

WHO GUIDELINES FOR THE
**SAFE USE OF WASTEWATER,
EXCRETA AND GREYWATER**

VOLUME I
POLICY AND REGULATORY ASPECTS



World Health
Organization



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**GUIDELINES FOR THE SAFE USE OF
WASTEWATER, EXCRETA AND GREYWATER**

**Volume 1
Policy and regulatory aspects**



**World Health
Organization**

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	acquired immunodeficiency syndrome
BOD ₅	five-day biochemical oxygen demand
2,4-D	2,4-dichlorophenoxyacetic acid
DALY	disability adjusted life year
DDT	dichlorodiphenyltrichloroethane
HIV	human immunodeficiency virus
IWRM	integrated water resources management
MDG	Millennium Development Goal
NTU	nephelometric turbidity unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
P _{inf}	probability of infection
QMRA	quantitative microbial risk assessment
2,4,5-T	2,4,5-trichlorophenoxyacetic acid
UN	United Nations
UNICEF	United Nations Children's Fund
UV	ultraviolet
WHO	World Health Organization
WTO	World Trade Organization

PREFACE

The United Nations General Assembly (2000) adopted the Millennium Development Goals (MDGs) on 8 September 2000. The MDGs that are most directly related to the safe use of wastewater, excreta and greywater in agriculture and aquaculture are “Goal 1: Eliminate extreme poverty and hunger” and “Goal 7: Ensure environmental sustainability.” The use of wastewater, excreta and greywater in agriculture and aquaculture can help communities to grow more food and make use of precious water and nutrient resources. However, it should be done safely to maximize public health gains and environmental benefits.

In 1973, the World Health Organization (WHO) produced the publication *Reuse of effluents: Methods of wastewater treatment and public health safeguards*. This normative document provided guidance on how to protect public health and how to facilitate the rational use of wastewater and excreta in agriculture and aquaculture. Technically oriented, the publication did not address policy issues per se.

A thorough review of epidemiological studies and other new information led to the publication of a second edition of this normative document in 1989: *Health guidelines for the use of wastewater in agriculture and aquaculture*. The guidelines have been very influential with respect to technical standard setting and also at the policy level, and many countries have adopted or adapted them for their wastewater and excreta use practices.

The present third edition of the Guidelines has been updated based on new health evidence, expanded to better reach key target audiences and reoriented to reflect contemporary thinking on risk management.

The use of wastewater, excreta and greywater in agriculture and aquaculture is increasingly considered a method combining water and nutrient recycling, increased household food security and improved nutrition for poor households. Recent interest in wastewater, excreta and greywater use in agriculture and aquaculture has been driven by water scarcity, lack of availability of nutrients and concerns about health and environmental effects. It was necessary to update the Guidelines to take into account scientific evidence concerning pathogens, chemicals and other factors, including changes in population characteristics, changes in sanitation practices, better methods for evaluating risk, social/equity issues and sociocultural practices. There was a particular need to conduct a review of both risk assessment and epidemiological data.

In order to better package the Guidelines for appropriate audiences, the third edition of the *Guidelines for the safe use of wastewater, excreta and greywater* is presented in four separate volumes: *Volume 1: Policy and regulatory aspects*; *Volume 2: Wastewater use in agriculture*; *Volume 3: Wastewater and excreta use in aquaculture*; and *Volume 4:*

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