



Australian Government

National Health and Medical Research Council

International meeting on the Management of Water Quality in Rural and Remote Communities

Alice Springs, Australia
19-22 July 2005

World Health Organization
National Health and Medical Research Council
2006

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International Meeting on the Management of Water Quality in Rural and Remote Communities, Alice Springs, Australia, 19-22 July 2005

1. Background

The third edition of the WHO Guidelines for Drinking-water Quality includes a focus on a preventive risk management approach for assuring quality of drinking water supplies through a Framework for Safe Drinking incorporating Water Safety Plans (WSPs). There are three levels at which WSPs can be applied; large organized piped water systems, small community supplies and household water treatment systems. Application of the WSP approach in large supplies and household systems is being promoted through existing networks. Further support is required for implementation in small community water supplies.

Management of small community drinking water supplies has been universally identified as a critical issue for sustainable development and health, and an issue that requires significant attention to protect community health and to ensure the water-related Millennium Development Goals (MDGs) can be met. It has been recognized that major health gains can be achieved through improvements to drinking water quality in rural and remote communities.

While the MDGs focus on developing countries, the difficulties associated with management of small community drinking water supplies are not restricted to these countries. Developed nations have recognized that small community supplies, particularly rural, remote and Indigenous communities as those most liable to contamination and failure, and consequently pose a consistent public health risk.

In response to these concerns, the World Health Organization (WHO) has been working with a number of Member States to facilitate a series of meetings to initiate the development of technical and management approaches for small community drinking water supplies to assist in the operation and management of these small supplies, particularly in rural or remote areas.

2. Overview of Reykjavik meeting

The first international meeting on management of small community drinking water quality, held in Reykjavik, Iceland in January 2005, considered a number of technical and management approaches being taken in respect of small community supplies in countries at differing levels of development. The meeting established the general context in which work on small supplies needs to be carried out and outlined a series of 12 Key Principles which outline the general requirements to ensure ongoing sustainability of local water supplies, which do not pose a public health threat to consumers.

The Reykjavik Principles

1. High level political/policy support is essential in development of national Water Safety Frameworks.
2. Water Safety Frameworks should incorporate Water Safety Plans for individual water supplies based on local characteristics.
3. Water Safety Frameworks should include key criteria for incremental improvement of small water supplies involving community engagement and considering cost, practicality, ease of maintenance and repair and effectiveness.
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. Continuous engagement between water and health sectors is essential for ensuring safe drinking water for public health protection.
 6. The underlying ethical principle should be to ensure equal levels of safety for small and large supplies.
 7. The safety and quality of water must not be overlooked in efforts to increase the rate of coverage. However, cost must also be considered or increased coverage will not be affordable for the poor.
 8. Success and long-term sustainability of small community water supplies should incorporate capacity building and human capital development. This needs to be undertaken in the appropriate cultural context to establish a demand-driven approach.
 9. Responsibilities placed with the community must be backed with appropriate levels of financial and technical support, education and training. Community engagement should commence at the onset of project planning and continue on a regular basis. Responsibilities at a district, regional and state level should be identified.
 10. Effective drinking water safety programs are based on the commitment of stakeholders (e.g. owners and operators of supplies, surveillance agencies, public health professionals and consumers) to collaborate in maintaining the protection of public health. Consumers should be fully informed when incidents and emergencies occur.
 11. Decisions on appropriate tools and support systems for small community water supplies should take account of remoteness and access difficulties.
 12. Water Safety plans for small supplies should consider the potential for influencing activities that can contaminate the immediate water source.

3. Overview of Alice Springs meeting

To progress the outcomes of the Reykjavik meeting, Australia's National Health and Medical Research Council (NHMRC) convened the second international meeting on management of small community drinking water quality Alice Springs in July 2005. This meeting provided an opportunity to further consider issues on management of water quality in small rural and remote communities with a particular focus on developing nations from the South-East Asian and Pacific regions. The meeting also took steps towards concretizing a broad initiative on small community water supply management as a means of supporting progress towards the MDGs and the United Nations Decade "Water for Life" (2005-2015).

The principal aims of the Alice Springs meeting were to:

- Review management support structures currently utilized in participating countries and use these as a basis for developing model approaches for management structures, delivery systems and outreach and support networks;
- Establish criteria for pilot studies and a protocol for their evaluation;
- Identify countries willing to undertake pilot studies;
- Progress development of a generic tool to support implementation of WSPs, drawing on wide international experience;
- Identify test kits and acceptability criteria for different settings, particularly for surveillance and verification; and
- Further plans for an international collaborative network on small community water supply management.

An integral component of the Alice Springs meeting was the discussions held in three focused working groups convened to encourage open discussion and debate on the following broad themes:

- Managerial Support Structures;
- Tools and Pilot Programmes; and
- International Collaborative Network

The reports of these three working groups, which were discussed in plenary, are provided as annexure to this report.

4. Agreed Actions from Alice Springs meeting

At its conclusion, the meeting reached agreement on the following six key activities designed to improve understanding of management approaches for small community drinking water supplies, and to improve technical tools and access to information:

1. Establishment of an international collaborative network;
2. Development and trial of a pilot questionnaire to gather information on country specific water supply characteristics including management structures, delivery systems and capacity building;
3. Development of tools to support implementation of WSPs;
4. Development of a database of health evidence to support decision-making on community water supplies
5. Development of surveillance and verification tools and test-kits; and
6. Standardized definitions and terminology.

In addition to these six key activities, a number of participants expressed an interest in data management tools. Dr Michael Taylor stated that New Zealand has developed tools for this purpose and he undertook to distribute these to interested parties as a first step to initiate further discussion.

Development of this type of tool will be included for further discussion at the next meeting. Participants who expressed an interest in further discussions included Dr Dan Deere, Dr Gerhard Offringa and Dr Zang Rong.

4.1 Establishment of an International Collaborative Network

A major impediment to the implementation of improved preventive management strategies for small drinking water supplies at the local, regional and national level, particularly in developing nations, has been the lack of a coordinated and collaborative approach and access to up-to-date expert guidance and advice. To improve information exchange between nations, there was strong support for the establishment of interactive, web-based *International Collaborative Network* (ICN) hosted on the WHO internet site.

The ICN, with the support of dedicated technical staff, would provide advocacy for implementation of WSPs, support for community water supply managers and policy makers, would encourage the development of broad inclusive international membership, improve access to technical guidance and management tools, facilitate on-line moderated discussions on specific topics, and would also provide a conduit between operators at the local level, encouraging a direct exchange of information. The ICN would facilitate innovative research

and encourage collaboration on major issues and themes relating to small community water supplies.

The development of the internet-based ICN would provide the mechanism for distribution of the range of resources developed through WHO in collaboration with network members, and could include:

- online access to the questionnaire on current water safety procedures practiced (see item 4.2);
- the generic tools developed to support the WSP approach for small community water supplies (see item 4.3);
- the database of health evidence to support decision-making (see item 4.4);
- the surveillance and verification tools (see item 4.5); and
- the standardized definitions and terminologies (see item 4.6).

Whilst there was strong support for the ICN, it was recognized that this initiative required further consideration of a wide range of technical, logistical, and quality control issues, and that the long-term feasibility of the ICN would require financial commitment from key stakeholders and supporters, particularly, from developed countries.

The following participants agreed to be involved in the process of further developing the ICN:

Ms Jacqueline Sims (World Health Organization)
Dr David Drury (United Kingdom)
Mr Darryl Day (Australia)
Dr Gerhard Offringa (South Africa)
Mr AKM Ibrahim (Bangladesh)
Mr Nii Okai Kotei (Ghana)

This task will be coordinated by WHO.

4.2 Development of Pilot Questionnaire

To facilitate implementation of WSPs and improve guidance relating to application in small communities it was agreed that information should be gathered on associated elements, including existing:

- management structures
- delivery systems
- outreach networks
- capacity building and training
- technical support programs
- community engagement
- funding levels.

Further, it was agreed that this information should be gathered in conjunction with country-specific water characteristics to provide context for existing practices and to increase applicability of these practices to other countries with similar circumstances.

To maximise the utility and consistency of data the information should be gathered in standardised format using a questionnaire-based approach. In addition to providing information to contribute to a background database, the use of the questionnaire, when fully developed, would also allow gap analyses of individual country management approaches in relation to the Framework for Safe Drinking-Water and WSPs.

The meeting agreed to undertake the following data collection and analysis activities:

- Development of a pilot questionnaire/template for gathering information on existing management structures, delivery systems and outreach networks;
- Identification of high-level characteristics to assist countries in identifying similarities with other countries;
- Identification of performance indicators to measure success; and
- Establish data analysis techniques.

The countries identified to take part in trialling this questionnaire sampling include Canada, Sri Lanka, Peru, Samoa and the Caribbean.

The task is to be coordinated by Ms Alex McKie of the University of Surrey, UK.

4.3 Development of a tool to support introduction of water safety plans

The WHO WSP approach outlines a preventive risk management system based on an understanding of the drinking water system, prioritising risk and ensuring appropriate control measures are in place to reduce risks to an acceptable level. While the WHO Guidelines on Drinking Water Quality (Vol.3) provides guidance on small community supplies, it is recognized that further support is required to improve the implementation of WSPs in small communities. An essential component of this support is development of a generic tool that will assist in the design and implementation of WSPs. The overarching tool could include subordinate tools considering aspects such as:

- Sanitary inspection;
- Verification and surveillance;
- Simple test methods and assays;
- Data management;
- Hygiene education
- Maintenance, calibration and stock inventories; and
- Linkages with WSPs and asset management tools.

The tools will draw on the collective experience of established national models including the Australian, Icelandic and New Zealand approaches as well as being informed by work being undertaken in countries such as Bangladesh. The generic tool could be produced in different formats including software based approaches as well as paper based models which could take the form of, “model safety plans” developed by national or regional agencies for application at local levels.

The following participants agreed to be involved in the further development of the tool:

Dr David Cunliffe (Australia) - Coordinator
Dr Gerhard Offringa (South Africa)
Dr Michael Taylor (New Zealand)
Dr Zhang Rong (China)

Ms Maria Gunnarsdottir (Iceland)
Mr SG Mahmud (Bangladesh)
Dr Nouanta Maniphousay (Lao PDR)
Dr Donald Reid (Scotland).

4.4 Development of a database of health evidence to support cost-benefit/cost-effectiveness analysis of interventions in water, sanitation and hygiene

While there are a number of approaches for establishing burden of disease and other health evidence to support cost-benefit analysis in relation to drinking water supplies, this task remains difficult and is often overlooked particularly at the community level. To overcome inherent difficulties faced by some jurisdictions and community water supply managers in undertaking such analytical assessments, development of a database of health evidence is recognised as a valuable tool to assist in the estimation of the burden of disease within a community. Such a database would constitute a valuable support to work being undertaken by WHO and other institutions to develop methods of estimating the costs, benefits, and effectiveness of interventions in water, sanitation and hygiene at national and sub-national level. The need was also noted of drawing out of such work a "toolbox" of information aimed at a policy audience.

WHO has already started work on a database of this kind. The following participants agreed to be involved in further development of this work:

Ms Jennifer Mercer (Canada)
Dr Michael Taylor (New Zealand)
Dr Gerhard Offringa (South Africa)
Dr Andrew Langley (Australia)
Ms Maria Gunnarsdottir (Iceland).

4.5 Development of surveillance and verification tools

Undertaking surveillance and verification of drinking water quality in small community water supplies is recognised as an essential activity; however, it remains potentially complex and expensive. To assist managers to undertake these activities, there was agreement for the identification or development of easy to use tools and robust test kits to assist managers to undertake surveillance and verification activities.

Tools would be developed to provide procedural advice for surveillance of microbial, chemical and physical quality of water, and would be supported by on-site test kits. A high priority was the identification of existing test kits or development of criteria for new ones to enable assessment of water quality and hence improve the effectiveness of WSPs. These tools should be cheap, rapid, effective and reliable.

A longer-term requirement is tools to support rapid notification and reporting of waterborne disease and outbreaks.

The country representatives involved in the identification and development of surveillance and verification tools and test kits include:

Ms Sarah Tibatemwa (Uganda)
Ms Jennifer Mercer (Canada)
Ms Robyn Grey-Gardner (Australia)
Mr SG Mahmud (Bangladesh)
Ms Alex McKie (United Kingdom)
Dr Michael Taylor (New Zealand)
Dr Dan Deere (Australia).

4.6 *Standardized Definitions and Terminology*

To facilitate common understanding of various aspects of integrated water supply management approaches, and to facilitate the inter-country comparison of information a standardized set of definitions and terminology in relation to small community water supplies is to be prepared. The country representatives involved in the development of the definitions and terminology include:

Dr David Drury (United Kingdom)
Ms Jacqueline Sims (World Health Organization)
Mr Darryl Day (Australia)
Dr Gerhard Offringa (South Africa)
Mr AKM Ibrahim (Bangladesh)
Mr Nii Okai Kotei (Ghana)
Mr Marco Campos (Peru).

WHO is acting as coordinator of this task.

5. Conclusion

The Reykjavik meeting developed the overarching principles of small community water supply management and set the scene for international collaboration on a range of activities designed to improve management in these communities in both developing and developed nations. The Alice Springs meeting has further developed these principles and has reached agreement on specific actions to ensure international collaboration becomes a reality. Evaluation of outcomes of these initiatives will be the subject of subsequent international meetings to be convened annually. The next meeting will be held in Canada in autumn 2006, hosted by Health Canada.

International Meeting on the Management of Water Quality in Rural and Remote Communities

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**NHMRC/WHO International meeting on the Management of
Water Quality in Rural and Remote Communities**

19 – 22 July 2005

Meeting Program

Day 1: Tuesday 19 July 2005

- 0900 - 0905 Opening
- Darryl Day, NT Power and Water
- 0905 - 0920 Keynote addresses:
- Professor Alan Pettigrew, CEO NHMRC
- 0920 - 0940 Welcome address:
- Minister for Health, The Hon Barry Wakelin Member for Grey Whyalla
- 0940 - 1000 Purpose of meeting and expected outcomes:
- Dr Jamie Bartram, WHO
- 1000 - 1030 Morning Tea**
- 1030 - 1100 Administrative arrangements
- Selection of Chairs and Rapporteurs
 - Adoption of draft agenda
 - Introduction of participants
- 1100 - 1130 AusAID - Safe water Guide for the Australian aid program
- Mr Simon Buckley, AusAID
- 1130 - 1200 Bangladesh – Presentation on outcomes from pilot studies
- Mr SG Mahmud
- 1200 - 1230 Summary of the key recommendations/findings of Iceland meeting:
- Ms Jacqueline Sims, WHO
- 1230 - 1330 Lunch
- 1330 - 1400 Plenary Discussion – Setting the scene for the Working Group
- 1400 - 1500 Working Group Session 1:
- Group 1 – Managerial Support Structures*
 - Group 2 – Management Tools and Pilot Programmes*
 - Group 3 – International Collaborative Network*
- 1500 - 1530 Afternoon Tea

- 1530 - 1730 Country Presentations
- Iceland (Ms Maria Gunnarsdottir)
 - China (Professor Tao Yong)
 - Ghana (Ms Nii Okai Kotei)
 - Vietnam (Mr Le Thieu Son)
 - Samoa (Miss Kuinimeri Asora)
 - New Zealand (Mr Michael Taylor)
 - Bhutan (Mr Aku Dorji)
 - Laos (Dr Nouanta Maniphousay)

Day 2: Wednesday 20 July 2005

- 0830 - 0840 Brief summary of Day 1 and approach to Day 2
- 0840 - 1030 NHMRC Electronic Decision Support Tool
- Dr David Cunliffe (Australia)
- Other Management Tools
- 1030 - 1100 Morning Tea
- 1100 - 1300 Country Presentations
- Cambodia (Dr Mao Saray)
 - Fiji (Mr Viliame Misivisa Vakabati)
 - Nepal (Mr Sharad Adhikary)
 - Canada (Ms Jen Mercer)
 - Sri Lanka (Mr Hetti Thanthrige Rohan Wijesooriya)
 - Kiribati (Mr Taboia Metutera)
 - South Africa (Dr Gerhard Offringa)
 - Caribbean (Ms Alexandra McKie)
- 1300 - 1400 Lunch
- 1400- 1730 Study Tour of Mpwellarre outstation, an Indigenous community 85 kilometres south of Alice Springs on the western edge of the Simpson Desert.

Day 3: Thursday 21 July 2005

- 0900 - 0915 Brief summary of Day 2 and approach to Day 3
- 0915 - 1030 Country Presentations
- Peru (Mr Marco Campos)
 - Uganda (Ms Sarah M Tibatemwa)
 - United Kingdom (Dr David Drury)
 - Solomon Islands (Mr Robinson Fugui)
- 1030 - 1100 Morning Tea
- 1100 - 1230 Working Group Session 2:
- Group 1 – Managerial Support Structures*
- Group 2 – Management Tools and Pilot Programmes*

- 1230 - 1330 Lunch
- 1330 - 1500 Working Group Session 3:
Group 1 – Managerial Support Structures
Group 2 – Management Tools and Pilot Programmes
- 1500 - 1530 Afternoon Tea
- 1530 - 1700 Working Group Session 4 (focusing on planning for future action):
Group 1 – Managerial Support Structures
Group 2 – Management Tools and Pilot Programmes
Group 3 – International Collaborative Network
- 1700 - 1730 Plenary

Day 4: Friday 22 July 2005

- 0900 - 1030 Working Group Presentations and discussion:
Group 1 – Managerial Support Structures
Group 2 – Management Tools and Pilot Programmes
Group 3 – International Collaborative Network
- 1030 - 1100 Morning Tea
- 1100 - 1230 Planning for future action:
 - Options for delivery methods and support structures
 - Identify strategic research requirements
 - Pilot studies
 - Global Assessment of small community systems
- 1230 - 1330 Lunch
- 1330 - 1500 Workshop conclusions and close

Report of Working Group 1 - *Managerial Support Structures*

Objective:

To consider existing practices and development of model approaches relating to:

- Management structures, delivery systems and outreach networks
- Capacity building and training for rural communities particularly in remote or isolated areas
- Mechanisms for providing technical support to local managers of community supplies
- Developing community support and involvement
- Communication and education on water and health issues
- Financial aspects.

Management structures, delivery systems and outreach networks

Issues discussed:

To assist countries in identifying management structures, delivery systems and outreach networks which would be useful given their country's characteristics (physical, social/cultural, economic, provision of drinking water, political, behavioural and health information).

To assist WHO in reviewing guidance on Water Safety Plans particularly in relation to small community supplies, based on information provided by participant countries.

To assist countries in identifying and addressing gaps in the management structures, delivery systems and outreach networks, relative to WHO's Framework for Safe Drinking-water and Water Safety Plans.

Actions taken:

- Developed a template for gathering information on a country's context, identifying management structures, delivery systems and outreach network
- Identified country characteristics to assist countries in identifying similarities with other countries
- Identified performance indicators to measure success
- Established analytical techniques.

Next steps:

- Canada, Sri Lanka, Peru, Samoa and Caribbean to pilot the template
- Alex McKie, University of Surrey, United Kingdom, to analyse information provided to determine if the form gathers all information which is needed and that the information is in a useful format
- Working group revises the tool based on the results of the analysis

- WHO will assess the need for and availability of software to facilitate gathering and storing data identified through the template, including identification of countries with similar characteristics.
- WHO would make available, through the proposed network for small community supplies, a distribution channel for such software
- Using the database, countries identify management structures, delivery systems and outreach networks which would be useful given their country's characteristics
- WHO reviews guidance on Water Safety Plans, based on information provided by participant countries
- Relative to WHO's guidance document(s), countries identify and address gaps in the management structures, delivery systems and outreach networks.

A. Country characteristics

Physical

- Give a general description of the country, including general geography and topography, population size, neighbouring countries.
- What percentage of the population lives in urban and rural areas and the population growth in those areas? [This information is available through the United Nation's statistics division and the URL will be provided.]
- What are the sources of drinking water, by percentage? [spring water, rain water, groundwater, surface water, sea water, etc.]
- What is the climate of the country? [temperate, tropical, etc.]
- Is source water availability a concern? [yes/no]

Social /Cultural

- Are there significant groups within the population which are vulnerable (eg, AIDS/HIV-positive)? [yes/no]
- Why are they vulnerable? [age, disease, economic, social]
- Is the population indigenous, non-indigenous communities or both? [indigenous, non-indigenous communities or both]
- Is water culturally, traditionally and/or spiritually important to the population? [yes/no]
- Are there transitional populations? [yes/no]

Economic

- What is the GDP per capita?
- What are the dominant economic sectors?
- Provision of clean, safe and reliable drinking water:
 - Are the country's infrastructure and support structures vulnerable to [conflict, climate change, natural disasters]?
 - Identify the challenges associated with the country's management structure. [ownership of water, governance capacity]
 - Identify risk factors which can lead to contamination of the drinking water supply? [agriculture]
 - What types of systems are used, by percentage of community? [piped system, pumps, gravity flow systems, cisterns]?
 - What percentage of urban, rural and marginalised communities have access?
- What is the rate of economic growth?

Behavioural

- Is the use of latrines common practice and encouraged?
- Are high-risk water sources preferred over others as a source of drinking water and for cooking?
- If high-risk water sources are preferred over others, why? [historical/cultural preference, distrust of water at tap, dislike the taste of chlorine]

Political

- Give example(s) which indicate the level of political support available to improve the provision of drinking water.
- Who are the influential/motivating groups which can deliver messages within communities?
- Is ownership of the source water an issue? [yes/no]

Health information

- What is the average life expectancy?
- What is the infant mortality rate, per 1,000 births?
- What waterborne diseases are endemic? [cholera, cryptosporidium, etc.]
- Has there been an outbreak(s) over the past 10 years which has changed the way the provision of drinking water is managed? [yes/no]

B. Define the management structure

Scope

- Define the scope of structure (country, sub-region, community or an area in which particular stakeholders operate).

Stakeholders

- Identify all stakeholders from the highest level of government to the community level, including non-government organisations and private companies, and illustrating this by way of a flow chart.
- Describe their roles and responsibilities, including whether they are clearly defined and understood, delivered and received as described, and coordination mechanisms.
- Who assesses a community's need for improvements to their provision of drinking water and how (eg, informed demand driven by the community or assessed by the government)?
- Are there any groups of people who are excluded from the decision making process?

Enforcement

- Are there enforcement mechanisms and, if so, what are they? These enforcement mechanisms include penalties and rewards through, for example, funding arrangements and legislative frameworks and moral persuasion through, for example, public reporting.
- List procedure and protocol documents used by your country:
 - Are these documents up to date?
 - Who uses these documents?

Data collection

- Are data collected regularly on the provision of drinking water?

- Who collects and who has access to these data?
- Are data collected on all communities?
- How are these data used?
- What actions are taken based on these data?

Support mechanisms

- What type of capacity building is provided to communities, operators and all other stakeholders (eg, training for water supply operation and management and education on issues such as hygiene)?
- Who funds and delivers capacity building?
- What types of mechanisms/tools are used?
- At what level is capacity building provided (eg, leadership and residents of communities, or government)?
- Is capacity building provided at regular or irregular frequencies or on request?
- What mechanisms are in place to provide technical assistance and support to communities, operators and all other stakeholders (eg, advice on how to address problems associated with the community water supply, where to get spare parts)?
- Who funds and who delivers this technical assistance and support?
- Describe how this technical assistance and support is made available?

Funding

- Describe how the provision of drinking water is funded (eg, money and in-kind contributions) for each stakeholder. This includes the construction of water supply systems. Are there any roles and responsibilities which are not funded?
- Are tariffs at a rate which are affordable by all community residents?

C. Success indicators

- Percentage of systems which are able to provide good quantity and quality of drinking water after 10 years according to local targets?
- Number of waterborne-related illnesses and outbreaks which have been detected and an estimate of the reliability of the data, if the data is available?
- Percentage of the population which has access to good quality water?

Report of Working Group 2 - Tools and Pilot Programs

The group determined that the most significant issues are:

- Development of management tools and appropriate formats – computer based, written plans and frameworks
- Application of the tools
- Local monitoring eg, use of test kits
- Criteria and protocols for pilot evaluations
- Documentation and reporting of evaluations.

Overview of tools

Water Safety Plans are the overarching guidance tool which can be supported by:

- a WHO skeleton implementation tool
- a series of WHO skeleton subordinate tools
- country specific tools adapted from the above.

There are three levels at which Water Safety Plans (WSP) need to be applied and for which various tools will be required:

- Large organised, piped water systems
- Smaller community piped water systems and point source supplies
- Household treatment systems.

The larger supplies and the household systems are being dealt with through existing networks.

There are five types of tools:

- Sanitary inspection tools
- Verification and surveillance tools
- Simple tests and assays to inform management
- Data management tools
- Hygiene education tools.

Skeleton WSP implementation tool

This could take the form of WSP implementation guides and/or software tools. Checklists which are desired include:

- The prerequisite systems that need to be in place:
 - a completed sanitary survey
 - assembled water quality monitoring data
 - assessment of hygiene practices
 - system description including identification of the barriers.
- Technical checklists to support sanitary assessments:
 - What pathogens and chemicals are controlled by what technologies
 - What pathogens and chemicals are found in what sorts of sources
 - Control measures which can be applied

- Parameters and measures which can be monitored for each type of system
- Limits which can be set
- Corrective actions which can be taken
- Setting priorities for improvement actions based on an assessment of risks as well as the feasibility of taking those improvement actions.

Components which are desired within the core tool:

- Flow diagrams
- Modules related to specific components of the system listing the WSP requirements
- Internal feedback and performance assessment and reporting tools.

There has been some progress in developing tools (eg, Australia, Iceland and New Zealand) which can be used in conjunction with knowledge from developing countries. There is a need to link tools for WSP with requirements for asset management.

Subordinate tools to the core tool

These would include:

- Training/self-learning tools for all aspects:
 - Hygiene education of users
 - Hygienic operation of the system.
- Tools for developing the management plan, including linking to asset management plans, financial management plans and other quality assurance systems
 - Checklists of linkages between WSP activity and asset management and quality management activity
 - Tools for maintenance, calibration, spare parts and stocks inventory, replacement schedules and approaches.

Independent surveillance verification tools (as distinct from operational monitoring)

Test kits should meet the following criteria:

- Cheap
- Rapid
- Effective
- Reliable
- Able to cover microbial, chemical and physical quality.

Microbial tools should also be able to be used to promote hygiene.

Surveillance guidance tools should:

- Cover Who, What, Where, When, How
- Provide useful information to those who need to know
- Be independent
- Use accredited laboratories
- Use standard methods/reference methods.

Tools to set testing priorities:

- How to assist countries/individuals in developing practical means to assess and rank priorities in order to inform effective decision-making (link to the chemical testing protocol currently being developed by WHO)

It was proposed that a working group should be established to identify priorities for test kit development. Such a group would:

- Identify the parameters which have high priority for test kit development
- List criteria for test kits:
 - user-friendly rapid assessment tools for community use
 - power needs
 - speed
 - confounders
 - local manufacture
 - skill levels/simplicity
 - accuracy and precision
 - reliability
 - specific to one or a few chemicals
 - sensitivity (limit of quantification)
 - affordable
 - define climatic conditions where kits need to work (tropical to arctic).

In the longer term it would be useful to identify improved tools which can be used to support rapid notification and reporting of waterborne illness and waterborne outbreaks. A tool for quantifying endemic waterborne disease burdens would also be useful.

Data management tools

- For regulators to record which systems have had WSPs implemented, how well they have been implemented and reported on to stakeholders and the consumers
- To record data and information such as findings from reviews/audits/assessments
- To record and store data for all types of monitoring and performance reports (internal and external).

General comments and principles on tools development

Tools can be targeted for use at a range of levels (eg, oversight agencies, local agencies, community-based operators)

- Tools should be tailored to the particular community and system.
- Required are both generic tools and the ability to develop system-specific and region-specific tools.
- Generic tools need to be simple and concise
- Tools should be explained in commonly understandable, appropriate 'plain language'
- Tools need to be tailored by countries to reflect differential ethnic, linguistic, legal and gender needs, and other cultural characteristics
- Tools need to be readily understandable by regulators and policy makers
- Tools should be designed to facilitate a stepwise approach to implementation and should incorporate all necessary explanatory materials.

Piloting process

Discussions covered a wide range of topics in relation to the piloting process. It was agreed that there was a need to identify:

1. what is to be piloted
2. the outcomes which are to be evaluated – sustainable safe water supply for the community is hard to measure; what are useful surrogate measures?
3. how to implement pilot projects, in terms of
 - where to do it
 - who will need to be involved
 - duration of the process.

In terms of assessing the implementation of pilot projects, the following aspects were considered:

- Issues and challenges
 - Do we compare our tools with other tools or no tools?
 - Do we assess implementation of WSP with the tools?
 - Confounders which are independent of the quality of our tools:
 - extent of local backup
 - quality of the country's tools
 - level of funding
 - underlying condition of the pilot systems
 - Who will assess?
 - NGOs and government agencies (it was noted that the skills and capabilities of the assessors should be adequate)
 - Self-assessment and third party assessment
 - Criteria for a self-assessment and independent assessment process might include:
 - assess the extent of step-wise improvement
 - assess pre-and post-intervention and against controls
 - compliance with water quality criteria
 - sanitary survey adequacy
 - response of the stakeholders to the use of the tools
 - quality of hygienic working practices and community practices.

Setting priorities and recording results (mostly at the high level) require:

- Management information systems to record and report data and information on systems. These could be high level but could also be for single organized supplies
- These may be difficult to apply to community supplies.

Sanitary inspections and hygiene practice assessments, higher level tools:

- Check lists
- Templates
- Software
- Interface between these and other tools.

Asset management:

- Operations checklists – for organized supplies

- Chemical stock management tools – for organized supplies
- Pictorial sanitary inspection guides
- Simple operational guides, checklist, wall charts.

Generic tools

- Interfaces between the various tools and the various levels and different types of software (eg, SanMan (sanitary risk management software) interacting with Excel®).

The structure of outputs could include the following types of information:

WSP step (in order of the WSP cycle)	Who might do it	What resources/tools
Schematic and flow diagram	Operating engineer Formal community officer Informal community member	Flow-charting software Electronic tool (as in a CWP) Examples/advice on hand drawn

Priority tools:

- Tools identified as priorities by the working group were as follows:

Tool	No. of times in top 3
• Data management tools (incl. GIS linked and internet based)	7
• Better field kits for bacterial indicators (including survey of those compliant and in current use)	5
• WSP implementation guideline*	4
• Skeleton WHO WSP tool for general use*	2
• Simple implementation tools eg, pictograms*	2
• Detailed guide on how to manage water quality in community*	2
• Tools for setting priorities for WQ testing	2
• Surveillance and asset management tool linked to WSP tool	1
• Checklist of treatment capability for pathogens	1
• Chemical test kits for one or two chemicals	1
• Verification/surveillance guidance	1
• Guidance on baseline system assessment of water quality	1

* variations on the theme of providing WSP tools

Working Group 3 - *International Collaborative Network*

The Working Group addressed the following topics in the course of its discussions on ways and means of establishing an international network:

- Structure/model for network
- Guiding principles
- Objectives and functions
- Action plan
- Potential members/participants
- Methods of communication.

Mission Statement

The following mission statement was developed: 'To achieve substantive sustainable improvement in the safety of small community water supplies through an international network as a platform for:

- Advocacy
- Innovative research
- Good practice/lesson learning
- Widespread information sharing.'

Objectives

The objectives of an international network were defined as follows:

- To raise the profile and increase awareness and communication on small community supplies
- To influence national and international policy in respect of small community supplies
- To facilitate joint work/coordination of major issues and themes relevant to small community supplies
- To provide guidance and assistance on specific technical topics (eg, through frequently asked questions, existing technical documentation).

The activities needed to achieve these objectives include:

- Establishing a broad inclusive international network
- Establishing a set of principles to guide its work
- Establishing a set of procedures to govern its work
- Seeking sustained resources to deliver network objectives.

The specific tasks assigned to the Network include:

- Produce a promotional brochure as output of the two SCWS meetings in Reykjavik and Alice Springs (WHO)
- Promote Network membership
- Develop a scheme for Network financial support
- Identify means of extending membership to relevant parties such as NGOs, consultants, suppliers, relevant private sector entities

- Collectively lobby for financial support for project work
- Design and put into operation a Network website hosted by WHO
- Make available through the website the processes and outputs produced by Network members
- In line with Network communication strategies and activities:
 - Participate at major international events to promote the Network
 - Broadly disseminate Network products and information.

The need for a detailed set of operating principles was noted. These should include, inter alia:

- Proactively seek and maintain consistent contact among and between members globally
- Identify appropriate individuals/institutions in each country
- Exercise judgement over quality and quantity of materials to be posted on the Network website.