

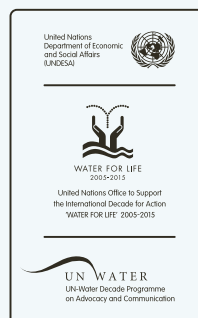
Water and Health Reader

UN-Water Decade Programme
on Advocacy and Communication
(UNW-DPAC)

Produced by the UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC), this reader is intended for all those interested in getting familiar with water and health issues. The reader provides basic references for easy reading and some of the latest and most relevant United Nations publications on water and health.

United Nations Office to Support
the International Decade for Action
'Water for Life' 2005-2015

www.un.org/waterforlifedecade -



An Overview -

■ **Water Quality and Health Strategy 2013-2020**

World Health Organization (WHO).

January 2013

<http://bit.ly/112GDDx>

This guidance document sets out the strategy adopted by the World Health Organization (WHO) for the period 2013-2020 to manage water quality with a view to protecting and promoting human health. The strategy is centered on primary prevention of waterborne and water-related diseases. The document provides background information on the burden of disease, linkages with global change, the economic risk-benefit approach; the WHO policy framework, international agreements and strategies; and guidelines for promoting effective policies and practices. The main target audience of the report is international organizations and policy makers.

■ **Health and environment: communicating the risks**

World Health Organization (WHO)

Regional Office for Europe.

2013

<http://bit.ly/1dXTwvH>

The WHO Regional Office for Europe organized a workshop in Trento, Italy, to enable participants to share experience in the management and communication of environmental risks such as those related to the lack of water and sanitation. This report builds on the presentations and discussions from the workshop and presents a series of key messages useful to regional and local authorities, as well as to risk managers in general.

■ **GLAAS report 2012.**

UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water

World Health Organization (WHO).

April 2012

<http://bit.ly/1efnVk0>

The objective of the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) is to monitor the inputs required to extend

and sustain water, sanitation and hygiene (WASH) systems and services. This includes the components of the "enabling environment": documenting government policy and institutional frameworks; the volume, sources and targeting of investment; the sufficiency of human resources; priorities and gaps with respect to external assistance; and the influence of these factors on performance.

A secondary goal is to analyse the factors associated with progress, or lack thereof, in order to identify drivers and bottlenecks, to identify knowledge gaps, to assess strengths and weaknesses, to identify challenges, priorities and successes, and to facilitate benchmarking across countries. This second GLAAS report presents data received from 74 developing countries, covering all the Millennium Development Goal (MDG) regions, and from 24 external support agencies, representing approximately 90% of official development assistance (ODA) for sanitation and drinking-water.

■ **World Health Statistics 2012**

World Health Organization (WHO).

2012

<http://bit.ly/19maXR0>

The World Health Statistics series is WHO's annual compilation of health-related data for its 194 Member States, and includes a summary of the progress made towards achieving the health-related Millennium Development Goals (MDGs) and associated targets. Unsafe water supplies and inadequate levels of sanitation and hygiene increase the transmission of diarrhoeal diseases (including cholera); trachoma; and hepatitis. The report presents a series of regional charts and, for six indicators - including population without access to improved drinking-water sources and population without access to improved sanitation - the charts show the average annual rate of decline (AARD) since 1990 up to the latest available year, and the overall AARD required for the country to achieve the relevant MDG by 2015.

■ **Atlas of Health and climate**

World Health Organization (WHO),

World Meteorological Organization (WMO).

October 2012

<http://bit.ly/SohtO6>

This atlas provides sound scientific information on the connections between weather and climate

and major health challenges. These range from diseases of poverty to emergencies arising from extreme weather events and disease outbreaks. They also include environmental degradation, the increasing prevalence of non-communicable diseases and the universal trend of demographic ageing. Water-related diseases such as malaria and diarrhoea or water-related emergency situation such as floods and droughts are analysed. The Atlas gives practical examples of how the use of weather and climate information can protect public health. Numerous maps, tables and graphs assembled in the Atlas make the links between health and climate more explicit.

■ **Healthy wetlands, healthy people. A review of wetlands and human health interactions**

Ramsar Convention on Wetlands, United Nations World Water Assessment Programme (WWAP). February 2012

<http://bit.ly/1hIPOpd>

The purpose of this review report is to provide an accessible source of information to help improve understanding of the often complex inter-relationships between wetland ecosystems and human health and well being. The primary audience for this report is intended to be wetland conservation and wise use practitioners, from wetland managers at the site level to decision makers at national and international levels. The information in the report should help in facilitating dialogue between wetlands and human health professionals in their respective efforts to maintain and improve wetland ecological character and people's health.

■ **Drinking Water. Equity, safety and sustainability JMP thematic report**

United Nations Children's Fund (UNICEF), WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP), World Health Organization (WHO). December 2011

<http://bit.ly/1ja9fH3>

This report illustrates in detail how people access drinking water and what changes have occurred since 1990. The report includes multiple disaggregation of water service levels and analyses of trends across countries and regions. It focuses on the three key challenges of equity, safety and

sustainability. Disparities in terms of geography, wealth and gender are explored, which highlight the need to target water service delivery towards specific populations. Water safety concerns are highlighted and the scope of household water treatment is investigated. The challenges involved in sustaining water services and ensuring reliable supplies, in both rural and urban contexts, are also explored, including the unique threats posed by climate change.

Drinking-water quality - and risk-management -

■ **Rapid assessment of drinking-water quality. A handbook for implementation**

United Nations Children's Fund (UNICEF), World Health Organization (WHO). October 2012

<http://bit.ly/Tm0Bqs>

This assessment explores the quality of drinking-water from "improved" sources and was conceived to probe into the question to what extent the quality of drinking-water from "improved" sources deviates from the assumption that it is safe. The handbook describes the methods and procedures applied by WHO and UNICEF in the five countries, for adoption by any authority or institution that wants to prepare a snapshot of the quality of "improved" sources of drinking-water, as a first step towards strengthening drinking-water quality regulations.

■ **Water Safety Planning for Small Community Water Supplies. Step-by-step risk management guidance for drinking-water supplies in small communities**

World Health Organization (WHO). July 2012

<http://bit.ly/1dTxEIq>

This manual is designed to engage, empower and guide communities in the development and implementation of water safety plans (WSPs) for their drinking-water systems. It provides guidance on how to apply effective and achievable management actions in order to improve the safety and quality of supplied water. Relevant to all community-managed systems, it is applicable

to piped schemes, point sources such as hand pumps, protected springs or household rainwater harvesting systems and other sources.

The guidance provided is valid for both new and existing schemes.

■ **Pharmaceuticals in drinking water**

World Health Organization (WHO).

June 2012

<http://bit.ly/1efo4Us>

This technical report aims to provide practical guidance and recommendations in managing concerns over pharmaceuticals in drinking-water, taking into consideration the available scientific knowledge and evidence. It emphasizes the importance to prioritize this emerging issue in the overall context of water safety management, which includes microbial and other chemical risks that may threaten the safety of drinking-water.

■ **Guidelines for drinking-water quality. 4th edition**

World Health Organization (WHO).

July 2011

<http://bit.ly/1lutFh>

This 4th edition of the World Health Organization's Guidelines for Drinking-water Quality builds on over 50 years of guidance by WHO on drinking-water quality, which has formed an authoritative basis for the setting of national regulations and standards for water safety in support of public health. The Guidelines are addressed primarily to water and health regulators, policymakers and their advisors, to assist in the development of national standards. This edition of the Guidelines further develops concepts, approaches and information introduced in previous editions. It considers: drinking-water safety, including minimum procedures and specific guideline values and how these are intended to be used; approaches used in deriving the Guidelines, including guideline values; microbial hazards, which continue to be the primary concern in both developing and developed countries; climate change, which results in changing water temperature and rainfall patterns, severe and prolonged drought or increased flooding, and its implications for water quality and water scarcity, recognizing the importance of managing these impacts as part of water management strategies.

■ **Clearing the Waters:**

A focus on Water Quality Solutions

United Nations Environment Programme (UNEP).
2010

<http://bit.ly/1lutj82>

This publication addresses the urgency of controlling pollution and preserving water quality around the world. Water quality impacts human health, water quantity, livelihood, economic activity, and climate change. Emerging contaminants, population growth and urbanization present additional stresses to water quality. This publication quantifies these water-quality related issues and uses case studies to illustrate both problems and solutions.

■ **Water quality: guidelines, standards and health. Assessment of risk and risk management for water-related infectious disease**

World Health Organization (WHO).

2001

<http://bit.ly/OhtqaF>

The various WHO guidelines relating to water have been developed in isolation from one another. The potential to increase consistency in approaches to assessment and management of water related microbial hazards was discussed by an international group of experts between 1999 and 2001. These discussions led to the development of an harmonized framework, which was intended to inform the process of development of guidelines and standards. Subsequently, a series of reviews was progressively developed and refined, which addressed the main issues of concern linking water and health to the establishment and implementation of effective, affordable and efficient guidelines and standards. This book is based on these reviews, together with the discussions of the harmonized framework and the issues surrounding it.

Water quantity -

■ **Domestic water quantity, service level and health**

World Health Organization (WHO).

2003

<http://bit.ly/1fRlovB>

The quantity of water delivered and used by households is an important aspect of domestic water supplies, which influences hygiene and therefore public health. This paper reviews the requirements for water for health-related purposes to derive a figure of an acceptable minimum to meet the needs for consumption (hydration and food preparation) and basic hygiene.

Avoiding water-related diseases -

■ **Considerations for Policy Development and Scaling-Up Household Water Treatment and Safe Storage with Communicable Disease Prevention Efforts**

World Health Organization (WHO).
October 2013

<http://bit.ly/Ncu89r>

This report summarizes the key outcomes of the discussions held by WHO, which included experts in child and maternal health, HIV, malaria and vector borne diseases. The report aims to inform Household Water Treatment and Safe Storage (HWTS) scaling-up efforts with particular attention to vulnerable, at-risk populations and integrated approaches to delivering water, HIV, and other interventions using synthesized meta-analyses and recent studies on the health impact of HWTS. It begins by summarizing the main discussion outcomes, including the specific recommendations for integrating HWTS with key health efforts and supporting scaling-up efforts. It then provides a brief description of the presentations and discussions.

■ **Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025.**

The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD)

United Nations Children's Fund (UNICEF).
2013

<http://bit.ly/1bokOJT>

The integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD) proposes a cohesive approach to ending preventable pneumonia and diarrhoea deaths. It brings together critical services and interventions to create healthy environments, promotes

practices known to protect children from disease and ensures that every child has access to proven and appropriate preventive and treatment measures. It also aims to help countries achieve impact by analysing local data, acting on the results and monitoring their progress towards clear, achievable goals.

■ **Pneumonia and diarrhoea.**

Tackling the deadliest diseases for the world's poorest children

United Nations Children's Fund (UNICEF).
June 2012

<http://bit.ly/1oxKTWu>

This report focuses on the huge potential to narrow the child survival gap between the richest and the poorest by focusing on pneumonia and diarrhoea - the two primary killers of children under the age of five. Apart from identifying key prevention measures and treatment coverage needs, the report estimates children's lives saved by scaling up key interventions in an equitable way and presents an array of data showing progress and challenges over the past several decades.

■ **Evaluating Household Water Treatment Options: Health-based targets and microbiological performance specifications**

World Health Organization (WHO).
July 2011

<http://bit.ly/1q03mwY>

This document sets forth global criteria to evaluate whether a household water treatment (HWT) option reduces waterborne pathogens sufficiently to protect health. Through use of a risk-based framework and by emphasizing the philosophy of incremental improvement, it is intended to provide implementers and policy-makers with an evidence-based and pragmatic approach to select options suited to local conditions. The document provides a range of technical recommendations, including: a step-by-step overview of how to evaluate HWT microbiological performance; elaboration of health-based water quality targets ranging from interim to highly protective, including establishment of default targets for use in data-scarce settings; description of technology-specific laboratory testing protocols and guiding principles considerations relating to developing national

technology evaluation programs. This document is especially intended for resource-scarce settings where water quality laboratories may have limited capacity and incremental improvements of HWT performance could have a substantial, positive impact on public health.

Water, health and economics -

■ **Tracking national financial flows into sanitation, hygiene and drinking-water**

World Health Organization (WHO).
July 2012

<http://bit.ly/1kxtLAQ>

This working paper lays out basic proposals for a common methodology to track WASH financial flows at the national level. It outlines a process that countries will need to go through in order to derive more comprehensive and reliable estimates of spending on WASH at the national level. The objectives of this working paper are twofold:(1) to determine the state of the evidence on the monitoring and reporting of financial flows to the water, sanitation and hygiene (WASH) sector at the national level;(2) if knowledge gaps are confirmed, to identify the key tenets of a methodological framework that could significantly improve our understanding of financial flows in the WASH sector and be rolled out in a large number of countries as part of UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) 2014 and beyond.

■ **Water Quality Interventions to Prevent Diarrhoea: Cost and Cost-Effectiveness**

World Health Organization (WHO).
2008

<http://bit.ly/1hnKzXt>

This document makes a review of the effectiveness of water quality interventions to prevent diarrhoea. The analysis is based on cost information from 28 country programmes and computes the cost-effectiveness of conventional improvements of water quality at the source (well, borehole, communal stand post) and four interventions to improve water quality at the household level (chlorination, filtration, solar disinfection and combined flocculation/disinfection). It then employs

the generalized cost-effectiveness analysis (CEA) methodology developed by the WHO under its CHOICE project in order to assess the cost-effectiveness of these interventions in 10 WHO epidemiological sub-regions with lower levels of improved water and sanitation coverage.

■ **Safer Water, Better Health. Cost, benefits and sustainability of interventions to protect and promote health**

World Health Organization (WHO).
2008

<http://bit.ly/1kxtNZE>

This document summarizes the evidence and information related to water and health in a broad sense- encompassing drinking-water supply, sanitation, hygiene, and the development and management of water resources. The report collects the ingredients that support policy decisions, namely the disease burden at stake, the effectiveness of interventions, their costs and impacts, and implications for financing. It presents an overview of current knowledge on the health impacts by country and by disease, and of what has worked to reduce that burden.

Waste and wastewater management

■ **Sick Water. The central role of wastewater management in sustainable development. A rapid response assessment**

United Nations Environment Programme (UNEP),
United Nations Human Settlements Programme (UN-Habitat). 2010
July 2012

<http://bit.ly/1q5Xvlp>

This report identifies the main threats to human and ecological health and the consequences of poor wastewater management and degrading sewage systems. It also presents opportunities, where appropriate policy and management responses over the short and longer term can trigger employment, support livelihoods, boost public and ecosystem health and contribute to more intelligent water management.

■ **Animal waste, water quality and human health**

World Health Organization (WHO).

October 2012

<http://bit.ly/SkUWU2>

This book collects relevant information, in connection with five different pathogens, on the scope of domestic animal and bird faeces discharged into the environment, the fate and transport of the faecal wastes (and the pathogens they may contain) that have been discharged into the environment, human exposure to the faecal wastes, potential health effects associated with those exposures and interventions that will limit human exposures to livestock waste. It also addresses the monitoring, detection and management related to these phenomena.

By region -

Africa -

■ **Combined household water treatment and indoor air pollution projects in urban Mambanda, Cameroon and rural Nyanza, Kenya**

World Health Organization (WHO).

February 2011

<http://bit.ly/Ohu2gB>

In 2007, the World Health Organization issued a request for proposals on the integration of Indoor Air Quality (IAQ) and Household Water Treatment (HWT) at the household level in Africa. The aims of this initiative were: 1. To explore whether or not it is possible to achieve synergies and economies of scale by linking HWT and IAQ interventions; 2. To examine the potential for expansion and scaling up in the implementation of projects combining these interventions; 3. To document integration models for these interventions; 4. To examine the added value of integrating these two approaches, in a way that contributes to an improvement in health outcomes, as well as sustainability and adoption of use. This report presents the country reports of two selected projects, one in urban Douala, Cameroon, the second in rural Nyanza, Kenya.

Asia and the Pacific -

■ **Sanitation and externalities: evidence from early childhood health in rural India**

World Bank.

January 2014

<http://bit.ly/1d2d7bn>

This paper investigates the existence and size of benefits from access to sanitation on child health in rural India. It estimates two sources of benefits: a direct benefit a household receives when moving from open to fixed-point defecation or from unimproved sanitation to improved sanitation, and an external benefit (externality) produced by the neighbourhood's access to sanitation infrastructure.

■ **Investing in the Next Generation: Growing Tall and Smart with Toilets. Stopping Open Defecation Improves Children's Height in Cambodia**

World Bank Water and Sanitation Program (WSP).

November 2013

<http://bit.ly/1gMrRtW>

This research brief explores the impacts on health and cognitive development through the practice of open defecation. The methodology used is the statistical link between open defecation and child height, which is a good indicator of overall health throughout a child's life and future achievement. The document states the problem, introduces the methodology of the research and provides key lessons and some conclusions.

■ **Economic Assessment of Sanitation Interventions in Yunnan Province, People's Republic of China. A six-country study conducted in Cambodia, China, Indonesia, Lao PDR, the Philippines and Vietnam under the Economics of Sanitation Initiative (ESI)**

World Bank Water and Sanitation Program (WSP).
September 2012

<http://bit.ly/1hIRGye>

This study evaluates the costs and benefits of technical sanitation options and sanitation programs in Yunnan Province, China. The study compares the costs and benefits of alternative improved sanitation options over the expected life of each technology, to estimate efficiency of

alternative sanitation options. For the study, sanitation options in eight different sites throughout Yunnan Province were selected, representing urban, peri-urban and rural areas as well as different socio-economic levels and cultural settings. Sanitation options evaluated in the study include the facilities to collect and convey human excreta, household wastewater treatment and related hygiene practices. The benefits of sanitation evaluated include health, water quality, time to access sanitation facilities, external environment, reuse of human excreta, quality of life improvement and other intangible benefits such as privacy, cleanliness and comfort. The costs of sanitation measured include investment costs and recurrent costs (operations and maintenance).

Europe -

■ **Protocol on Water and Health**

United Nations Economic Commission for Europe (UNECE), World Health Organization (WHO) Regional Office for Europe.
June 1999

<http://bit.ly/1q04kcB>

The Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes is the first major international legal approach for the prevention, control and reduction of water-related diseases in Europe. Signatories agree to establish and maintain comprehensive national and/or local surveillance and early warning systems to prevent and respond to water-related diseases. They also agree to promote international cooperation to establish joint or coordinated systems for surveillance and early warning systems, contingency plans, and responses to outbreaks and incidents of water-related diseases and significant threats of such outbreaks.

Latin America and the Caribbean -

■ **Economics of Sanitation Initiative. Nicaragua: The Cost of Inadequate Sanitation**

World Bank Water and Sanitation Program (WSP).
June 2013

<http://bit.ly/1aHf5KX>

This report analyzes the economic and social impacts derived from the lack of sanitation in Nicaragua. It includes basic information on Nicaragua, records of sanitation in the country and the results of the analysis of the economic impacts on health, water resources, tourism, and other impacts on welfare.

■ **Promoting Handwashing Behavior: The Effect of Large-Scale Mass-Media and Community Level Interventions. New Findings from an Impact Evaluation in Peru**

World Bank Water and Sanitation Program (WSP).
November 2012

<http://bit.ly/1jJW3JX>

This paper focuses on a handwashing promotion intervention which attempts to improve child health by changing this key hygiene-related behaviour rather than by implementing large and costly infrastructure investments in water supply or sanitation. In particular, the document analyzes the Global Scaling Up Handwashing Project in Peru, a large-scale intervention that aims to generate and sustain handwashing with soap behaviour at critical junctures among mothers, caregivers, and children up to 12 years old in rural households.

International Decade for Action 'Water for Life' 2005-2015

A Decade for Water, a Decade for Life

Towards the primary goal of the Water for Life Decade, Spain has agreed to provide resources to the United Nations to establish Office to support the International Decade for Action. Located in Zaragoza, Spain and led by the United Nations Department of Economic and Social Affairs (UNDESA), the Office implements the UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC) aiming at sustaining the global attention and political momentum in favour of the water and sanitation agenda at all levels during the Decade.

The views expressed in this publication do not necessarily reflect the views of the United Nations Secretariat or the United Nations Office to Support the International Decade for the Action (UNO-IDfA) 'Water for Life' 2005-2015.

The designations employed in this publication and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations or the UNO-IDfA 'Water for Life' 2005-2015 concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC)

Casa Solans
Avenida Cataluña, 60
50014 Zaragoza, España

Tel. +34 976 72 42 20

Fax +34 976 72 42 33

water-decade@un.org

www.un.org/waterforlifedecade

