Background Document
WaSH and Wellbeing: A Different Dialogue
Changing Evidence and Evidence for Change in Rural Communities
A. Context
A “key element of the development equation” (Schuster-Wallace et al., 2008:8), lack of access to safe water and adequate sanitation coupled with poor hygiene, threaten human well-being, especially within the context of global environmental change. Changes in temperature and precipitation patterns are altering the distribution of water-related pathogens and vectors. Increasing water scarcity reduces effective hygiene practices, contributing to skin and eye infections as well as gastrointestinal illnesses. A lack of, poor management of, or failing water infrastructure compound these issues, exposing rural, remote and marginalized populations in particular, to adverse health impacts. There is a critical need, both in Canada and globally, to address the problem of inadequate supplies of clean, safe drinking water in these communities in order to improve health. This is an appropriate concern for policy makers, practitioners, and researchers (see Appendix A).

B. Rationale
Despite the availability of technological solutions, the problems are not solved. The challenge lies in discovering suitable combinations of appropriate and effective hardware (technology) coupled with culturally appropriate and relevant software (behaviour change, knowledge and understanding) (Schuster-Wallace, 2012). In order to tackle WaSH problems sustainably, it is essential to holistically address water, sanitation and hygiene interactions, effects, and prevention strategies (Elliott, 2011). This is set against a backdrop of the need to manage water holistically given its role in society as a resource, a vector, and a sector in its own right.

C. Status/Evidence
A search of the relevant academic and grey literature exposes a gap; it fails to reveal systematic attention to these inter-relationships in either policy or practice. In other words, these complex problems require a concerted, transectoral response employing new, integrated, transdisciplinary approaches. Solutions exist that are both affordable and appropriate for many situations around the world. What is missing is an understanding of what works -- when, where and, more importantly, why well-intended efforts do not work. Much of this understanding is linked to how technologies become accepted by communities and what behavior change and decision-making processes are involved. This knowledge is critical for scaling up practices and can be described as the “evidence for change”. Much of this information comes not from stories of success, but from stories of failure. What didn’t work? What conditions made success elusive? Are we continuously repeating our mistakes but hoping for a different outcome? Is it just a matter of money or are we tilting at windmills?

I. State of Policy
A key criticism of the water sector is that of fragmentation. As a resource and a sector, it is only to be expected that its different roles and purposes would be governed by different entities. In reality, this fragmentation produces a confusing and often contradictory landscape in which practitioners attempt to function. For example, drinking water may be under the jurisdiction of a ministry of environment or health; it could be a national or sub-national responsibility. Sometimes jurisdiction is determined by where a service is delivered, e.g. education if in schools; health, if in hospitals and clinics; and some countries have dedicated ministries for services such as sanitation while others do not.
The bottom line when it comes to policy is the lack of co-ordination and collaboration both within and between governments, NGO’s and the public. Decentralisation, while laudable, tends to fall victim to the disconnection between responsibility and sufficient financing. At the international level, pollution and competing trans-boundary demands and interests, as well as reliance on overseas development assistance rather than national investments, challenge co-operation and sustainable management of water as a resource.

Ultimately, policies at any level must be holistic and provide for inter-ministerial and trans-boundary mechanisms that address water as a resource and a sector, as a determinant of health, a catalyst for economic growth and as a prerequisite for safe health care delivery.

II. State of Practice
The Millennium Development Goal (MDG) target to halve the number of people without access to improved drinking water and sanitation were met ahead of time for water, but still, 768 million people are without access to improved drinking water supplies (JMP, 2013). Sanitation is not even coming close to meeting its target, with approximately 2.5 billion people currently without access to safe sanitation; the practice of open defecation remains common especially, but not exclusively, in Africa and South-East Asia. Hygiene (hand washing with soap), although generally considered to be more cost effective at preventing diarrhoeal deaths than improved water supply (Jamison et al., 2006), is not included in the MDGs even though 1600 children per day continue to die from diarrhoeal disease, 90% of which is WaSH-related and 50% of child malnutrition and stunting is WaSH related (see Figure 1) (Prüss-Üstün, 2008). WaSH coverage and quality in essential institutions such as schools, health clinics and even government offices is completely inadequate; some are actually built without WaSH facilities. The continuing WaSH deficit impacts all aspects of well-being: effective health care provision; access to education and educational attainment (especially for girls); economic opportunities and development; and, worker morale. At all levels these issues are only starting to be addressed as they should-- in a cohesive and integrated way that recognizes WaSH as a fundamental and cross-sectoral issue.

Figure 1: Montgomery, MA & Elimelech, M. (2007)
Moreover, we keep doing the same things over and over, without measuring/evaluating the uptake and sustainability of interventions. Practice needs to focus on these issues, to learn from our failures as much, if not more, than from our successes. What works in one setting may not work in another. How do we know and how do we predict the circumstances under which the solutions will work well over the long term (e.g., pervasive corruption; armed conflict; danger to development workers).

III. State of Research
A considerable amount of evidence is available, including the extent and distribution of disease burden (mainly diarrhoea), and the cost-effectiveness of WaSH interventions. Progress is being made in the design and use of measurement tools, such as the sanitation and drinking water “ladders” (UNICEF-WHO, 2013) that can be used to assess progress. Furthermore, global research priorities for the prevention and management of diarrhoea have been determined (Wazny, 2013). A recent study of a group of countries contributing 80% of the world’s diarrhoea deaths (Gill, 2013) provides a useful “bottleneck analysis” (Appendix B). The eight countries in the study were chosen for either very high rates (e.g. Nigeria, India, Pakistan) or geographic representation (e.g. Zambia, Vietnam).

Statements about proposed actions that include research strategies are available. An example is an Agenda for Action in Seven Domains, one of which is related to HSW (health, sanitation, water) in health research (Cairncross, 2010) (Appendix B). A more recent example of proposed action steps includes “increased investments in research” (Chopra, 2013) (Appendix B).

It’s clear that significant knowledge gaps remain that require further research, including:

- Understanding local (and national) situations, including scaling up strategies—what has and has not worked, and why?
- Inter-country comparative studies—why are there major progress outcomes between countries that have similar development indices?
- Research capacity gaps (including both knowledge production and delivery capacity) particularly in countries where WaSH coverage is low and the related disease burden is high—what is known about national research capacities to address WaSH challenges, and what can be done to reduce these challenges?

D. Challenges for Change
We live in an increasingly connected world in which goods and people circumnavigate the globe in a matter of hours. While this has significant benefits, tradeoffs include the ability for pathogens and diseases to spread rapidly. Nor has this globalization resulted in significant technology transfer to date. Residents, particularly in middle income countries, rightly aspire to different lifestyles, although resulting changes in diets and consumerism will have significant negative impacts upon food security and greenhouse gas production. Moreover, impacts of poor access to WaSH include impaired cognitive development that impacts upon developing capacity to support a WaSH sector and a poverty trap that undermines development of an economy which can sustain universal access to WaSH and other basic services.
The water-health nexus is one of the most important paths to achieving the MDGs in developing countries. This requires adequate commitments and investments by both donor agencies and governments in water, sanitation and hygiene for the poor and unserved. It also requires recognition of the different roles of both men and women in water-related activities at the household and community levels and adequate understanding of the social, economic, political and cultural circumstances within which people live and work. Further, local interventions should aim at community mobilisation and actions to solve water and sanitation problems and should further encourage community ownership of water projects."

(Schuster-Wallace et al. (2013) in press)

Key barriers to achieving the MDG targets and indeed, universal access, appear to be threefold. First is the allocation of resources. Money, and water itself, are unevenly distributed over space and time, and are in competition with other needs and sectors. Moreover, time and expertise are required to bring about systematic and sustainable change; commodities that are in short supply and often overlooked in the quest to build more widgets. Second is capacity - technical, community and institutional capacity are required for sustainable change. This includes the ability to manage financial flows and the institutional structures to support proven solutions on the ground. The third is behaviours, the key barrier from a sustainability perspective, and the one that requires the most time investment. This represents a sea change in development; ensuring ownership and uptake of solutions at the local level and looking to multi-stakeholder and inter-sectoral compacts rather than the current sector and stakeholder protectionism that can be observed at all scales.

E. Opportunities for Change

As the world approaches 2015 it will be critical to establish clear goals for improving WaSH, especially in low and middle income countries. The goals need to encourage the amelioration of the particular deprivation of rural, remote and marginalised communities and take into account the latest technological advances that allow maximum improvement. But equally we must consider the sociocultural factors that will make or break any changes. We can no longer over-promise and under-deliver if, as a global community, we are genuinely committed to improving the health and wellbeing of the most vulnerable of the citizens of the world.

Globalisation influences wastewater production, private sector water management, international environmental and water treaties and their cross-border enforcement, and the unregulated exploitation and corruption of
natural resources. The net result may foster a push for more effective management of water resources which are supported by international financial and environmental sustainability initiatives in response to the increasing demands for international accountability of governments, NGO’s and private sector organizations. Innovative financing models that highlight small investments that may produce large changes (e.g., development of small biogas initiatives) have the potential to capitalize on change.

The world leaders and the collective international development community recently embarked on a dialogue to create the outlines of a new paradigm for facing humanity’s challenges – poverty, hunger, illness, unemployment, insecurity, gender inequity, and illiteracy. An important milestone in this process was a report released by the High-Level Panel of Eminent Persons (UN, 2013), which noted that the focus of MDGs should continue but with a re-invigorated focus on the very poorest and most excluded people. How exactly water configure in this new paradigm remains an open and hotly debated question, yet there is little doubt that water, sanitation and hygiene will be central to this new development agenda. The dialogue at this meeting can, therefore, be instrumental in contributing to the global conversation on new development goals.

While the world leaders who assembled the HLP report and others in the United Nations and the international community are coming up with new and interesting ways of defining goals, one gap remains. That is, how these ostensibly disparate goals relate to each other and how cohesive planning can assist those most at risk: “the bottom billion”\(^1\). The diversity of views present at this meeting can assist in bringing its collective wisdom to weave this integration of water and sanitation into the overall fabric of a development agenda, which will drive actions for at least the next two decades.

**F. Catalysing Change in WaSH**

Catalysing change in the WaSH sector begins with individuals who believe they can change, understand how to change and want to change. Individuals go on to motivate and drive change in their households, communities and institutions. These basic principles for change are the cornerstone for creating impact in WaSH and health at the global scale needed.

Key strategies are:

- Facilitate the transfer of knowledge of low-cost water and sanitation solutions;
- Build the human capability to implement these low cost solutions;
- Motivate organizations, at all levels, into action to provide water and sanitation for the poor; and,
- Evaluate, learn and innovate.

When people know that it is the water that is making their families sick, and there are simple solutions that can be implemented immediately, they “believe in change, know how to change, and want to change” (CAWST). This process requires top-down support; a sustainable WaSH framework that consists of good governance; and, integrated water resources management including policies, regulations and oversight, financing, and supply chains.

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\(^1\) The one billion people living below the poverty line, and also without access to safe water, adequate sanitation, modern energy or health services. These bottom billion are found in the least developed countries in Sub-Saharan Africa, but a substantial number are in middle income countries like India, China, Indonesia, etc.
**G. Why Here? Why Now?**

It is 2013; there are less than 1,000 days left in the Millennium Development Goals (MDGs). The United Nations General Assembly is looking towards a global vision and agenda for post-2015. It is extremely timely to envision WaSH and wellbeing into the future within the context of a process and network that is founded in policy-practice-research and which aims to transform the way in which knowledge is generated, shared and utilized (Figure 2).

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**The CAWST Approach**

CAWST has catalyzed change in the WaSH sector by training and supporting 530 organizations in 63 countries which have, in turn, trained 2 million people on WaSH and reached 7.5 million people with safe water or sanitation. Seven local organizations in seven countries are now establishing Water Expertise and Training (WET) Centres to “do what CAWST does” to provide training and ongoing support to local organizations in their country. In 2013, these WET Centres had 60 client organizations who have reached 460,000 people in 2013 with water and sanitation.


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Lessons from local development and the MDG process point to the importance of integration, good governance and personal ownership. Human health and well-being is multi-faceted. It cannot be brought down to simply the presence or absence of disease. As defined in the Ottawa Charter (1986), health is “a resource for everyday life, not the objective of living”. Water and sanitation access is a key pillar of health, contributing to reductions in disease, poverty and environmental degradation. Unfortunately, experience shows that, when dealing with these types of “wicked” problems, progress and scaling up of successes can be extremely difficult.

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**Figure 2: Transforming and Harnessing Experiences**

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H. Working Symposium Objectives, Outcomes, and Outputs

The main objectives of the working symposium (November 25-26, 2013) are:

1. To build networks within and between appropriate sectors;
2. To exchange lessons among researchers, policy makers, and practitioners as well as between regions;
3. To broaden the range and efficacy of evidence used for decision making in WaSH;
4. To contribute a gap analysis to the evidence for sustaining and up-scaling appropriate WaSH interventions; and,
5. To test a transformative framework of engagement for achieving a vision for WaSH and wellbeing in rural, remote and marginalized communities.

The expected outcomes are:

1. The identification of key linkages and gaps in knowledge, policy, and practice in the WaSH field;
2. A synthesis of the challenges and opportunities in the WaSH sector;
3. The development of an action plan to begin to fill the knowledge gaps; and,
4. The initiation of a WaSH Sandbox engaging policy, practice, and research professionals.

The expected outputs are:

1. Monograph --“Framework for Co-operative Play in the WaSH Sandbox” -- key information gaps, a research agenda for high priority concerns, and call on policy makers to incorporate information related to WaSH and health into their political agenda;
2. On-line background paper exploring each of the components and how they link within the context of WaSH in RRM communities (pre-symposium);
3. An action plan for resolving critical gaps and priorities;
4. Core teams and one page draft research proposals for future funding opportunities;
5. On-line symposium report highlighting the key messages and discussion points; and,
6. An academic paper on adapting the sandbox model for the WaSH sector.
Resources and References


UN Sanitation Drive to 2015 www.sanitationdrive2015.org


APPENDIX A: Facts

Drinking Water

- Almost 800 million people do not have access to an improved drinking water supply
- As of September 30th, 2013, there were 123 First Nations communities across Canada under a Drinking Water Advisory
- The global Millennium Development Goal target of reducing the number of people without access to drinking water by half by 2015 has been met; 2.1 billion people have gained access to improved drinking water sources since 1990
- Water systems in remote communities are 2.5 times more likely to be high risk than low risk
- However, 83% of those without access live in rural areas and only 29% of the population in rural areas have piped water on their premises, compared with 80% of the urban population
- In Canadian First Nation communities 72 per cent of homes have piped water, 13.5 per cent have water delivered by truck, 13 per cent use individual wells and 1.5 per cent having no water service
- 71% of water collection in Sub Saharan Africa is undertaken by females
- 16 million hours: the amount of time each day women spend collecting water

Sanitation

- 2.5 billion people still do not have access to an improved sanitation facility
- 1.1 billion people around the world practice open defecation; 15% of people in the world do not use toilets
- The world will not meet the Millennium Development Goal target of reducing the number of people without access to sanitation by half by 2015
- In Canadian First Nation communities 54 per cent of homes have piped wastewater services, 8 per cent have their sewage hauled by truck, 36 per cent have septic and other individual wastewater systems and 2 per cent of the homes have no service
- Poor sanitation is a contributing factor, through its impact on malnutrition rates, to other leading causes of child mortality including malaria and measles
- 80-90% of wastewater in low and middle income countries is discharged untreated

Water, Sanitation and Hygiene (WaSH)

- Diarrhoea, the second leading cause of deaths in children under age 5 in developing countries, is primarily due to poor hygiene and sanitation
- 800,000 children under the age of 5 die as a result of diarrhoea each year
- 88% of diarrhoeal disease is attributable to poor WaSH
- 60% of infant mortality is attributed to WaSH related infectious diseases
- Each year, children lose 272 million school days due to diarrhoea
- Lack of access costs low and middle income countries an estimated $260 billion per year in economic losses
- In 2010, the United Nations General Assembly and the Human Rights Council recognized clean drinking water and safe sanitation to be a human right essential to the full enjoyment of life and all other human rights
- Productivity losses from people being sick amount to USD 2.7 million per year
- USD 51 million is spent each year on health care
Associated Benefits of WaSH

- Child (under 5) mortality is reduced by 2.45 per 1,000 with access to improved sanitation
- Child (under-five) mortality rates decrease by 2.25 deaths per 1000 with increased water access
- In low and middle income countries, each 1 per cent increase in female secondary schooling typically results in a 0.3 per cent increase in economic growth
- For every dollar invested in WaSH, a conservative return on investment is $3-$4
- Converting human waste to fuel reduces the dependence on wood and charcoal
- 400,000 people in Sub Saharan Africa die each year from the health impacts of hearth pollutants
- A house with an open fire can have up to 75 times the maximum advised level of air pollution
- Using biogas reduces the amount of time woman and children spend in the collecting wood and is more convenient than charcoal, opening more opportunities for alternative activities
- The nutrients in a person’s urine are sufficient to grow 250 kg of grain a year
APPENDIX B: Research Priorities, Bottlenecks and Strategies

Research Priorities (Wazny, 2013)
Highly ranked research questions:
- How to improve implementation, especially through behavior change and other delivery strategies.
- What are the driving factors of caregiver demand for oral rehydration solution (ORS) and zinc, and development of an ORS formulation that reduces stool output.

Bottlenecks (Gill, 2013)
Qualitative data for barriers and solutions were classified into five thematic areas. An example is listed under each theme:
1. Coordination:
   - Absence of coordination between governments and donors [Recommendation: Donors and host governments need to coordinate activities to meet consistent objectives.]
2. Resources:
   - Allocation of funds based on donor preference, not local need [Recommendation: Ministries should be more assertive in negotiating with funders to support national priorities.]
3. Commodities:
   - Supply is not linked to need [Recommendation: Discourage so-called push supply systems, and automated use-restock systems.]
4. Program Management:
   - Health centres overburdened by data collection for diverse partners [Recommendation: Harmonise data collection items across projects to eliminate redundant or irrelevant elements.]
5. Advocacy:
   - Sanitation and hygiene not perceived to be a priority [Recommendation: promotion of hand hygiene, chlorine tablets, and sanitary practices.]

Possible Research Strategies & Actions (Cairncross, 2010; Chopra 2013)
A few examples of proposed actions are listed:
Cairncross:
- Research funding agencies and donor governments to build capacity for research for HSW (including WaSH) in those countries where coverage is low and the related disease burden is high.
- Developing country governments to identify and invest in potential research leaders amongst their own scientists and academics, capable of taking forward research relevant to local communities’ needs.
Chopra:
- Most urgent research priorities for diarrhea: improvements in the acceptability and effectiveness of oral rehydration solution and zinc.
- Assessment of current programs (e.g. Integrated Management of Childhood Illness – IMCI) on early and equitable administration of appropriate treatment.