



IIAM

International Institute on  
Aquaresponsible  
Municipalities

17/07/2012



## **EXECUTIVE SUMMARY**

To the best of our knowledge, no municipal organisation has achieved an optimum level of performance in the field of water management. Pooling the municipal know-how and best practices should lead to an improvement in the water management performance of all organisations.

For this to happen, an independent body must be set up to assess the shortcomings in a particular municipality and accurately recommend the best areas for improvement of the performance and efficiency of this municipality with regard to its water management.

High-level scientific partners specialised in water, INRS and Université Laval, in collaboration with Quebec City, wish to set up an international programme to assess aquarresponsive practices in cities. To this end, they wish to set up an independent organisation: The International Institute on Aquarresponsive Municipalities (iiAm).

Currently no body of this type exists. There is a "blue ocean" in this area which corresponds to a significant need of municipal authorities. This institute, to be located in Quebec City, is very much justified, as all issues related to water management can be found here ("soft water", "salt water" and "solid water – snow and ice"; urban, rural and natural territories, droughts and flooding, industries and agriculture; frost/thaw; climate change). All this contributes to justifying Quebec City as the point of convergence.

## 1. ORIGINALITY AND UNIQUENESS OF THE APPROACH

There are several reasons motivating the move to act in the field of water management: the scarcity of the resource, the inequality of its availability, poor usage, lack of monitoring, increasing levels of pollution, etc. However, in our humble opinion, the transfer of technical and managerial knowledge is limited and there is no systematic audit of the current practices of the public and private water boards.

High-level scientific partners specialised in water in collaboration with Quebec City wish to set up an international programme recognising aquaresponsible practices in municipalities.

It is very ambitious to aim for an international status. However, this also endows this initiative with a unique, consolidating character. As no body of this type currently exists,<sup>1</sup> there is a "blue ocean" in this area which corresponds to a significant need of municipal authorities. Indeed, how can we check whether the investment budgets are used correctly and whether the technological solutions selected will not be completely obsolete or ineffective as soon as they are put into operation? By calling upon an independent agency that is the custodian of knowledge and references on an international level, the state of progress can be analysed objectively and recommendations can be given on the most appropriate intervention plan without conflict of interests.

To correctly fulfil its leadership position, it is essential that the International Institute of Aquaresponsible Municipalities (**iiAm**) respects the highest standards. Indeed, the iiAm must:

- *organise know-how regarding aquaresponsible behaviour, so as to ensure that the results of the latest developments are organised in a knowledge base which is constantly being updated;*
- *provide strict, confidential management of the audit files, eliminating any favourable treatment in the assessment of the performances of the audited organisations;*
- *ensure that the organisation is technologically independent by guaranteeing a comprehensive technological watch and by annually publishing an overview of*

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<sup>1</sup> *There is no equivalent incorporating all the aspects of water management in the municipal environment. A few agencies publish what is commonly called BMPs (Best Management Practices) but never under the umbrella of an international certification programme.*

*In a specific domain, the distribution of drinking water, the contribution to the dissemination of know-how by the AWWA (American Water Works Association - <http://www.awwa.org>) is a good example for a specific aspect of water in the urban environment, but without certification programme.*

*the technological and managerial fields that are the least well supported by the most recent studies carried out by various international R&D groups.*

## 2. CURRENT SITUATION

To the best of our knowledge, no municipal organisation has currently achieved an optimum level of performance in terms of water management. Several are excellent in one or more aspects of responsible management of the resource but none can claim to have achieved an overall optimum level of efficiency in all areas of water management. One should remain to be aware of the fact that up to 25% of the budget of a municipality is directly or indirectly dedicated to the operation, maintenance and development of its water and sewage infrastructures.

Several cities have very professionally adopted a leading position in certain specific aspects of water management, developing a high level of expertise in these areas. Pooling this know-how and these experiences should therefore induce improvements in water management performance of all organisations. In order for this to happen, an independent body must be able to assess the shortcomings of a particular municipality and accurately recommend the best areas for improvement of its performance and efficiency with regard to water management.

A city accepting this approach and acting upon these recommendations would in this way become aquaresponsible.

## 3. THE AQUARESPONSIBLE ATTITUDE

Being aquaresponsible is a concept which covers all actions a municipality should undertake to ensure the healthy management of its water resources. These actions will safeguard the resource in the long term whilst at the same time allowing it to be shared and used fairly. Hence, being aquaresponsible comes with a sustainable development approach. *In summary, a aquaresponsible municipality is a municipality which:*

- *Protects its drinking water sources.*
- *Provides adequate treatment of the water and monitors the quality of the distributed water.*
- *Promotes responsible consumption (saving drinking water); sets up water saving measures; optimises the*



*management of the distributed water.*

- *Manages wastewater during storm conditions, and the pollution and flooding that come with it.*
- *Provides adequate treatment of wastewater from various sources.*
- *Provides maintenance, rehabilitation and replacement of infrastructures according to programmes that enable guaranteeing the sustainability of services and resources in the long term.*
- *Adapts the infrastructures to climatic change.*
- *Provides suitable continuous training for the staff involved in operation and planning.*
- *Optimises management of human, equipment and financial resources dedicated to water.*
- *Optimises costs for water services; reasonable invoicing for resource use, and administrative and political accountability with regard to the quality and cost of the services rendered in the field of water.*
- *Prepares, updates, monitors and gives feedback on annual and triennial action plans to ensure the quality of service and sustainability of the infrastructures.*
- *Informs citizens on existing services and on projects currently under development.*
- *Checks the levels of pollution in water courses, and monitors the quality of receiving waters.*
- *Develops water courses to give citizens easier access and create recreational and tourist activities.*



#### 4. THE INTERNATIONAL INSTITUTE ON AQUARESPONSIBLE MUNICIPALITIES (iiAM) IN FOUR PARTS.

Being "aquaresponsible" certainly is an inspiring challenge, but there are many hurdles to take: i) diagnosing the problem and knowing how to act; ii) managing the actions to be implemented and auditing the improvements; iii) educating and training; iv) being accountable to users.

To do this, scientists, municipal managers and citizens must all be involved. Four parts must therefore be developed:

- a. ***structure the scientific knowledge*** with regard to water management;
- b. ***set up an international Aquaresponsible certification programme;***
- c. ***ensure best practises are communicated***, among others, via education and training programmes;
- d. ***produce a performance report*** regarding the overall, regional and local improvements in aquaresponsible practices.

For part *a*, it should be noted that the Institute will be a centre for consultation and dissemination of scientific knowledge, and will in no way constitute a competitor to current research groups or a critic of their work. Moreover, it shall not be a research centre or a research group benefitting from a grant or other support to carry out technological developments itself. iiAm must monitor current developments in water, develop and maintain a knowledge base containing documentation and references of the best technical, technological and operational applications in the water discipline through networking at the international level. Moreover, iiAm must establish a list of all that is inaccurate or poorly established to motivate efforts into technological R&D aiming at supporting the action of "aquaresponsible" municipalities.

To handle part *b*, iiAm must plan a certification framework with the aim of supervising the actions of all to allow the holders of public office to measure the performance of the systems set up, to establish the elements which require reinforcing, and to stimulate the actions to be carried out for this purpose. iiAm will develop a certification programme for all municipalities at an international level that wish to adhere to "aquaresponsible" practices in their area. It will ensure the certification programme is applied and updated, i.e. the Institute will act as a national and international auditor for municipalities wishing to be recognised as aquaresponsible.

To achieve part *c*, communication of best practices is essential, both among citizens and among scientists and managers. Each citizen living in our urban centres has a direct or indirect influence on changes in what is pursued in order to profitably exploit our water resource by using it correctly. To educate and instruct our citizens, iiAm shall also consist of a technological exhibition complex to inform the general public

and visitors on all subjects regarding the technologies and practices applied to the protection of water. Above and beyond communication to the general public, it must also host scientific symposia that should disseminate internationally acquired knowledge regarding water management. The Institute's symposia would take place on a two-yearly basis with a conference to update the state of progress of each sector every intermediate year.

Part *d* is also very important in view of motivating both the participating municipalities and future clients. If a certification programme exists, it is important to ensure it comes with a performance report to give a clear picture of the performances reached, the efforts made and the efforts still required. Part of each of the Institute's conferences shall be a showcase for the municipalities that have shown the best progress in the certification programme with the aim of demonstrating the benefits of being "aquarresponsive" in terms of water management. An exhaustive report shall list the municipalities which are taking part and present the approaches adopted.

There will also be a report and identification of municipalities wishing to join this certification programme and promotion campaigns to encourage them to join if they have not already done so.

***How many municipalities can join iiAm's certification programme? At year 1 we should be able to count on around a dozen enrolments and as from year 5 we shall be aiming for 20 new enrolments per year.***

## 5. WHY IN QUEBEC CITY?

- *All the issues linked to water management can be found in Quebec City ("soft water", "salt water" and "solid water – snow and ice"; urban, rural and natural territories, droughts and flooding, industries and agriculture; frost/thaw; climate change). This contributes to justifying Quebec City as the point of convergence.*
- *The involvement of two large scientific institutions in Quebec City: the National Institute for Scientific Research and Université Laval in the emergence and growth of an innovative body. The participants from these two institutions have succeeded in developing knowledge networks and business relations that will help them to achieve all the parts of the iiAm mandate. The two scientific partners got to work in the summer of 2010, each loaning the holder of a high-ranking scientific office to mobilise financial and human resources in order to accomplish the structured development of the Institute.*
- *As water is one of the resources that is severely affected by climate change and as municipalities must set up measures to mitigate the impact of these changes,*



*Québec and Canada will be able to adopt a leadership position in the adaptation of municipal infrastructures to face climate change impacts.*

- *Quebec City accepts to participate in the certification procedure on a voluntary basis. This gives credibility to the procedure in that the city authorities are making the decision to take up the challenge.*

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