

Exploring Green Infrastructure and Integrated Water Management Workshop

March 6, 2015, Guelph, Ontario

Pre- and Post Workshop Survey Results

Pre-Workshop Survey (11 responses)

1. Is integrated water management (IWM) important? 100%-Yes
2. If yes, do you think your municipality does IWM well? 6 – Yes 4 – Not Sure; 1 – No
3. Does this preliminary definition of IWM make sense to you? 10 – Yes 1 – No

Preliminary Definition of IWM

Integrated Water Management (IWM) is the process of managing human activities and natural resources on a watershed basis. This approach allows us to protect important water resources, while at the same time addressing critical issues such as the current and future impacts of rapid growth and climate change.

IWM is managing human activities and natural resources in an area defined by watershed boundaries aiming to protect and manage all natural resources and their functions today and into the future. This approach recognizes and operates based on the interconnectedness of ecology, economy and society. In this way, we are able to ensure that adequate supplies of good quality water are maintained for the entire population while preserving the hydrological, biological and chemical functions of ecosystems while adapting human activities within the capacity limits of nature.

4. If not, how would you modify the definition, or what needs clarification?
 - I would replace “ecology” with “environment” or better “biophysical environment” in that I understand ecology to focus primarily on the interactions of organisms with one another and their physical environment. Biophysical is broader and also encompasses purely physical phenomena such as infiltration, or water flowing down a slope.
 - I would suggest clarifying to indicate IWM includes planning and implementation components.
 - The first line sounds good. The last line is a concern.
5. From your perspective, rank the top 3 challenges to IWM for your municipality?
 - Economic and finance (1st priority)
 - Planning and collaboration (2nd priority)
 - Legislation and regulation (3rd priority)
 - Lack of institutional awareness of and commitment to IWM (4th priority)

	1	2	3	4	5	6	Total	Score
Legislation and regulation	0.00% 0	18.18% 2	63.64% 7	18.18% 2	0.00% 0	0.00% 0	11	4.00
Lack of institutional awareness of and commitment to IWM	0.00% 0	18.18% 2	18.18% 2	63.64% 7	0.00% 0	0.00% 0	11	3.55
Economics and finance	63.64% 7	9.09% 1	0.00% 0	18.18% 2	9.09% 1	0.00% 0	11	5.00
Planning and collaboration	18.18% 2	54.55% 6	9.09% 1	0.00% 0	18.18% 2	0.00% 0	11	4.55
Citizens engagement	9.09% 1	0.00% 0	9.09% 1	0.00% 0	63.64% 7	18.18% 2	11	2.36
Other	9.09% 1	0.00% 0	0.00% 0	0.00% 0	9.09% 1	81.82% 9	11	1.55

6. From your perspective, rank the top 3 priorities in overcoming those challenges to IWM for your municipality?

Strengthen or develop a unified vision (1st priority)

Strengthen leadership & political will & Encourage systems thinking and integration (2nd priority)

Facilitate data collection and sharing (3rd priority)

Facilitate communication and public education (4th priority)

	1	2	3	4	5	6	Total	Score
Strengthen or develop a unified vision	45.45% 5	27.27% 3	0.00% 0	27.27% 3	0.00% 0	0.00% 0	11	4.91
Strengthen leadership & political will	18.18% 2	27.27% 3	27.27% 3	27.27% 3	0.00% 0	0.00% 0	11	4.36
Encourage systems thinking and integration	27.27% 3	9.09% 1	45.45% 5	0.00% 0	18.18% 2	0.00% 0	11	4.27
Facilitate data collection and sharing	9.09% 1	9.09% 1	27.27% 3	45.45% 5	9.09% 1	0.00% 0	11	3.64
Facilitate communication and public education	0.00% 0	27.27% 3	0.00% 0	0.00% 0	72.73% 8	0.00% 0	11	2.82
Other	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 11	11	1.00

7. What do you hope green infrastructure and low impact development (LID) will achieve in your municipality?

- Improved water quality, improved permeability, improved ecological functioning

- Protect ground- and surface water resources from urban impacts. It is also needed in the agricultural sector which has negative impacts on rural watercourses.
 - Help keep our drinking water sources (groundwater and surface water) sustainable and of good quality for future generations.
 - I hope that wider implementation of GI and LID can help maintain hydrologic and ecological functions across the watershed.
 - Solutions to localized drainage related issues and future capacity for storm water management.
 - Hope it will shift the SWM process away from end-of-pipe facilities (which are municipally owned and not currently maintained due to financial constraints). Hope it will shift focus to lot level, individual property infrastructure.
 - Increase awareness of the natural environment - protect waterways - educate public and change habits regarding the environment.
 - Greater understanding and appreciation of functional capacity of grey water.
 - Supporting a sustainable approach to SWM management that is compatible with the City's Natural Heritage System.
 - Sustainable systems and conservation of limited environmental privileges.
 - Long term benefits in terms of natural environment and specifically availability of drinkable water.
8. Through your role in your department, describe the challenges in enacting and maintaining green infrastructure and LID in your municipality?
- I am an academic at the University of Guelph. The biggest obstacle seems to be take up.
 - In my case, it is having a sound grasp of the evolving science and technology.
 - It's not my defined role in the organization and there's no clear idea of who should be involved in moving forward with GI and LID in our municipality.
 - GRCA hopes to play a role as an advocate for municipal implementation/support for LID.
 - Financial resources and institutional understanding of the funding required.
 - Key challenge is financial - no budget to maintain the existing stormwater infrastructure the City is already responsible for, no desire to take on additional or new infrastructure LID and SWM not currently municipal priorities.
 - Funding – maintenance
 - Parks are traditionally and significantly underfunded, and these initiatives require planning and funding.
 - Lack of understanding appreciation of LID benefits. Development and review processes disorganized and don't adapt to change/incorporate new/emerging ideas well or easily.
9. General Comments
- I am very interested in hearing what the barriers are to LID.
 - I hope to have a better understanding of recent advances in green infrastructure to assist me in my review of stormwater management implications of draft approvals.

- The two-tier (or three if you count GRCA) jurisdiction over local water makes for a difficult situation when trying to bring the silos together to develop and implement comprehensive water policies and practices.
- A master plan and vision will only succeed with the appropriate resources. The workshop will hopefully provide consensus on achieving both.
- My main purpose in attending the workshop is to continue to learn what other municipalities are doing with regards to SWM and LID, both successes and challenges, along with learning about developments in LID.
- I hope to get a better understanding of what our Water Services department is doing in regards to these types of initiatives.

Post-Workshop Survey (9 responses)

1. Does this preliminary definition of IWM make sense to you? 8 – Yes 1 – No

2. If not, how would you modify the definition, or what needs clarification?
 - It might be helpful to reference agricultural intensification.
 - Needs to mention partnerships beyond watershed boundaries?

3. How important do you think an IWM approach is for your municipality to achieve its water objectives?

Very Important	Somewhat	Neutral	little	Insignificant
7 (78%)	2 (22%)	0	0	0

4. List a few projects or ideas related to IWM that you would like your municipality to implement.

No.	IWM Project/Idea	What municipal department(s) will be involved?
1.	Subwatershed planning	works, water, parks, operations, planning
2.	Integrated neighborhood planning (e.g., SNAP) www.sustainableneighborhoods.ca	works, water, parks, operations, planning
3.	Establish a joint region-area municipality-GRCA working group to develop better integration	engineering, planning, legal, Federation of Agr.(?)
4.	Identify quick fix retrofit opportunities as demonstration projects (3 responses)	engineering
5.	Put policies in Regional Official Plan requiring integrated planning and recognizing legal liability.	
6.	Revise floodplain mapping in light of recent extreme storm events	Ontario Ministry of Environment
7.	Have a similar event for municipal councilors to build knowledge and drive at the council tables. (2 responses)	
8.	LID projects at secondary schools – students can monitor. It will raise public awareness of water issues.	
9.	Stormwater fees on properties to encourage the management of rain where it falls.	
10.	Modify incentive programs and charge appropriate rates to motivate change.	engineering, planning, finance
11.	Injection of clean rooftop water option.	public works

12.	Identify community members intrinsic beliefs to develop or market transformation strategy	engineering
13.	Develop loan system to mitigate capital cost barrier to retrofit	engineering, finance
14.	Complete stormwater management funding study to establish a funding source for maintenance. A study for Cambridge was approved, but not yet initiated.	engineering, finance, public works
15.	Encourage LID on private property through development process	engineering, planning
16.	Update subwatershed studies with a focus on retrofits and restoration for built out areas	planning, engineering, water, forestry, GRCA
17.	Obtain funding to undertake city-wide monitoring programs for NHS + SWM + wastewater/watersupply	
18.	Update SWM design principles doc.	

5. What do you hope green infrastructure and low impact development (LID) will achieve in your municipality?
- Reduce peak and volume; improve quality; change the landscape.
 - Development and management that accepts and is responsive to watershed conditions so that sustainability is achieved.
 - Reduce risk of flooding in urban areas.
 - Clean water; greater ecological health; greater citizen awareness of what each person can do on private property; diversity of responses – low tech to high tech – at different scales.
 - To improve the balance between grey and green infrastructure to build resilience to climate change and extend the useful lifecycle of existing infrastructure.
 - In the absence of sustainable funding for SWM maintenance, green infrastructure and LID could help extend performance of ponds (and the need for maintenance); pilot projects could help educate staff, council and public.
 - I hope it will help mitigate impacts to the city's Natural Heritage System (wetlands, woodlands, creeks/rivers, etc.). I hope it will improve the urban environment which will in turn increase quality of life for our citizens.

6. List a few projects or ideas related specifically to green infrastructure that you would like your municipality to implement.

No.	G-I Project/Idea	What municipal department(s) will be involved?
1.	Monitoring performance of existing SWM facilities.	
2.	Retrofitting areas with GI structures	parks and engineering
3.	Rain gardens	
4.	Constructed wetlands in certain areas	
5.	Bioretention	engineering, operation and planning
6.	Integrate GI into: traffic calming, roads reconstruction/parking lots; facilities and retrofits	transportation, engineering, operations.
7.	Pilot projects on road infrastructure reconstruction projects	engineering and public works
8.	Implementation of LID on any future municipal project (e.g., parks and buildings)	community services (parks), engineering
9.	Update SWM guidelines and criteria to reflect natural heritage needs, LID and require developments to integrate and model LID.	planning, engineering, and water
10.	Implement a stormwater tax program in Guelph.	planning and engineering
11.	Incorporate street trees into SWM for roads	planning, engineering and forestry

7. This workshop was a very useful step in getting my municipality to think about IWM. (7 responses)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4 (57%)	2 (29%)	1 (14%)		

8. If you are Neutral on, or Disagree or Strongly Disagree with the statement for No. 6, please describe why and how the workshop could be improved.

- No responses given.

9. General Comments

- This was an excellent networking opportunity.
- It was good to bring us all together. Christine's presentation was great. I hope this will initiate more integrated thinking for better collaboration among agencies.

- I learned a great deal. Thank you for inviting me!
- More people should be involved such as: politicians (councillors), developers and technical private consultants.
- Great discussion, good participation by all!