KNOWLEDGE MOBILIZATION TOOLKITS: DEVELOPING A KM STRATEGY
Part 2: Report Back from Audience –Notes Taken Onscreen

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Reports per table

Table 1

- Design and plan projects in communication with all stakeholders and involving them in an advisory role
- Design a business case that demonstrates the value of the project to all stakeholders involved

Table 2

- N/A (this case study and tool set was not assigned to participants at the session)

Table 3

- The goal is to improve life by eliminating bullying
- The goal will be accomplished by
    - influencing policy related to bullying in schools and
    - changing the mindset in schools as well as school policies
- Requirements for success
    - Involvement of front-line professionals, e.g. in person outreach activities (travel to schools), lunch and learn at schools with teachers and staff
    - Consensus for set policies
- Measuring impact
    - Use social services inside the schools to evaluate impact, e.g. evaluations from social workers
    - Indicators:
        - number of people downloading the information
        - social media analytics
        - number of kids and parents involved and benefitting

- Use media to raise awareness in homes; engage a celebrity/inspiring spokesperson as a champion
- Use social media:
    - To raise awareness and have impact because it's public and a popular medium
    - To develop accessible products
    - To produce blogs that keep the conversation going

Table 4

- Engage partners in order to get them motivated; "what would motivate partners to get engaged?"
- Ask the partner how to best approach mobilizing information
- Use marketing and networking approaches
- Identify the links amongst differences: common interests, areas and intended impacts, "where do we all work together"
    - For example:
        - How to best engage with remote communities? Anticipate issues and produce solutions?
        - What do you do with a problem that is isolated to one community? Finding solutions elsewhere in the world and bring them locally?
- Identify the challenge, e.g. technology issue versus "working with people" (i.e. changing behavior, understanding, perspectives etc.) and any related ethical challenges
- Look for and maximize on synergies
- KM approach:
    - Use multiple and different approaches to KM
    - determine the most practical approaches
    - consider front-line support
    - be strategic based on the target end user and the issues being addressed
- Develop policy papers grounded on interactive discussions
    - What policies should be developed/modified, and why?
    - The goal is to inform practice and/or inform government

Table 5

- N/A (this case study and tool set was not assigned to participants at the session)

Table 6

- The goal is to mobilize the kids that are involved
- Use social media to reach kids, e.g. produce videos with solutions that are shared on social media
- Get people (beneficiaries) to start talking about the issue first, then get attention of media
- Think about how to get the toolkit out to more people, e.g. sports groups, etc.
- Resource and focus management: Why are we trying to push a 130-page document, especially when examples already exist?

- Approaches:
    - it is ideal when the tool is driven by the children themselves, i.e. bottom-up approach; however, it is ideal when bottom up and top down approach are both taken
    - create partner driven panels
    - make more effective inroads in faculties of education
    - provide care packages to schools, especially where budgets are limited
    - HQP: integrate HQP in a systematic way, e.g. train HQP to be comfortable with the tools and with giving presentations
    - use PD days to interact with teachers and school staff
    - directly focus on students/children

How can the network apply these KM tools?

- The tools help answer the following questions:
    - How to work with all of the user groups?
    - How to meet everyone's needs?
    - How to best adapt plans to meet these needs?
- The tools highlight the importance of
    - promoting what networks do
    - engaging with relevant associations
    - Engaging end users
- Commercialization:
    - some principles can be used to be more successful in commercialization activities, e.g. working with industry partners, bringing them in at the front-end is parallel to engaging community/policy partners at the front-end when doing KM

Questions for the panel

- How are you structured to support the network? How do you do it?
    - Knowledge brokering function, with specialized expertise
    - Service core that provides services to the network
    - Knowledge mobilizers, interns; structured and integrated into the network process
    - KM done at all levels, e.g. network SD, ED
    - We never start a project without a partner that is already invested; there are close connections between the research team and the partner all throughout the cycle of a project; we provide an end of project grant that ensures that the partner uses the end product/knowledge; but the partner needs to make the investment first. This ensures a need for the knowledge/produce and secures the commitment
    - Embedding graduate students
    - We establish the role of people, especially students, as the mobilizers of knowledge; this builds capacity at the partner level and has huge impacts

- We focus on getting technology out into the market place by targeting current challenges in Canadian policies and in accessing to capital; we have a small group of investors that evaluate and provide feedback on “mock business cases” put forward by researchers

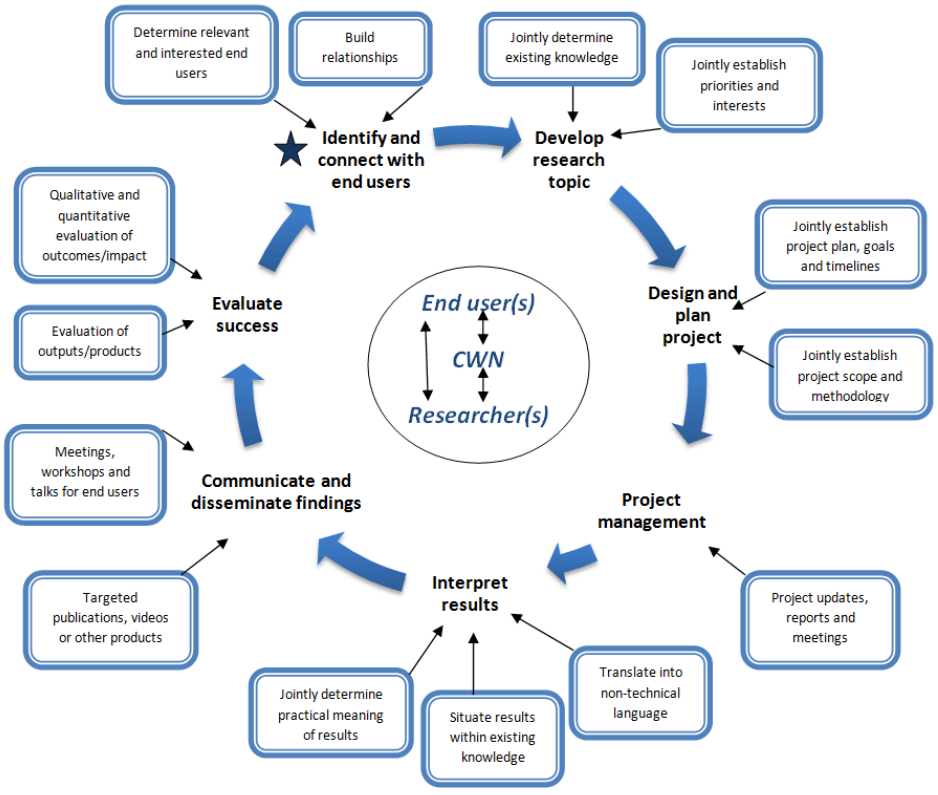
Handouts: Tools, case studies and supplementary information

Canadian Water Network (CWN)

CWN TOOL: Knowledge Mobilization throughout the Research Process

Knowledge mobilization is a process that facilitates research-informed decision-making. At Canadian Water Network (CWN), knowledge mobilization hinges on understanding end-user decision needs and supporting researchers in responding to those needs. When dealing with complex water management issues, CWN has found that end-user involvement at all stages of the research – from developing the research question to interpretation and communication of the results – is critical for ensuring that research is well positioned to inform decision making.

This toolkit will share best practices for knowledge mobilization throughout the research process, from developing a team and project plan through to communicating information and evaluating success. A series of questions will walk you through elements to consider when developing a knowledge mobilization plan. No matter what stage of the research process you are at with your project, you can use this diagram and the questions we pose to create an effective knowledge mobilization strategy.



Notes: Knowledge mobilization is a complex process, and each step should be adapted to fit the circumstances of the project. The sequence and specific types of activities involved in knowledge mobilization may therefore vary from the model depicted above. Ideally, enter this process at the star.

1) Identify and connect with end users

One of the most important factors affecting the success of a knowledge mobilization plan is a strong, long-term relationship with end users. These relationships are pivotal to the success of end-user oriented research because they ensure that research is mutually beneficial and addresses both real world end-user challenges and stimulating academic research questions. Building strong relationships helps to avoid conflict and create trust, and is integral to the co-creation of knowledge.

Which target end users would you like to involve?
- *Who has influence on decisions in your target area?*
- *Who is enthusiastic and interested about being involved?*

How will you reach out to these target end users to involve them in your project?
- *Do you have a pre-existing relationship or mutual contact?*
- *What networks, associations or groups are they a part of?*

What challenges are they experiencing that could be addressed by this project?
- *What are the key problems or issues they face?*
- *What is the organization's mandate?*
- *How does your research provide the answers they need?*

As you connect with these end users, how will you build a strong relationship with them?
- *Set up frequent opportunities for communication?*
- *Ensure you continue to understand their needs and context?*
- *Treat them with respect, and incorporate their local, traditional or practical knowledge about the area?*

2) Jointly develop research topic

After identifying and connecting with relevant and interested end users, it is beneficial to discuss the needs and priorities of all parties involved and to ensure that the potential research topic will meet these needs (an in-person discussion is usually preferable). At this stage, you also gain an understanding of what knowledge exists about the topic in question and can identify what gap(s) your proposed research fills.

What do your end users need to know, and why?
- *What information they need*
- *Why they need it*
- *How a research project might meet those needs*
- *What such a research project might look like*
- *How they would use the information from the research*

What is the existing information on the topic – scientific, traditional, local and operational/tacit knowledge?

Are there any situational, legislative or regulatory constraints or changes anticipated that might change the project plan?

3) Design and plan project

After establishing the interests and priorities of all parties and determining how the proposed research topic will meet these needs, it is time to move into the more detail-oriented project planning stage. Establish and discuss your project plan, scope, timelines and individual responsibilities, allocate resources and funding to these activities, and create a schedule for project updates.

How will you involve these end users in the project?
- *Fully integrated vs. involved in an advisory capacity?*
- *Will they be involved in data collection, analysis, or interpretation/communication activities?*

Discuss the following questions with end users to develop a project plan:

- *What is the project scope and methodology? What are specific tasks, outcomes and deliverables of the project?*
- *What is the timeline for the project? What milestones must be achieved, and when?*
- *What resources and budget are required for each task, and are they allocated correctly?*
- *Who is responsible for the completion of each task?*
- *What is the ideal schedule for project updates?*
- *What procedure will be followed if any of the above items change?*

Task or Deliverable	**Timeline**	**Resources Required**	**Key Contact**

Procedure:

4) Project management

It is important to communicate frequently with end users during the project to update them on the progress of the research. If the scope of the project changes, you will need to discuss this with your partners immediately. Frequently evaluate the partnership to make sure that it is still meeting the goals and needs of all parties and to avoid potential future conflict.

What is your project management strategy?

- *When and where will project meetings or teleconferences occur? How will those meetings cover updates on anticipated changes to the project scope or timelines, as well as updates on progress of the research?*
- *How will you ensure that the project continues to meet the needs of all parties?*

5) Interpret results

After you have collected your data, you must interpret the results to understand what the data shows, how that fits into the context of existing knowledge (both scientific and non-scientific), and how you intend to frame the results. When interpreting results for end users, this may involve translating the research into less technical language, situating the results within their existing knowledge, and determining the actionable messages of your research.

How will you target your communication to each audience?

- *Does it use the right language and terminology?*
- *Refer back to the issues and context you described in section 2. How does your interpretation of the research situate the results within the end users knowledge and context?*
- *What are the actionable messages you are sharing?*
- *Is your communication clear, short, easily understood and free of acronyms?*

6) Communicate and disseminate findings

Once your research has been collected and the message has been interpreted, you are ready to communicate the results to end users. At this stage, it will be beneficial to consult with end users about how they prefer to receive information, who they consider to be a credible messenger, and then tailor your communication mechanism to their preferences. It may also be helpful to assess research on effective communication mechanisms.

What communication mechanisms does your audience prefer?
A variety of written, web-based, or verbal communication mechanisms may be appropriate based on your audience's needs.

Who is a credible messenger to your audience?
Other organizations, peers and specialists can all be credible messengers to your audience; consider whether you have chosen the right messenger.

7) Evaluate success

It is important to evaluate the success of a project on both its scientific impact and the practical impact of your knowledge mobilization efforts. Evaluation can focus on project outputs and products as well as the subsequent outcomes resulting from the knowledge.

Outputs are the products that are produced to share knowledge (presentations, products or training, for example); you may want to measure metrics about outputs such as number of participants, requests for information, downloads or shares, characteristics of people who accessed the information, and feedback you received about products.

How will you assess uptake and use of project outputs or products?

Outcomes are short, medium or long term changes in the end user community that the project has informed; these may be changes in attitudes, knowledge, skills, behavior, policy, practice, or even changes in environmental, social or economic conditions. Outcome measurement is difficult because outcomes are often affected by many factors and it is difficult to attribute impact to one factor in particular; additionally, some changes may take a very long time to occur. Thus, consider gathering qualitative information (testimonials, interviews and verbal feedback) on outcome measures of interest as well as quantitative measures.

Anticipated outcome	Anticipated timeline	How will you measure this outcome?

CWN CASE STUDY: Decentralized Rural Wastewater Management Systems
By: Dr. Rob Jamieson; Dalhousie University

Background:

In Canada, approximately 20% of the population relies on on-site wastewater systems to treat their domestic wastewater. Some provinces and regions have even higher percentages of their populations using these systems, such as Nova Scotia at ~50%. An on-site wastewater system design typically consists of domestic wastewater leaving the household and entering a septic tank where solids are allowed to settle out. The liquid effluent from the septic tank then enters a disposal field that is constructed using native soils or imported filter media before the treated wastewater is discharged into the surrounding soil or to the ground surface.

Although most provinces have detailed technical guidelines for the design and installation of on-site wastewater systems, it is generally acknowledged that these systems pose significant risks to both surface- and groundwater resources. Many systems are not maintained, or were improperly designed and constructed, contributing to system failure or poor treatment performance.

Currently, many provincial guidelines lack provisions for ongoing inspection and maintenance of on-site wastewater systems. Information regarding the long-term performance of these systems is needed to predict their water quality impacts, and to plan inspection and replacement strategies. Additionally, little is known about many newer designs of on-site wastewater systems, which are not currently approved for installation and use.

Overall Project Objectives:

The objectives of the research are to assess the treatment performance of the various types of systems under field conditions and to examine the effect of various design alternatives, such as changes in drainage slope, sand type and loading methods (pump vs. gravity-fed) on system performance. The team also hopes to track the long-term performance of these systems.

This project involves construction and monitoring of both approved and new field-scale on-site wastewater systems including conventional disposal fields, contour trench disposal fields, lateral flow (sloping) sand filters, wetlands, and peat filters.

Stakeholders:

A variety of provincial government agencies and other groups have interests related to this area. Three key local groups include:

1) *Waste Water Nova Scotia*, a society representing on-site sewage professionals and other service stakeholders. This society is concerned with the education and training of on-site installers of wastewater treatment systems.

2) *Nova Scotia Environment,* a provincial government agency that determines regulations for environmental protection, including guidelines for installation and maintenance of on-site wastewater systems. This group is particularly interested in learning more about the

long-term treatment performance of on-site wastewater systems, design factors that affect their effectiveness, and when these technologies should be replaced to minimize their environmental and human health risks. Additionally, NSE plans to update their list of approved technologies for wastewater treatment, as well as their technical guidelines for system design and maintenance, in the near future.

3) *Cornwallis Headwaters Society*, a group representing the interests of landowners and residents in a rural area in Nova Scotia. This group is concerned that many on-site wastewater technologies require building relatively large systems that are difficult to install, particularly on small lots, and are very expensive to build and maintain.

Groups in other provinces are also interested in this topic, and face similar challenges to these stakeholders in Nova Scotia.

Instructions: Use the above information to work through sections 1 through 4 of the Knowledge Mobilization Toolkit. After you complete section 4, continue below to develop a communication and evaluation plan.

Research Findings:

The research has shown that a variety of on-site wastewater systems used throughout Eastern Canada are capable of providing excellent treatment of wastewater, producing effluent with very low average concentrations of parameters of concern. The team found that treatment performance of some designs can be extremely variable depending on sand type, loading method and external hydrologic inputs such as precipitation and snowmelt.

However, one particular design, the lateral flow (sloping) sand filter, provided a very high level of treatment for water quality parameters of interest to regulators, and is also a smaller and cost-effective design.

Instructions: Given the results above, work through sections 5-7 of the Knowledge Mobilization Toolkit to determine how you will interpret and communicate results to the audiences you identified in Section 1, and how you will evaluate the impact of the research.

ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL RISKS

ASSOCIATED WITH DECENTRALIZED RURAL WASTEWATER MANAGEMENT SYSTEMS

DR. ROB JAMIESON, DALHOUSIE UNIVERSITY

CANADIAN WATER NETWORK
RÉSEAU CANADIEN DE L'EAU

ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL RISKS
ASSOCIATED WITH DECENTRALIZED RURAL WASTEWATER MANAGEMENT SYSTEMS

DR. ROB JAMIESON, DALHOUSIE UNIVERSITY

WHY DID WE DO THIS RESEARCH?

In Canada, approximately 20% of the human population rely on on-site wastewater systems (OWSs) to treat their domestic wastewater. Some provinces and regions have even higher percentages of their populations using OWSs, such as Nova Scotia at ~50%. Untreated domestic wastewater, which is a source of pathogens, nutrients and pharmaceuticals, can present a serious environmental and human health risk if it enters surface and groundwater resources. To minimize the potential risks from untreated domestic wastewater entering freshwater resources, most provinces have detailed technical guidelines for the design and installation of OWS to ensure proper treatment. An OWS design typically consists of domestic wastewater leaving the household and entering a septic tank where solids are allowed to settle out. The liquid effluent from the septic tank then enters a disposal field that is constructed using native soils or imported filter media before the treated wastewater is discharged into the surrounding soil profile or to the ground surface. When OWSs are not adequately maintained or are improperly designed and installed this can cause poor treatment performance or surface hydraulic failure (the OWS becomes clogged with solids from the domestic wastewater and untreated effluent then percolates upward to the ground surface).

Leah Boutilier with Nova Scotia Environment stated that "...research findings evaluating treatment performance of OWS that are designed and installed in NS provides confirmation of adequate treatment and robust design, while on-going long-term performance evaluation equals confidence in system design."

One question of interest to the OWS management community relates to the long-term treatment performance of OWS. Leah Boutilier with Nova Scotia Environment stated that "...research findings evaluating treatment performance of OWS that are designed and installed in NS provides confirmation of adequate treatment and robust design, while on-going long-term performance evaluation equals confidence in system design." Examination of the long-term treatment performance of OWSs and when these technologies should be replaced to minimize their environmental and human health risks is required.

The Nova Scotia OWS industry group, Waste Water Nova Scotia Society, is similarly concerned with OWSs, with a particular interest in new and potentially cheaper OWS technologies to be approved for use in the province. The local soil and geologic conditions in Nova Scotia of shallow groundwater tables, bedrock outcroppings, and impermeable soils restrict the types of OWS that can be installed. The majority of approved OWS disposal field designs are constructed using imported disposal field filter media (e.g. sand) and are designed to promote horizontal/lateral flow through the filter, instead of the more common downward vertical flow direction. The executive director of the Waste Water Nova Scotia Society, Gary Cameron, said that "in Nova Scotia, some of the older developments are very cramped and there is not a lot of space to do anything." Identifying OWS technologies, through field scale research studies, that would provide adequate long-term treatment with smaller footprints and lower installation costs than existing approved technologies would be mutually beneficial to both regulatory bodies and industry.

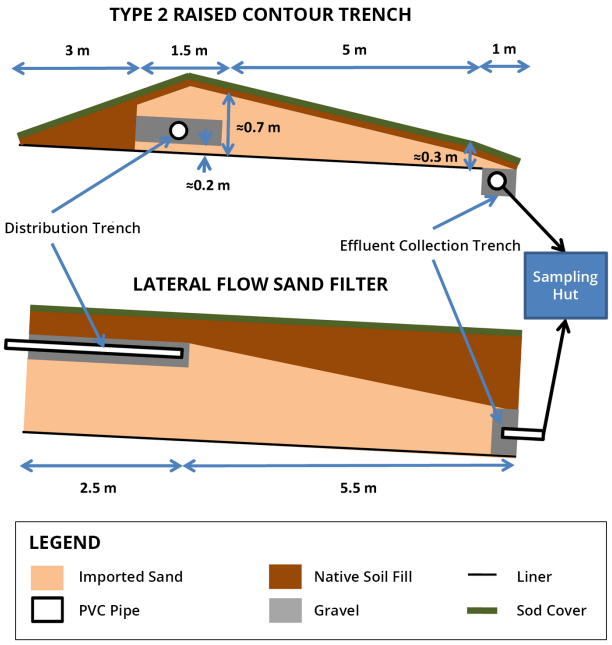
"In Nova Scotia, some of the older developments are very cramped and there is not a lot of space to do anything."

Gary Cameron, Waste Water Nova Scotia Society

The issues of OWS design types, maintenance and long-term treatment performance identified by provincial government regulatory bodies and the OWS industry led to the development of the following research questions addressed by this Canadian Water Network (CWN)-funded project:

- What is the long-term treatment performance of various, unique OWS designs used in adverse soil and geologic conditions in eastern Canada?
- Using the results of these treatment performance studies, can we develop and test watershed scale computer modeling tools to assist in evaluating the environmental and human health risks of OWSs and producing appropriate management strategies to minimize those risks?

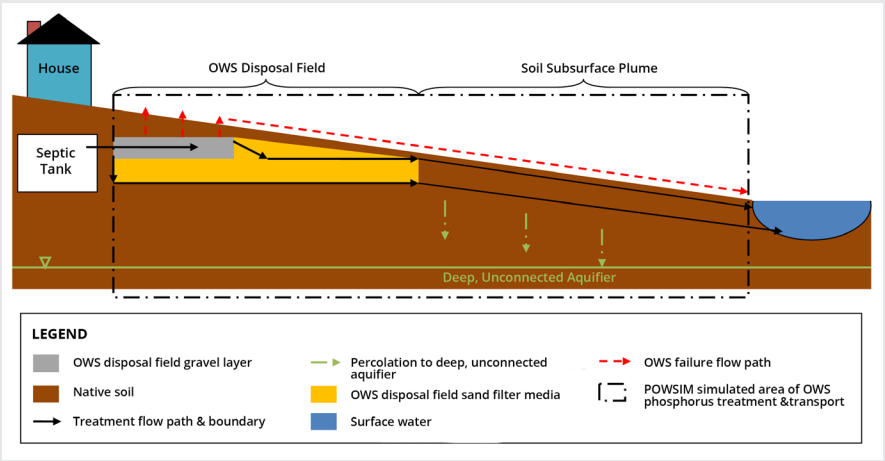
WHAT DID WE DO?



Profile diagrams of field scale Type 2 raised contour trench and lateral flow sand filter designs at the Bio-Environmental Engineering Centre.

To investigate the long-term performance of various, unique OWS disposal field designs, field scale OWS were constructed and monitored, starting in 2004. The research site was located at the Bio-Environmental Engineering Centre located in Bible Hill, NS and operated by Dalhousie University. The OWS technologies examined were lateral flow sand filters (LFSFs), also known as sloping sand filters, and Type 2 raised contour trenches. The field scale OWSs were constructed to be fully contained systems and have controlled inflow rates. There were eight LFSFs constructed that varied in design by drainage slope (5%, 30%), filter length (5.5 m, 8 m) and sand type (fine, medium, coarse). An investigation of the impacts of increasing the LFSF inflow loading rate (95 L day^{-1} to 175 L day^{-1}) on treatment efficiency was completed as well, beginning in 2007. The two Type 2 raised contour trenches differed in influent loading method with one being dosed via a pump at regular intervals and the other being gravity fed. The effluent flow rate for each system was continuously monitored for each of the ten OWS and one day per month influent and effluent water quality samples were collected using an autosampler. The samples were analysed for biochemical oxygen demand, total suspended solids, total nitrogen, total phosphorus and the pathogen E. coli. Tracer studies were conducted to analyze the mean residence time for contaminants.

The results of the field scale OWS monitoring programs were then used to develop two different watershed scale computer modeling tools. The first was a geographic information system (GIS)-based risk assessment tool that uses nine parameters related to OWS design, age, local soil and hydrogeology characteristics, and the contaminant pathways in the soil and surface environments. The GIS-based risk assessment tool was applied to the Huron-Kinslow Township in Ontario to determine what areas were at the highest risk from OWS contaminant loading. The second modeling tool was the phosphorus on-site wastewater simulator (POWSIM), which simulates phosphorus treatment and transport from an individual or cluster of OWS(s) to a neighbouring surface water course. The POWSIM model was used in conjunction with the watershed scale Soil and Water Assessment Tool (SWAT) computer model to simulate phosphorus loading from agricultural land uses and residential OWS in the Thomas Brook Watershed. The Thomas Brook Watershed is a small (~650 ha) mixed land use watershed located in the Annapolis Valley region of Nova Scotia.



Profile diagram of phosphorus treatment processes simulated by the POWSIM model.

WHAT DID WE FIND?

TREATMENT PERFORMANCE STUDIES

The research examining the long-term treatment performance of the eight LFSFs and two contour trenches found that they provided an excellent level of treatment that was equal to or exceeded secondary treatment standards *(Atlantic Canada Standards for the Collection, Treatment, and Disposal of Sanitary Sewage, 2004)*. The eight LFSFs that varied in design by slope, sand type and filter length did not have significant differences in removal rates for *E. coli*, total suspended solids, total nitrogen and biochemical oxygen demand when monitored for a six year period (2004 to 2009). Tracer studies conducted before and after the increase in LFSF hydraulic loading rate found no significant change in filter residence time, suggesting that flow is highly controlled by the formation of a biologically active layer at the gravel-sand interface called a biomat. Investigation of changes in phosphorus treatment in the six 8 m long LFSFs for the 2004 to 2011 study period found a significant reduction in total phosphorus removal, particularly for the filters with the coarse sand type. Overall, the LFSFs were not effective as a long-term phosphorus removal treatment technology.

The two Type 2 raised contour trenches with either gravity-fed or periodically dosed loading conditions were studied for a period of three years (2007 to 2010). Both systems performed well with significant removal of biochemical oxygen demand, total suspended solids and the pathogen *E. coli*; however, the gravity-fed system produced statistically lower effluent concentrations for total phosphorus and total suspended solids, possibly because of biomat formation. The gravity-fed contour trench did experience

ever increasing depths of ponded water in the distribution trench, suggesting that progressive clogging of the trench with solids was occurring and this eventually caused surface hydraulic failure. Reduced removal rates were observed in both contour trenches following a precipitation and snowmelt event in March 2010, possibly caused by reduced contaminant retention times from the six to eight times higher than average flow rates. This study demonstrates that effluent quality from OWS can be variable because of precipitation events (i.e. rainfall, snowmelt) and the loading method (periodic-dosing vs. gravity-fed).

Average effluent concentrations and %/log reductions for Type 2 raised contour trenches and 8 m long lateral flow sand filters (LFSFs).

OWS DESIGN	PARAMETERS					
	E. COLI (CFU 100 mL^{-1} [LOG])	TOTAL SUSPENDED SOLIDS ($mg\ L^{-1}$ [%])	BIOCHEMICAL OXYGEN DEMAND ($mg\ L^{-1}$ [%])	TOTAL PHOSPHORUS ($mg\ L^{-1}$ [%])	AMMONIA AS N ($mg\ L^{-1}$ [%])	TOTAL NITROGEN ($mg\ L^{-1}$ [%])
TYPE 2 RAISED *DOSED*	2.7 [5.6]	3.3 [95.0]	2.5 [98.0]	0.31 [90.1]	0.57 [97.1]	9.36 [69.4]
TYPE 2 RAISED *GRAVITY*	2.1 [6.0]	2.3 [99.3]	2.4 [99.0]	0.13 [96.8]	0.40 [98.0]	8.07 [79.9]
LFSF *FINE SAND*	55 [4.8]	5.4 [93.4]	2.6 [97.4]	1.4 [69.7]	0.2 [99.0]	16.6 [45.7]
LFSF *MEDIUM SAND*	33 [5.0]	5.6 [93.2]	2.8 [97.3]	1.5 [68.0]	0.2 [99.2]	16.1 [47.3]
LFSF *COARSE SAND*	29 [5.0]	4.0 [93.6]	2.6 [97.5]	2.6 [45.1]	0.2 [99.2]	16.3 [45.8]

MODELING TOOLS

The GIS-based risk assessment tool successfully determined the most at-risk areas in the Huron-Kinloss Township in Ontario that were confirmed and validated by local experts (e.g. public health inspectors, chief building officials). The risk parameters that predominantly contributed to the highest risk areas were soil type, OWS age and level of water flow connectivity between the ground surface and the local groundwater table.

Flow, and sediment and total phosphorus loading were adequately simulated by POWSIM in conjunction with the SWAT model for the Thomas Brook Watershed in Nova Scotia. The modeling framework under-predicted both stormflow (precipitation event flows) and baseflow (no preceding precipitation event) total phosphorus loads in the watershed, but performed better than using only the SWAT model. The agricultural and OWS land uses were simulated as the largest sources of phosphorus in the watershed and their phosophorus loads were the same order of magnitude even though residential land uses were only 4% of the watershed area compared to 60% for agriculture. The POWSIM model simulated peak OWS phosphorus loading occurring in the Thomas Brook Watershed at greater than 30 yrs of continuous OWS operation. Simulation of different OWS management strategies found the most effective were using high phosphorus removal OWS filter media and reducing the OWS surface hydraulic failure rate from the watershed default value of 15% to 5%.

CASE STUDY: LATERAL FLOW SAND FILTERS IN NOVA SCOTIA

Prior to this research study, the lateral flow sand filter (LFSF) in Nova Scotia was only used to replace OWS technologies that had suffered surface hydraulic failure. Many of the other Nova Scotia Environment approved OWS technologies required building relatively large and costly systems that made placement on small building lots particularly difficult for OWS designers and installers. The LFSF is a smaller OWS than the other designs and is typically less costly to install.

The long-term treatment performance research on LFSFs carried out at the Bio-Environmental Engineering Centre in Bible Hill, NS found that LFSFs provide an excellent level of treatment that meets and exceeds secondary treatment standards. This led to the adoption of LFSFs as an approved technology for new developments by Nova Scotia Environment in 2009. By 2010, the LFSF was the second most installed OWS technology in the province. This has created benefits to both homeowners, OWS designers/ installers and regulators in that the LFSF can be constructed on smaller lot sizes compared to other approved OWS technologies and still provide excellent treatment of domestic wastewater.

WHAT DO THESE FINDINGS MEAN FOR MUNICIPALITIES?

TREATMENT PERFORMANCE STUDIES

The main outcome of the long-term performance studies of the LFSFs and Type 2 raised contour trenches is that they both provide excellent levels of domestic wastewater treatment and would be applicable for use in regions in Canada that have adverse and challenging soil and geologic conditions. This allows for more OWS technology options for municipalities and regulators to better protect and manage their surface- and groundwater resources, which would typically be at high-risk in areas with impermeable soils, shallow groundwater tables and bedrock outcroppings. These technologies have already been adopted as approved disposal field options by Nova Scotia Environment. The results of this research program are currently (Jan 2014) being used by Nova Scotia Environment to provide science-based evidence in a reassessment of the OWS technical guidelines to update some of the disposal field design specifications (e.g. filter length).

Another implication is that the dosing method for the OWS disposal field (e.g. gravity-fed, periodically pumped) and inflow rate is important to manage to prevent surface hydraulic failure. The Type 2 raised contour trench that was gravity-fed experienced increasing depths of ponded water caused by solids clogging the filter media that eventually lead to surface hydraulic failure. It would therefore be preferable to use an inflow system, such as periodic pumping, to more evenly distribute the domestic wastewater in the OWS and improve treatment efficiency. However, if an OWS already has a gravity-fed inflow design then installing a septic tank effluent filter would reduce solids loading into the distribution trench. Overall, it is a good general practice that all septic tanks have effluent filters to minimize solids transfer to the OWS disposal field.

MODELING TOOLS

The GIS-based risk assessment model can be used by municipalities to assist with identifying and designating at-risk areas regions that would be susceptible to contamination from OWS. This would be particularly useful in regions where there are no nearby visually noticeable surface water features in a potential development area and the local groundwater system would be the freshwater resource of interest. Designated at-risk areas would then have additional development and OWS design requirements applied to minimize the contamination risk. Examples of these requirements include increased OWS setback distances from wells, water features and wetlands, larger lot sizes and advance OWS treatment technologies. The risk assessment model could also be applied to current developed regions to identify at-risk areas to better strategically target OWS re-inspection and maintenance programs to ensure surface- and groundwater resources are properly protected and managed. It would be recommended that municipalities that currently have or are planning large developments where OWSs will be the primary treatment method consider using the GIS-based risk assessment model to assist in identifying their at-risk areas for surface- and groundwater OWS contamination.

The results of developing and testing POWSIM in conjunction with the SWAT model found that residential OWSs were a potentially significant source of phosphorus in a small rural, mixed land use watershed. Surface water monitoring programs and setup of modeling tools in watersheds where residential OWS are present need to ensure they properly evaluate the relative contributions of phosphorus from OWS to determine whether it is a source of concern. This would include adding a monitoring station downstream of a subcatchment that is predominantly residential land use or ensuring a model includes a phosphorus loading rate to represent OWS.

The study also found that OWS phosphorus loads may not reach their peak value until 30+ years after they have begun operation. If watershed managers want to properly evaluate OWS as a potential source of phosphorus they will need to ensure their investigations are for at least 30 years to capture the beginning of peak phosphorus loading from OWS and its full impact on a surface water system. This could be done through updating phosphorus capacity modeling scenarios, which are commonly applied in many provinces, including Nova Scotia, that are used to determine the impacts of residential, commercial and industrial development on water quality in a lake environment. Currently, the OWS phosphorus load coefficients in these scenarios do not reflect peak OWS loading after 30+ years. These OWS phosphorus load coefficients need to be updated to reflect decreased treatment performance over time to fully capture the impacts of OWS on a lake environment. Watershed management plans can then be updated to help reduce these OWS phosphorus loads through OWS disposal field filter media replacement programs, advising installation of OWS technologies that specifically target phosphorus and increasing water course setbacks for OWS disposal fields.

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Knowledge mobilization plan

INSTRUCTIONS: This form can help you think through different ways to mobilize knowledge and create a solid plan for moving ahead. If you are considering multiple target audiences, you may want to complete individual plans to guide specific activities for each of these knowledge user groups. Or check out Appendix A for an alternate way to sort through your various strategies to reach different audiences.

Need some inspiration? More information? Look for this icon to check out more tools and resources.

IMPORTANT: Be sure to save this form to your computer and open it with a PDF reader, such as Adobe Reader. This will ensure you are able to save your entered information. Using your Internet browser's PDF previewer instead may lead to a loss in saved information.

WHAT

What knowledge do you want to mobilize? What are the main messages that you want to share?

WHY

Why are these messages meaningful? Why should others see or use this product?

Why are you doing this? What impact are you trying to have with your KMb efforts?

- ☐ change attitudes
- ☐ change behaviour or practice
- ☐ engage stakeholders
- ☐ fulfill funding requirements
- ☐ generate interest or awareness
- ☐ influence policy action
- ☐ share knowledge, experience or tools
- ☐ validate, legitimize or defend a position
- ☐ other:

WHO

COLLABORATE

Who are your project partners? Who else is involved in mobilizing this knowledge and evidence?

- ☐ caregivers and families
- ☐ children and youth
- ☐ community partners
- ☐ decision-makers
- ☐ general public
- ☐ government partners
- ☐ researchers
- ☐ service providers
- ☐ volunteers
- ☐ other:

What do your partners bring to the table? How will they assist with planning, doing and evaluating your KMb efforts?

Not all partners will be involved at the same point in time or to the same degree. Some partners may be involved from idea formulation and straight through to the end of your initiative, while others may only be involved at certain points in time. How will *your* partners be engaged in your KMb efforts?

Who are your champions and key mobilizers? Who will help support and promote your KMb efforts?

WHO

CONNECT

Who are you trying to reach and engage? Who are you targeting?

- ☐ caregivers and families
- ☐ children and youth
- ☐ decision-makers
- ☐ general public
- ☐ media
- ☐ policy-makers
- ☐ research funders
- ☐ service providers
- ☐ other:

How have you involved your intended knowledge users or target audience in developing the key message(s) you are trying to share?

HOW

How will you get your message(s) across? What strategies do you think will help you to reach your intended knowledge users best? Keep in mind that these are just ideas. Get creative!

PRODUCTS

- ☐ blog
- ☐ case study
- ☐ e-newsletter
- ☐ educational material
- ☐ fact sheet
- ☐ FAQ
- ☐ handbook
- ☐ journal article
- ☐ magazine article
- ☐ newspaper article
- ☐ podcast
- ☐ PowerPoint presentation
- ☐ press release
- ☐ promotional material
- ☐ reference list
- ☐ report
- ☐ research summary
- ☐ success story
- ☐ toolkit
- ☐ video
- ☐ webinar
- ☐ website content
- ☐ wiki
- ☐ other:

EVENTS

- ☐ annual meeting
- ☐ awards ceremony
- ☐ conference
- ☐ debate
- ☐ forum
- ☐ interactive workshop
- ☐ lunch and learn
- ☐ media event (e.g. TV or radio segment)
- ☐ panel
- ☐ presentation
- ☐ symposium
- ☐ training session
- ☐ other:

NETWORKS

- ☐ chat room
- ☐ community of practice
- ☐ discussion board
- ☐ listserv
- ☐ online forum
- ☐ social media
- ☐ other:

Why are you choosing these strategies? Why are they best for you? Consider what resources you have available, how complex the information is that you are trying to mobilize and how connected your target audience is to this information.

What resources will you need for your KMb efforts?

- ☐ budget
- ☐ honoraria
- ☐ information technology support
- ☐ materials
- ☐ meeting expenses
- ☐ personnel or human resources
- ☐ time
- ☐ travel
- ☐ volunteers
- ☐ other:

WHEN

When do you intend to implement this plan? Ensure that your timelines make sense for both the target audience as well as the mobilizers. Are there other things going on at that time that will have an impact on your plan?

Take a quick look back at why you are doing this. Do you feel that you have the time and resources that you will need to achieve your intended impact? Check out the KMb plan outline (Appendix A) to explore your timeline.

MEASURE

How will you know if you have achieved your goals?

What type of indicators will you use to measure your KMb efforts?

- ☐ reach indicators *(# distributed, # requested, # downloads/hits, media exposure)*
- ☐ usefulness indicators *(read/browsed, satisfied with, usefulness of, gained knowledge, changed views)*

- ☐ use indicators *(# intend to use, # adapting the information, # using to inform policy/advocacy/enhance programs, training, education or research, # using to improve practice or performance)*
- ☐ partnership/collaboration indicators *(# products/services developed or disseminated with partners, # or type of capacity building efforts, social network growth, influences, collaborativeness)*
- ☐ practice change indicators *(intent or commitment to change, observed change, reported change)*
- ☐ program or service indicators *(outcome data, documentation, feedback, process measures)*
- ☐ policy indicators *(documentation, feedback, process measures)*
- ☐ knowledge change *(quantitative & qualitative measures)*
- ☐ attitude change *(quantitative & qualitative measures)*
- ☐ systems change *(quantitative & qualitative measures)*

How will you collect this information? How will this information be analyzed?

Take a moment to reflect on these guiding questions for evaluation.

- ☐ Who will be most affected by the evaluation of this product/initiative? What kind of information do they need?
- ☐ How can you make your evaluation information most valuable and useful?
- ☐ Which evaluation questions are critical to produce useful and meaningful findings?
- ☐ What internal/external factors do you need to consider in evaluating your KMb efforts?
- ☐ How have similar products/initiatives been evaluated in the past?
- ☐ Will you focus on process or outcome information?
- ☐ Will you use quantitative measures, qualitative measures, or a mix of both?
- ☐ Do evaluation tools exist already or do you need to create your own?

Reference/resource: Barwick, M. (2008, 2013). Knowledge Translation Planning Template. Toronto, Ontario: The Hospital for Sick Children. Retrieved from: http://www.melaniebarwick.com/training.php

Appendix A: KMb plan outline

INSTRUCTIONS: Use this table to plan out more complex knowledge mobilization efforts with more than one target audience.

GOAL:

Audience *Who are you trying to reach? Is there a tailored message for this audience?*	**Strategy** *How will you get your message(s) across? What strategies will work best for this audience? Consider how each strategy links to your overall goal.*	**Target** *How many conferences and workshops do you want to deliver? How many users do you want to reach?*	**Budget and resources** *E.g. honoraria, information technology, materials, meeting expenses, personnel or human resources, timing, travel, volunteers, etc.*	**Timeline** *When do you anticipate executing your strategies?*	**Evaluation** *What impact are you trying to achieve?* *How will you know if you have achieved your goals?*

Audience	Strategy	Target	Budget and resources	Timeline	Evaluation

CYMH CASE STUDY: Mobilizing policy papers for Child and Youth Mental Health

In recent years, efforts have been made in Ontario, Canada to improve the uptake of evidence-informed practices among community-based child and youth mental health (CYMH) agencies (Barwick et al., 2005). The Ontario Centre of Excellence for Child and Youth Mental Health (the Centre) works to enhance capacity within the sector for evidence-informed decision-making, with the goal of strengthening child and youth mental health care. Funded by the Ontario Ministry of Children and Youth Services, the Centre works to bridge the gap between evidence and action through knowledge mobilization, knowledge brokering, and programs and services that target agency capacity to develop and apply evidence.

The Centre also works to support evidence-informed decision-making at the system level. Policy- and decision-makers require access to robust evidence in order to make well-informed policy decisions (Oxman et al., 2009). The Centre's policy papers provide Ontario's policy- and decision-makers with credible information on topics that are relevant to CYMH and rooted in reliable research, and support the development of province-wide policy recommendations. Topics are identified through discussions with government decision-makers, system stakeholders and noted experts to ensure relevance for the CYMH policy agenda. Content experts are then engaged to develop actionable policy recommendations that are grounded in reliable, up-to-date research evidence and, more recently, informed through consultations with policy- and decision-makers, youth, families and leaders in the system. Each policy paper includes a thorough summary of the research and grey literature, which is often complemented by environmental or jurisdictional scans.

To date, the Centre has produced 14 policy papers on a range of topics, including brief services, the use of technology in mental health service provision for children, youth and families, and governance in the transitioning child and youth mental health system. The Centre funds the development of the paper and supports the writing team by coordinating meetings, engaging families and youth in the process, supporting writing and mobilizing the final product through various channels (e.g. meetings with government decision-makers, social media, the Centre's website and conferences). Typically, $1,000 is available to support activities related to mobilizing policy papers to relevant stakeholders.

Instructions: Imagine that you just produced the Centre's latest policy paper. Consider how you might mobilize it. Work through the Knowledge mobilization plan, aiming for two or three specific activities.

PREVNet

PREVNet CASE STUDY: Bullying Prevention Factsheets and Tools for Schools

What Knowledge does PREVNet want to mobilize?

Bullying Prevention: Factsheets and Tools for Schools is a resource that was created in partnership with the Ontario Ministry of Education to provide a model for best practice. It is a comprehensive, modular resource consisting of 13 Fact Sheets (summaries of information) and 21 Tools (summaries of aligned strategies) aimed at supporting bullying prevention and safe and accepting practices at schools.

Why should others see or use this resource?

Bullying in childhood predicts later interpersonal violence (e.g., dating aggression, harassment, etc.). In Canada, 12% of boys and 6% of girls bully almost daily; 15% of boys and 13% of girls are victimized almost daily. Seventy-five percent of Canadian 11-15 year-old children report one or two incidents of bullying involvement in the last two months, defined as bullying a peer or getting bullied by a peer, or both. Cyberbullying (bullying using electronic communication) is a growing concern and research indicates rates are increasing. During the later high school years, boys' rates of cyberbullying surpass rates of traditional bullying. UNICEF (2013) 'Child Well-being in Rich Countries: A comparative overview' of self-reported bullying among 11-15 year olds indicates that our national bullying prevalence rate is higher than 2/3 of the 28 developed countries who participated.

There are lifelong costs of failing to protect children from bullying and to nurture them in developing positive relationships. Chronic bullying predicts violent crimes, low job status, and drug use. Peer victimization leads to physical and mental health problems, and in extreme cases, suicide. Poor relationships, such as bullying, are as big a contributor to early death as smoking, drinking, and obesity. By preventing bullying through promoting positive relationships, we can optimize children's development and the return on investments at a societal level.

Why is PREVNet doing this? What impact is PREVNet trying to have with their KT efforts?

- Attitude change: strengthen commitment to bullying prevention (reach hearts and minds)
- Engage stakeholders: demonstrate that best practices exist, are evidence based, are do-able and effective
- Share knowledge and tools amongst "socializing adults" (i.e., teachers, school administrators, other educators and auxiliary school staff, parents, coaches, recreationists, etc.)
- Behaviour change: increase use of coordinated, whole school bullying prevention strategy implementation from K- 12 in every Canadian school
- Influence policy action: actualize goals of existing safe school legislation across Canada
- Decrease incidence of bullying and peer victimization and associated negative outcomes amongst Canadian children and youth

Identify and Connect with Stakeholders

Key Stakeholders/End Users:

A. ***PREVNet Dissemination Partners: These are network member organizations with interest and enthusiasm in the "safe school arena", and who are influential decision makers. Moreover PREVNet has built long term relationships and has launched other successful initiatives since 2006 with the majority of these organizations.*** Brian Bronfman Family Foundation (Quebec educational organization), Canadian Association of Principals, Canadian Safe Schools Network, Canadian School Boards Association, Canadian Teachers' Federation, Congress of Aboriginal Peoples, Ontario Institute for Education Leadership, Pan-Canadian Joint Consortium for School Health, Peaceful Schools International, Royal Canadian Mounted Police, Society for Safe and Caring Schools

B. ***Other End Users:*** all ministries/departments of education, school boards, individual schools, individual teachers, parents, and ultimately, all students

What challenges are PREVNet's End Users experiencing that could be addressed by this project?

- *Most are mandated to promote safe and inclusive school environments.*
- *Bullying and victimization problems are universal - they transcend gender, geographic, economic, and cultural divisions.*
- *Teachers typically do not learn about bullying prevention and intervention during their "pre-service" training.*

What barriers do End Users face regarding implementation of tool?

- *Sustained implementation of bullying prevention strategies takes intention, time, and funding.*
- *Different schools, school boards, and districts face competing priorities, especially academic achievement oriented priorities.*
- *Often bullying prevention efforts are nonexistent, or are "one-off" events that are not effective, or programs are used that are not evidence based.*
- *Despite the presence of explicit bullying prevention legislation in seven provinces/territories, and safe school legislation in virtually all provinces/territories, compliance is very uneven, based on a prevailing ethos of educational policy that favours regional and local autonomy in priority setting and decision making*

Communicate and Disseminate Findings

What PREVNet has done so far:

- Posted resource on our website, in modular form, so that entire resource or specific pages can be downloaded, November 21 2014.
- As of March 23, 2015, there have been 2,450 page views (64% Ontario, 12% Manitoba, 5% Quebec, 4% British Columbia, 4% Alberta; remaining 11% other provinces/territories and international)
- Tweeted it and FB'd, posted a feature slide on our prevnet.ca homepage
- Posted a survey link on download site to gather feedback from end users – no one has used it!
- Sent out a press release through both York and Queen's (Nov 17/18, 2014).
- Ontario Institute of Education Leadership presented it at their advisory meetings (approx. 50 people) December 2014
- Dr. Pepler (PREVNet Scientific Co-Director) presented the tools at the Ontario Ministry of Education Research Symposium on Feb 11th 2015
- Planning to have graduate students blog different factsheets and tools on a monthly basis

Instructions: Using the tool provided, please work through a possible KT Plan/strategy for this case study that PREVNet can use to disseminate this resource to those who could use/adapt/benefit from it. In other words, tell PREVNet, what are their next steps?

FACT SHEET

Key Elements of a Whole School Approach to Prevent Bullying and Promote Healthy Relationships

A Whole School Approach is the most effective approach to preventing bullying and promoting healthy relationships.

Safe School Teams

1. Membership includes youth, parents/ guardians, school staff, community partners, school administrators.
2. Safe school teams are a requirement of PPM144.

What is a "whole school approach"?

A whole school approach brings everyone together to work toward creating a safe, inclusive, and accepting school where bullying problems are prevented and handled effectively when they arise. A whole school approach involves the administration, teaching and school staff, children, youth, parents/guardians, and the broader community.

Why have a "whole school approach"?

A whole school approach is the most effective way to prevent bullying and promote learning. Children's learning depends on having positive relationships at school. When everyone works together for a safe, inclusive, and accepting school, children and youth receive **consistent** messages and responses about bullying and positive relationships at school, at home, in sports, in recreation centres, and in the neighbourhood. By providing consistent messages, responses, and supports that address bullying problems, school communities can promote positive, healthy relationships for their children and youth.

How does a "whole school approach" work?

All adults who are responsible for children play an important role in teaching them about healthy relationships and bullying. Teachers, parents/guardians, and other adults involved in children's lives:

- model relationship skills and attitudes
- create positive situations in which children and youth interact

Children will only learn positive relationship skills and attitudes if they observe and interact with adults who model positive relationships when interacting with children and other adults. All members of a school community must to work together: administration, teaching and school staff, children, youth, parents/guardians, and the broader community (e.g., police, family support services). In a whole school approach, professional learning opportunities are provided to everyone in the school community to promote awareness and provide effective solutions for bullying.

This fact sheet has been developed by PREVNet, www.prevnet.ca

A Whole School Approach involves working directly with:

1. *Children*
2. *Youth*
3. *School Staff*
4. *Parents/ Guardians*
5. *The Community*

The Ontario Leadership Framework

1. Build a shared vision.
2. Model the school's values and practices.
3. Build trusting relationships among school staff, students, parents and community partners.
4. Connect the school to the wider environment.

From *The Leadership Frameworks for Principals and Vice-Principals and for Supervisory Officers*. http://www.edu.gov.on.ca/eng/policyfunding/leadership/pvpleadershipframework.pdf.

What constitutes a Whole School Approach?

The school board policy and school plan sets the framework for a whole school approach by outlining not only the expectations and procedures for children and youth behavior, but also the expectations for all members of the school community. A whole school approach involves activities and initiatives that engage all members of the school community including: the children and youth (individuals and classes), parents/guardians, school staff, community partners. This approach involves prevention (activities that raise awareness and increase positive behaviours for the whole school) and intervention (activities that focus on individuals who are involved in bullying problems – as the child or youth who bullies, the child or youth who is victimized, or the child or youth who witnesses the bullying). An important element of the whole school approach is a regular evaluation exercise that assesses change at all levels of the school community.

Components of a Whole School Approach

Children and Youth

A whole school approach focuses on education of the whole child, including social-emotional development. School and classroom based learning activities that promote understanding of differences, inclusion and positive leadership are essential bullying prevention activities. By promoting positive relationships in and outside the classroom, all children and youth can be engaged in bullying prevention. Those children and youth who are involved directly in bullying, either as a child or youth who is engaged in bullying, or a child or youth who is victimized, or in both roles, will need extra intervention support.

School Staff

Successful bullying prevention programs depend on teachers, principals and all school staff to create a climate that encourages positive peer processes that promote a positive, safe, inclusive and accepting environment and discourages bullying. The success of bullying prevention initiatives depends on the extent to which the principal champions a bullying prevention initiative and provides resources. It also depends on principals and all school staff's engagement and implementation of the program.

Given the central importance of the principal's leadership in a school, there is a need for administrators to consider the importance of a positive school climate and healthy relationships for the well-being and academic achievement of children and youth in the school when developing school improvement plans. The principal sets the tone for the school and models the types of relationships that are valued in the school. Principals must be aware of their own behavior and how that impacts not only on the children and youth, but also on their staff members.

Teachers are responsible for establishing a collaborative and respectful classroom climate, effective strategies to set agreed upon norms for behaviour, open communication and appropriate responses for children and youth involved in bullying. Support for planning these complex tasks needs to be explicit about the importance of the school climate and quality of relationships for a child or youths' well-being, their social-emotional development, and their academic success.

Resources for Parents/Guardians

PREVNet: Making a difference in bullying. http://prevnet.ca/BullyingResources/ResourcesForParents/tabid/390/Default.aspx

RESOURCES

A Vision of Literacy for the Adolescent Learner. http://www.edugains.ca/newsite/literacy2/adolescent/visionofliteracy.html.

Classroom Dynamics: Creating a Supportive Learning Environment. http://www.edugains.ca/newsite/math2/classroomdynamics.html

Early Learning for Every Child Today: A Framework for Ontario Early Childhood settings. http://www.edu.gov.on.ca/childcare/oelf/continuum/continuum.pdf.

Ontario Ministry of Education. Equity and Inclusive Education Framework. *Caring and Safe Schools in Ontario: Supporting Students with Special Education Needs through Progressive Discipline, Kindergarten to Grade 12. http://www.edu.gov.on.ca/eng/general/elemsec/speced/caring_safe_school.pdf*

Model Bullying Prevention and Intervention Plan. http://www.edu.gov.on.ca/eng/document/curricul/prevent.html

PREVNet: http://prevnet.ca

Stepping Stones: A Resource on Youth Development (Ministry of Children and Youth Services. http://www.children.gov.on.ca/htdocs/English/topics/youthopportunities/steppingstones/youth_policy.aspx

Components of a Whole School Approach

Parents/Guardians

A whole school approach provides opportunities for parents/guardians to learn about bullying, about the school's bullying prevention initiatives, and to become engaged. Parents/guardians are essential partners in addressing bullying problems at school. Parents/guardians of children who are bullied are often aware of their children's distress long before the school knows of the bullying. These parents/guardians can raise concerns with teachers and participate in finding ways to support their children. Parents/guardians of children who bully are also important in the interventions; however they may not be as easy to engage. By talking with these parents/guardians and trying to collaborate with them, the school may be able to move a child or youth off a troubled path of bullying, which often leads to delinquency, dating aggression, and harassment.

Community

Although bullying problems unfold most frequently within the school, they are not just school problems. It is important, therefore, to extend an understanding of bullying and strategies to address bullying problems into the broader community. Schools can develop partnerships with agencies within the community (e.g., police, recreation, public health, mental health, family support). These agencies can not only provide prevention education in the school, but they can also support the school to intervene with children and youth who are experiencing severe difficulties.

See the Tools to support your Whole School Approach:

- *Creating community partnerships (why important and who could be)*
- *Identifying children, youth and adult champions at your school*
- *Roles and responsibilities of champions*
- *Integrating bullying prevention into the classroom learning*
- *Sample activities at each level*

TOOLKIT

Sample Strategies and Activities for a Whole School Approach for Bullying Prevention

A Whole School Approach involves working directly with the entire school community including:

- children and youth,
- classroom groups
- school staff
- parents/guardians
- the broader community.

By educating and engaging all of the school community, improvements in relationships and responses to bullying can be developed and promoted to ensure a supportive learning environment, positive school climate and sustainable improvements.

"Living skills cannot be taught effectively in isolation; they must be taught and evaluated in conjunction with learning related to all strands of the curriculum, in order to make the learning personally relevant for students. As they develop and apply their living skills, students will build resilience. They will learn to make choices that protect their safety and health and enable them to become independent thinkers and responsible adults who are capable of developing strong relationships and who are committed to lifelong healthy, active living.

The Ontario Curriculum, Grades 1-8, Health and Physical Education (2010)

Goals of bullying prevention activities

1. Promoting positive relationships within and between the entire school to enhance school climate and a supportive learning environment;
2. Educating and developing awareness about bullying, the importance of healthy relationships, and self-awareness about the use of real and perceived power in relationships;
3. Consolidating attitudes which are incompatible with bullying for inclusion, acceptance and respect for all;
4. Developing awareness of bullying issues at the school;
5. Developing positive solutions to prevent and address bullying;
6. Learning positive strategies to address bullying by
    a. children and youth who are victimized
    b. children and youth who witness bullying
    c. teachers, and
    d. other school staff;
7. Building social responsibility and open trusting communication about bullying and relationship difficulties.

Below are a just a few suggestions of activities based on the Whole School Approach. It is important that the activities are focused on the positive ways to enhance school climate, and to solve issues when they arise through education and discussion.

Resources

Classroom Dynamics: Creating a Supportive Learning Environment: http://www.edugains.ca/newsite/math2/classroomdynamics.html

Ontario Ministry of Education: http://www.edu.gov.on.ca/eng/teachers/safeschools.html

PREVNet: http://prevnet.ca

Ontario Ministry of Education. Full-Day Early-Learning - Kindergarten Program. (2010-2011 draft). http://www.edu.gov.on.ca/eng/curriculum/elementary/kindergarten_english_june3.pdf

Ontario Ministry of Education. The Ontario Curriculum, Grades 1-8: Health and Physical Education, Interim Edition. (2010). http://www.edu.gov.on.ca/eng/curriculum/elementary/health.html

Ontario Ministry of Education. The Ontario Curriculum, Grades 9-12: Health and Physical Education, Interim Edition. (1999 & 2000). http://www.edu.gov.on.ca/eng/curriculum/secondary/health.html

Stepping Stones: A Resource on Youth Development (Ministry of Children and Youth Services: http://www.children.gov.on.ca/htdocs/English/topics/youthopportunities/steppingstones/youth_policy.aspx

Ontario Ministry of Education. Caring and Safe Schools in Ontario: Supporting Students with Special Education Needs through Progressive Discipline, Kindergarten to Grade 12. (2010) http://www.edu.gov.on.ca/eng/general/elemsec/speced/caring_safe_school.pdf

Activities for Children and Youth

- Representation on Safe and Accepting School Teams
- Poster Initiatives/Activities - children make a poster about promoting healthy relationships and preventing bullying
- Announcements with a positive message of the day
- School club for promoting inclusion, safety, and respect
- School assemblies with community professionals, athletes, etc.
- Pink shirt day (www.pinkshirtday.ca[1])
- Articles in school newsletter
- Arts activities related to addressing bullying (e.g., drama, visual arts, music, poetry, prose)
- Peer mentoring program for bullying awareness and positive support
- Activities for Bullying Awareness Week (3rd week in November)
- Town Hall meetings to generate ideas and express concerns
- Recognition of students' positive behaviours
- Survey of messages and images in school to ensure they reflect school's diversity and promote positive, caring relationships
- Involvement of children/youth in assessments of bullying and supportive relationships at school.

Activities for School Staff

- Representation on Safe and Accepting School Teams
- Professional learning opportunities with professionals from community
- Developing vision of supportive learning environment and positive climate for the school
- Staff identification of strengths and concerns in school
- Activities to increase staff cohesion and collaboration
- Sharing effective practices in preventing bullying
- Generate innovative supervision strategies for key areas in the school (e.g., halls, outside)
- Develop strategies and tools for effective communication such as between:
    - teacher and principal (e.g., reporting slip)
    - bus driver and principal (e.g., reporting slip)
    - teacher and parent/guardian (e.g., call script)
    - student and teacher (e.g., bullying problem/solution box)
    - parent/guardian and teacher (e.g., letter: see www.teachsafeschools.org[2])
- Involvement in assessments of bullying and supportive relationships at school.

Resources

Ontario Ministry of Education. The Ontario Curriculum, Grades 9-12: Social Sciences and Humanities (2013). http://www.edu.gov.on.ca/eng/curriculum/secondary/ssciences9to122013.pdf

Activities for Parents/Guardians

- Representation on Safe and Accepting School Committee
- Encourage attendance at parent/guardian nights by showcasing children's and youth's work related to positive relationships and bullying prevention
- Facilitate parent/guardian involvement at a variety of times to suit availability by having food, babysitting, transportation support, if possible.
- Inform parents about bullying prevention activities at school
- Encourage parents/guardians and grandparents to volunteer (e.g., school and classroom activities or school council initiatives)
- Develop activities for children to take home to enhance parent/guardians' awareness of the importance of healthy relationships and bullying prevention
- Involvement in assessments of bullying and supportive relationships at school.

Activities for the Community

- Representation on Safe and Accepting School Committee
- Developing vision of a supportive learning environment and positive climate for the school and community
- Partnerships with the school on community efforts (e.g., food bank)
- Partnerships with police for positive school-police relationships and to promote positive youth-police relationships
- Partnerships with child and youth-serving organizations for extra-curricular activities
- Partnerships with child and youth mental health organizations for professional learning and mutual support.

There are many creative ways to work with the different levels of a school community to increase awareness and engagement in promoting positive relationships and preventing bullying. The activities that you choose for your school need to fit with the special circumstances of your school. You can get additional ideas for activities for all members of the school community and of the school for all grades on numerous internet sites related to developing a supportive learning environment, positive school climate and preventing bullying. Here are a few that have whole school activities described:

- www.teachsafeschools.org[3]
- www.peacefulschoolsinternational.org[4]
- www.stopbullyingnow.gov[5]

References

[1]CKNW. (2013). *Pink shirt day.* Retrieved from, http://www.pinkshirtday.ca/.

[2,3]The Melissa Institute for Violence Prevention and Treatment, Ontario Institute for Studies in Education (OISE/University of Toronto). (n.d.). *Teach Safe Schools.* Retrieved from www.teachsafeschools.org.

[4]Peaceful Schools International. (2013). *Free online resources.* Retrieved from, http://peacefulschoolsinternational.org/psi-resources/free-online-resources.

[5]US Department of Health and Human Resources. (n.d.). *Stop bullying now.* Retrieved from, http://www.stopbullying.gov/.

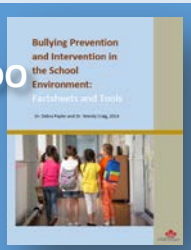
FACT SHEETS AND TOOLS FOR ONTARIO SCHOOLS:

NEW ONLINE BULLYING PREVENTION RESOURCES DESIGNED FOR EDUCATORS

- Evidence-based
- Bilingual (French and English)
- Free to use
- Created with the guidance of the ON Ministry of Education

WHAT WE KNOW ABOUT BULLYING

WHAT CAN EDUCATORS DO TO HELP



TRY THIS. PREVNet has developed a school resource featuring **current fact sheets and specific how-to tools** addressing common bullying related issues and questions. It's an online resource that's free to use and available in both French and English.

HOW TO PUT IT INTO PRACTICE

Do you have a question or concern? → Get the evidence-based information you need from our fact sheets → Use the specific strategies and how-to tools to put knowledge into action!

Question	Fact Sheet	Tool
Where and how often does bullying happen at our school?	Read the fact sheet on the benefits of conducting an environmental scan of your school.	Try using the **Sample Mapping Activity Tool** which encourages student reporting and can empower students to be part of the solution.
How do I talk to a student who is bullying others?	See the **Scaffolding Fact Sheet** for why it's important to support all students, even those who engage in bullying, in using power positively.	See the **Sample Script Tool** for more help speaking with a child or youth who bullies. The tool also provides objectives for a productive conversation.
I'd like to implement a bullying prevention plan at our school, but how do I know which one to choose?	See the **Choosing an Evidence-based Bullying Prevention Program Fact Sheet** on the importance of evaluated programs and tips on how to find programs that meet your needs.	Try using the **Critical Questions for Choosing an Evidence-Based Program Tool** for the crucial questions to consider when reviewing a potential program.

HOW DOES IT WORK?

This resource offers over 30 fact sheets and accompanying tools related to 4 key areas:

- Education
- Assessment
- Prevention and Intervention
- Policy

Visit **www.prevnet.ca** to access the resource. Fact sheets and tools are listed in a convenient table of contents allowing you to easily choose your area of interest or concern. Read the fact sheet to learn what the latest research says and then see the accompanying tools to get helpful strategies, plans and checklists.

DOWNLOAD

Visit www.prevnet.ca for more information

WHAT IS PREVNet? Promoting Relationships and Eliminating Violence Network is a not for profit network of over 120 leading Canadian researchers , over 140 graduate students, and 61 national youth-serving organizations. **Our mission** is to stop bullying in Canada, and promote safe and healthy relationships for all Canadian children and youth.

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