



**Economic and Social  
Council**

Distr.  
GENERAL

ECE/MP.WH/WG.1/2009/9  
EUR/5086344/7  
19 May 2009

Original: ENGLISH

**ECONOMIC COMMISSION FOR EUROPE**

**WORLD HEALTH ORGANIZATION  
REGIONAL OFFICE FOR EUROPE**

MEETING OF THE PARTIES TO THE  
PROTOCOL ON WATER AND HEALTH  
TO THE CONVENTION ON THE PROTECTION  
AND USE OF TRANSBOUNDARY  
WATERCOURSES AND INTERNATIONAL  
LAKES

Working Group on Water and Health

Second meeting  
Geneva, 2–3 July 2009  
Item 13 of the provisional agenda

SMALL-SCALE WATER SUPPLIES

**REPORT ON THE WORKSHOP ON WATER SAFETY IN SMALL-SCALE  
WATER SUPPLIES IN THE EUROPEAN REGION**

Note by the secretariat<sup>1</sup>

*Summary*

The workshop on water safety in small-scale water supplies in the European region was held on 26 and 27 November 2008 in Bad Elster, Germany, in accordance with the programme of work adopted by the first meeting of the Parties to the Protocol on Water and Health (Geneva 17–19 January 2009; ECE/MP.WH/2/Add.5 - EUR/06/5069385/1/Add.5, section 3.3, para. 71). The purpose of the workshop was to review the importance of small scale water supply systems, to review the evidence of the burden of water-related diseases from small-scale water

<sup>1</sup> This document was submitted late due to resources constrains.  
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services, to explore the relevance of water safety plans and to suggest areas for future action. The present report summarizes the main workshop's findings and recommendations. Based on the information provided, the Working Group on Water and Health will discuss further steps and possible actions to be undertaken in the area of small water supplies.

## I. INTRODUCTION

1. A workshop on water safety in small-scale water supplies in the European region was held on 26 and 27 November 2008 in Bad Elster, Germany. The workshop was organized in accordance with the programme of work adopted by the first meeting of the Parties to the Protocol on Water and Health (Geneva 17–19 January 2009; ECE/MP.WH/2/Add.5 - EUR/06/5069385/1/Add.5, section 3.3, para. 71) with the generous support of the Government of Germany and the World Health Organization (WHO) Collaborating Centre for Research on Drinking Water Hygiene at the German Federal Environment Agency.
2. Small-scale or community water supplies in rural areas are a recognized global concern in both developed and developing countries, including in the United Nations Economic Commission for Europe (UNECE)/WHO Regional Office for Europe (WHO-Europe) region. One in 10 citizens of the European Union (EU), for example, receives drinking water from small or very small systems, including private wells. Today's national and international policy frameworks recognize that further attention to this topic is needed. The European Commission has acknowledged the improved management of small-scale systems as one of the main drivers behind the current revision of the EU Drinking Water Directive<sup>2</sup>, and the Parties to the Protocol on Water and Health have explicitly requested the organization of this workshop during the first meeting of the Working Group on Water and Health.
3. Country participants came from Albania, Armenia, Belarus, Czech Republic, Estonia, Finland, Georgia, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Republic of Moldova, Romania, Switzerland, the former Yugoslav Republic of Macedonia, Turkey and the United Kingdom of Great Britain and Northern Ireland.
4. The following associations, institutions and non-governmental organizations (NGOs) participated: Armenian Women for Health in a Healthy Environment, the European Federation of National Associations of Drinking Water Suppliers and Wastewater Services (EUREAU), KWR Water Cycle Research Institute (Netherlands) and Women in Europe for a Common Future.

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<sup>2</sup> Council Directive 98/83/EC of 3 November 1998 on the Quality of Water Intended for Human Consumption OJ L330, 5 December 1998, pp 32–54, <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998L0083:EN:NOT>, accessed 11 May 2009.

## II. OBJECTIVES

5. The purposes of the workshop were:
- (a) To discuss the importance of small-scale water supply systems and to develop a consensus statement on their significance and the challenges they pose;
  - (b) To review the evidence of the burden of water-related disease from small-scale water services in the UNECE/WHO-Europe region, and to summarize the major health risks related to drinking water;
  - (c) To explore the relevance of water safety plans (WSPs) or similar risk assessment/risk management approaches to small-scale water supply systems, and to identify the relevant regulatory or legal environments in which such approaches are being pursued;
  - (d) To share information on access to technical and financial support in connection with good practices, best available technologies and management approaches for small-scale water supplies;
  - (e) To suggest areas for future action with regard to human resources development, advocacy and research.

## III. CONSENSUS STATEMENT ON CURRENT CONDITIONS AND CHALLENGES OF SMALL-SCALE WATER SUPPLY SYSTEMS IN THE REGION

6. Based on presentations by the 19 participating countries, professional associations and non-governmental Organizations (NGOs), the following consensus statement was drafted and adopted on the current conditions and challenges of small-scale water supply services in the UNECE/WHO-Europe region.
7. Small-scale systems are vital to the water supply of significant parts of the population in all countries of the UNECE/WHO-Europe region, both to permanent residents, mainly in rural areas, as well as to transient users (e.g. tourists and holidaymakers).
8. Compliance with microbiological standards remains a challenge to many small-scale supplies, more so than to centralized water supplies. There is anecdotal evidence that this results in a comparatively higher disease burden.
9. There is a lack of consistent and coherent application of international standards.
10. There is a positive cost-benefit ratio for investment in improving small-scale systems. This should include a discussion on possibilities for authorities to allocate resources for the improvement of small-scale supplies and of outbreak detection.

11. WSPs are seen as a viable approach to ensuring safe drinking water for small-scale water supplies, including private wells, provided that an enabling environment is created that supports WSP implementation in small supplies by providing external expertise, the establishment of partnerships among suppliers, the preparation and distribution of easy-to-understand guidance documents, and training and education.

12. In some countries, useful manuals on the application of WSPs and on the general management of small-scale supplies have been developed and are ready for sharing, while in other countries pilot manuals are under way.

13. NGOs can play an important role in providing safe water and adequate sanitation through local action, especially by engaging vulnerable groups such as school children.

14. Local emergencies, such as the accommodation of locally displaced persons, may create a need for the immediate creation of small-scale water supply systems.

15. Common challenges identified during the workshop were:

- (a) The lack of adequate resource protection (zoning and enforcement);
- (b) Maintenance issues related to individual components of treatment units and small distribution networks;
- (c) The lack of current technical knowledge on the part of operators and the lack of support (operators working in isolation);
- (d) Inappropriate or inefficient regulatory frameworks;
- (e) Inefficient or inexistent (independent) monitoring;
- (f) Limited use of international standards;
- (g) Unavoidable seasonal breach of protection zones (e.g. salt applied to roads in winter);
- (h) Although microbial failure is common and should be handled as a first priority, chemical contamination remains a considerable local concern (e.g. nitrate, arsenic, fluorine, iron and manganese).

16. Challenges to the health system include:

- (a) The lack of awareness of health risks on the part of consumers of small-scale systems;
- (b) Underreporting of water-related disease;

- (c) Disease surveillance systems need to be strengthened;
  - (d) Absence of a system to target resources to the areas of greatest need;
  - (e) The need to revise and strengthen outbreak detection and response.
17. Communication needs include:
- (a) Improved communications with customers/the general public;
  - (b) Improved communications with policymakers;
  - (c) Improved communications with of health workers;
18. More materials are needed in Russian and other national languages.
19. Networks are needed under the Protocol on Water and Health and the WHO International Small Community Water Supply Network<sup>3</sup> (ISCWSN).

#### **IV. WATER-RELATED DISEASE OUTBREAKS IN SMALL-SCALE WATER SUPPLIES**

20. Based on an in-depth literature review, the following specific issues were identified relating to small-scale supplies and health outcomes:
- (a) The relatively greater capital costs of installations to reduce health risks in small distribution systems, which have a shorter lifespan than with major water services;
  - (b) The lack of community awareness of the potential risks;
  - (c) Communities, settlements, or individual households are widely dispersed over large areas;
  - (d) Frequent use of groundwater for drinking purposes without disinfection, regardless of its contamination level;
  - (e) No application of WSPs or similar risk assessment/risk management procedures, and inadequate quality control of the final product;
  - (f) Heavy rainfall in inadequately protected catchment areas often leads to contamination, particularly in rural agricultural areas;

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<sup>3</sup> See: [http://www.who.int/water\\_sanitation\\_health/dwq/scwsm\\_network/en/index.html](http://www.who.int/water_sanitation_health/dwq/scwsm_network/en/index.html).

(g) The lack of protection and adequate maintenance of small distribution systems, which frequently creates possibilities of ingress into the distribution network;

(h) Conventional indicators of faecal pollution do not allow for the identification of dangerous contamination (e.g. from *Cl. Perfringens*, *C. hominis* and *C. parvum*), which may be important in rural areas; the lack of local diagnostic capacity results in delays in receiving results from laboratory determinations, which may further delay action;

(i) Outbreaks of water-related disease in small communities and rural areas are largely underreported because of the lack of surveillance systems; such systems need to be developed and innovative approaches targeting water-related disease need to be employed;

(j) There is a low level of awareness and knowledge in the rural population of the importance of water to health. Efforts are needed to raise awareness of water and health issues through the local and national media, general practitioners, hospitals, nursing homes and others in the health system.

21. Small-scale water systems are especially vulnerable to climate change. Water scarcity is already a serious problem in many developed countries and countries with economies in transition, and this situation is likely to worsen. Increasing temperatures are having an impact on the growth and survival of pathogenic bacteria, and may permit the survival of pathogens that were hitherto irrelevant.

## **V. REGULATORY AND COOPERATIVE ENVIRONMENTS**

### **A. European Union**

22. The current EU Drinking Water Directive has undoubtedly brought significant improvements to water supply in the EU. Nonetheless, it has a number of significant weaknesses, e.g. an end-of-pipe approach and the lack of representativeness of the sample taken at the tap, and hence the uncertain protection of human health.

23. The Drinking Water Directive requires revision every five years. The following main lines of revision are currently being considered: (a) adoption of a risk assessment/risk management approach; (b) review of chemical and microbiological parameters; and (c) increased attention to small-scale water supplies.

24. It should be duly noted that, after the conclusion of the current workshop, the European Commission started its own assessment of the role and challenges of small-scale water services in the EU.

### **B. Water safety plans**

25. Participants received the WHO/International Water Association *Water Safety Plan Manual – Step-by-step Risk Management for Drinking Water Suppliers*. There was a general opinion that there remained needs for: (a) the demystification of WSPs; (b) the translation of

WSPs into simple, plainly worded language; and (c) the development and distribution of nationally adapted, technology-specific WSP models.

### **C. Protocol on Water and Health**

26. Four countries expressed interest in acceding to the Protocol on Water and Health: Belarus<sup>4</sup>, Italy, Kyrgyzstan and the former Yugoslav Republic of Macedonia.

27. Mechanisms established under the Protocol on Water and Health such as the Ad Hoc Project Facilitation Mechanism were seen as a possible important for the development of appropriate advocacy programmes.

## **VI. SUPPORT AND TECHNICAL GUIDANCE**

### **A. Networking**

28. Networking was recognized as a vital support mechanism for small-scale water supply systems, which often work in isolation. The WHO network ISCWSN<sup>5</sup> aims to promote substantive and sustainable improvements to the safety of small-community water supplies, through the shared objectives of:

- (a) Developing internationally recognized guidance;
- (b) Creating, and facilitating access to, tools to implement such guidance;
- (c) Building the evidence base to facilitate advocacy for political support.

29. ISCWSN is open to anyone working on the topic of small-community water supplies. Members typically represent universities, Governments and NGOs. Over 40 countries are currently represented in the network. The workplan for the ISCWSN has three parts: (a) internationally recognized guidance for the management of small community water supplies; (b) tools to assist in the management of small community water supplies; and (c) development of the evidence base for political support.

30. The main accomplishments of ISCWSN include:

- (a) Development of a framework for the management of small-community water supplies based on the WSP approach;
- (b) Development of guidance on how to use communication to secure and improve human health;

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<sup>4</sup> Belarus has since acceded to the Protocol on 22 April 2009.

<sup>5</sup>: See: [http://www.who.int/water\\_sanitation\\_health/dwq/smallcommunity/en/index.html](http://www.who.int/water_sanitation_health/dwq/smallcommunity/en/index.html).

- (c) Collection of 500 training tools in the virtual forum;
- (d) Collection of 33 examples of risk communication tools;
- (e) 50 examples of risk assessment tools;
- (f) Access to a lexicon of technical terms related to small-scale water supply systems;
- (g) Development of draft guidance on how to conduct economic analysis for water, sanitation and hygiene interventions;
- (h) Development of a global advocacy document.

### **B. German advising-assistance programme**

31. The Advising-assistance Programme for Environmental Protection in Central and Eastern Europe, the Caucasus and Central Asia of the German Federal Environment Agency funds consultation projects. Its projects seek to implement, in cooperation with regional and German partners, EU environmental standards with respect to relevant environmental issues.

32. The programme has an annual budget of €2.24 million and accepts approximately 45 projects per year. The average funding per project is €50,000.

33. The areas of work under the programme are: knowledge transfer, awareness-raising, institution-building and preparation of investment projects. Project characteristics include improvement of the environmental situation, role models and transboundary benefits.

34. Geographically, 57 per cent of the activities are in EU Member States and accession countries; of those outside the EU, 16 per cent are in the Russian Federation, 19 per cent in the Central Asian countries and 8 per cent in other non-EU countries. Thematically, 14 per cent goes to water protection. At present, 34 projects focusing on water issues are operational, including projects on water protection (14), sewage treatment (13), industrial pollution prevention (8) and drinking water supply (3). Examples of the latter include: (a) quality assurance of drinking water in Bulgaria; and (b) local and sustainable wastewater management in Kyrgyzstan.

### **C. Shared technical guidance**

35. Participants reviewed relevant recent technical materials. These materials, made available free of charge to participants, included:

- (a) Isomäki, E. et al., *Operation and maintenance of small waterworks* (Helsinki: Finnish Environment Institute, 2008);



- (b) *Private Water Supplies: Technical Manual* (Edinburgh, United Kingdom: Scottish Executive, 2006). Available online at: [http://www.privatewatersupplies.gov.uk/private\\_water/files/Full%20Doc.pdf](http://www.privatewatersupplies.gov.uk/private_water/files/Full%20Doc.pdf);
- (c) Möller D. and M. Samwel, *Developing Water Safety Plans Involving schools* (Munich, Germany: Women in Europe for a Common Future, 2008);
- (d) New Zealand Ministry of Health, *Small Drinking-water Supplies: Preparing a public health risk management plan* (Wellington: Ministry of Health, 2005). (Guidance developed by New Zealand authorities, available online at: [www.moh.govt.nz/water/](http://www.moh.govt.nz/water/));
- (e) Babyak S et al., *Sustainable Rural Development in Ukraine – Demonstrating solutions for water supply, sanitation and agriculture* (Munich, Germany: Women in Europe for a Common Future, 2007);
- (f) SVGW (2003) Regulation W1002 “Recommendations for a simple quality assurance system for water supplies (WQS)” SVGW Zurich.

## VII. THE WAY FORWARD

### A. Public participation

36. Participants recognized the importance of public participation, but also noted that improved communication and coordination might be difficult because it may affect the competence of different stakeholders.

37. The catalytic role of NGOs in the design and implementation of special education/awareness-raising programmes at the village level was specifically recognized.

### B. Human resources development

38. Programmes need to address the lack of communication between the different stakeholders.

39. Awareness and training in public health need to be promoted by those responsible for water management, including owners and operators of small-scale water supply systems. A programme of special assistance is also required to bring specialized knowledge to the owners and operators of small-scale systems and move operating bodies to small-scale suppliers.

40. Train-the-trainer programmes are more important than training by foreign experts. Exchange programmes could be particularly important in this regard. The timing of such programmes is important: in many countries, small-scale supplies are accessible only in summer and can only be reached by sledge in winter.

41. Specialized training programmes aimed at the owners and operators of small-scale water systems are needed to increase the awareness and understanding of public health issues. Similar programmes are also needed to bring specialized operational knowledge to the owners and operators of small-scale water systems.

### **C. Advocacy**

42. Participants identified a need for more targeted advocacy materials, including:

- (a) Awareness-raising materials for ministries, regional authorities, and municipalities;
- (b) Press kits for the media on the current status and risks associated with small-scale water supplies;
- (c) Materials for funding agencies that highlight the advantages of investing in small-scale and decentralized water supply systems.

### **D. Research**

43. Research is needed to strengthen the evidence base for small-scale water supply systems, including cost-benefit analysis, preferably using independently obtained data. Methodological guidance is currently being developed by WHO.

44. Laboratories that specialize in emerging health risks, including cyanobacterial blooms, should be encouraged to work with small-scale water suppliers to assist and strengthen current health risk assessment.

45. Other areas of research that are needed include:

- (a) Development of appropriate legislation;
- (b) Strengthening risk assessment and risk reduction methodologies;
- (c) Improved of predictive methods for extreme weather events (e.g. floods, droughts);
- (d) More appropriate laboratory monitoring methods.

## **VIII. ACKNOWLEDGEMENTS**

46. Two organizations took immediate follow-up actions and should be recognized for their diligent efforts:

(a) Drinking Water Quality Regulator for Scotland, with support from the United Kingdom Foreign and Commonwealth Office, arranged for the translation into Russian of the *Private Water Supplies Technical Manual Part IV–Risk Assessment* (available from the UNECE/WHO-Europe joint secretariat on CD-ROM and hard copy, and distributed to the WHO network of country offices);

(b) WHO ISCWSN initiated development of awareness-raising material with a publication with the working title of “Small and Safe – Reducing waterborne disease in small communities”.

47. The meeting was made possible by the financial support of the German Federal Environment Agency (UBA), and owed its success to the excellent support from the staff of the UBA offices in Bad Elster.

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