

TECHNICAL BRIEF ON WATER, SANITATION, HYGIENE AND WASTEWATER MANAGEMENT TO PREVENT INFECTIONS AND REDUCE THE SPREAD OF ANTIMICROBIAL RESISTANCE



Food and Agriculture Organization of the United Nations





TECHNICAL BRIEF ON WATER, SANITATION, HYGIENE AND WASTEWATER MANAGEMENT TO PREVENT INFECTIONS AND REDUCE THE SPREAD OF ANTIMICROBIAL RESISTANCE

Published by the Food and Agriculture Organization of the United Nations and the World Organisation for Animal Health and the World Health Organization

Technical brief on water, sanitation, hygiene and wastewater management to prevent infections and reduce the spread of antimicrobial resistance

© World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO) and World Organisation for Animal Health (OIE), 2020

ISBN (WH0) 978-92-4-000641-6 (electronic version) ISBN (WH0) 978-92-4-000642-3 (print version) ISBN (FA0) 978-92-5-132641-1 ISBN (OIE) 978-92-95115-63-7

All rights reserved. WHO, FAO and OIE encourage the reproduction and dissemination of material in this information product. Any proposed reproduction or dissemination for noncommercial purposes will be authorized free of charge upon request, provided the source is fully acknowledged. Any proposed reproduction or dissemination for resale or other commercial purposes, including educational purposes, is prohibited without the prior written permission of the copyright holders, and may incur fees.

Requests for permission to reproduce or translate WHO publications – whether for sale or for non-commercial distribution – should be addressed to WHO Press through the WHO web site http://www.who.int/about/licensing/copyright_form/en/index.html.

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO) or of the World Organisation for Animal Health (OIE) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these are or have been endorsed or recommended by WHO, FAO and OIE in preference to others of a similar nature that are not mentioned. The published material is being distributed without warranty of any kind either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO, FAO and OIE be liable for damages arising from its use. The views expressed herein are those of the authors and do not necessarily represent those of WHO, FAO, OIE.

Publications of the World Health Organization are available on the WHO web site www.who.int or can be purchased from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland. Tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int.

FAO information products are available on the FAO website www.fao.org/publications and can be purchased through Publications-sales@fao.org.

Publications of the World Organisation for Animal Health are available either on the OIE web site www.oie.int or can be purchased through the OIE online bookshop www.oie.int/ boutique.

Design and layout by L'IV Com Sàrl

Contents

Acknowledgements	iv
Acronyms	۷
Tackling AMR by including WASH and wastewater management in national policies and plans	1
WASH in the global context of antimicrobial resistance	2
How does WASH and wastewater contribute to antimicrobial resistance?	3
Global status of WASH and wastewater management	6
Action areas	
Action area 1: Coordination and leadership.	8
Action area 2: Households and communities	0
Action area 3: Health care facilities	2
Action area 4: Animal and plant production	4
Action area 5: Manufacturing of antimicrobials	6
Action area 6: Surveillance and research	8
References 2	20

Acknowledgements

WHO, FAO and OIE gratefully acknowledge financial and technical support from the Norwegian Agency for Development Cooperation (NORAD), the Fleming Fund and the United Kingdom Department for International Development (DFID) for the development of this briefing note.

Lead authors and reviewers:

Kate Medlicott, Astrid Wester, Bruce Gordon, Margaret Montgomery, Elisabeth Tayler (WHO, Switzerland); David Sutherland (WHO, South East Asia Region); Oliver Schmoll (WHO Regional Office for Europe, Germany);

Marlos De Souza, Sasha Koo-Oshima (FAO, Italy); Katinka DaBalogh (FAO, Thailand);

Jorge Pinto Ferreira, Elisabeth Erlacher-Vindel (OIE, France);

Helen Clayton (Directorate-General for Environment, European Commission, Belgium); David Graham (Newcastle University, UK), DG Joakim Larsson (University of Gothenburg, Sweden); Gertjan Medema (KWR Watercycle Research Institute); Ana Maria Roda de Husman, Heike Schmitt (National Institute for Public Health (RIVM), Netherlands); Min Yang, Yu Zhang, (Research Center for Eco-Environmental Sciences Chinese Academy of Sciences (RCEES), China).

Contributors:

Antoine Andremont (University Paris-Diderot medical school, France); Nicholas Ashbolt (Southern Cross University, Lismore, Australia and University of Alberta, Canada); Thomas Berendonk (Technical University of Dresden, Germany); Laura Boczek (Environment Protection Agency, USA); Joe Brown (Georgia Institute of Technology, USA); Joanna Esteves-Mills (London School of Hygiene and Tropical Medicine, UK); Karina Yew-Hoong Gin (National University of Singapore); Anais Goulas (Laboratoire de bactériologie, Hôpital Bichat-Claude Bernard, France); Arabella Hayter (WHO, Switzerland); Fleur Hierink (National Institute for Public Health (RIVM), Netherlands); Luc Hornstra (KWR Watercycle Research Institute, Netherlands); Paul Hunter (University of East Anglia, UK); Imke Leenen (Foundation for Applied Water Research STOWA, Netherlands); Jeffery Lejeune (FAO, Italy); Teresa Lettieri (European Commission, Joint Research Centre, Italy); Karl G. Linden (University of Colorado, Boulder, USA); Stanley Liphadzi (Water Research Centre, South Africa); Jean Francois Loret (Suez, France); Guy Mbayo (WHO Regional Office for Africa, Congo); Bert Palsma (Foundation for Applied Water Research STOWA, Netherlands); Payden (Regional Office for South-East Asia, India), Amy Pruden (Virginia Tech, USA); Mengying Ren (ReAct, Uppsala University, Sweden); Cornelia Rodolph (European Commission, Belgium); Daisuke Sano (Tohoku University, Japan); Marc Sprenger (WHO, Switzerland); Claudia Stange (TZW Technologiezentrum Wasser, Germany); Mark D. Sobsey (University of North Carolina, USA); Ashok J Tamhankar (RD Gardi Medical College, India); Huw Taylor (University of Brighton, UK); Jordi Torren Edo (European Medicines Agency, UK); Samuel Vilchez (Center of Infectious Diseases, School of Medicine, National Autonomous University of Nicaragua, León-Nicaragua); Jan Peter van der Hoek (Waternet, Netherlands); Caroline Whalley (European Environment Agency, Denmark).

Acronyms

- AMR Antimicrobial resistance
- **API** Active pharmaceutical ingredient
- ARB Antibiotic resistant bacteria
- **ARGs** Antibiotic resistant genes
- **CAFO** Concentrated animal feeding operations
- Disability adjusted life year
- **ESBL** Extended spectrum beta lactamase
- FAO Food and Agriculture Organization of the United Nations
- GAP Global Action Plan
- **GLAAS** Global Analysis and Assessment of Sanitation and Drinking-water
- **GLASS** Global Antimicrobial Resistance Surveillance System
- **GMP** Good Manufacturing Practice
- **HCF** Health care facility
- HIA Health care associated infection
- IPC Infection prevention and control
- **NAP** National action plan for AMR
- **OIE** World Organisation for Animal Health
- **SDG** Sustainable Development Goal
- **UNEP** United Nations Environment Programme
- **UNICEF** United Nations Children's Fund
- WASH Water, sanitation and hygiene
- WHO World Health Organization

预览已结束,完整报告链接和二

https://www.yunbaogao.cn/report/index/report?rep