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International Network on Small Community Water Supply Management

Third Meeting

Kelowna, British Columbia, Canada
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Table of Contents

1. Introduction..... 3

2. Background..... 3

3. Key issues and priorities identified in Kelowna 5

4. Work plan as refined in Kelowna 6

5. Path forward..... 11

6. Appendices..... 11

1. Introduction

The International Network on Community Water Supply Management is a platform to conduct and share innovative research, good practices and advocacy tools related to the management of small community water supplies. The Network also provides an opportunity for participants to share their experiences and the lessons they have learned in their jurisdictions with others facing similar challenges.

The objective of the Network is to promote the achievement of substantive and sustainable improvements to the safety of community water supplies around the world, particularly in rural areas, in order to meet the Millennium Development Goals related to water and sanitation. In particular, Goal 7, Target 10 is to “Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.”

While the Millennium Development Goals focus on rural areas in developing countries, small community water supplies are those most vulnerable to contamination and breakdown everywhere in the world. This means that even in developed countries these systems pose potential health risks. Sharing information, ideas and resources is extremely valuable to all countries dealing with the unique challenges posed by small community water supplies.

The World Health Organization’s role within the Network is to create an enabling environment to facilitate the Network’s work, publicize Network outputs, provide a collaborative workspace, and to use its position to leverage support at the international level. The work of identifying key projects and moving those projects forward is the responsibility of Network participants.

The Network has met three times in three different parts of the world to develop and refine its agenda and work plan. The inaugural meeting in Reykjavik, Iceland, was hosted by Samorka, the Federation of Icelandic Energy and Waterworks and Reykjavik Energy in January 2005. The second meeting, held in Alice Springs, Australia, in July 2005, was hosted by the Australian Government’s National Health and Medical Research Council and focused on the challenges faced by developing nations in South East Asia and the Pacific. The third meeting, held in Kelowna, British Columbia, Canada, in September 2006, was hosted by Health Canada’s First Nations and Inuit Health Branch and focused on issues particular to First Nations communities in Canada and to countries in Latin America. In all three cases, the host organizations supported the costs of participants from developing countries. The presence and active participation of these participants is key to meeting the Network’s objectives.

2. Background

The meetings in Reykjavik and Alice Springs set the tone for the Network. Participants discussed the context for their work and identified key principles relevant to small community water supplies worldwide. Key principles were further refined at the Kelowna meeting.

Key principles as refined in Kelowna were as follows:

1. Political/policy support and understanding is essential.
2. Selection of appropriate health-based targets based on local characteristics is critical.
3. Water safety frameworks set by national governments should include key criteria to stimulate ongoing improvement and sustainability such as: cost, time, simplicity, and practicality.

4. Design of community water supplies should be evidence-based and take into account levels of available funding. Risk-based prioritization plans should be developed to direct allocation of financial resources.
5. Closer cooperation between the water and health sectors is required in the public health interest.
6. The underlying ethical principle should be to ensure comparable levels of safety for small and large supplies.
7. The safety and quality (including aesthetic acceptability) of water must not be overlooked in efforts to increase the rate of coverage and cost must also be considered or increased coverage will not be affordable for the poor.
8. Ongoing improvement of community supplies require: a demand-driven focus; ongoing community capacity-building, such as training; approaches that are simple, practical and minimum cost; easy to operate, maintain and repair; reliable, safe and acceptable.
9. Community level ownership and involvement is essential.
10. To ensure effective community action, water safety plans require clarity over roles and responsibilities of all stakeholders, clear communication mechanisms, and a commitment to protect public health at all levels.
11. Decisions on appropriate tools and support systems for small community water supplies should take account of issues such as remoteness and access difficulties.
12. It is important to recognize that water safety plans could potentially influence activities relating to the contamination of immediate water sources.

In Reykjavik, participants drew up a work plan that included actions in the following areas: the development of tools to support small community water supply management, pilot projects, the development of the international network, information and communication, strengthening the evidence base for the need for supporting improvements to small community water systems, updating and expanding the WHO drinking water guidelines, identifying funding sources, and organizing future meetings. The work plan was further refined in Alice Springs and in Kelowna.

Meeting in Kelowna

The meeting in Kelowna drew out key issues and priorities for managing small community water supplies, with a particular focus on Canada's First Nations' communities and Latin America. Participants provided updates on Network projects that were started at and have been ongoing since the meetings in Reykjavik and Alice Springs.

A series of breakout sessions gave participants the opportunity to engage in-depth in discussions about the following topics of concern previously recognized by the Network (see Appendix C):

- The identification of issues and priorities based on background questionnaires submitted and as presented by participants.
- The identification of best management practices for public reporting, information collection and analysis.
- The identification of essential requirements for the successful application of water safety plan principles to small community water supplies.

Taking into consideration the priorities identified at previous meetings and the discussions on topics of concern, participants reviewed the status of work plan items and next steps, identified who would act as the lead contact for each project, and identified what they could do to support each of these projects. Details on the Kelowna meeting and its outcomes are described in the remainder of this report.

3. Key issues and priorities identified in Kelowna

On Day 1 of the meeting, Canadian presenters spoke to the key issues and challenges faced by small community water supplies, with a particular emphasis on those supplies serving Canada's First Nations communities. A number of these issues and challenges parallel those in other countries. Specifically:

- Isolation and remoteness of communities increases the cost of accessing supplies (compounded by rising fuel costs) and contractors and can make laboratory services inaccessible.
- Small communities have a limited financial base for funding capital and operating expenses. Many communities lack an economic base.
- The per capita costs for water sampling and testing are higher for smaller communities.
- Recruiting and training competent or certified operators is difficult, especially when positions are part-time and underpaid.
- Little capacity exists to undertake risk assessments.
- Operators often lack a support network, standard operating procedures and technical support.
- Systems are more likely to be plagued by poor construction and aging infrastructure.
- Communities have limited capacity for source water protection and little influence on source water impacts.
- The general public lacks awareness and has inaccurate perceptions of risk (for instance, believing that the risks from chemical disinfectants are more serious than the risks from microbial pathogens).
- The risks and risk factors related to small systems versus larger systems are hard to quantify and compare.
- Water quality needs to be linked to disease surveillance and outbreak prediction, which, though challenging everywhere is especially difficult in small water supplies due to the under-reporting of waterborne illnesses.
- Water is only one of a number of priorities demanding attention in these communities, competing with housing, hygiene, and socio-economic issues.
- Low-cost / low-maintenance systems are needed and new technologies need to be designed specifically for small systems.

Further, Canadian and international participants noted four priority needs:

- Risk communication tools for communicating with the public, those responsible for the operation and management of small community water systems and decision makers.
- Communication tools to support implementation of varying (interim) standards for small community water supplies.
- The establishment of regional-level networks (mentoring, information-sharing, etc).
- A more precise definition of "safe water".

Participants recognized that a considerable wealth of information exists in Canada that should be shared through the Network. This information includes a Waterborne Contamination and Illness Response Protocol; training materials, courses and tools that have been developed for operators of small

community water supply systems; results of research, and information about an innovative insurance program in the Province of British Columbia for small water systems.¹

The Canadian participants underscored that the Network is very useful to them as they have much to learn from the experiences of participants from other countries who face similar challenges and have developed their own solutions.

4. Work plan as refined in Kelowna

Based on priorities identified and subsequent discussions, the Network's work plan has been refined. The work plan developed in Reykjavik and Alice Springs has been updated to reflect the Network's priorities and its progress since the first meeting (Appendix A). Work plan items raised at the Reykjavik and Alice Springs meetings but not currently reflected in the projects below will be addressed as interest, time and resources permit.

Produce comprehensive technical guidance document on costs and impacts of interventions

Background

Cost-benefit / cost-effectiveness tools are needed to demonstrate the health and social impacts of water, sanitation and hygiene interventions at national and sub-national levels in order to be able to prioritize interventions, help make funding allocation decisions, and to help advocate for improvements. In particular, evidence is needed to show that continued investment in small community water supplies makes sense.

While very few tools currently exist, work is underway by a consortium to develop an advocacy tool for small community water supplies that would provide information and guidance for decision-makers.

The consortium is currently looking for peer reviewed and published health impact studies and cost-benefit analysis / cost-effectiveness analysis literature, especially in Spanish, that could be entered into a database of health evidence. The information from this database would then be used to develop the advocacy tool.

Path forward

1. Participants to provide health impact studies on water, sanitation and hygiene interventions that have been peer-reviewed and published, especially in languages other than English.
2. Participants to provide cost-benefit analysis / cost-effectiveness analysis literature in relation to water, sanitation and hygiene interventions that have been peer-reviewed and published, especially in languages other than English.
3. Participants to provide feedback to the consortium through the WHO.

Lead: Jacqueline Sims (WHO)

¹ Through this program, water suppliers who can demonstrate that their system is at low risk of contamination (by meeting established criteria) are eligible for lower insurance rates than would otherwise be available

Compile review of institutional and infrastructure support structures (questionnaire)

Background

One of the principal aims of the Alice Springs meeting was to review institutional and infrastructure support currently in use in participating countries and to use these as the basis for identifying and/or developing model approaches for management structures, delivery systems and outreach & support networks. Agreement was reached in Alice Springs to develop and pilot a questionnaire on existing country approaches to managing community water supplies, building on the one completed by participants before the meeting in Reykjavik.

The pilot questionnaire has been developed and reviewed by a working group with members from Canada, Sri Lanka, Peru, Samoa and the Caribbean. Based on this review, the questionnaire was modified to be shorter, more focused and user-friendly.

The revised questionnaire was distributed to participants during the meeting for their review. Participants agreed it would be useful to add a question asking respondents to identify any existing public awareness materials, risk communication materials and/or training programs on how to ensure safe drinking water, including existing tools for implementing Water Safety Plans, that have been developed for the general public and stakeholders involved in the management of small drinking water supplies.

Once received, questionnaire responses will be entered into a database which can then be used to:

- Prioritize challenges to be addressed.
- Identify best management practices related to institutional and infrastructure supports.
- Help countries identify best management practices in other countries with similar circumstances.
- Review the applicability of water safety plans and associated guidance materials relative to the management of small community water supplies.

Path forward

1. Working group to incorporate feedback from Network participants.
2. Working group to approve the questionnaire.
3. WHO to web-enable the questionnaire and the associated database for access by Network participants.
4. Once it is on-line, Network participants to complete the questionnaire.

Lead: Jennifer Mercer (Canada)

Identify tools to support the implementation of water safety plans and acceptability criteria

During the Alice Springs meeting, the Network agreed to develop tools to help countries design and implement water safety plans for small community water supplies. Such tools would include hazard identification, risk assessments, control measures, corrective actions, and monitoring. The tools could be paper-based or electronic and could also be supported by visual displays, brochures, and/or video. The intention was to assemble existing models, case studies, and tools that could be used as the basis for developing a generic tool. These models and case studies would then be reviewed to identify generic and country-specific issues. The core materials from the public reporting, risk communication and training components would then be synthesized into a generic water safety plan tool.

This project is made up of a number of components: an overarching generic tool to support the implementation of water safety plans as well as tools to implement water safety plan components including public reporting, information management, water quality monitoring and verification (through the use of test kits), risk communication and operator training.

During the Roundtable 3 discussions, participants identified what they saw as the essential requirements for water safety plans (see Appendix C). The results of these discussions will be used to guide the Network's path forward as it develops tools to support the implementation of water safety plans.

- *Develop generic water safety plan tool*

Background

To date, David Cunliffe (Australia) has taken the lead to review some existing tools. During the Kelowna meeting, participants identified more tools that they have access to in their countries that could be shared. Participants emphasized the need for tools in paper-based and pictogram formats because small community supplies need risk management plans that can be applied at the very smallest levels in order to avoid disenfranchising a large number of communities. More complex systems (e.g., computerized) can be available for systems that can afford them and have the capacity to support them.

Paul Heaton agreed to undertake the development of a draft generic tool for discussion at the next meeting.

Path forward

1. Network participants to review the spreadsheet of existing tools developed by David Cunliffe and identify any missing tools or approaches.
2. Participants to provide case studies developed using existing models to “ground truth” the components of the generic tool.
3. Participants to provide input on what components should be included in a generic tool.
4. Once the review is complete, existing approaches will be distilled and core material synthesized into a generic tool.

Co-leads: David Cunliffe, Paul Heaton (Australia) and Shamsul Gafur Mahmud (Bangladesh)

- *Public reporting*

Background

Canada is supporting WHO in the identification of and reporting on internationally-accepted best management practices for annual community-level public reporting about drinking water quality and for communication about potential public health risks associated with drinking water quality in small communities, such as drinking water advisories. When available, the report of this work will be disseminated through both WHO and Health Canada channels and will detail the background, objectives, methods, results, issues needing further investigation and policy recommendations. The input provided by Network participants during the Roundtable 2 session (see Appendix C) will feed into the Project Report. This work will start in the first quarter of 2007.

Path forward

1. A detailed Terms of Reference (TOR) to be developed which will include the proposed role of the Network.
2. WHO to identify an appropriate contractual partner.

Lead: WHO

- *Risk communication tools*

Background

Risk communication materials are needed to help overcome challenges related to communicating health risks to the public. In particular, materials developed for populations dealing with socio-economic challenges, such as lower literacy rates, are needed as these challenges can be more common in small community water supplies. Many countries have developed such materials. Sharing these tools and participants' experiences using them in the field will help identify best practices and provide useful examples to jurisdictions looking to develop their own tools.

Path forward

1. Participants to identify and forward examples of risk communications materials, especially those related to boil water advisories, to Dominique Poulin
2. Working group developing the country questionnaire to add a question asking for examples of risk communication materials
3. Participants to complete the questionnaire once it is available on-line

Lead: Dominique Poulin (Canada)

- *Training tools*

Background

During the first day of the Kelowna meeting, James Tomma, manager of the water utility of the Little Shuswap Band, talked about the challenges faced by First Nations communities in retaining trained staff. He noted the need for water supply operators to view their work as a career or a calling whereby they are responsible for their community's health rather than simply engaged in a low paying job. Marco Campos from Peru noted his interest in finding ways to work on this issue in other regions, particularly Latin America.

Path forward

1. Marco Campos to work towards setting up links with universities and colleges in Latin America in order to encourage these institutions to offer operator training courses.
2. Participants to share training materials and curricula for such courses available in their jurisdictions.

Lead: Marco Campos (Peru)

Develop surveillance and verification tools for small community water supplies (test kits)

Background

At the last two meetings, the Network agreed to work on the development of surveillance and verification tools for small community water supplies. This work was to be done by identifying existing test kits and developing the criteria for a new generation of kits. It was agreed that test kits should be acceptable and efficient, easy to use and robust, cheap, rapid, effective and reliable.

Since the Alice Springs meeting, an option has surfaced to participate in the development of a new test kit through AQUATEST, an EU-funded project to develop a low-cost water quality test kit and associated management systems. The project is currently focusing on a needs assessment (i.e. defining core requirements for different groups of test kit users). The results of the needs assessment will inform the search for further research funding. Discussion in Kelowna focused on the need for test kits to be designed with user preferences in mind and with the capacity to be used under, for example, extreme temperatures. It was noted that while there are issues of cost, strategies to reduce weight should also be considered (such as the use of lighter weight batteries). Cost reductions should be looked at not only for the test kits themselves, but also for consumables such as reagents.

Path forward

1. Interested participants to share their experiences with currently available test kits and information about the technologies they use with Federico Properzi (WHO).
2. Interested participants to share their thoughts with Federico Properzi (WHO) on core requirements for test kits for use by small community water supplies or the needs of small community water supplies in relation to test kits.
3. Research comparing test kits currently on the market should also be shared.

Lead: Bruce Gordon (WHO)

Create glossary of terms

Background

This project aims to develop a lexicon of terminology and jargon used to discuss drinking water issues related to small community water supplies in order to find words that are meaningful and that can be easily translated into many other languages. Currently, WHO has developed a multi-language glossary of health and environment terminology (www.who.int/thelexicon). A glossary of terms for small community water supplies could be developed as part of this project.

At the Kelowna meeting, participants suggested that a thesaurus would be as or more useful than a dictionary. Concern was raised about simplifying terms too much, resulting in the loss of scientific meaning. Participants noted that a common set of icons would be useful for working with less literate communities. Icons may be more useful for describing concepts and technologies than describing words.

Path forward

1. Participants to identify terms in any language that should be included.
2. Participants to review terms and definitions.

Lead: David Drury (UK)

Provide strategic direction for research

Background

The Network recognizes that it can play a role in ensuring that research conducted by academics or other research bodies is relevant to the management of small community water supplies. As one example, the Canadian Water Network (CWN) has approached this group for input on research priorities that have international relevance. The CWN is actively engaged in supporting research relevant to small community water supplies and is keen to work with the Network.

Path forward

1. Participants to identify research priorities relevant to small community water supplies in keeping with the key issues and priorities identified by the Network.
2. John Cooper to funnel this information to Canadian research and funding bodies, particularly the Canadian Water Network.

Lead: John Cooper (Canada)

5. Path forward

Because the Network is not an institution but rather a platform for participants to bring issues and projects forward, to champion the completion of those projects and to share information and resources, the success of the Network is dependent on participants stepping forward. To this end, sign-up sheets were created for each Network project. These sheets were circulated at the meeting and are attached as Appendix B. As noted in the work plan section of this report, each project has been assigned a lead who will work with the identified participants to move the project forward. Others are invited to step forward to participate in any of the identified projects.

Leads for the various projects are to report on progress by March 2007. This reporting will be done during a teleconference call to be set up by WHO.

On condition of deliverables being achieved, a next meeting of the Network may be held in the United Kingdom, hosted jointly by the Drinking Water Regulator for Scotland and the UK Drinking Water Inspectorate. The Inspectorate has further generously offered to tentatively support a fifth meeting of the Network in South Africa, in order to encourage participation from more African nations.

6. Appendices

- A. Work plan
- B. Sign-up sheets
- C. Roundtable session summaries
- D. Meeting agenda
- E. Participant list
- F. Data and information tools

Appendix A: Work plan

Draft work plan (April 2007)		
Component	Lead	Status
1. Future meetings	WHO, host	On-going
2. Develop tools to support SCWSM		
Complete Australian software that produces an operations manual for SCWSM based on specifications inputted		Done
Develop community engagement model		Future
Establish pilot study criteria and evaluation protocol		Future
Identify tools to support the implementation of Water Safety Plans and acceptability criteria:		
<ul style="list-style-type: none"> • <i>Develop generic WSP tool</i> • <i>Public reporting</i> • <i>Develop surveillance and verification tools for SCWS (test kits)</i> • <i>Risk communication tools</i> • <i>Training tools</i> 		Underway
Compile review of institutional and infrastructure support structures (questionnaire)	Mercer	Complete
Web-enable questionnaire into a searchable database	WHO	Underway
Develop generic WSP tool	Cunliffe / Mahmud	Underway
Develop surveillance and verification tools for SCWS (test kits)	WHO	Underway
3. Start pilot projects		
Identify pilot countries		Future
Establish feasible timeframes		Future
Identify financial support		Future
4. Develop international network		
Select appropriate network model		Done
Produce initial action plan		Done
Produce promotional brochure		Done
Progressively recruit suitable members from public and private sectors		Future
5. Information / communication		
Develop website	WHO	Done
Develop collaborative e-workspace	WHO	Underway
Create glossary of terms	Drury	Underway
Establish criteria for information management tools		Future
Disseminate targeted information at events and to donors		Future
Position issue within UN Decade		On-going
6. Create / strengthen evidence-base		
Produce dedicated JMP on SCWSM		Future

Produce comprehensive technical guidance document on costs and impacts of interventions	WHO	On-going
Produce advocacy document describing costs and impacts of various approaches and levels of service in small supplies	WHO	On-going
Develop database of published / grey literature	WHO	On-going
7. Update / expand WHO guidelines		
Provide guidance on defining national health-based targets	WHO	Underway
Define requirements for updating Volume 3 of the guidelines	WHO	Underway
8. Provide strategic direction for research		
9. Identify funding sources		
On the basis of 4, 5, and 6, establish and maintain contact with international and bi-lateral donors		Future

Appendix B: Sign-Up Sheets

International Network on Small Community Water Supply Management

Develop Generic WSP Tool

This project is gathering an inventory of existing frameworks, approaches and tools for implementing Water Safety Plans. From this inventory, a generic tool will be developed to help countries design and provide plans for small community water supplies. Participants are asked to review the spreadsheet developed by the project lead, identify missing tools and approaches, provide input on what should be included in a generic tool, and to provide case studies developed using existing models to “ground truth” the generic tool.

Participant	Title	Country / Organization	Role in this area	Address	E-Mail Address	Telephone/Fax
David Cunliffe	Principal Water Quality Adviser	Australia	Co-lead	Environmental Health Service, South Australian Department of Human Services, PO Box 6, Rundle Mall, Adelaide SA 5001	David.Cunliffe@health.sa.gov.au	Tel: +61 8 8226 7153 Fax: +61 8 8226 7102
Shamsul Gafur Mahmud	Technology Specialist	Bangladesh	Co-lead	ITN-BUET, Civil Engg building(3rd floor) Bangladesh University of Engineering & Technology Dhaka-1000, Bangladesh	itnaz@agni.com	Tel: +880 2 9663693
Nelson Mauricio Estrada	Especialista en Agua/Medio Ambiente	El Salvador	Implementation of WSP in small communities and share the result	Secretaria Técnica del FODEC, Edificio World Trade Center, Torre II, Nivel 2, Col. Escalón, San Salvador, El Salvador, Centro America	nmestrada@acdie.lsalvador.org.sv	Fax: (511) 437-1077

Alexis Arevalos Santos	Director Técnico	Cuba	Implementation of WSP in small communities and share the result	Empresa de Acueducto y Alcantarillado de la Provincia Granma Santa Isabel 135, Bayamo, Granma, Cuba	alexis@ealgranma.hidro.cu	Tel : (53 25) 425847 Fax : (53 23) 425880
Alejandra Martínez García	Subdirectora Ejecutiva de Gestión de Riesgos	Mexico	Information and epidemiological studies and terms for lexico	Subdirectora Ejecutiva de Gestión de Riesgos, COFEPRIS Monterrey No. 33, 9° piso Col. Roma 06700 México, D. F.	alejandram@salud.gob.mx	Tel: (52) 55 50805406 Fax: 52 55 5514 8572
Sarah Tibatemwa	Principal Analyst	Uganda	Undertake further pilots using some of the available tools that are relevant to developing countries	NWSC Central Laboratory, PO Box 7053, Kampala, Uganda	Sarah.Tibatemwa@nwsc.co.ug	Tel: 256 41 341144 or 256 41 257548.
Paul Heaton	Program Leader	Australia	Further refine diagram on generic water safety plans developed by Group C in Roundtable 3; produce paper on same	Regional & Rural Water Supplies Program Cooperative Research Centre for Water Quality & Treatment C/O Power and Water Corporation GPO Box 1921 Darwin, NT, 0801 Australia	Paul.Heaton@powerwater.com.au	

Herold Gopaul	Information Services Director	Caribbean		Caribbean Environmental Health Institute, The Morne, P.O. Box 1111, Castries, St. Lucia WI	hgopaul@cehi.org.lc	Tel: 1 758 452 2501 Fax 1 758 453 2721
Jim Graham	Drinking-water Assistance Programme Leader	New Zealand	Testing / piloting of tools and providing further tools	Public Health Directorate Ministry of Health, PO Box 5013 Wellington, New Zealand	Jim_Graham@moh.govt.nz	Tel: 04 460 4788 Fax: 04 495 4479
Michael Taylor	Senior Advisor (Environment Team) Environmental Health	New Zealand	Piloting of WSP in small pacific island countries	Communicable Disease & Environmental Health Policy, Public Health Directorate, Ministry of Health, PO Box 5013, Wellington, New Zealand	michael_taylor@moh.govt.nz	Tel: +64 4 460 4958 Fax: (52) 55 55148574
Robyn Grey-Gardner	Project Leader, DK-CRC Remote Community Water Management Project	Australia	Examples of tools used for small communities, test and share new ideas and results	Commonwealth Department of Families, Community Services and Indigenous Affairs, Indigenous Coordination Centre, 2nd Floor, Jock Nelson Building, Hartley St., PO Box 2255, Alice Springs NT 0871	robyn.grey-gardner@facsia.gov.au	Tel: 08 8959 4210 Fax: 08 8952 1937

Maria J. Gunnarsdóttir	Division Manager	Iceland	WSP developed and implemented for small community water supplies in Iceland	Samorka - Federation of Icelandic Energy and Water Works, Sudourlandsbraut 48, 108 Reykjavik, Iceland	mariaj@samorka.is	Tel: +354 588 4430
Will Robertson	Head, Microbiology Section, Water Quality Science Division	Health Canada, Healthy Environments and Consumer Safety Branch	Examples of risk assessment / risk management tools for small systems	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	Will_Robertson@hc-sc.gc.ca	Tel: (613) 957-1505 Fax: (613) 952-2574
John Cooper	Director, Water, Air and Climate Change Bureau	Health Canada, Healthy Environments and Consumer Safety Branch	Industry and regulator options and approaches	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	John_Cooper@hc-sc.gc.ca	Tel: (613) 954-0291 Fax: (613) 952-2206
Oscar Suntura	Coordinador Area Tecnológica	Bolivia	Conocer instrumentos para quenes conunidades / Estudioepidemiologicos (?)	Fundación SUMAJ HUSAI, Landaeta, La Paz No. 533, Bolivia	osuntura@sumaj.org	Tel: (591-2) 2493947-2116098
David Drury	Drinking Water Science Manager	United Kingdom	As before	Drinking Water Inspectorate, Floor 2/A/1, Ashdown House, 123 Victoria St. London, SW1E 6DE, UK	david.drury@defra.gsi.gov.uk	Tel: +44 207 0828018

Ricardo Torres	Regional Advisor in Water Quality and Hygiene Promotion	CEPIS / Peru	Share WSP pilot project results in Latin America	Pan American Center for Sanitary Engineering and Environmental Sciences, BS-CEPIS/SDE/PAHO/WHO	rtorres@cepis.ops-oms.org	Tel: +(51) (1) 437-1077 Fax: +(51) (1) 437-8289
Oliver Schmoll	WHO Consultant	World Health Organization / Federal Environment Agency, Germany		c/o Water, Sanitation and Health, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland	schmollo@who.int	
Donald Reid	Drinking Water Quality Division, Scottish Executive	Scotland	Continue as member of working group	Drinking Water Quality Division, Scottish Executive 1-H (South), Victoria Quay, Edinburgh EH6 6QQ	Donald.Reid@scotland.gsi.gov.uk	Tel: +44 (0) 131 244 0278

Risk Communication

This project aims to share examples of risk communications tools and participants' experience using them among Network participants. Of particular interest are examples of risk communications materials related to boil water advisories.

Participant	Title	Country / Organization	Role in this area	Address	E-Mail Address	Telephone/Fax
Dominique Poulin	Program Officer, Drinking Water Task Force	Health Canada, First Nations and Inuit Health Branch	Lead	Health Canada Jeanne Mance Building #19 200 Eglantine Driveway, Tunney's Pasture, A.L. 1915D Ottawa, Ontario K1A 0K9	Dominique_Poulin@hc-sc.gc.ca	Tel: (613) 941-5840 Fax: (613) 954-0692
Alejandra Martínez García	Subdirectora Ejecutiva de Gestión de Riesgos	Mexico	Information: spots, posters and others that we use	Subdirectora Ejecutiva de Gestión de Riesgos, COFEPRIS Monterrey No. 33, 9° piso Col. Roma 06700 México, D. F.	alejandram@salud.gob.mx	Tel: (52) 55 50805406 Fax: 52 55 5514 8572
Hetti Thantrige Rohan Wijesooriya	District Manager	Sri Lanka	Statements of risk communication; examples of posters and others that we use	ADB Assisted Rural Water Supply & Sanitation Project, 114 Kumarathungamunidasa Mawatha, Kegalle (71000), Sri Lanka	adb3keg@sltnet.lk	Tel: +94 35 2231979

Herold Gopaul	Information Services Director	Caribbean	Provide examples and assist with review	Caribbean Environmental Health Institute, The Morne, P.O. Box 1111, Castries, St. Lucia WI	hgopaul@cehi.org.lc	Tel: 1 758 452 2501 Fax 1 758 453 2721
David Cunliffe	Principal Water Quality Adviser	Australia	Information developed in Australia (work about to start)	Environmental Health Service, South Australian Department of Human Services, PO Box 6, Rundle Mall, Adelaide SA 5001	David.Cunliffe@health.sa.gov.au	Tel: +61 8 8226 7153 Fax: +61 8 8226 7102
Robyn Grey-Gardner	Project Leader, DK-CRC Remote Community Water Management Project	Australia	Provide comments	Commonwealth Department of Families, Community Services and Indigenous Affairs, Indigenous Coordination Centre, 2nd Floor, Jock Nelson Building, Hartley St., PO Box 2255, Alice Springs NT 0871	robyn.grey-gardner@facsia.gov.au	Tel: 08 8959 4210 Fax: 08 8952 1937
Will Robertson	Head, Microbiology Section, Water Quality Science Division	Health Canada, Healthy Environments and Consumer Safety Branch	Provide examples	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	Will_Robertson@hcs.gc.ca	Tel: (613) 957-1505 Fax: (613) 952-2574
John Cooper	Director, Water, Air and Climate Change Bureau	Health Canada, Healthy Environments and Consumer Safety Branch	Risk communication part of surveillance network in Canada	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	John_Cooper@hcs.gc.ca	Tel: (613) 954-0291 Fax: (613) 952-2206
Oscar Suntura	Coordinador Area Tecnológica	Bolivia	Multilingual information, radio, posters	Fundación SUMAJ HUSAI, Landaeta, La Paz No. 533, Bolivia	osuntura@sumaj.org	Tel: (591-2) 2493947-2116098

David Drury	Drinking Water Science Manager	United Kingdom	Assist with review	Drinking Water Inspectorate, Floor 2/A/1, Ashdown House, 123 Victoria St. London, SW1E 6DE, UK	david.drury@defra.gov.uk	Tel: +44 207 0828018
Ricardo Torres	Regional Advisor in Water Quality and Hygiene Promotion	CEPIS / Peru	Select some information in WS and SAN	Pan American Center for Sanitary Engineering and Environmental Sciences, BS- CEPIS/SDE/PAHO/WHO	rtorres@cepis.ops-oms.org	Tel: +(51) (1) 437-1077 Fax: +(51) (1) 437-8289

Develop surveillance and verification tools for SCWS (test kits)

The Network is looking to develop or collaborate with others on the development of water quality test kits that are efficient, easy to use, robust, cheap, rapid, effective and reliable. Participants are asked to share with WHO their experiences with test kits currently on the market as well as information about the technologies they use.

Participant	Title	Country / Organization	Role in this area	Address	E-Mail Address	Telephone/Fax
Bruce Gordon	Technical Officer	World Health Organization	Lead	Water, Sanitation and Health, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland	gordonb@who.int	
Shamsul Gafur Mahmud	Technology Specialist	Bangladesh	I can provide our surveillance tools and any support	ITN-BUET, Civil Engg building(3rd floor) Bangladesh University of Engineering & Technology Dhaka-1000, Bangladesh	itnaz@agni.com	Tel: +880 2 9663693
Alexis Arevalos Santos	Director Técnico	Cuba	Surveillance and verification tools	Empresa de Acueducto y Alcantarillado de la Provincia Granma Santa Isabel 135, Bayamo, Granma, Cuba	alexis@eaalgranma.hidro.cu	Tel : (53 25) 425847 Fax : (53 23) 425880
Jennifer Mercer	Manager, Drinking Water Task Force	Health Canada, First Nations and Inuit Health Branch	Sharing of research and identification of requirements	Health Canada Jeanne Mance Building #19 200 Eglantine Driveway, Tunney's Pasture, A.L. 1915D Ottawa, Ontario K1A 0K9	Jennifer_Mercer@h-c-sc.gc.ca	Tel: (613) 954-6655 Fax: (613) 954-0692

Hetti Thanthrige Rohan Wijesooriya	District Manager	Sri Lanka	Requirements and details of currently used ones	ADB Assisted Rural Water Supply & Sanitation Project, 114 Kumarathungamunidasa Mawatha, Kegalle (71000), Sri Lanka	adb3keg@sltnet.lk	Tel: +94 35 2231979
Sarah M. Tibatemwa	Principal Analyst	Uganda	Can provide information on what is in our market and what we like / dislike about it and what we wish to have	NWSC Central Laboratory, PO Box 7053, Kampala, Uganda	Sarah.Tibatemwa@nwsc.co.ug	Tel: 256 41 341144 or 256 41 257548.
Michael Taylor	Senior Advisor (Environment Team) Environmental Health	New Zealand	Bayesian statistical tests for evaluating the equivalence of presence/ absence tests and enumeration tests for <i>E.coli</i>	Communicable Disease & Environmental Health Policy, Public Health Directorate, Ministry of Health, PO Box 5013, Wellington, New Zealand	michael_taylor@moh.govt.nz	Tel: +64 4 460 4958 Fax: (52) 55 55148574
Will Robertson	Head, Microbiology Section, Water Quality Science Division	Health Canada, Healthy Environments and Consumer Safety Branch	Info on test kits	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	Will_Robertson@hc-sc.gc.ca	Tel: (613) 957-1505 Fax: (613) 952-2574

John Cooper	Director, Water, Air and Climate Change Bureau	Health Canada, Healthy Environments and Consumer Safety Branch	Surveillance programs / data	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	John_Cooper@hc- sc.gc.ca	Tel: (613) 954- 0291 Fax: (613) 952- 2206
Oscar Suntura	Coordinador Area Tecnológica	Bolivia		Fundación SUMAJ HUSAI, Landaeta, La Paz No. 533, Bolivia	osuntura@sumaj.or g	Tel: (591-2) 2493947- 2116098
Donald Reid	Drinking Water Quality Division, Scottish Executive	Scotland	Provide contacts who have validation data	Drinking Water Quality Division, Scottish Executive 1- H (South), Victoria Quay, Edinburgh EH6 6QQ	Donald.Reid@scotl and.gsi.gov.uk	Tel: +44 (0) 131 244 0278
Ricardo Torres	Regional Advisor in Water Quality and Hygiene Promotion	CEPIS / Peru	Information about test kits in Latin American countries	Pan American Center for Sanitary Engineering and Environmental Sciences, BS- CEPIS/SDE/PAHO/WHO	rtorres@cepis.ops- oms.org	Tel: +(51) (1) 437-1077 Fax: +(51) (1) 437-8289

Create Glossary of Terms

This project aims to develop a lexicon of terminology and jargon used to discuss drinking water issues related to small community water supplies in order to find words that are meaningful and that can be easily translated into many other languages. Participants are asked to identify terms in any language that should be included and then to review the terms and definitions provided.

Participant	Title	Country / Organization	Role in this area	Address	E-Mail Address	Telephone/Fax
David Drury	Drinking Water Science Manager	United Kingdom	Lead	Drinking Water Inspectorate, Floor 2/A/1, Ashdown House, 123 Victoria St. London, SW1E 6DE, UK	david.drury@defra.gsi.gov.uk	Tel: +44 207 0828018
Shamsul Gafur Mahmud	Technology Specialist	Bangladesh	I can share people's understanding and perceptions on definitions (experience from Bangladesh)	ITN-BUET, Civil Engg building(3rd floor) Bangladesh University of Engineering & Technology Dhaka-1000, Bangladesh	itnaz@agni.com	Tel: +880 2 9663693
Ana Maria Blanco	Doctor: Oficina de Cooperación Canadiense en El Salvador	El Salvador	Help building up list / thesaurus in Spanish (for Spanish speaking users)	Secretaria Técnica del FODEC, Edificio World Trade Center, Torre II, nivel 2, L 203-04, 89 Av. Norte y Calle El Mirador, Colonia Escalón, San Salvador, El Salvador, Centro America	anablanca@acdielsalvador.org.sv	Tel: (503) 264-5405/06/08 Fax: (503) 264-5423

Sandra Vassia	Programa PROPASA.	Argentina	Contribuir con las terminologías utilizadas in Argentina	Ministerio de Salud y Directora División de Agua Potable y Saneamiento Rural, AIDIS Argentina Ministerio de Salud de Argentina, Amenabar 995, 3° A, Buenos Aires, Argentina	s_vassia@yahoo.com.ar	Tel: (54-11) 4783 5288 Fax: (54-11) 4783 5288
Ms. Soledad Pérez Guzmán	Ingeniero Civil. Jefe de Concesiones del Grupo Empresas y Directora de DIAPAR	Chile	Contribuir con los terminos que se usan en Chile en normas y leyes	(División de Agua Potable y Saneamiento Rural) en AIDIS Chile Superintendencia de Servicios Sanitarios, Moneda 673, piso 9, Santiago – Centro, Chile	sperez@siss.cl	Tel: 56 2 382 4153 Fax: 56 2 382 4004
Jacqueline Sims	Network Manager / Technical Officer	World Health Organization	Review terms	Water, Sanitation and Health, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland	simsj@who.int	Tel: 011 41 22 791 3755
Bruce Gordon	Technical Officer	World Health Organization	POU terms (write or comment)	Water, Sanitation and Health, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland	gordonb@who.int	
Herold Gopaul	Information Services Director	Caribbean		Caribbean Environmental Health Institute, The Morne, P.O. Box 1111, Castries, St. Lucia WI	hgopaul@cehi.org.lc	Tel: 1 758 452 2501 Fax 1 758 453 2721

Michael Taylor	Senior Advisor (Environment Team) Environmental Health	New Zealand	Provide New Zealand glossary	Communicable Disease & Environmental Health Policy, Public Health Directorate, Ministry of Health, PO Box 5013, Wellington, New Zealand	michael_taylor@moh.govt.nz	Tel: +64 4 460 4958 Fax: (52) 55 55148574
Ms Robyn Grey-Gardner	Project Leader, DK-CRC Remote Community Water Management Project	Australia	Bring perspective for some cross-cultural relevance	Commonwealth Department of Families, Community Services and Indigenous, Affairs, Indigenous Coordination Centre, 2nd Floor, Jock Nelson Building, Hartley St., PO Box 2255, Alice Springs NT 0871	robyn.grey-gardner@facsia.gov.au	Tel: 08 8959 4210 Fax: 08 8952 1937
Maria Gunnarsdóttir	Division Manager	Iceland	Contribute as a non English first language	Samorka - Federation of Icelandic Energy and Water Works, Sudourlandsbraut 48, 108 Reykjavik, Iceland	mariaj@samorka.is	Tel: +354 588 4430
Oscar Suntura	Coordinador Area Tecnológica	Bolivia	Hay terminología que será importante compartir con la RedMe refiero a que hay terminología en mi país que será importante que se conozca o sean revisadas a través de la red o los medios que se han indicado durante la reunión.	Fundación SUMAJ HUSAI, Landaeta, La Paz No. 533, Bolivia	osuntura@sumaj.org	Tel: (591-2) 2493947-2116098

Donald Reid	Drinking Water Quality Division, Scottish Executive	Scotland	Review terms	Drinking Water Quality Division, Scottish Executive 1-H (South), Victoria Quay, Edinburgh EH6 6QQ	Donald.Reid@scotland.gsi.gov.uk	Tel: +44 (0) 131 244 0278
Ricardo Torres	Regional Advisor in Water Quality and Hygiene Promotion	CEPIS / Peru	Latin America glossaries and thesaurus	Pan American Center for Sanitary Engineering and Environmental Sciences, BS-CEPIS/SDE/PAHO/WHO	rtorres@cepis.org	Tel: +(51) (1) 437-1077 Fax: +(51) (1) 437-8289
Alejandra Martínez García	Subdirectora Ejecutiva de Gestión de Riesgos	Mexico	Terms for lexico	Subdirectora Ejecutiva de Gestión de Riesgos, COFEPRIS Monterrey No. 33, 9° piso Col. Roma 06700 México, D. F.	alejandram@salud.gob.mx	Tel: (52) 55 50805406 Fax: 52 55 5514 8572

Produce comprehensive technical guidance document on costs and impacts of interventions

This project is gathering evidence to support continued investment in small community water supplies. Participants are asked to provide peer-reviewed, published health impact studies and literature related to cost-benefit/cost-effectiveness analysis. Studies and literature published in languages other than English are particularly useful at this stage. The information will be entered into a database of health evidence. The long term goal is to develop an advocacy tool.

Participant	Title	Country / Organization	Role in this area	Address	E-Mail Address	Telephone/Fax
Jacqueline Sims	Network Manager / Technical Officer	World Health Organization	Lead	Water, Sanitation and Health, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland	simsj@who.int	Tel: 011 41 22 791 3755
Ana Maria Blanco	Doctor: Oficina de Cooperación Canadiense en El Salvador	El Salvador	Look up for data sharing; results of studies carried out in the country	Secretaria Técnica del FODEC, Edificio World Trade Center, Torre II, nivel 2, L 203-04, 89 Av. Norte y Calle El Mirador, Colonia Escalón, San Salvador, El Salvador, Centro America	anablanca@acdielsalvador.org.sv	Tel: (503) 264-5405/06/08 Fax: (503) 264-5423
Jennifer Mercer	Manager, Drinking Water Task Force	Health Canada, First Nations and Inuit Health Branch	Feedback to consultation through WHO on on-going basis	Health Canada Jeanne Mance Building #19 200 Eglantine Driveway, Tunney's Pasture, A.L. 1915D Ottawa, Ontario K1A 0K9	Jennifer_Mercer@hc-sc.gc.ca	Tel: (613) 954-6655 Fax: (613) 954-0692
Michael Taylor	Senior Advisor (Environment Team) Environmental Health	New Zealand	Outbreak data (but epidemiological analysis usually poor)	Communicable Disease & Environmental Health Policy, Public Health Directorate, Ministry of Health, PO Box 5013, Wellington, New Zealand	michael_taylor@moh.govt.nz	Tel: +64 4 460 4958 Fax: (52) 55 55148574

Will Robertson	Head, Microbiology Section, Water Quality Science Division	Health Canada, Healthy Environments and Consumer Safety Branch	Can provide outbreak / epi reports	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	Will_Robertson@hc-sc.gc.ca	Tel: (613) 957-1505 Fax: (613) 952-2574
John Cooper	Director, Water, Air and Climate Change Bureau	Health Canada, Healthy Environments and Consumer Safety Branch	Possible test cases / pilots	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	John_Cooper@hc-sc.gc.ca	Tel: (613) 954-0291 Fax: (613) 952-2206
Donald Reid	Drinking Water Quality Division, Scottish Executive	Scotland	RIA for Scotland	Drinking Water Quality Division, Scottish Executive 1-H (South), Victoria Quay, Edinburgh EH6 6QQ	Donald.Reid@scotland.gsi.gov.uk	Tel: +44 (0) 131 244 0278

Provide strategic direction for research

The Network recognizes that it can play a role in ensuring that research conducted by academics or other research bodies is relevant to the management of small community water supplies. To this end, participants are asked to identify research priorities relevant to small community water supplies.

Participant	Title	Country / Organization	Role in this area	Address	E-Mail Address	Telephone/Fax
John Cooper	Director, Water, Air and Climate Change Bureau	Health Canada, Healthy Environments and Consumer Safety Branch	Lead	3rd Floor, Room 3-089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	John_Cooper@hc- sc.gc.ca	Tel: (613) 954-0291 Fax: (613) 952-2206
Nelson Mauricio Estrada	Especialista en Agua/Medio Ambiente	El Salvador	Identify needs for small community in my country	Secretaria Técnica del FODEC, Edificio World Trade Center, Torre II, Nivel 2, Col. Escalón, San Salvador, El Salvador, Centro America	nmestrada@acdielsalv ador.org.sv	Fax: (511) 437-1077
Sandra Vassia	Programa PROPASA.	Argentina	Identificar las necesidades en Argentina	Ministerio de Salud y Directora División de Agua Potable y Saneamiento Rural, AIDIS Argentina Ministerio de Salud de Argentina, Amenabar 995, 3° A, Buenos Aires, Argentina	s_vassia@yahoo.com. ar	Tel: (54-11) 4783 5288 Fax: (54-11) 4783 5288

Jacqueline Sims	Network Manager / Technical Officer	World Health Organization	Watching brief for research needs	Water, Sanitation and Health, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland	simsj@who.int	Tel: 011 41 22 791 3755
Sarah Tibatemwa	Principal Analyst	Uganda	Identification of needs for developing countries / rural communities	NWSC Central Laboratory, PO Box 7053, Kampala, Uganda	Sarah.Tibatema@nsc.co.ug	Tel: 256 41 341144 or 256 41 257548.
Marco Campos	Coordinator	Peru/SODIS Foudation	Identify needs for small communities in Peru	Alameda del Sereno 465, urbanizacion Alborada Surco (Lima 33) Perú	mcampos1938@speedy.com.pe	Tel: +51 (1) 448 0963
Paul Heaton	Program Leader	Australia	Collaborative / conjunctive research programs	Regional & Rural Water Supplies Program Cooperative Research Centre for Water Quality & Treatment C/O Power and Water Corporation GPO Box 1921 Darwin, NT, 0801 Australia	Paul.Heaton@powerwater.com.au	
Herold Gopaul	Information Services Director	Caribbean	Contribute possible research topics	Caribbean Environmental Health Institute, The Morne, P.O. Box 1111, Castries, St. Lucia WI	hgopaul@cehi.org.lc	Tel: 1 758 452 2501 Fax 1 758 453 2721

Michael Taylor	Senior Advisor (Environment Team) Environmental Health	New Zealand	Research needs and information on research in progress	Communicable Disease & Environmental Health Policy, Public Health Directorate, Ministry of Health, PO Box 5013, Wellington, New Zealand	michael_taylor@moh.govt.nz	Tel: +64 4 460 4958 Fax: (52) 55 55148574
Donald Reid	Drinking Water Quality Division, Scottish Executive	Scotland	Identify needs / activity in the UK and Europe	Drinking Water Quality Division, Scottish Executive 1-H (South), Victoria Quay, Edinburgh EH6 6QQ	Donald.Reid@scotland.gsi.gov.uk	Tel: +44 (0) 131 244 0278

Data and Information Tools

New Zealand has developed an information management tool that it would like to share with other countries. In order to make sure the finished product is relevant to other regions, participants are asked for feedback on the kind of information and data that should be captured.

Participant	Title	Country / Organization	Role in this area	Address	E-Mail Address	Telephone/Fax
Michael Taylor	Senior Advisor (Environment Team) Environmental Health	New Zealand	Lead	Communicable Disease & Environmental Health Policy, Public Health Directorate, Ministry of Health, PO Box 5013, Wellington, New Zealand	michael_taylor@moh.govt.nz	Tel: +64 4 460 4958 Fax: (52) 55 55148574
Herold Gopaul	Information Services Director	Caribbean	Assist in providing inputs for SIDS	Caribbean Environmental Health Institute, The Morne, P.O. Box 1111, Castries, St. Lucia WI	hgopaul@cehi.org.lc	Tel: 1 758 452 2501 Fax 1 758 453 2721
Maria J. Gunnarsdóttir	Division Manager	Iceland	Review and comment with Icelandic experience	Samorka - Federation of Icelandic Energy and Water Works, Sudourlandsbraut 48, 108 Reykjavik, Iceland	mariaj@samorka.is	Tel: +354 588 4430
John Cooper	Director, Water, Air and Climate Change Bureau	Health Canada, Healthy Environments and Consumer Safety Branch	Data on adverse events/ Boil water advisories in Canada	3rd Floor, Room 3- 089, 269 Laurier Ave. W, Ottawa, Ontario, K1A 0K9, Mail Stop: 4903D	John_Cooper@hc-sc.gc.ca	Tel: (613) 954-0291 Fax: (613) 952-2206

Appendix C: Roundtable session summaries

Roundtable 1: Identification of Issues and Priorities

Whether in developed or in developing countries, we face similar or the same challenges in managing small community water supplies

Main challenge(s) related to the management of small community water supplies:

- Insufficient political engagement
- Regulator agencies do not have the resources to regulate community water supplies appropriately
- Risk perception / risk management
- Poor decision making stemming from perception that there is no ownership and/or awareness of the true cost of water
- Lack of training for operators and managers of small community water supplies and lack of management expertise (both essential to ensure systems are sustainable)
- Health surveillance
- Appropriate communication to the public, including about management of water within the home
- Getting resources to rural areas
- Improving infrastructure because delivery of safe water at the point of consumption is a problem even when the water is treated properly
- Framework for implementing WSP for small community water systems

What is needed to overcome these challenges over the next five years:

- Better management of community water supplies
- Management of priorities
- Information
- Bringing together communities to share experiences
- Communication strategies, including tools to facilitate the communication and mitigation of risks to the public and decision makers at community, regional and national levels
- Tools to ensure that decision makers at community, regional and national levels are aware of their roles and responsibilities
- Advocacy and political will at all levels; political commitment
- Identification of appropriate regulations for community water supplies
- Governments (national or state / provincial) need to have overall responsibility to oversee investment
- Adequate institutional support to ensure, for example, appropriate outreach mechanisms
- Capacity development for water operators and managers, including incentives to stay within the community

- Encourage and improve community-level capacity to manage water supplies, including the establishment of regional level networks to facilitate information sharing and mentoring.
- Small communities investing in their own supplies
- Individual investment (user fees) which provides commitment and sustainability because the individual becomes a stakeholder
- Improve the household storage of drinking water

Activities the Network could undertake that would have the greatest impact on improving the management of small community water supplies:

- Support training and education, such as through universities, colleges and on-going liaison and support
- Increase visibility via a goodwill ambassador
- Increase information / awareness of community water supply issues
- Information or tools on how to use the Water Safety Plan approach to identify hazards and risks and prioritise improvements
- Strengthen health / water sector linkages
- Develop a resource centre and clearinghouse of information
- Develop tools targeted for each stakeholder group
- Work on information and advocacy tools that would lay the groundwork for change
- Identify, organize, peer review educational and other resources
- Quality control of materials going on to the collaborative website
- Increase access to supportive technology (the right tools for the job)
- Promote rational, responsive investment through the Water Safety Plan principles
- Increase participation in the Network
- Share experiences (e.g., what approaches have been successful) to avoid re-inventing the wheel (Canada and Australia were identified as having useful experience that would be applicable to Latin America)

Roundtable 2: Reporting to the Public on Drinking Water Issues

For organizations/countries that report to the public on drinking water issues:

Type of information reported	To whom	Level (community, regional, national)	Frequency
Annual reports	General		1 / yr
Water quality		All	Annual
Water quality	Public health /water professionals	Regional / national	Monthly / annually
Information on water quality (full range of parameters available) but only with simple interpretation/ explanation of results	Consumers	Regional / national	Anytime
Key health parameters (ex. <i>E. coli</i> and As) but only with simple interpretation/ explanation of the results	Consumers	Community, regional, national	Regularly
Safety of water	Public	Community	Regularly
Significant changes to water	Consumers, regulators, community health professionals and those responsible for water supply management	Community	As soon as possible
Compliance data	Consumers	Regional	Annual
Boil water notices / high risk	Consumers	Community/ regional	As requested
Boil water advisories	Community	?	Incidental
Outbreaks	Community	?	Incidental
Interruptions / quantity	Public	Community	As required
Identifying problems	Government		Yearly
Remedial actions	Community	?	Depending
Framework management	Consumers	Community/ regional	Annual
Public register, source, consumers, quality data	Consumers, public register	Community	Real time
Weather / emergencies	Public	Community	As required
Investment programs	Public	Community	Regularly
Advice - routine	Community	?	6-12 months
Education materials	Community	?	?
Regulatory compliance	Government		Yearly
Funding	Government		Yearly
Contact information and names of those who are responsible for the operation and management of the water supply, as pre-identified (ex. Community leadership, water committees)	Public – so they know who to contact in case of emergency	Community level	Whenever there are changes

How land use activities can affect water supply and information on the elements/ components of the water supply	Land-users		Regularly
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Note: upstream and downstream reporting is needed

Information reported	Type of communication by type of community			Frequency
	Centralized Urban	Peri Urban	Decentralised small community	
High risk = advisories	Press release Mail drop Web Staff mobilization	Local EH office plan	Door knock Mega phone Sign on standpipe Modify / disable standpipe	Immediate
Water quality / quantity data			Paper based Pictorial sheets	Monthly / annual
Management framework	Paper / web Annual reports		Signs Pictorial sheets	3 – 5 years
	Town meetings			

What information (if any) related to the management of community water supplies should be available to the public?

- Safety of water, that the water is safe to drink or not, that disinfection is working satisfactorily
- The quantity of water available and what it should be used for (e.g., drinking and not irrigation, or not for drinking)
- It is not useful to provide analytical results, these would not be understood
- Address priority issues (risk / health) focus where needs are
- Information on quality
- Information on problems immediately
- Establish what the community wishes to know
- Prioritisation of information based on health risk
- Water Safety Plans – what's working, what's not
- It depends on regulatory structure or how reporting is best organised; multiple jurisdictions influence reporting structures
- Reporting on water quality to communities must go hand in hand with information /recommendations for remedial measures

What are the best ways to report information on drinking water issues to the public? (e.g., website for national-level information, door to door communication for drinking water advisories)

- Best way of communication depends entirely on social – economic and cultural setting
- Rural / developing settings: door to door dissemination plus pictorial explanations
- Clinics, schools, community meetings for general hygiene and water use information. Leaflets, cards and pictograms are particularly useful.
- Radio is useful, positive daily messages about water quality as well as for emergencies

- For emergencies – radio, door to door communications, agreed upon community warnings (flags or signals, etc)
- Adapt to end user. Matrix for urban – Peri Urban – Small community
- Flexibility based on frequency, level of priority/risk; distinguish between immediate, medium and long term information needs
- Other factors for legitimacy – independence/ trust of reporter; societal groupings / vulnerable groupings
- Reporting should be timely, consistent, systematic, transparent

Roundtable 3: Application of Water Safety Plan Principles to Small Supplies

The minimum elements to be included in drinking water management plans:

Group A + D

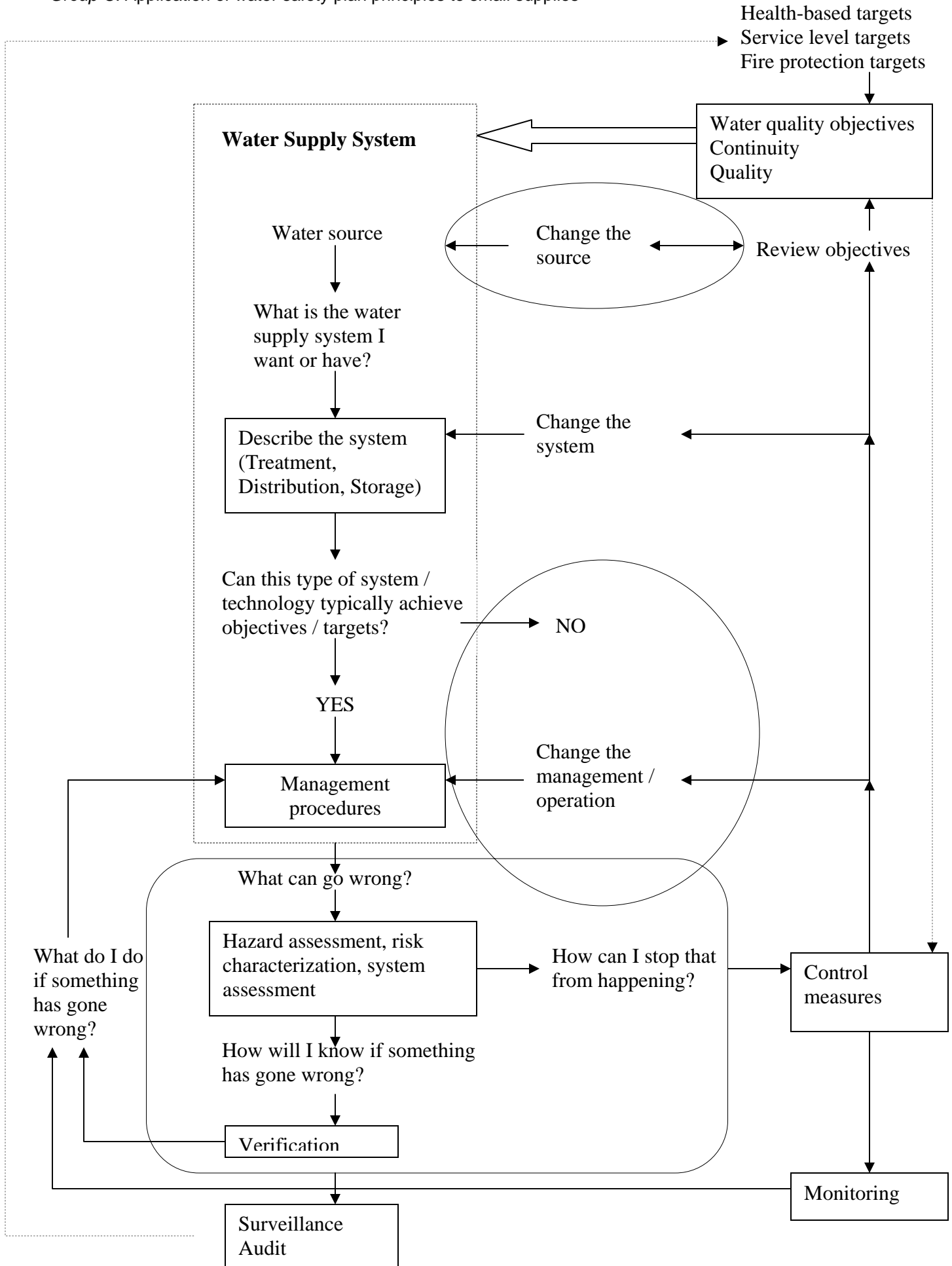
- Protection of water sources
- Identification of hazards and risks and their mitigation
- Schematic of the system
- Well-defined responsibility
- Minimum required monitoring
- Routine maintenance plan
- Operator's manual/ log book to identify what should be and has been done
- Contingency plans – must be written
- Training
- Water Safety Plan steps: catchment to consumer (catchment protection will be difficult to enforce by communities)

Group B

- Water quality targets, including interim targets, as needed
 - Targets based on health considerations
 - In consultation with consumers
- Community needs
 - Identify consumers (ex. Industry vs. household and cultural implications associated with the consumers)
 - Identify quantity of water needed
 - Identify level of community capacity
- Get to know your community water supply.
 - Components of the water supply (ex. stand pipes, buckets, piped distribution systems)
 - Source (ex. surface, well)
 - Identify the treatment required to meeting your water quality targets
 - Identify those who are responsible for managing your community water supply
- Operate and maintain your community water supply
 - Based on your water quality targets, source, components of the water supply, and community needs
 - Needs to be designed and operated in order to be sustainable
 - Where needed, upgrade, design and construct your community water supply
 - Mobilize resources (money and people)
- Technology needs to meet community capacity
- Identify potential risks to your community water supply
 - From catchment to consumption
 - Ask the question, "What can go wrong?"

- Has to be on-going
- Identify how you would know if things were going wrong
 - Look for potential water-related illnesses and diseases
 - Check water quality relative to targets
 - Needs to be checked by a third party
- Identify how you would prevent things from going wrong
- Identify what you would do if things go wrong
 - Emergency Response Planning
- Education, training and public awareness
 - Consumers, including education and public awareness about how to handle water within the household
 - Operators
 - Managers
 - Decisions makers, including policy makers and politicians at all levels
- Reporting to the public
 - As discussed in round table #2
- Reporting and evaluation community water supply performance
 - Needs to be evaluated against above listed elements
 - Needs to be conducted by a third-party
 - Needs to include continuous feedback and improvement
- Consumers need to feel ownership over their community water supplies
 - Users should pay
 - Donor agencies need to follow the above essential requirements
 - Where possible given community socio-economic status, fees should reflect actual and true cost for treating and delivering community water supplies

Group C: Application of water safety plan principles to small supplies



Roundtable 3 continued ...

Programs countries have in place to manage small community water supplies

(e.g., verification monitoring, surveillance for illnesses, education programs for operators, sanitary inspections):

- Resource centres partly in place
- Establish pilots / satellites
- Hygiene education
- Tend to be high level, may have World Bank and other NGO participation and finance rather than water quality led
- One country has a National Institute of Water Resources which provides laboratory services overseen and audited by a Ministry of Public Health, but this is unusual
- Independent auditing, reporting and surveillance is not the norm
- Lack of programmes recognized and now some are being developed for water quality and certification
- Water committees are responsible for managing water supplies at a community level receive assistance from higher levels of government.

Programs that should be in place to manage small community water supplies:

- Training at all levels for managers and operators (certification)
- Training for community on social and economic value of water
- Risk communication and risk management training
- Ways to learn from experiences in other countries
- Encourage people to complain and demand good services
- Integrate understanding of engineers, scientists and medics
- Institutionally developed / implemented Water Safety Plans
- Communication of risk: you can make the difference in health
- Incentives and disincentives
- Take them out in a participatory way, identifying hazards, developing resources
- Build on existing programs
- Establish and develop resource centres (materials, information exchange, advice and equipment) -> support to them needed
- Establish satellites / pilots / champions for roll-out
- Encouragement to WHO to develop down-to-earth manual on Water Safety Plans for small community supplies



International Network on
**Small Community
Water Supply
Management**

Hosted by Health Canada and
the World Health Organization

September 19 - 22, 2006

Coast Capri Hotel
Kelowna, British Columbia
Canada

AGENDA

International Network on Small Community Water Supply Management

Tuesday, September 19 - Day 1 - Water Supply Management in Canada

Session 1: Moderator: Richard Lawrence

- 0900 - 0910 Traditional Opening Ceremony
Elder Mary Ann Eli
- 0910 - 0920 Opening remarks
*Mr. Yousuf Ali, Regional Director
First Nations and Inuit Health Branch, Pacific Region*
- 0920 - 0940 Introduction of participants
- 0940 - 1000 Purpose and objectives of Network
*Jacqueline Sims, Network Manager/Technical Officer,
Water, Sanitation and Health (WSH) World Health Organization*
- 1000 - 1030 Summary of previous Network Meetings
*María Gunnarsdóttir, Division Manager, Samorka –
Federation of Icelandic Energy and Water Works, Iceland*

1030 - 1100 Health Break

- 1100 - 1130 *Dr. Steve Hrudey, Professor of Environmental Health Sciences
Department of Public Health Sciences, University of Alberta*
- 1130 - 1200 *John Cooper, Director
Water, Air and Climate Change Bureau, Health Canada*
- 1200 - 1230 *Mr. Barry Boettger, Drinking Water Officer
Province of British Columbia*

1230 - 1330 Lunch Break

Session 2: Moderator: Dr. Steve Hrudey

- 1330 - 1400 *Al Lister, Operator
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- 1400 - 1430 *James Tomma, Manager
Water Utilities, Little Shuswap Band*
- 1430 - 1500 *Dr. Ray Copes, Environmental Health Medical Director
British Columbia Centre for Disease Control*

1500 - 1530 Health Break

- 1530 - 1600 *Richard Lawrence, Regional Environmental Health Manager
First Nations and Inuit Health Branch, Pacific Region, Health Canada*
- 1600 - 1630 *Michael Roy, Senior Policy Analyst
Community Development Branch, Indian and Northern Affairs Canada*
- 1630 - 1640 Brief overview of Network Meeting agenda
Jennifer Mercer, Manager, Drinking Water Task Force, Health Canada
- 1640 - 1730 Summary and discussion of key points raised by
Canadian presenters
*John Cooper, Director
Water, Air and Climate Change Bureau, Health Canada*

Wednesday, September 20 - Day 2 - International Network**Session 3: Moderator: Donald Reid**

- 0900 - 0905 Opening Remarks
Shelagh Jane Woods, Director General, Primary Health Care and Public Health Directorate, Health Canada
- 0905 - 0920 Overview of the links between the WHO Guidelines on Drinking Water Quality and the International Network on Small Community Water Supply Management
Oliver Schmoll, WHO Consultant
- 0920 - 0935 Overview of small supply issues in Latin America
Eng. Ricardo Torres, Regional Advisor in Water Quality and Hygiene Promotion, Pan American Centre for Sanitary Engineering and Environmental Sciences (CEPIS), Peru
- 0935 - 0945 Briefing on Round Table process and desired outcomes
- 0945 - 1045 Round Table/Break Out 1:
Identification of issues and priorities based on background questionnaires and as identified by Canadian and International participants
- 1045 - 1115 Break**
- 1115 - 1215 Round Table/Break Out 1 - continued
- 1215 - 1245 Plenary discussion on round table outcomes
- 1245 - 1345 Lunch**

Session 4: Moderator: David Drury**Presentation and review of Network work in progress**

- 1345 - 1415 Institutional/infrastructure support
Jennifer Mercer, Manager, Drinking Water Task Force, Health Canada
- 1415 - 1500 Technical tools group
David Cunliffe, Principal Water Quality Adviser, South Australian Department of Human Services
- 1500 - 1515 Glossary/Definitions
Dan Deere, WHO Consultant
- 1515 - 1545 Break**
- 1545 - 1615 Cost-benefit/cost-effectiveness analysis on interventions for water, sanitation and hygiene
Jacqueline Sims, Technical Officer, WSH/WHO
- 1615 - 1645 Test kits
Oliver Schmoll, WHO Consultant
- 1645 - 1730 Plenary discussion on work in progress

Closure of Day 2 and outline of Day 3 objectives

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Appendix F – Data and Information tools

Data and information tools

Although this was not specifically identified as an item to be undertaken by the Network, a need for data and information tools is a possible area of interest.

Background

Michael Taylor (New Zealand) gave a presentation on the Water in New Zealand (WINZ) information management tool. Network participants were asked to fill out a questionnaire to provide feedback to assist New Zealand in the development of their information management tool. Participants noted that such tools are only of value to communities with computer access and user skill.

Canada is supporting WHO to identify internationally-accepted best practices for data and information requirements related to implementing and assessing small community water supply drinking water programs. The final Project Report will detail the background, objectives, methods, results, issues needing further investigation and policy recommendations. The start date for this work will be determined by WHO.

Path forward

1. Participants to complete the questionnaire from New Zealand
2. When available, the report of this work will be disseminated through both WHO and Health Canada channels.
3. A detailed Terms of Reference and workplan to be developed which will include the identification of a possible role for the Network.

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