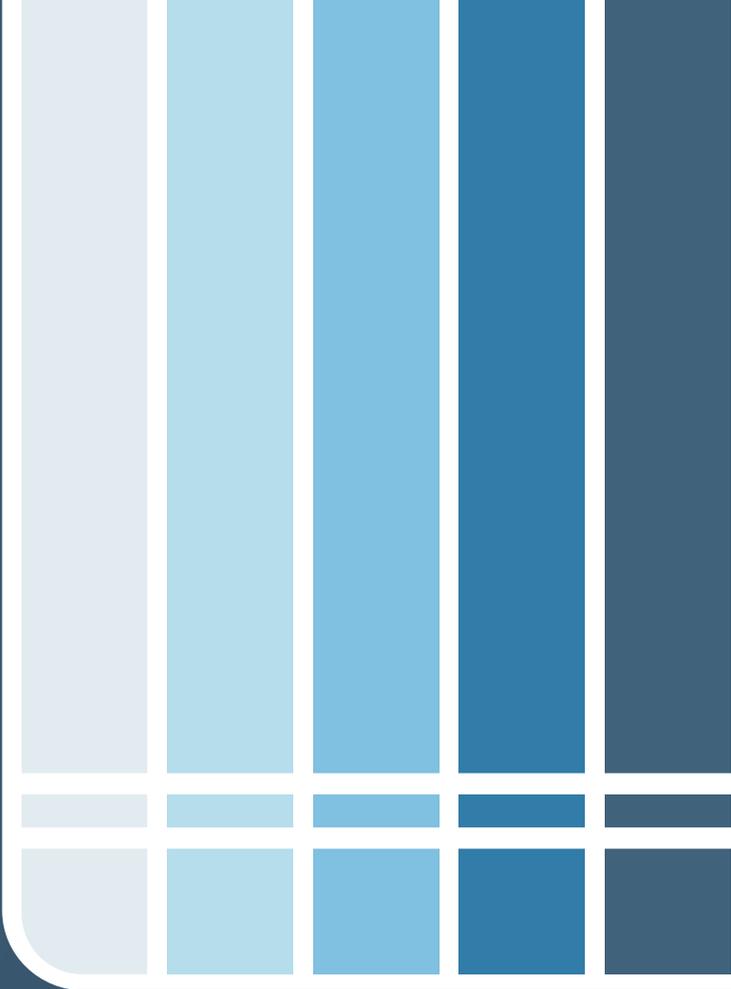


WATER USERS









*Développement durable,
Environnement et Lutte
contre les changements
climatiques*

Québec 