WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater in Agriculture and Aquaculture

Regional launch of the Guidelines
WHO Centre for Environmental Health Activities
Amman, Jordan
WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater in Agriculture and Aquaculture

Policy Aspects

Robert Bos, Public Health and Environment
WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater

Third Edition

Volume 1: Policy and Regulatory Aspects
Volume 2: Wastewater Use in Agriculture
Volume 3: Excreta Use in Agriculture
Volume 4: Excreta and Greywater Use in Agriculture

The third edition of the WHO Guidelines for the safe use of wastewater, excreta and greywater has been extensively updated to take account of new scientific evidence and consolidated, globally-applicable risk management approaches. This edition presents a risk-based approach to the safe use of wastewater, excreta and greywater as a public health principle. It reflects the knowledge and experiences of a unique group of scientific, regulatory, and public health specialists from developed and developing countries worldwide, brought together by the Water, Sanitation and Health Programme of the World Health Organization.

This new edition responds to a growing demand from WHO member States for guidance on the safe use of wastewater, excreta and greywater in agriculture and aquaculture. Its target audience includes environmental and public health workers, researchers, engineers, planners and others responsible for developing standards and regulations.


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Third Edition

Volume 1: Policy and Regulatory Aspects
Volume 2: Wastewater Use in Agriculture
Volume 3: Excreta Use in Agriculture
Volume 4: Excreta and Greywater Use in Agriculture
Volume 1 of the Guidelines presents policy issues and regulatory measures distilled from the technical detail found in volumes 2, 3 and 4. Those faced with the need to expedite the development of policies, procedures and regulatory frameworks, at national and local government levels, will find the essential information in this volume. It also includes summaries of the other volumes in the series and an index for all four volumes.

Volume 2 of the Guidelines explains requirements to promote safe use concepts and practices, including health-based targets and minimum procedures. It also covers a substantive revision of approaches to ensuring the microbial safety of wastewater used in agriculture. It distinguishes three vulnerable groups: agricultural workers, members of communities where wastewater-fed agriculture is practiced and consumers. It introduces health impact assessment of new wastewater projects.
Overview

- International policy perspectives
- National policy issues
- Policy formulation and adjustment
- Institutional arrangements
Policy - definitions

- Policies define the criteria and procedures for decision-making to guide action towards an agreed goal
- Policies may evolve into legislation and regulation
- Translating policy into strategy requires the allocation of human and financial resources in accordance with the policy objectives and the capacities of the stakeholders
- There is a macro-economic policy framework, there are sectoral policies and there are policies of local government
Policy – the international MDG framework

- Goal 1: Eradicate extreme poverty and hunger
- Goal 2: Achieve universal primary education
- Goal 3: Promote gender equality and empower women
- Goal 4: Reduce child mortality
- Goal 5: Improve maternal health
- Goal 6: Combat HIV/AIDS, malaria and other diseases
- Goal 7: Ensure environmental sustainability
- Goal 8: Develop a Global Partnership for Development
Policy – the international MDG framework

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Policy – the international MDG framework

Goal 1: Eradicate extreme poverty and hunger

- Target 1: halve, between 1990 and 2015, the proportion of people whose income is less than 1US$ a day.

- Target 2: halve, between 1990 and 2015, the proportion of people who suffer from hunger.
Policy – the international MDG framework

Goal 1: Eradicate extreme poverty and hunger

- Wastewater, excreta and greywater make up an important resource for intensive agricultural production by the urban and rural poor and thereby strengthen their livelihood opportunities.

- Agricultural produce cultivated through the use of waste adds importantly to the food security of poor rural and urban communities.

- Reduced downstream ecosystem degradation resulting from the use of wastewater, excreta and greywater makes livelihood systems of the poor more secure.
Policy – the international MDG framework

Goal 7: Ensure environmental sustainability

• Target 9: integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.

• Target 10: halve, by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation.

• Target 11: achieve significant improvement in lives of at least 100 million slum dwellers by 2020.
Policy – the international MDG framework

Goal 7: Ensure environmental sustainability

- The safe use of wastewater, excreta and greywater contributes to less pressure on freshwater resources and reduces health risks for downstream communities.

- Improved sanitation in support of safe excreta use reduces flows of human waste into waterways, helping to protect human and environmental health.

- Improved water management, including pollution control and water conservation, is a key factor in maintaining ecosystem integrity.

- Waste-fed peri-urban agriculture can contribute importantly to improving the livelihood of slum settlers.
National policy perspectives

- poverty reduction
- food security
- protection of public health
- protection of the environment
- integrated water resources management
- energy reliance
WB and IMF assist countries in the formulation of PRSPs as a basis for debt restructuring.

PRSPs describe a country's macroeconomic, structural and social policies and programmes to promote growth and reduce poverty, as well as associated external financing needs.

PRSPs are prepared by governments through a participatory process involving civil society and development partners.
Policy Reduction Strategy Papers

PRSPs prepared in the WHO Eastern Mediterranean

- Afghanistan
- Djibouti
- Pakistan
- Yemen
Focus on productive rather than social sectors

- Health sector coverage mainly addresses infrastructural issues and human resource base
- Wastewater use not mentioned except in PRSP of Yemen: major investments in treatment plants proposed.

Conclusion: generic approach of PRSP needs updating on the basis of the new guidelines
Policy issues

- Implementation of the WHO Guidelines can help to maximize the health and environmental benefits of using wastewater, excreta and greywater in agriculture and aquaculture.
- The use of waste in agriculture and aquaculture is widespread and increasing
- The use of waste can contribute to nutrient and water recycling and improved household nutrition and food security
- There are international policy implications of waste-fed agriculture in the context of international trade
- The practice can be associated with adverse health impacts
- Cost-effective interventions for different situations are available
Policy issues

WHO Guidelines can help to maximize the health and environmental benefits of using wastewater, excreta and greywater in agriculture and aquaculture.

What are the Guidelines?

Health component:

- Establishes a risk level associated with each identified health hazard
- Defines a level of health protection that is expressed as a health-based target for each risk
- Identifies health protection measures that, used collectively, can achieve the specified health-based target
WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater In Agriculture and Aquaculture – Vol I Policy and Regulatory Aspects

**Policy issues**
WHO Guidelines can help to maximize the health and environmental benefits of using wastewater, excreta and greywater in agriculture and aquaculture

**What are the Guidelines?**

**Implementation component:**
- Establishes monitoring and system assessment procedures
- Defines institutional and oversight responsibilities
- Requires system documentation
- Requires confirmation by independent surveillance
Policy issues

Wastewater, excreta and greywater use in agriculture and aquaculture is widespread and continues to expand.

Status and trends

- Both treated and un-treated wastewater are used widely for irrigation in developing and industrialized countries; there are significant regional differences.
- Population growth and rapid urbanization are the driving forces behind increased use.
- Waste-fed aquaculture is declining in Asia because the urbanization limits the areas available for ponds.
- Both in agriculture and aquaculture, the unintentional use of wastewater is on the rise.

**Conclusion:** adequate investment in local trend analysis is a critical starting point in any wastewater policy adjustment.
Policy issues

Multiple benefits of wastewater, excreta and greywater use in agriculture and aquaculture

Benefits to health, environment and agricultural production

- The use of wastewater/greywater is an effective response to growing water scarcity and to pressures on the agriculture sector to reduce its water use.
- The use of wastewater and excreta is critical in the recycling of nutrients for agricultural production and the reduction of reliance on chemical fertilizers.
- Wastewater, excreta and greywater use in agriculture/aquaculture reduces degradation of ecosystems without major investments in treatment plants.
- Their safe use protects and promotes human health and supports improved nutrition.

Conclusion: any national policy framework for the safe use of wastewater, excreta and greywater must be multisectoral; bilateral and multilateral agencies must develop their own cross-cutting wastewater use policies
Policy issues
Policy dimension in relation to international trade

Food safety in the World Trade context

- International trade in food is governed by rules agreed during the WTO Uruguay Round of negotiations.
- The Agreement on the Application of Sanitary and Phyto-sanitary Measures sets the rules for food safety.
- The WHO Guidelines are recognized as a valid instrument in support of meeting this Agreement’s requirements.
- Sound and independent monitoring of compliance with the risk assessment and risk management procedures is essential.

Conclusion: procedures for monitoring must be embedded in national policies for the safe use of wastewater, excreta and greywater in agriculture and aquaculture in accordance with this trade agreement.
Policy issues
Public health implications

Key public health points in the safe use of wastewater, excreta and greywater

- Identify vulnerable groups.
- Identify key agents/causes of increased disease burden associated with wastewater, excreta and greywater use, and the non-treatment options for risk reduction.
- Introduce the sanitation situation and national sanitation improvement goals in the broad policy framework.

Conclusion: national policies for the safe use of wastewater, excreta and greywater must minimally bring in the identification of vulnerable groups, attribution of disease burden, an inventory of feasible non-treatment interventions and be in harmony with national sanitation policies.
Policy issues

The economics of safe use of wastewater, excreta and greywater

The cost-effectiveness element

- In the approach proposed by the third edition of the Guidelines a range of health protection measures are listed.
- The decision-making criteria for these measures should focus on technical soundness, social acceptability and efficiency.
- The comparative analysis of the costs of the various options, and their effects is crucial in the final composition of the package of health protection measures.

Conclusion: national policies for the safe use of wastewater, excreta and greywater must contain an economic evaluation component as part of their criteria.
Harmonization and mainstreaming

How to do

- Situation analysis and needs assessment
- Establish a mechanism for policy dialogue
- Obtain political endorsement
- Engage in an adequately resourced policy dialogue
- Ensure newly formulated policies and adjustments to existing policies are legitimised through Parliament and/or decreed by the Prime Minister’s Office
Institutional Arrangements

• Agreed mechanisms for coordination, collaboration and resource sharing between sectors
• Identification of roles and responsibilities
• Incentive: partial inputs lead to credits for 100% outcome
Institutional Arrangements - mechanisms

- through specific Memoranda of Understanding between sectors
- through existing intersectoral mechanisms
- by operating at lower levels of governance
Institutional Arrangements

How to create institutional arrangements

- map out which sectors are of relevance
- make an inventory of successful existing institutional arrangements
- assess current and potential roles of sectors in safe use of wastewater, excreta and/or greywater
- organize a national event to start the national dialogue
- prepare an intersectoral action plan with a realistic budget
The third edition of the WHO Guidelines is available … what’s next?

Focus on national capacity building
- Policy formulation and adjustment
- Establishment of effective institutional arrangements
- Creation of regulatory frameworks
- Strengthen the human resource base

… and document experiences
- Set up monitoring systems
- Report on experiences
- Contribute to the expanding knowledge base
THANK YOU FOR YOUR ATTENTION