

# Resources

A review of articles, reports and published papers on WASH in developing countries



The 'Resources' review is made of a selection of open access reports, research papers or articles related to WASH issues, gathered and read by the pS-Eau during the last months. In this 9th issue, you'll find some recent publications launched during the World Water Week in Stockholm as well as a special focus on solid waste management. Enjoy!

The pS-Eau team

## DRINKING WATER

Water treatment / multiple uses / maintenance / regulation ... PAGES 2 & 3

## SANITATION

Sanitation workers / faecal sludge or wastewater treatment / rural ... PAGES 4 & 5

## OTHER WASH RESOURCES

Financing / subsidies / inclusion / non-discrimination / ... PAGES 6 & 7

## SOLID WASTE

Municipal service / urban / reuse / circular economy / ... PAGES 8 & 9

# DRINKING WATER

## Results of Round II of the WHO Household Water Treatment Evaluation Scheme

WHO, 2019



Since the establishment of the International Scheme to Evaluate Household Water Treatment Technologies (the Scheme) in 2014,

WHO has been independently evaluating the performance of household water treatment (HWT) technologies in removing microbial contaminants from drinking-water. The report summarizes the results of 19 of 20 HWT products evaluated in Round II of the Scheme. These represent a range of treatment methods, including chemical, solar and ultraviolet (UV) disinfection, and ceramic and membrane filtration.

## The Role of Desalination in an Increasingly Water-Scarce World

World Bank, 2019



The cost of desalination has been plummeting over the years. As a result, it has become a viable option for certain

strategic uses. Desalination can be seen as one option in a portfolio water supply sources, including traditional surface water and groundwater sources as well as wastewater reuse, to meet growing water demand gap. Although still relatively expensive, desalination offers the potential to enhance system reliability. This report examines the role desalination options can play in a water-scarce world and their appropriateness.

## Effect of In-Line Drinking Water Chlorination at the Point of Collection on Child Diarrhoea in Urban Bangladesh: a Double-Blind, Cluster-Randomised Controlled Trial

Pickering A. et al., 2019



Passive chlorination at the point of collection could be an effective and scalable strategy in low-income urban settings for reducing child diarrhoea and for achieving global progress towards Sustainable Development Goal 6.1 to attain universal access to safe and affordable drinking water. This research aimed to evaluate the effect of installing novel passive chlorination devices at shared water points on child diarrhoea prevalence in low-income, densely populated communities in urban Bangladesh.

## WaSH Policy Research Digest #12 : Multiple Water Source Use

UNC Water Institute, 2019



This Digest examines the use of multiple water sources by households in two small island developing states; a phenomenon that can contribute to resilience, especially to climate-related change. The accompanying literature review adds insight into the extent to which multiple source use occurs globally, and the risks and advantages associated with it.

## Addressing how Multiple Household Water Sources and Uses Build Water Resilience and Support Sustainable Development

Elliot M. et al., 2019



The routine use of multiple water sources to meet household water needs is widely practiced but typically neglected by implementers, development organizations, and researchers who tend to focus exclusively on the "main source of drinking water." This article explains the nature and scope of multiple water source use (MWSU) at the household level in developing countries. It also describes the implications of MWSU for human health and water resilience, and identifies key knowledge gaps, risks, and opportunities associated with MWSU.

## WaSH Policy Research Digest #12: Health Effects of Carrying Water

UNC Water Institute, 2019



This digest examines the health effects of carrying water, in particular the impact on women and girls.

## User Representation and Multi-Stakeholder Dialogue for the Monitoring of Drinking Water Services in Senegal. Analysis and Recommendations of the Sense Project in the Saint-Louis Region

GRET, 2019 (in French only)



This document presents a synthesis of two studies carried out as part of the Sense project led by GRET, Gaston Berger University

and the Saint-Louis Regional Development Agency. The first focused on the mechanisms for representing users of public drinking water services in the Saint-Louis region, the second covered the situation of stakeholder dialogue on rural water reform in northern Senegal.

## RWSN International Directory of Rural Water Supply Models, Tariffs and Lifecycle Costs. Edition 2019

RWSN, 2019

(in English and French)

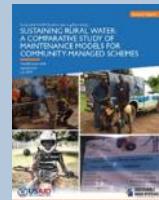


The rural water supply sector is undergoing a period of change. In response to the challenges of achieving universal access to safe, affordable drinking water and sustaining those services, there has been increasing innovation in different types of rural water service models. This Directory is intended to show the growing range of management options.

## Sustaining Rural Water: A Comparative Study of Maintenance Models for Community-Managed

### Schemes

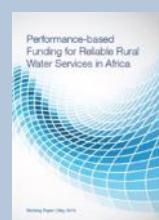
Global WASH systems & USAID



Conventional approaches to maintenance of rural water supply systems have largely been based on voluntary community-based management. Recently, there have been attempts to professionalize maintenance services and make these services affordable at the point of delivery. This study considers different variations of maintenance approaches. It provides a typology for characterizing maintenance service provision models, a framework for analyzing them, and an in-depth study of seven maintenance models that represent different cases from the typology of approaches.

### Performance-based Funding for Reliable Rural Water Services in Africa

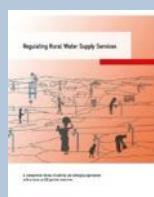
McNicholl D. et al. (Uptime Consortium) 2019



The enduring problem of the water sector is that providing maintenance services to rural and remote populations is not financially viable in many contexts. Despite financial risks and operational challenges, multiple service providers are innovating on service delivery approaches to improve financial and operational performance in "last mile" contexts. This study reports on major improvements in functionality of rural water infrastructure in Burkina Faso, Central African Republic, Kenya and Uganda achieved by performance-based providers.

## Regulating Rural Water Supply Services

GIZ, 2019



This study responds to calls within GIZ to extend its expertise in pro-poor regulation, which to date has largely centred on improving access to water services in urban low-income areas. Rights-based global commitments to addressing the persistent access gap between urban and rural areas have prompted a fresh look at the potential role of regulation. Guided by a review of the literature and expert insights, this study examines eight country case studies to explore the question of regulatory oversight for rural water supply services in the context of widely pledged universal service aspirations.

## UPGRO Hidden Crisis Research Consortium: Project Approach for Defining and Assessing Rural Water Supply Functionality and Levels of Performance

UPGRO, 2018



This technical brief is aimed at sharing the learning and approaches developed by the UPGro Hidden Crisis Research

Project to look at how the functionality and performance levels of boreholes equipped with handpumps can be assessed using a common set of definitions and methods. The brief sets out the tiered functionality definitions, and accompanying survey methods, which were developed by the project and have been applied in functionality surveys across Ethiopia, Uganda and Malawi.

# SANITATION

## The Health, Safety and Dignity of Sanitation Workers

ILO, WaterAid, WHO and World Bank , 2019  
(in French and English)



Sanitation workers provide an invaluable public service, vital to our daily lives and the environment. Yet they often work in conditions that expose them to the worst consequences of poor sanitation. This report is the most extensive global exploration of the topic to date. It analyses the problems sanitation workers face – focusing on those emptying pits and tanks and maintaining sewers – and explore good practices around the world.

## Considering Climate Change in Urban Sanitation. Conceptual Approaches and Practical Implications

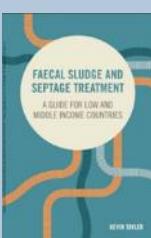
ISF-UTS & SNV, 2019



This paper presents a comprehensive conceptualisation of how climate change could be considered in urban sanitation policy and programming.

## Faecal Sludge and Septage Treatment: A Guide for Low- and Middle-Income Countries

Taylor K., 2018



This book confronts the urgent need to treat increasing volumes of faecal sludge and septage in the rapidly expanding towns and cities of the global south.

It discusses the urban contexts that influence treatment requirements and overall septage treatment processes. It examines the options and design approaches at each stage of treatment. It provides straightforward guidance on the options for faecal sludge treatment and the choices between those options.

## Generation of Sanitation System Options for Urban Planning Considering Novel Technologies

Spuhler D., et al. 2018



This paper presents a procedure applied to an emerging small town in Nepal for generating a set of locally appropriate sanitation system options. The procedure was designed (i) to enhance the reproducibility of option generation; (ii) to consider all types of conventional and novel technologies; (iii) to provide a set of sanitation systems that is technologically diverse; and (iv) to formally account for uncertainties linked to technology specifications and local conditions.

## Innovation for Sanitation Services in Tropical Area: Technical Approach by French Vertical Flow Treatment Wetland, and Support Through Companion Modeling

Lombard-Latune R., 2019  
(in French. 5 articles are available in English)



This thesis aims to propose ways of improving sanitation services in tropical areas. The first research axis focuses on the analysis of constructed wetland treatment

processes set up in the French overseas departments and their adaptability to other tropical contexts, such as Senegal. The second axis concerns the development of a modelling framework to improve stakeholders consultation during sanitation planning, which has been tested in urban and rural areas in Senegal.

## Systems Reboot: Sanitation Sector Change in Maputo and Lusaka

WSUP, 2019

This discussion paper provides illustrative examples of how a systems approach can be applied at a city level by looking at two cities – Lusaka, Zambia and Maputo, Mozambique. Each case study contains an in-depth examination of one particular component of the system that was identified by stakeholders as being particularly crucial: a community-based, utility-managed faecal sludge management (FSM) service in Lusaka, and the design of a sanitation tariff in Maputo.

## Faecal Sludge Management Landscape in South Asia

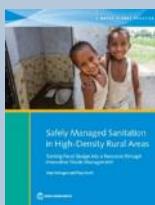
WaterAid, 2019



WaterAid commissioned a study in South Asia (Bangladesh, India, Nepal and Pakistan) with the aim to understand (i) key elements of the enabling framework for FSM at country level and (ii) city-level FSM initiatives. This report covers the enabling framework for FSM in study countries and FSM case studies, along with comparative analysis, key findings, conclusions and policy recommendations.

## **Safely Managed Sanitation in High-Density Rural Areas : Turning Fecal Sludge into a Resource through Innovative Waste Management**

World Bank, 2019



This report explores the challenges of fecal sludge management (FSM) in densely populated rural areas and it presents some typical current practices, examples of financially sustainable FSM services, and global innovations in waste management with potential replicability for FSM.

## **Guidance on Programming for Rural Sanitation**

UNICEF, Plan International & WaterAid, 2019



Current rural sanitation practitioners and decision makers are faced with insufficient information on the relative performance of different programming approaches. To address this, Plan International, WaterAid and UNICEF are conducting a review to consolidate existing evidence and experiences on these issues, with an aim to develop guidance documents for rural sanitation programme policy-makers, planners

and implementers.

This joint effort has three tasks : (i) review of rural sanitation, (ii) development of a rural sanitation costings guidance and (iii) development of a rural sanitation approaches guidance (the present document).

The other reviews can be found here : [link to click].



Water point in rural Mali

To download a document, click on the title, the picture or the text of the short summary.

You can find the complete list of documents and their full references on our database: [here](#).

# OTHER WASH RESOURCES

## The United Nations World Water Development Report 2019: Leaving No One Behind

UN-Water, 2019  
(in English and French)



The 2019 UN-Water report demonstrates how improvements in water resources management and access to water supply and sanitation services are essential to addressing various social and economic inequities, such that 'no one is left behind' when it comes to enjoying the multiple benefits and opportunities that water provides.

## The Human Rights to Water and Sanitation in Spheres of Life Beyond the Household with and Emphasis on Public Spaces. Report of the Special Rapporteur on the Human Rights to Safe Drinking Water and Sanitation

Léo Heller (UN), 2019  
(in English and French)



This new report from the UN Special Rapporteur on the human rights to water and sanitation examines the status and the impact of the inadequate access to water and sanitation in spheres of life such as schools, health institutions, detentions centres and workplace. Particularly it address impacts on those living in homelessness and informal street workers, as well LGBTI persons, older persons, women, children and persons with disabilities that need services in public spaces, but

also look at the regulation, accountability and monitoring mechanisms of access to water and sanitation in those spaces.

## Women in Water Utilities : Breaking Barriers

World Bank, 2019



Women are significantly underrepresented in the water workforce. Multiple barriers, ranging from social norms, to inadequate HR policies, to an unwelcoming work environment, pose challenges to female water professionals' entering, staying and advancing in the water sector. This study explores these barriers and provides utilities with practical approaches to advance their gender diversity.

## Guidance and Tips for Learning from People who may be most Disadvantaged during the Programme Process

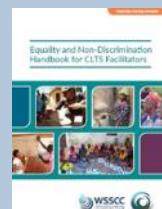
WSSCC, 2019  
(in English and French)



A practical guide on how to collect information related to Equality and Non-Discrimination at community level, and in particular to learn from people who may be disadvantaged. This guide provides insights into the key ethics principles for information gathering and documentation, offers practical qualitative learning and participatory tools, and includes qualitative information gathering tools, participatory exercises, as well as focus group discussion and interview guides.

## Equality and Non-Discrimination Handbook for CLTS Facilitators

WSSCC, 2019  
(in English and French)



The Equality and Non-discrimination (EQND) Handbook provides practical guidance for ensuring that behaviour change interventions leave no one behind. Drawing on experience from across the sector, this handbook is specifically targeted towards those implementing or supervising CLTS interventions at the community level. Key features include a summary of EQND principles, step-by-step guidance on applying these principles during pre-triggering, triggering meetings, and post-triggering follow-up visits, as well as annexes with practical tools, templates, and resources.

## Concept Mapping: Engaging Stakeholders to Identify Factors that Contribute to Empowerment in the Water and Sanitation Sector in West Africa

Bisung E. & Dickin S., 2019



This study used concept mapping to uncover the meaning and key dimensions of empowerment in WASH among 34 and 24 stakeholders in Asutifi North District, Ghana, and Banfora Commune, Burkina Faso, respectively. The study was part of initial steps toward choosing indicators for developing an Empowerment in WASH Index.

## **Safer Water, Better Health: 2019 Update**

WHO, 2019



This comprehensive global review highlights the importance of adequate water, sanitation and hygiene (WASH) for human health. Many diseases are caused by pathogens that are ingested with drinking-water, which circulate due to improper treatment and disposal of excreta and which are propagated by inadequate handwashing and lack of hygiene facilities.

## **National Systems to Support Drinking-Water Sanitation and Hygiene: Global Status Report 2019. GLAAS 2019 reports**

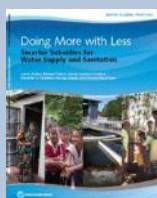
UN-Water & WHO, 2019



The UN-Water Global Assessment and Analysis of Sanitation and Drinking-Water 2019 (known as the GLAAS report) surveyed 115 countries and territories, representing 4.5 billion people. It showed that, in an overwhelming majority of countries, the implementation of water, sanitation and hygiene policies and plans is constrained by inadequate human and financial resources. Nineteen countries and one territory reported a funding gap of more than 60% between identified needs and available funding. Less than 15% of countries have the financial or human resources needed to implement their plans.

## **Doing More with Less: Smarter Subsidies for Wa- ter Supply and Sanitation**

World Bank, 2019



This report explores how scarce public resources can be used most effectively to achieve universal delivery of water supply and sanitation services. It analyzes the prevalence and performance of subsidies in the sector, then guide policymakers on improving subsidy design and implementation to improve their efficacy and efficiency in attaining their objectives.

## **Reform and Finance for the Urban Water Supply and Sa- nitation Sector**

World Bank, 2019



Since 2016 the World Bank has explored a wide range of country experiences in delivering better water supply and sanitation services. The analyses led to publication of three new global frameworks for designing water reforms: Policy, Institutional, and Regulatory Incentives, which looks at the broader sector enabling environment; Water Utility Turnaround Framework, which looks at utility-level reforms; and Maximizing Finance for Development, which looks at shifting the financing paradigm to reach the Sustainable Development Goals. This summary note integrates the three lines of work—utility reform, sector reform, and sector finance—for readers to understand the critical links between the three spheres.

## **Fintech for the Water Sector : Advancing Financial Inclu- sion for More Equitable Ac- cess to Water**

World Bank, 2019



For many low-income households in the developing world, incomes are highly variable and uncertain. High up-front costs combined with irregular incomes result in unequal access to water, sanitation, and irrigation. Households typically can, and should, cover the costs of accessing water resources, but they cannot do this without help. Financial inclusion can help households access water resources. Financial inclusion focuses on ensuring everyone has access to useful and affordable financial products and services, including transactions, payments, savings, credit, and insurance. The emerging field of financial technology (fintech) can help address barriers to financial inclusion in the water sector while potentially reducing or eliminating the need for subsidy. This paper explores how fintech can support expansion of market-based solutions for water, sanitation, and irrigation, identifying several use cases where fintech is already being used to address financial inclusion and access to water

# SOLID WASTE

## What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050

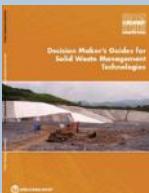
World Bank, 2018



What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050 includes global, regional, and urban trends on solid waste management from technical and operational trends to environmental and social impacts.

## Decision Maker's Guides for Solid Waste Management Technologies

World Bank, 2018



The Decision Maker's Guides for Solid Waste Management Technologies were created to help mayors and decision makers understand the various technologies and when they would be appropriate based on local circumstances. Mayors are often approached by different solid waste management technology vendors and these guides aim to provide objective guidance and critical considerations. They offer insights into implementing environmentally sound treatment and disposal solutions.

## Waste, How Much Does it Cost?

AFD, 2018

(in English and French)

The French Development Agency (AFD), along with Le Mans University, the Gevalor Association, Urbananalyse, and ALBWaste, conducted the ORVA2D



(Organisation for Waste Recycling in Developing Cities) research program, aimed at developing a better understanding of the economic pattern of waste recovery procedures and to issue recommendations. This program covered six case studies in the cities of Antananarivo, Bogotá, Delhi, Lima, Lomé, and Surabaya .

## Supporting the Implementation of a Waste Management Service in Urban Areas. Experience from the Promaiss and Gicod Projects in a Secondary City: Dolisie, Republic of Congo, 2012-2018

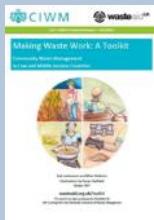
GRET, 2019 (in French only)



Present in Congo since 2002, GRET has chosen to work alongside the town hall of Dolisie to help the community address the issue of waste management. From 2012 to December 2018, two projects (Promaiss and Gicod) followed one another with a view to supporting the gradual establishment of a comprehensive waste management service, relying on the strong mobilization of civil society. From the preliminary reflections and studies to the final decisions, this document reviews these seven years of support that made possible to set up a waste management service, which today benefits nearly 60,000 inhabitants.

## Making Waste Work: a Toolkit. Community Waste Management in Low and Middle Income Countries

CIWM & WasteAid, 2017



This toolkit provides an understanding of how to implement community-based small-scale recycling and waste management programs in low- and middle-income countries. It is also useful in developing an understanding of the global waste crisis and how to deal with it.

## From Scrap to Resource. Waste Recovery in Cities of the South

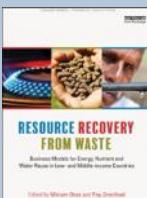
AFD, 2018 (in French only )



The amount of waste produced worldwide is exploding: it is expected to increase by 69% between 2012 and 2025. This increase, linked to demographic and urban growth, is stronger in the countries of the South. Circular economy is today promoted to face this situation. In this virtuous circle, waste is no longer rubbish but resources, which could become lucrative. How does waste recovery influence the roles of sector stakeholders? Who benefits from it? Is there a competition between artisanal reclaimers and industrial recyclers? What tools and principles for the regulation of recovery activities? From Buenos Aires to Lomé, via Port-au-Prince and Casablanca, the report examines the recomposition of the waste sector and the link between the management of a public service and the marketing of waste recovery.

## **Resource Recovery from Waste. Business Models for Energy, Nutrient and Water Reuse in Low- and Middle-income Countries**

Otoo, M. & Drechsel, P., 2018



This book edited by IWMI, Eawag-Sandec, CEWAS, Swiss TPH and the World Bank shows how Resource Recovery and Reuse (RRR) could create livelihoods, enhance food security, support green economies, reduce waste and contribute to cost recovery in the sanitation chain. It provides a compendium of business options for energy, nutrients and water recovery via 24 innovative business models based on an in-depth analysis of over 60 empirical cases. The focus is on organic municipal, agro-industrial and food waste, including fecal sludge, supporting a diverse range of business models with potential for large-scale out- and up-scaling.

## **Urban Waste : Between Decentralized Management and Commons**

AFD, 2018 (in French only)



International commitments on the development of the countries of the South have led to the promotion of access to networked urban services for several decades. The extension of centralized networks for access to water and electricity, waste or wastewater collection have been promoted. This vision is nowadays contested by approaches focused on results (environmental quality, health, etc.) and no longer means (kilometres of infrastructure). Gradually, alternative management methods have been recognised by the public authorities. Based on the results of the ORVA2D research programme, this article analyses the contributions of community-based and decentralised waste management methods. Waste management becomes then a resource (service), partially provided by an infra-urban community (the district), facilitated by (often informal) governance rules.

## **Overview of Technologies for the Treatment of Infectious and Sharp Waste from Health Care Facilities**

WHO, 2019



This document from WHO describes criteria for selecting technologies for improved health care waste management in health care facilities – something which is fundamental to wider efforts to provide safe and quality health care for all.

For each technology, details on the requirements for installation, capacity for treating waste, effects on the environment and health, and advantages and disadvantages are described



# Resources

A review of articles, reports and published papers on  
WASH in developing countries



Dishwashing area in rural Mali

As we know that the WASH literature is plentiful, we edit and release « Resources », a short literature review available in French and in English. Our selection, both from recent French and English literature, is far from being exhaustive, but we hope that it will give you some practical references, easily accessible for reading and downloading.

Find the previous issues at :  
[www.pseau.org/en/resources-ps-eau-literature-review](http://www.pseau.org/en/resources-ps-eau-literature-review)