Summary report on the

Intercountry meeting on management of drinking-water safety and the safe use of wastewater

WHO-EM/CEH/160/E

Amman, Jordan
8–9 August 2016

World Health Organization
Regional Office for the Eastern Mediterranean

WHO-EM/CEH/160/E

Summary report on the

Intercountry meeting on management of drinking-water safety and the safe use of wastewater

Amman, Jordan
8–9 August 2016

World Health Organization
Regional Office for the Eastern Mediterranean

Document WHO-EM/CEH/160/E

Contents

1. Introduction

The World Health Organization (WHO) Regional Centre for Environmental Health Action (CEHA) convened an intercountry meeting on management of drinking-water safety and the safe use of wastewater in Amman, Jordan, on 8–9 August 2016. The meeting was attended by 22 delegates from ministries of health and ministries responsible for water and sanitation.

The objectives of the meeting were to:

- identify emerging challenges in water quality and wastewater use in Member States;
- review experience in the adoption of water safety and sanitation safety plans in Member States of the Region;
- clarify the regulatory and surveillance role of public health agencies in management of water safety and wastewater use; and
- develop a roadmap for scaling up the adoption of water safety plans and sanitation safety plans in Member States.

Countries of the WHO Eastern Mediterranean Region are amongst the most water-scarce in the world. Drinking-water services have become more erratic and cities have to cope with frequent interruptions to supply and reliance on emergency supplies. In addition, service outages can compromise water safety. Communities increasingly rely on remote and lesser quality water sources, with nonconventional challenges (such as increased radioactivity in groundwater) requiring complex management. In irrigated agriculture, farmers resort to wastewater for irrigating food crops. All of this can have short- and long-term effects on public health.

To protect health, WHO guidelines for drinking-water quality recommend a preventative risk management water safety and sanitation

safety framework comprising health-based targets established by health authorities, adequate and properly managed systems and infrastructure, and effective independent public health surveillance. This framework represents a holistic approach to risk assessment and management through water and sanitation safety planning.

Dr Ala Alwan, WHO Regional Director for the Eastern Mediterranean, in his opening message emphasized the importance of the risk-based preventive management framework for water and sanitation safety as recommended in WHO guidelines on drinking-water quality and wastewater reuse. He noted that the framework took a holistic approach, sharing responsibility amongst health and other service provision agencies. Within this, the health sector ensured water and sanitation safety through monitoring, detecting and responding to waterborne diseases in order to control events resulting from water and sanitation incidents. Dr Alwan highlighted that the health sector had a key role in establishing norms and standards for water and sanitation, and had prime responsibility for regulatory surveillance of water and sanitation, ensuring that surveillance data was utilized in a timely manner for corrective action to protect health.

2. Summary of discussions

Emerging challenges in drinking-water quality and irrigation using recycled wastewater

There are challenges in management of water safety associated with intermittent or interrupted water supplies. There is a need to monitor the health effects of compromised water safety associated with interrupted water supplies and those resulting from declining domestic water availability caused by water scarcity.

Safe management of non-conventional water supply sources is another challenge, including radiological issues associated with deep groundwater aquifers and the water quality of desalinated water supplies. There is a need for guidance on developing and updating national standards for drinking-water quality.

Safe management of the use of wastewater in irrigation of food crops is also a challenge, and monitoring is needed of the health effects of the use of recycled wastewater in irrigation of food crops.

Experience in the adoption of water safety and sanitation safety plans

Water safety plans are in use in 11 countries of the Region. Egypt, Islamic Republic of Iran, Jordan, Kuwait, Qatar, Saudi Arabia and United Arab Emirates are scaling up application of their water safety plans, while Morocco, Oman, Palestine and Tunisia are piloting their plans. Egypt, Islamic Republic of Iran, Morocco, Saudi Arabia, Sudan, Tunisia and United Arab Emirates are incorporating their water safety plans in national drinking-water standards.

In locations where water safety plans are adopted to manage water systems, participating health and water supply officials report improved water safety compliance, reduced incidence of system failure, reduced cost of quality monitoring, improved communication and collaboration between regulators and service providers, and faster response to water quality incidents.

Phased introduction of water safety plans is recommended, starting with development of national visions, then gaining practical experience through piloting, developing regulatory instruments, developing supportive facilities, such as training programmes, and local technical tools, and building capacity through further demonstration and training,

and finally scaling up. A reasonable period to achieve the national vision is seven years.

Technical support and training are very critical to initiating water safety plans and their subsequent adoption in countries. Some countries have obtained technical support to develop their national vision and introductory training from WHO (Egypt, Islamic Republic of Iran, Jordan, Morocco). Other countries have obtained technical support from consultancy services.

WHO technical and training resources, developed jointly with the International Water Association, are the main source of guidance on water safety plans for service providers and regulators. Translation of WHO materials into Arabic has served to reach a broader audience of stakeholder personnel.

There is strong potential for utility-to-utility and country-to-country provision of technical support and training. The Egyptian Water and Wastewater Regulatory Agency and Holding Company for Water and Wastewater have gained advanced experience in the development and auditing of water safety plans.

Irrigation of food crops with wastewater was reported as common in participating countries and is mainly unregulated. This practice is expected to increase with climate change. Reported wastewater use situations include: use of irrigation water mixed with treated wastewater; use of treated wastewater direct from treatment plants; use of untreated wastewater disposed into dry *wadis*; and use of untreated or partially-treated wastewater drawn from unguarded wastewater treatment plants. Use of recycled wastewater is reported in the irrigation of orchards, grains and cash crops, including vegetables. Concerns were expressed over irrigation with wastewater, including

food safety issues and the health of agricultural workers and their families.

There exist very good facilities for food production using low quality irrigation water (including those mixed with wastewater). These practices apply the Hazard Analysis Critical Control Point (HACCP) system for food safety. These facilities are highly resourced businesses targeting export markets.

Countries have restrictions on the use of wastewater through regulation and standards, but these regulations are rarely enforced due to weak surveillance for compliance.

The sanitation safety plan approach, as a risk-based approach applying multiple barriers, when applied to safe use of wastewater in irrigation, will reduce the risks to safety for crops and farm workers. Training of trainers on sanitation safety plans applied to farm settings and use of wastewater in irrigation will facilitate introduction and adoption of the approach.

Regulatory and surveillance roles of ministries of health

Ministries of health in Egypt, Islamic Republic of Iran, Jordan, Morocco and Tunisia reported that strong engagement in the regulation and surveillance of water and sanitation services leads to improved quality of water and sanitation services. They reported leading the formulation of national standards and regulation, convening health and water committees, representing health in water and sanitation committees, and surveillance of drinking-water quality, wastewater use and water and sanitation service coverage. Health ministries from other participating countries reported that their role was either not well defined or not well activated due to resource limitations.

3. Recommendations

For Member States

1. Update national standards and regulations on drinking-water quality according to WHO revised guidelines on drinking-water quality and the use of wastewater. The risk-based preventative management framework of water safety (water safety plans) and wastewater use (sanitation safety plans) should be explicitly required in national standards and a timeline for implementation defined.
2. Develop a national vision and roadmap for introducing and scaling up the risk-based management of water safety. *A road map to support country-level implementation of water safety plans* (Geneva: World Health Organization/International Water Association; 2010) provides guidance.
3. Attain practical experience and develop capacity in application of water safety plans through pilot applications and training programmes. The scope should cover operator capacities to develop and implement water safety and sanitation safety plans, and ministry of health regulatory surveillance capacity to verify and audit water and sanitation safety plans.
4. Attain practical experience and develop capacity in the application of sanitation safety plans to safe wastewater use in irrigation. For this purpose, implement pilot application of sanitation safety plans at farm level and develop a training programme on sanitation safety plans tailored to the use of wastewater in irrigation.
5. Strengthen ministry of health regulatory and surveillance roles in drinking-water safety. To this end, strengthen the operational capacity and coverage of the drinking-water quality surveillance system, and establish coordination with water and sanitation sector agencies on improved management of drinking-water quality and safety.

For WHO

1. Provide technical guidance resources, technical support and training to ministries of health on their regulatory and surveillance role in water safety and sanitation safety.
2. Provide technical support to ministries of health and other stakeholders for developing a national vision and roadmap on introducing and scaling up application of water and sanitation safety plans, and revising national standards on drinking-water quality and wastewater use.
3. Facilitate exchange of expertise amongst countries by convening intercountry workshops, supporting country-to-country training and utilizing technical expertise from countries to support other countries.
4. Develop or update guidance on:
    - management of water safety challenges associated with intermittent or interrupted water supplies;
    - assessing health effects resulting from declining domestic water availability caused by water scarcity;
    - the health-related aspects of radiological contamination of water and desalinated water supplies;
    - inclusion of risk-based management in updating of national standards for drinking-water quality and wastewater use; and
    - the application of sanitation safety plans for safe irrigation with recycled wastewater.

5. Support training for the staff of ministries of health staff and other stakeholders on:
    - monitoring and reporting Sustainable Development Goal 6 indicators;
    - water safety plan auditing and surveillance; and
    - sanitation safety plan application in safe irrigation of food crops with recycled wastewater.

World Health Organization
Regional Office for the Eastern Mediterranean
P.O. Box 7608, Nasr City 11371
Cairo, Egypt
www.emro.who.int