

**Meeting on Small Community  
Water Supply Management**

**Reykjavik, Iceland,  
24-26 January 2005**

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Water Supply Management  
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## Table of Contents

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Background .....	4
Context .....	5
Key Principles .....	7
Development of a Plan of Action .....	9
<b>Table 1: Draft Action Plan and Timetable .....</b>	<b>12</b>
<b>Annex 1</b>	
Small Water Systems: Generic Process Model.....	14
<b>Annex 2</b>	
List of participants .....	15
<b>Annex 3</b>	
Agenda.....	20

## **Meeting on Small Community Water Supply Management Reykjavik, Iceland, 24 - 26 January 2005**

### **Summary of discussions and agreed actions**

A number of developed and developing countries have identified small community water supplies as an issue critical to both development and health, and requiring further attention if the water-related Millennium Development Goals are to be met. The MDGs focus on developing countries; but even in the developed world, small community supplies are those most liable to contamination and breakdown, and hence pose a consistent health risk. WHO is therefore considering how to assist Member States in the operation and management of small supplies, particularly in rural or remote areas.

The meeting held in Reykjavik, Iceland, from 24-26 January 2005 reviewed a number of technical and management approaches being taken in respect of small community supplies in countries at differing levels of development. It established the general context in which work on small supplies needs to be carried out, and outlined a series of Key Principles. A draft plan of action, to be further discussed at a follow-up meeting being held in Alice Springs, Australia, from 18-22 July 2005, was drawn up.

WHO is most grateful to Samorka, the Federation of Icelandic Energy and Waterworks, and to Reykjavik Energy, for hosting this meeting and supporting the costs of participants from developing countries.

### **I. Background**

Although technical personnel involved with water supply issues have been aware for many years of the need for attention to the special challenges of supplying water to small or remote communities, this need has only relatively recently risen further up the development agenda. This change is principally due to greater recognition of the following:

- water scarcity is already a serious problem in a number of developed and developing countries, and this situation will worsen
- sufficient and safe water supplies are indispensable for the creation and expansion of adequate livelihoods in the context of sustainable development and poverty alleviation strategies, which are the fundamental objective of the MDGs.
- immediate and effective action is needed if the MDG targets for water and sanitation are to be met by 2015
- a safe water supply cannot be achieved without improvements in sanitation coverage, in which progress is currently slow.
- even if the targets for both water and sanitation are met, in 2015 this would still leave 736 million people without access to safe water, and nearly 17 million mainly rural dwellers without basic sanitation
- neither water nor sanitation targets can be met if hygiene and behaviour change strategies are not incorporated into all measures to improve water supply and sanitation
- meeting the water supply and sanitation targets of the MDGs is a prerequisite for meeting the specific health-related targets as well as others concerned with education, housing, and gender equality.

At the outset of a new UN Decade "Water for Life" (2005-2015) it is essential to learn from the lessons of the previous Decade (1980-1990) and to put in place a variety of context and culture-specific measures suitable to deliver safe water to small or remote communities worldwide. These measures will need to integrate technical and managerial approaches with educational and behaviour change strategies.

It should also be noted that the issue of small community water supply management is relevant to both developed and developing countries. Lessons learned in either context can help inform decisions and actions to improve small supplies in North and South alike.

The meeting held in Reykjavik, Iceland, from 24-26 January 2005 represents an initial and exploratory step in taking these challenges further. Supported by the Icelandic water authorities, in collaboration with WHO, the purpose of the meeting was to review the overall situation regarding small supplies in the range of developed and developing countries represented, to review and evaluate the tools, methods and approaches being used in these countries, and to consider whether and how a broader initiative should be started as a means of supporting progress towards the MDGs, and in relation to the new UN Water Decade.

At its conclusion, the meeting had come to agreement on a number of key themes and issues. These are divided into three sections:

- factors relevant to the overall **context** of small community water supplies worldwide;
- a number of **key principles** relevant to small supplies worldwide and at all levels of development;
- a series of **specific actions** to be accomplished in the short to medium-term, and in the context of an emerging initiative on community supplies. Many of these will be further discussed and elaborated at a second meeting of this nature to be held with Australian support in Darwin, Australia, from 18-22 July 2005.

## I. Context

The meeting drew out the following points in relation to the context in which small community water supplies need to be addressed:

1. It is feasible and possible to establish common basic principles, both technical and managerial, in respect of small community water supply management. These principles are applicable everywhere, although *modus operandi* will vary according to country and context.
2. Many of the technical issues and challenges are similar, both in developed and developing country context, and generally do not require very high-tech solutions. The key issue is to identify the right type of technology for the specific circumstances.
3. The management (delivery systems) and financial aspects pose greater problems, as small supplies are often remote and isolated. This in turn handicaps the education and communication measures that are prerequisites for small supply programmes.
4. Water Safety Plans are required for all systems and in principle should be customised to respond to specific features of different types of supply. In practice a national authority should be able to provide a series of 'model safety plans' or simple procedural support for the development of customised plans, as the capacity to develop individual plans on a system-by-system basis, particularly in developing countries, is rarely available. The Water Safety Framework envisages the role of an independent surveillance agency. This approach is effective for utility supplies where the role of supplier and surveillance agency can be clearly separated. In the case of community supplies, which in practice make greater demands on the surveillance authority, the roles are less clearly distinguished and the surveillance body should provide a supporting and advisory role rather than that of evaluation and condemnation.

5. Adequate management structures and support at community level are essential. Country experience shows that community demand-driven approaches have greater chances of success and sustainability than top-down approaches.

6. There is adequate evidence that small supplies receive less attention and less resourcing than large supplies. Among the reasons for this may be the relatively greater capital cost of installing small supplies, and their relatively shorter lifespan; lack of outreach, including clearly defined responsibilities over management issues; lack of community awareness of the potential risks; and the scale of the challenge where communities, settlements, or individual households are widely dispersed over a large area.

7. Although 80% of those unserved with improved water or basic sanitation services are in rural areas, the high absolute figures of those requiring services in urban areas, and the increasing trend towards urbanization, keeps urban needs in higher focus. A more balanced distribution of human, financial and technical resources between urban and rural areas is needed to meet the MDG water and sanitation targets and address related issues in other goals and targets.

8. Links between water and health appear to be poorly understood and poorly addressed everywhere. Risk perception and risk management issues are universally a challenge.

9. There is a need to strengthen the health evidence in relation to small supplies. To contribute to a strong evidence base, an effective small system must be able to demonstrate both improvements in water quality and reductions in water-related burden of disease.

10. In all water supply systems, the health sector plays a pivotal role in establishing standards and legal frameworks, contributing to community awareness of water and health issues, and in supporting the adoption of health protecting hygiene behaviours. Community supplies— i.e. those in whose management community members may be involved—make additional demands on health sector roles. The health sector frequently has outreach to communities which otherwise lack regular contact with formal structures, such as through health posts, clinics, or mobile facilities. Such health structures can provide unique opportunities to:

- provide support to community system managers;
- enhance community perception of the value of water operators;
- underline the importance of good community-wide hygiene behaviour in protecting water sources and supplies inside and outside the home. In many cases community point sources and unreliable distribution systems are contaminated and will require treatment at household level
- respond to waterborne illnesses and/or potential drinking water contamination events.

11. Mobile, migrant, and temporary populations— for example vacationers, occupiers of summer houses or other temporary homes, pilgrims, nomads and pastoralists, those following seasonal work, and participants at large festivals—may place additional stress on limited small community supplies and hence contribute both to local water shortage and the risk of health outbreaks. In some cases, water supplies may have to be provided from scratch for time-limited special events.

12. The WHO Guidelines on Drinking-Water Quality, as the most authoritative technical guidance on the subject, should represent the point of departure for all approaches chosen. These should include, in line with the recommendations of the Guidelines, issues of Risk Management; Public Health Protection and Promotion; Capacity Building; and Appropriateness to Circumstance (such as size or remoteness).

13. To facilitate common understanding and comparable data collection, a standardized set of definitions and terminology in relation to small community water supplies needs to be agreed at an early stage, recognizing that there are differences, for example, in perception of the boundaries between small community supplies and private supplies. In general, however, the description of small community water supplies given in the WHO Guidelines on Drinking Water Quality Vol.3 will guide this work.<sup>1</sup> What many community supplies have in common is that they are seen as separate from larger-scale supplies and consequently are often differently regulated or unregulated.

In this overall context, the meeting acknowledged the need for further work on small community water supplies, and proceeded to identify the following series of underlying key principles.

## **2. Key Principles**

1. High level political/policy support and understanding from the outset of planning and action is a prerequisite.

2. National authorities should ensure the provision of Water Safety Plans, as part of a larger Water Safety Framework, that appropriately reflect all water supply and community characteristics (see 1.4).

3. The key criteria that need to be incorporated into designs to improve small water supplies are:

- demand-driven approach, requiring
- ongoing community engagement
- cost
- time
- simplicity
- practicality
- ease of long-term maintenance and repair
- effectiveness (in terms of reliability of system, safety and acceptability of water).

Within these criteria, simplicity at the end-point is of great importance.

4. Choices of the most suitable approaches to small community water supplies must be made on the basis of solid scientific evidence and the level of funding available both inside and outside the communities concerned. Otherwise stated, scarce resources need to be allocated in accordance with a locally relevant risk-based prioritization plan.

5. The role of the health sector is critical in ensuring safe drinking water from both large and small supplies. Continuous engagement between the water sector and the health sector is required to ensure that the health sector plays its role optimally for public health protection.

6. The underlying ethical principle should be to ensure equal standards of safety for small supplies as for larger ones. To this end, national and local entities should follow the 'Water

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<sup>1</sup> "The precise definition of a 'community water supply' will vary. While a definition based on population size or the type of supply may be appropriate under many conditions, it is often administration and management that set community supplies apart, and this is especially true in developing countries. The increased involvement of ordinary, often untrained and sometimes unpaid, community members in the administration and operation of water-supply systems is characteristic of small communities: this provides a ready distinction between community water supplies and the supply systems of major towns and cities. However, water supplies in peri-urban areas — the communities surrounding major towns and cities — are often organizationally similar to those of rural communities; these may also be classified as "community water supplies." (GDWQ Vol.3, p1.)

Safety Framework' as laid out in the WHO Guidelines on Drinking Water Quality. This will involve establishing appropriate and achievable health-based targets, and providing the necessary guidance on technologies and/or supply types to achieve these targets.

7. The safety and quality (including aesthetic acceptability) of water must not be overlooked in efforts to increase the rate of coverage. If these criteria are neglected, progress towards the MDGs will be impeded. Equally, access to water is impacted by price. Achieving water safety alone will not increase coverage if the cost is beyond the means of the poor.

8. To ensure both immediate success and long-term sustainability, it is critical that work on small community water supplies should incorporate obligatory requirements for capacity building and human capital development. The training and communication requirements are critical, and must be carried out in the appropriate cultural context, if an appropriately demand-driven approach is to be established.

9. Responsibilities placed with the community must be backed with the requisite levels of financial and technical support, and education and training. To achieve this and to create the required level of ownership, trust and confidence, engagement with communities from the outset of project planning is needed, and mechanisms for regular communication with and feedback from users put in place. This includes clearly delineating the roles and responsibilities of all stakeholders involved, including at the state, regional or district level.

10. Effective drinking water safety programs are based on the commitment of each participating stakeholder to work cooperatively towards the ultimate goal of protecting public health. For this reason, individual stakeholders must communicate in a timely manner information required by others. Stakeholders include, but are not limited to:

- Owners of community water supplies
- Operators of community water supplies
- Surveillance agencies
- Public health professionals
- Clients/consumers.

Surveillance agencies, public health professionals and operators of community water supplies who gather information on potential public health risks from waterborne contaminants and waterborne illnesses must share this information amongst the appropriate stakeholders to ensure action is taken in a timely manner to protect public health. In the event of a waterborne contamination event that exceeds recommended guidelines or legislation, or an outbreak of a waterborne illness, clients/consumers should be informed and provided with information on how they can protect their health and what the owners and operators of the water supplies are doing to address the risks.

11. Decisions on appropriate tools and support systems for small community water supplies should take into account, where appropriate, the question of remoteness and access difficulties.

12. While full Integrated Water Resource Management principles would not in general be practically applicable, management plans for small supplies should include the ability to influence activities that would contaminate the immediate water source.

### **3. Development of a Plan of Action**

With this understanding, it was agreed that further attention to the issue of small community water supplies was warranted as a means of accelerating progress towards several MDGs, and specifically those related to water and sanitation. The meeting therefore drew up a Plan of Action which reflects the next steps and immediate actions required to move the process



ahead. These and longer-term plans will be discussed at a second meeting on small community supplies to be held in Australia in July 2005, with financial support from the Australian National Health and Medical Research Council (NHMRC).

The components and content of this plan of action fall into eight principal headings, and are further summarized in **Table 1**, appended.

#### **A. Second meeting on Small Community Water Supply Management, Darwin, Australia, 18 - 22 July 2005**

This meeting will have a focus on South-East Asian and Pacific countries, including small island developing nations. Participants should include multilateral donors such as the Asian Development Bank and the World Bank, and major NGOs active in these regions.

This meeting will address the following topics:

#### **B. Development of tools to support small community water supplies**

Complete work on software 'WSP developer' taking account of other international experience (Australia). NB: this will include the production of generic plans than can be utilized in hard-copy format where computer support is not feasible.

- Compile review of experience with a variety of managerial support structures applied in different countries.
- Consider developing a model approach to community engagement based on globally applicable principles
- Establish criteria for pilot studies and protocol for pilot evaluations. Countries expressing interest in this work are: Australia, Bangladesh, Canada, China, Ghana, Iceland, Morocco, UK.

*NB: it is recognized that piloting is a long-term undertaking and will only effectively start following the Australian meeting and when essential supporting tools are available*

- Identify available test kits and establish criteria for acceptability /efficacy of these in the relevant settings.
- Develop a generic outline/framework for small supplies, drawing from available examples. This should take into account modes of delivery that are not computer-based. Countries expressing interest are: Australia, Bangladesh, Canada, China, Ghana, Iceland, Morocco and Peru.

#### **C. Start pilot projects**

The process of identifying countries willing and able to start carrying out pilot projects, subject to the availability of the necessary tools and funding, will start during the meeting in Darwin.

In the medium to long-term, the following products can be envisaged from work under B and C:

- i) output from the review of tools in Australia
- ii) generic framework
- iii) evaluation protocol
- iv) community engagement model
- v) synthesis document of pilot applications.

#### **D. Development of international network on SCWSM**

It was agreed that a network of relevant technical and management specialists working on small community water supplies worldwide should be formed and gradually expanded, with a view to serving as a forum for the sharing and exchange of information, know-how, and country experience. Immediate steps will comprise:

- Establishment of the *modus operandi* of the network (i.e. select the most appropriate network model)
- Formalize an initial action plan
- Progressively recruit appropriate membership from among the small supplies practitioner community, major country partners working in water at all levels; maintain list of critical private sector consultants/partners whose expertise can be drawn upon without offering direct participation at this stage
- Establish modes of communication amongst members.

#### **E. Information and communication**

To facilitate information exchange and communication, the following actions should be initiated:

- Develop a website with links to other relevant resources
- Targeted dissemination of network information and outputs at water sector events, for example World Water Forum meetings, International Water Association congresses, and the Commission on Sustainable Development (CSD)
- Deliver targeted messages on SCWS to donor agency advisers
- Position the issue of small supplies as a component of the new UN Decade 'Water for Life'
- Produce a glossary of standardized terms/definitions to assist comparable data generation.

#### **F. Creation of an evidence base in relation to small supplies**

Actions envisaged for this purpose include the following:

- Produce a dedicated WHO/UNICEF Joint Monitoring Programme (JMP) report for small community supplies, highlighting links to the MDGs
- Organize the publication of a number of scientific journal articles in support of the evidence- base
- Consider means of creating a regularly updated country database on small supplies.
- WHO to consider ways of producing a guidance document on costs and impacts of interventions (i.e. all aspects of WSPs, including identification of risks to source, third party surveillance, capacity building, and hygiene education) burden of disease estimates (analysis tool for technical personnel).
- WHO to consider preparation of a document describing the costs and impacts of alternative approaches and different levels of service in small supplies (descriptive advocacy document)
- Develop and maintain database of published and grey literature on health impact studies in relation to small community water supplies.

#### **G. Guidelines update and expansion**

- Issue specific guidance to national authorities on defining appropriate health-based targets for small community systems
- Define other updating requirements for the WHO Drinking Water Quality Guidelines, Vol.3, Surveillance and Control of Community Supplies

#### **H. Identify appropriate funding sources**

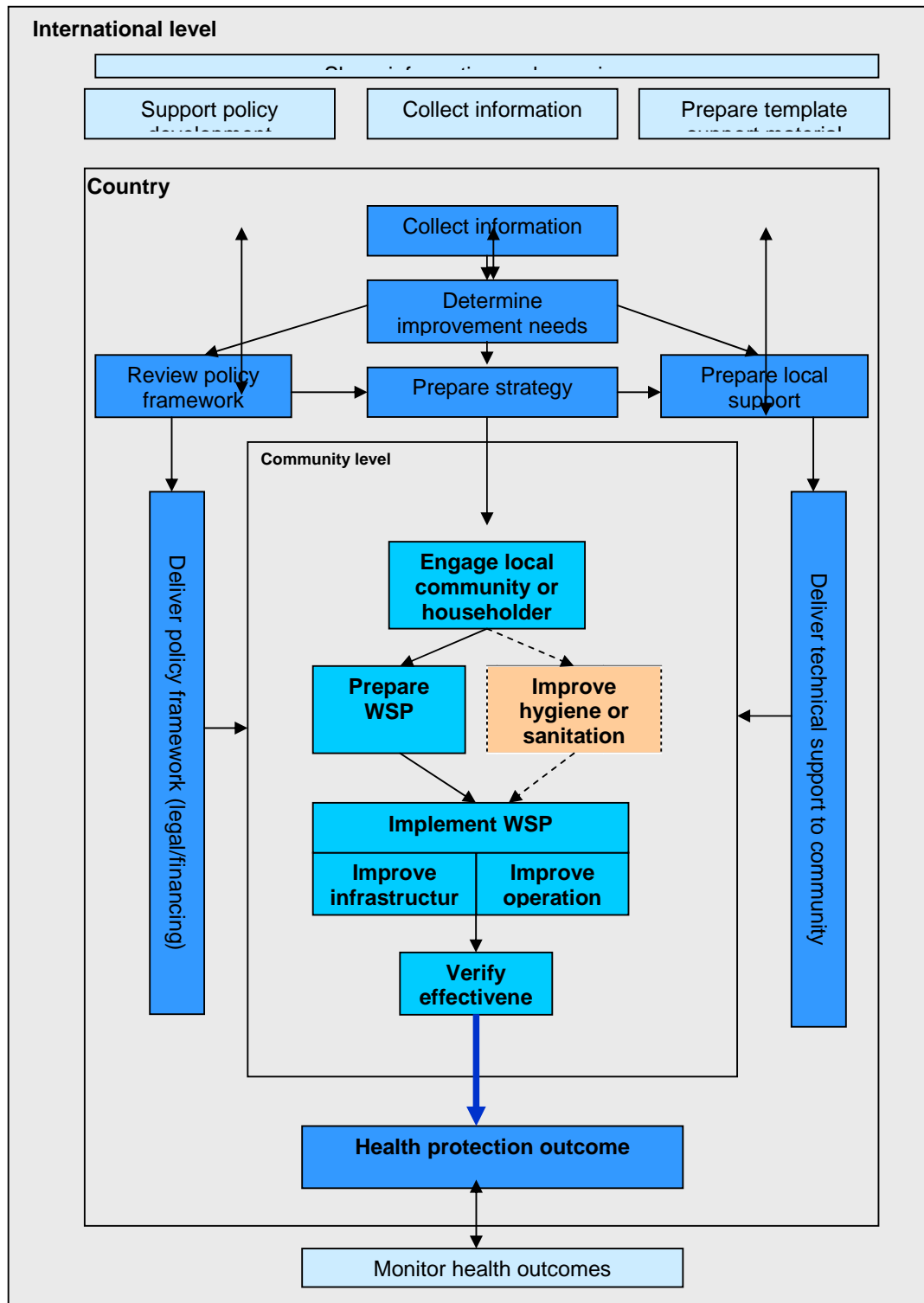
The information generated in E and F above, and advocacy initiatives based on this, will be used to generate funding from national and international sources.

**TABLE 1** **SMALL COMMUNITY WATER SUPPLY MANAGEMENT INITIATIVE**  
**DRAFT ACTION PLAN AND TIMETABLE, April 2005**

<b>COMPONENTS</b>	<b>Quarters</b>	<b>2005</b> 1234	<b>2006</b> 1234	<b>2007</b> 1234	<b>2008</b> 1234
<b>1. 2nd meeting on SCWSM</b> Darwin, Australia		--3-			
<b>2. Develop tools to support SCWSM</b>					
- complete Australian software		--34			
- develop community engagement model		--34	12--		
- establish pilot study criteria and evaluation protocol		--34	12--		
- identify test kits and acceptability criteria					
- compile review of management structures					
- develop generic water safety framework		--34			
<b>3. Start pilot projects</b>					
- identify pilot countries		--34	1234	1234	1234
- establish feasible timeframes		--34	1234	1234	1234
- identify financial support		--34	1234	1234	1234
<b>4. Develop international network</b>					
- select appropriate network model		---4			
- produce initial action plan		---4			
- produce promotional brochure		---4			
- progressively recruit suitable members from public and private sector		---4	1234	1234	1234
<b>5. Information/communication</b>					
- develop website		---4	12--		
- create glossary of terms			1234		
- disseminate targeted information at events and to donors			1234	1234	1234
- position issue within UN Decade			1234	1234	1234

<b>COMPONENTS</b>	<b>Quarters</b>	<b>2005</b> 1234	<b>2006</b> 1234	<b>2007</b> 1234	<b>2008</b> 1234
<b>6. Create/strengthen evidence-base</b>					
- produce dedicated JMP on SCWSM				12--	
- establish country database					
- produce comprehensive technical guidance document on costs and impacts of interventions					
- produce advocacy document describing costs and impacts of various approaches and levels of service in small supplies		--34	12--		
- develop database of published/grey literature		-234	1234	1234	1234
<b>7. Update/expand WHO Guidelines</b>					
- provide guidance on defining national HBTs					
- define requirements for updating GDWQ Vol.3			1234		
<b>8. Identify funding sources</b>					
- on the basis of 4, 5, and 6, establish and maintain contact with international and bilateral donors		---4	1234	1234	1234

**SMALL WATER SYSTEMS – GENERIC PROCESS MODEL**





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## **ANNEX 2**

### **Meeting on Small Community Water Supply Management**

**Grand Hotel, Reykjavik, Iceland, 24-26 January 2005**

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### **ANNEX 3**

#### **Meeting on Small Community Water Supply Management 24 – 26 January 2005 Grand Hotel Reykjavik Iceland**

#### **Agenda**

##### **Day 1: Monday 24 January**

##### **Session 1: WELCOME AND INTRODUCTIONS**

**Moderator: Mr Gudmundur Thoroddsson, CEO Reykjavik Energy**

- 0900 – 0915: Welcome: Mr Gudmundur Thoroddsson  
CEO Reykjavik Energy
- 0915 – 0935: HACCP in waterworks: experience in Iceland  
Dr Loftur Gissurarson, Reykjavik Energy
- 0935 – 0950: Purpose of meeting and expected outcomes:  
Dr Jamie Bartram, WHO
- 0950 - 1015: Adoption of draft agenda  
Introduction of participants  
Administrative arrangements
- 1015 - 1045: Coffee break

##### **Session 2: COUNTRY WORK: TOOLS AND PROCESSES IN DEVELOPMENT**

**Moderator: Mr M Campos, Peru**

- 1045 - 1145: Presentation from Iceland:  
Model for Small Community WSPs :  
Ms Maria Gunnarsdottir, Samorka  
Discussion
- 1145 – 1245: Presentation from Bangladesh:  
Model for outreach to rural communities:  
Professor M. Feroze Ahmed  
Discussion
- 1245 - 1400: Lunch

**Session 3: COUNTRY WORK – CONTINUED****Moderator: Mr N O Kotei, Ghana**

- 1400 - 1500: Presentation from Australia  
Model for outreach to rural/remote communities: Dr David Cunliffe  
Discussion
- 1500 - 1600: Presentation from Morocco  
An approach to drinking-water quality in rural areas:  
Ms Hanane Benqlilou  
Discussion
- 1600 - 1615: Tea
- 1615 - 1715: Presentation from China:  
Approach to water supply management in rural areas: Dr Zhang Rong  
Discussion
- 1715 - 1745: General discussion: strategic implications of the presentations

**Day 2 - Tuesday 25 January****Session 4: OVERVIEW OF COUNTRY SITUATIONS****Moderator: Mr P Callan, Australia**

- 0900 - 0915: Brief summary of Day 1 findings
- 0915 – 0945: Mr Marco Campos: The Peruvian approach to small supplies  
Discussion
- 0945 – 1015: Ms Jennifer Mercer: The Canadian approach to small supplies  
Discussion
- 1015 – 1030: Coffee break
- 1030 – 1100: Mr N O Kotei: The Ghanaian approach to small supplies  
Discussion
- 1100 - 1130: Dr Donald Reid: The UK approach to small supplies  
Discussion
- 1130 – 1200: Dr Nurbolot Usenbaev: The Kyrgyzstan approach to small supplies  
Discussion
- 1200 – 1230: Dr J. Bartram/Mr B. Breach: European approaches to small supplies  
Discussion
- 1230 - 1330: Lunch

**Session 5: COUNTRY OVERVIEW (CONTINUED)**

**Moderator: Representative of Bangladeshi delegation**

1330 - 1415: Discussion: Strategic implications of country overviews for next steps

1415 - 1600: National and international perspectives on scaling-up:

- Ms J. Sims, WHO (Brief introduction)
- Mr P. Callan, NHMRC, Australia
- Dr G. Howard, Department for International Development (DFID), UK
- Ms J. Mercer, Health Canada
- Mr B. Breach, IWA

1600 - 2100: Visit to Reykjavik Energy and dinner

**Day 3 - Wednesday 26 January**

**Session 6: ACTION PLAN FOR NEXT STEPS**

**Moderators: Dr J Bartram and Ms J Sims, WHO**

0900 - 0930: Briefing from Australian delegation on meeting in July 2005

0930 - 1200: Draw up Action Plan for next steps—elements may include:

- identify countries wishing to undertake pilot work
- role of software (ref Australian model)
- tangible outputs: case studies, journal articles, reports from country work
- development of website and network
- branding as alliance or network?
- possible global assessment by WHO of small community systems, as a preparatory document for the Australian meeting, incorporating evidence on:
  - health impacts
  - suitability/applicability of support models
  - scale of the problem
- funding/technical backstopping

1200 - 1230: Discussion on structure/content of final output

1230: Closure