WASH IN HEALTH CARE FACILITIES

Global Baseline Report 2019

World Health Organization

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unicef

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FOREWORD

No one goes to a health care facility to get sick. People go to get better, to deliver babies or to get vaccinated. Yet hundreds of millions of people face an increased risk of infection by seeking care in health facilities that lack basic necessities, including water, sanitation, hygiene, health care waste management and cleaning (WASH) services. Not only does the lack of WASH services in health care facilities compromise patient safety and dignity, it also has the potential to exacerbate the spread of antimicrobial-resistant infections and undermines efforts to improve child and maternal health.

New figures from the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) indicate that WASH services in health care facilities are sub-standard in every region. An estimated 896 million people use health care facilities with no water service and 1.5 billion use facilities with no sanitation service. It is likely that many more people are served by health care facilities lacking hand hygiene facilities and safe waste management. WASH services are more likely to be available in hospitals than in other types of other health care facilities, and in urban areas than in rural areas.

The Sustainable Development Goals (SDGs) place a new emphasis on universal health coverage, including access to WASH services. They also reflect a shift in thinking that recognizes the importance of quality care and an integrated, people-centered approach that enhances the experience of care.

WASH is a prerequisite for quality care, and is particularly important for the safe management of childbirth. It is fundamental to the achievement of UNICEF's Every Child ALIVE campaign and the 'triple billion' targets of WHO's 13th General Programme of Work. With a renewed focus on safe and quality primary health care through the Astana Declaration, the opportunity to ensure the basics are in place, including WASH services, has never been greater. In March 2018, the United Nations Secretary-General issued a global call for greater leadership and accountability to provide WASH services in all health care facilities, emphasizing the high cost of inaction.

Since then, our two organizations have established a set of global targets aimed at achieving universal WASH services in health care facilities and, for the first time, made global estimates available through the JMP. These data provide a robust basis for identifying priorities, making investments and tracking progress on WASH. With support from over 35 partners, WHO and UNICEF are also co-leading the implementation of a global roadmap built from country-led initiatives. To improve WASH services in health care facilities, eight practical steps have been identified and are described and illustrated through case studies. These steps include actions such as developing national roadmaps and setting targets, improving infrastructure and maintenance, and engaging communities.

Ensuring universal access to WASH services in health care facilities is a solvable problem with a return on investment. We are committed to supporting this effort by working with governments and partners to deliver quality WASH services in health care facilities, to improve monitoring, and to expand the knowledge base. We seek the support of all partners in this vital task.

Dr. Tedros Adhanom Ghebreyesus
Director-General of the World Health Organization

Henrietta Fore
Executive Director of the United Nations Children's Fund

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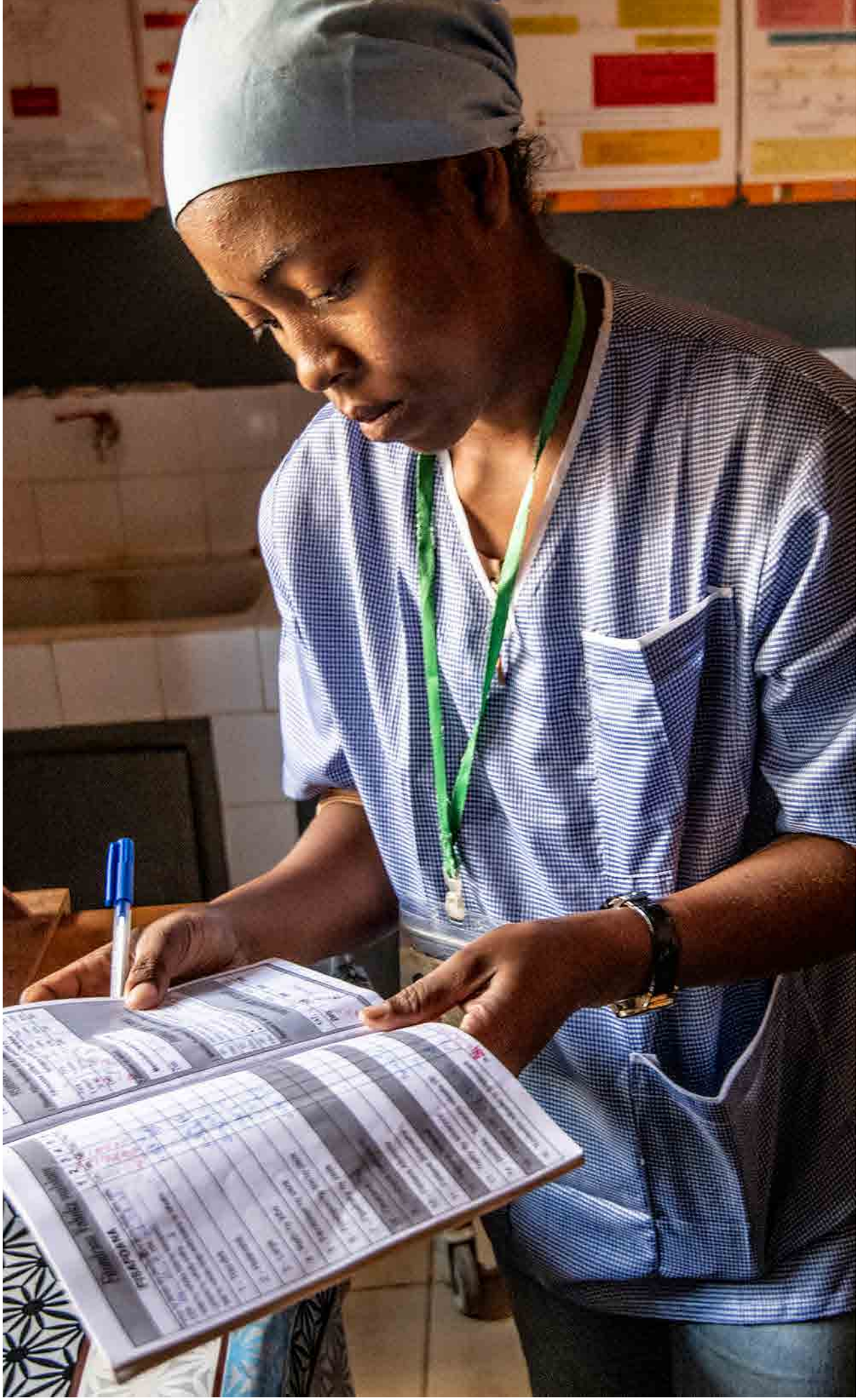

HIGHLIGHTS

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), through the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), have produced regular updates on water, sanitation and hygiene (WASH) since 1990. Together, they are responsible for monitoring the 2030 Sustainable Development Goal (SDG) targets 6.1 and 6.2 and supporting global monitoring of other WASH-related SDG targets and indicators.

This first JMP report on WASH in health care facilities introduces new service ladders for basic services (Figure 1). It establishes national, regional and global baseline estimates that contribute towards global monitoring of SDG targets for universal access to WASH (SDG 6.1 and 6.2) and for universal health coverage (SDG 3.8) (Table 1).

GOALS	TARGETS
6: Ensure availability and sustainable management of water and sanitation for all	6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all
	6.2: By 2030 achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
3: Ensure healthy lives and promote well-being for all at all ages	3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

TABLE 1 Global goals and targets related to WASH in health care facilities

	WATER	SANITATION	HYGIENE	WASTE MANAGEMENT	ENVIRONMENTAL CLEANING
BASIC SERVICE	Water is available from an improved source[1] on the premises.	Improved sanitation facilities[2] are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility.	Functional hand hygiene facilities (with water and soap and/or alcohol-based hand rub) are available at points of care, and within five metres of toilets.	Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.	Basic protocols for cleaning are available, and staff with cleaning responsibilities have all received training.
LIMITED SERVICE	An improved water source is within 500 metres of the premises, but not all requirements for basic service are met.	At least one improved sanitation facility is available, but not all requirements for basic service are met.	Functional hand hygiene facilities are available either at points of care or toilets but not both.	There is limited separation and/or treatment and disposal of sharps and infectious waste, but not all requirements for basic service are met.	There are cleaning protocols and/or at least some staff have received training on cleaning.
NO SERVICE	Water is taken from unprotected dug wells or springs, or surface water sources; or an improved source that is more than 500 metres from the premises; or there is no water source.	Toilet facilities are unimproved (e.g. pit latrines without a slab or platform, hanging latrines, bucket latrines) or there are no toilets.	No functional hand hygiene facilities are available either at points of care or toilets.	There are no separate bins for sharps or infectious waste, and sharps and/or infectious waste are not treated/disposed of safely.	No cleaning protocols are available and no staff have received training on cleaning.

FIGURE 1 JMP service ladders for monitoring basic WASH services in health care facilities

[1] Improved water sources are those which by nature of their design and construction have the potential to deliver safe water. These include piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water.

[2] Improved sanitation facilities are those designed to hygienically separate human excreta from human contact. These include wet sanitation technologies – such as flush and pour flush toilets connecting to sewers, septic tanks or pit latrines – and dry sanitation technologies – such as dry pit latrines with slabs, and composting toilets.

WATER

Key messages

In 2016:

1. **38** countries and **three of the eight** SDG regions had sufficient data to estimate coverage of **basic** water services in health care facilities.
2. **74%** of health care facilities globally had **basic** water services, meaning water was available from an improved source on the premises.
3. In Least Developed Countries, only **55%** of health care facilities had **basic** water services.
4. **14%** of health care facilities globally had **limited** water services, meaning they had access to an improved source that was either located off the premises or did not have water available at the time of the survey.
5. **12%** of health care facilities globally had **no water service**, meaning they either used water from an improved source more than 500 metres from the premises or an unimproved source, or had no water source at all.
6. Regional coverage of **basic** water services ranged from **51%** in sub-Saharan Africa to **87%** in Eastern and South-Eastern Asia.
7. **4%** of hospitals and **11%** of other health care facilities had **no water service**.
8. **12%** of government health care facilities and **6%** of non-government health care facilities had **no water service**.
9. **5%** of health care facilities in urban areas and **15%** in rural areas had **no water service**.
10. **896 million** people had **no water service** at their health care facility.

A BASIC WATER SERVICE IN HEALTH CARE FACILITIES

Water is available from an improved source on the premises.

Globally, 74% of health care facilities had basic water services in 2016

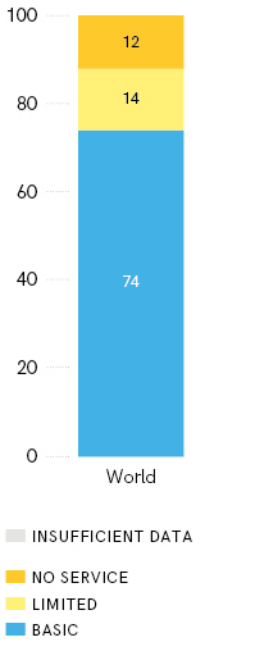

FIGURE 2 Global water services in health care facilities, 2016 (%)

Three out of eight SDG regions had estimates for basic water services in health care facilities in 2016

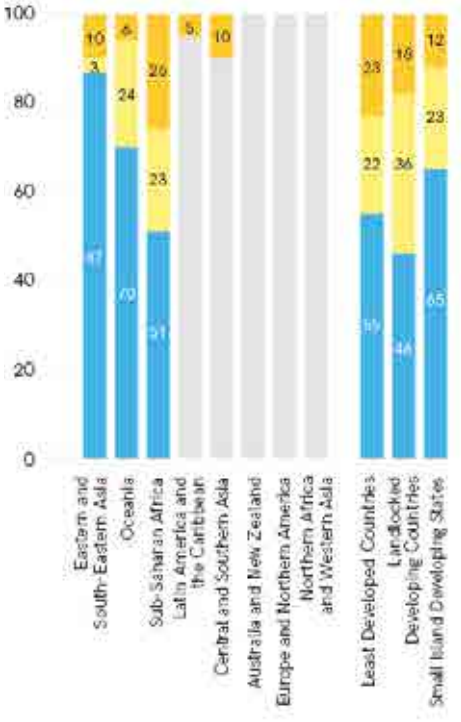

FIGURE 3 Regional water services in health care facilities, 2016 (%)

In 16 out of 69 countries with data available, more than 20% of health care facilities had no water service in 2016

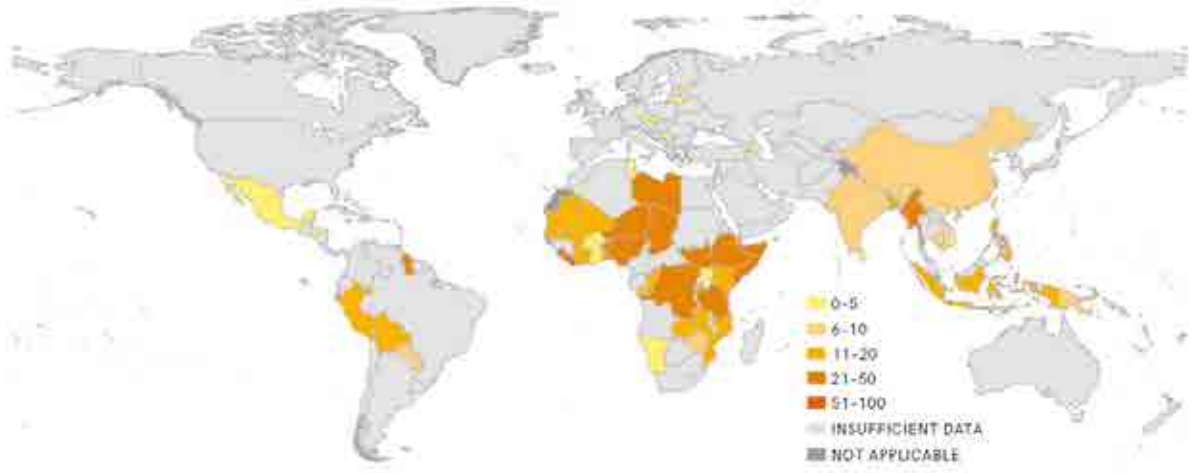

FIGURE 4 Proportion of health care facilities with no water service, 2016 (%)

SANITATION

Key messages

In 2016:

1. **18** countries and only **one** SDG region had sufficient data to estimate coverage of **basic** sanitation services in health care facilities.
2. There were not enough countries with basic estimates to calculate global coverage of **basic** sanitation services in health care facilities.
3. In sub-Saharan Africa, **23%** of health care facilities had **basic** services.
4. **Four out of eight** SDG regions had insufficient data to make any estimates for sanitation in health care facilities.
5. **21%** of health care facilities globally had **no sanitation service**, meaning they had unimproved toilets or no toilets at all.
6. The proportion of health care facilities without sanitation services ranged from **5%** in Eastern and South-Eastern Asia to **40%** in Central and Southern Asia.
7. **42%** of Landlocked Developing Countries had **basic** sanitation services in health care facilities.
8. In Least Developed Countries, **21%** of health care facilities had **no sanitation service**.
9. **9%** of hospitals and **20%** of other health care facilities had **no sanitation service**.
10. **16%** of government health care facilities and **36%** of non-government health care facilities had **no sanitation service**.
11. **More than 1.5 billion** people had **no sanitation service** at their health care facility.

A BASIC SANITATION SERVICE IN HEALTH CARE FACILITIES

Improved sanitation facilities are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility.

Globally, one in five health care facilities had no sanitation service in 2016

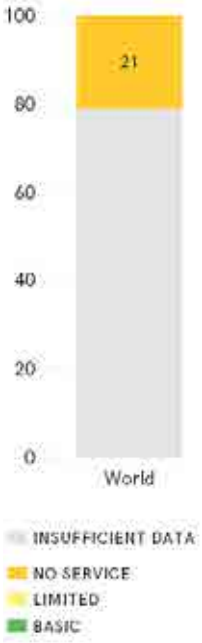

FIGURE 5 Global sanitation services in health care facilities, 2016 (%)

Only one SDG region had estimates for basic sanitation services in health care facilities in 2016

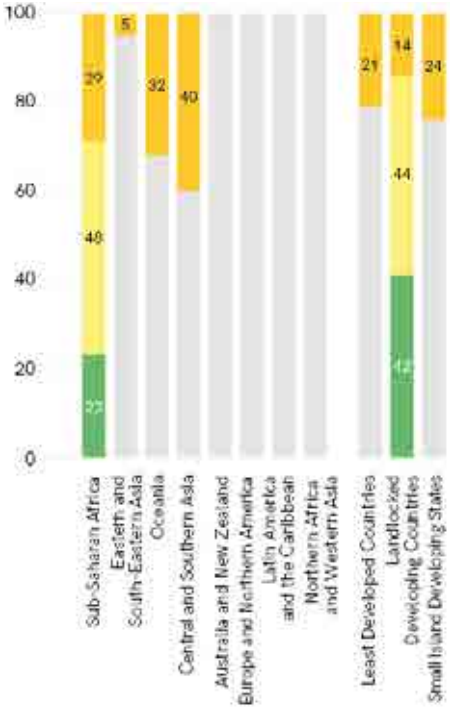

FIGURE 6 Regional sanitation services in health care facilities, 2016 (%)

In 28 out of 66 countries with data available, more than 10% of health care facilities had no sanitation service in 2016

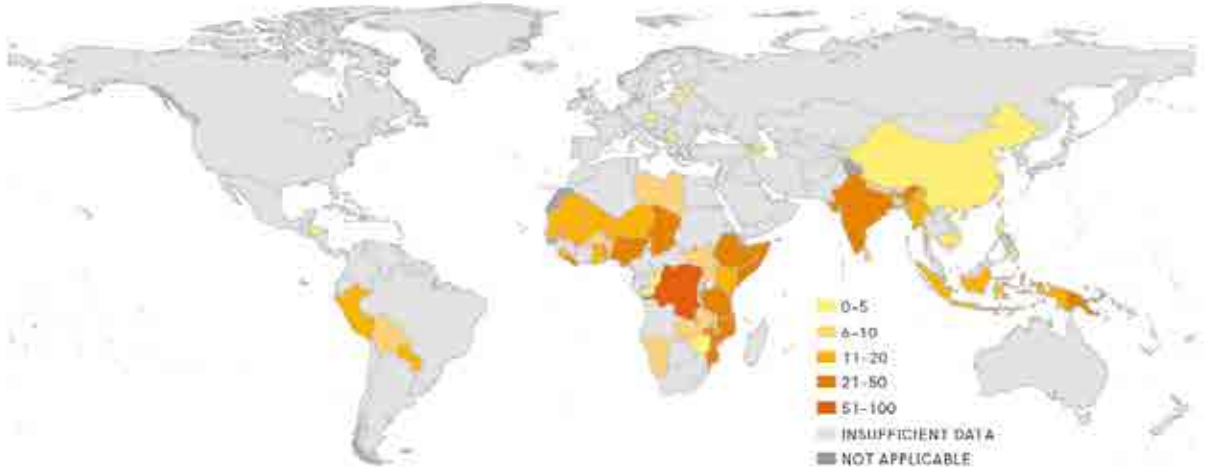

FIGURE 7 Proportion of health care facilities with no sanitation service, 2016 (%)

HYGIENE

Key messages

In 2016:

1. **14** countries had sufficient data to estimate coverage of **basic** hygiene services in health care facilities, meaning that functional hand hygiene facilities were available both at points of care, and at toilets.
2. There were not enough countries with basic estimates to calculate global coverage of **basic** hygiene services in health care facilities.
3. **Four out of eight** SDG regions had insufficient data to make any estimates for hygiene in health care facilities.
4. **One out of three** health care facilities (36%) in Eastern and South-Eastern Asia had **basic** hygiene services.
5. **One out of six** health care facilities (16%) globally had **no hygiene service**, meaning they lacked hand hygiene facilities at points of care, as well as soap and water at toilets.
6. Relatively few countries (16) had data on the availability of handwashing facilities at toilets but more data (from 55 countries) were available on hand hygiene facilities at points of care.
7. **57%** of health care facilities globally had hand hygiene facilities at points of care.
8. In sub-Saharan Africa, **half** of health care facilities (51%) had alcohol-based hand rub at points of care.
9. In sub-Saharan Africa, **84%** of hospitals had hand hygiene facilities at points of care, compared to **64%** of other health care facilities.

A BASIC HYGIENE SERVICE IN HEALTH CARE FACILITIES

Functional hand hygiene facilities (with water and soap and/or alcohol-based hand rub) are available at points of care, and within five metres of toilets.

Globally, one out of six health care facilities had no hygiene service in 2016

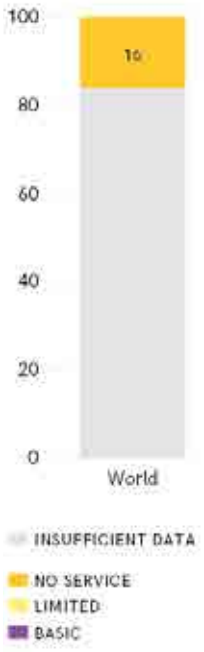

FIGURE 8 Global hygiene services in health care facilities, 2016 (%)

Only one SDG region had estimates for basic hygiene services in health care facilities in 2016

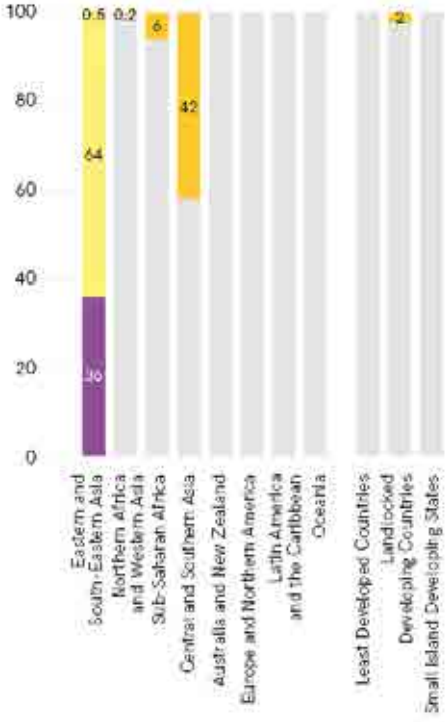

FIGURE 9 Regional hygiene services in health care facilities, 2016 (%)

In 8 out of 55 countries with data available, more than half of health care facilities lacked handwashing facilities at points of care in 2016

FIGURE 10 Proportion of health care facilities lacking hand hygiene facilities at points of care, 2016 (%)

WASTE MANAGEMENT

Key messages

In 2016:

1. **48 countries** had sufficient data to estimate coverage of **basic** waste management services in health care facilities.
2. There were not enough countries with basic estimates to calculate global coverage of **basic** waste management services.
3. **27%** of health care facilities in Least Developed Countries had **basic** health care waste management services.
4. **One out of ten** health care facilities (10%) in Oceania had **basic** health care waste management services.
5. **40%** of health care facilities in sub-Saharan Africa had **basic** health care waste management services.
6. **60%** of health care facilities globally had systems for segregating waste.
7. In sub-Saharan Africa, **60%** of hospitals and **38%** of other health care facilities had **basic** waste management services. **Seven out of ten** government health care facilities (71%) and **half** of non-government health care facilities (55%) safely segregated waste.

A BASIC WASTE MANAGEMENT SERVICE IN HEALTH CARE FACILITIES

Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.

Only two SDG regions had estimates for basic waste management services in health care facilities in 2016

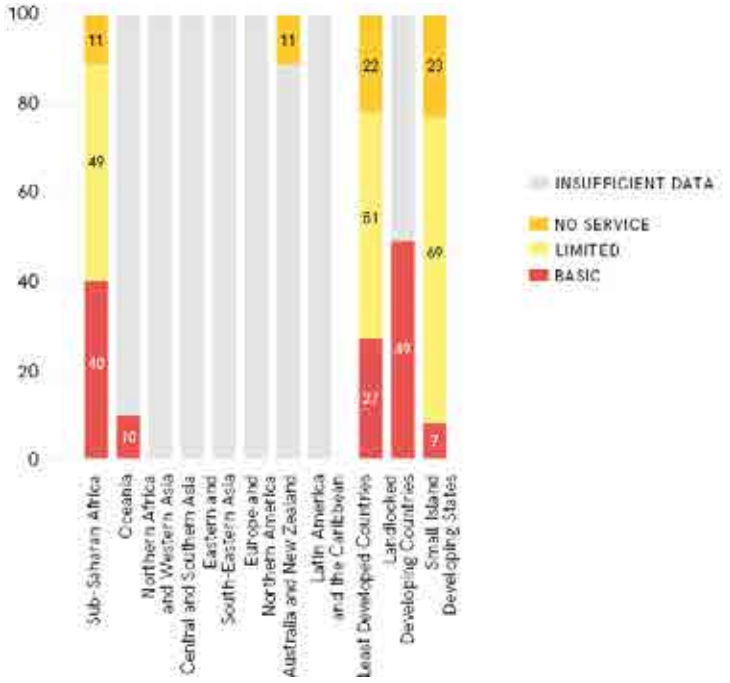

FIGURE 11 Regional waste management services in health care facilities, 2016 (%)

In 30 out of 48 countries with data available, more than half of health care facilities lacked basic waste management services in 2016

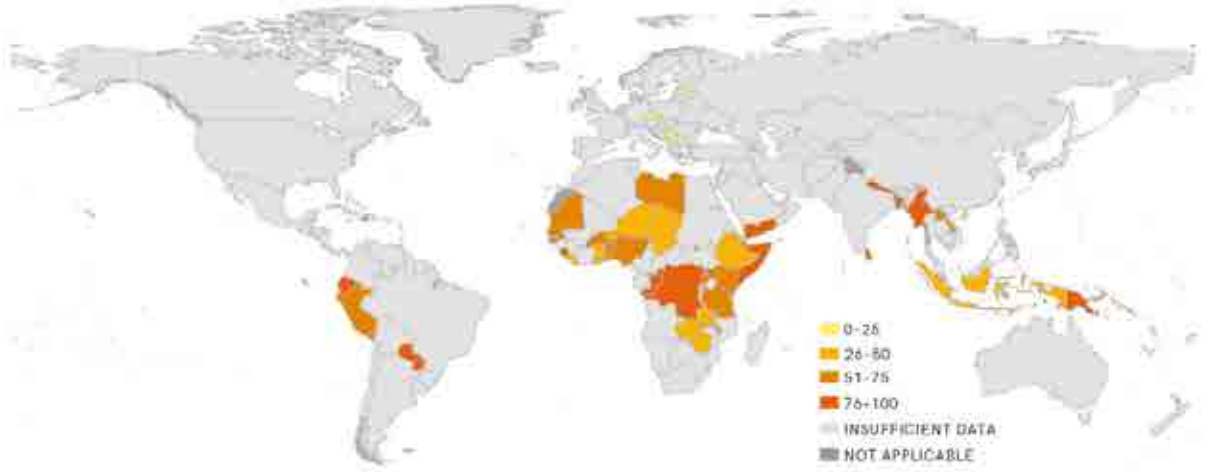

FIGURE 12 Proportion of health care facilities lacking basic waste management services, 2016 (%)

ENVIRONMENTAL CLEANING

Key messages

In 2016:

1. Only **four** countries had sufficient data to estimate coverage of **basic** environmental cleaning services in health care facilities.
2. There were not enough countries with basic estimates to calculate regional coverage of **basic** environmental cleaning services.

A BASIC ENVIRONMENTAL CLEANING SERVICE IN HEALTH CARE FACILITIES

Basic protocols for cleaning are available, and staff with cleaning responsibilities have all received training.

ADDITIONAL INDICATORS FOR EXPANDED MONITORING

The five global basic service indicators provide a valuable starting point for global monitoring of WASH services in health care facilities, but do not capture all the aspects of WASH services that are important to improve health outcomes, increase the quality of care and protect health care workers. For example, the basic water service indicator does not include direct measurement of water quality, even though water quality is critically important.

SERVICE ELEMENT	BASIC INDICATORS	EXAMPLES OF ADDITIONAL INDICATORS				
		AVAILABILITY	ACCESSIBILITY	ACCEPTABILITY	QUALITY	OTHER
Water	Availability • functionality Accessibility • on premises Quality • improved water source	• sufficient quantities of water for different uses • continuity • seasonality • water storage • location and number of water points • ratio of water points to patients or beds	• accessibility of drinking water to those with disabilities	• taste and appearance of drinking water	• *E. coli*, *Legionella*, residual chlorine, chemicals, etc. • on-site water treatment	• piped supply • multiple sources • provision of water for different uses including drinking • different standards for different types of facilities
Sanitation	Availability • usability • for men and women • for staff Accessibility • to those with limited mobility Acceptability • affording privacy • menstrual hygiene Quality • improved toilets or latrines	• location and number of toilets • ratio of toilets to patients or beds	• distance to toilets from consultation areas	• cultural appropri-ateness	• cleanliness • connection to sewer • faecal sludge management	• evidence of open defecation on facility grounds • drainage and runoff management • vector control measures in toilets
Hygiene	Availability • functionality of hand hygiene facilities at points of care • functionality of handwashing facilities at toilets	• location and number of handwashing stations • ratio of handwashing stations to patients or beds				• hand hygiene compliance • visibility of hygiene promotion materials • hygiene promotion activities • training on hygiene and infection control
Waste management	Quality • segregation of health care waste • treatment and disposal	• location and number of waste bins and receptacles • ratio of waste bins to patients or beds • functionality of incinerators • availability of fuel/ power for incinerators • disposal of chemical and radioactive waste	• bins out of reach from children		• fenced waste storage area	• protective equipment for waste managers
Environmental cleaning	Availability • protocols in place Quality • staff trained	• location and number of cleaning stations • presence of cleaning supplies, including disinfectant			• cleaning frequency • observed cleanliness • cleaning methods used	

TABLE 2 Basic and additional indicators, grouped by human rights criteria

The global basic service indicators represent a compromise between normative requirements and what can be practically monitored and aggregated to the national and global levels at the outset of the SDG period. Several additional indicators might be monitored at the local level and could be used to improve the quality of service delivery. Such information could be aggregated to the national, and eventually global, level if the data permit. Countries may wish to define levels of service that draw upon these additional indicators and go beyond the basic level, to reflect their national priorities and ambitions. Examples of additional indicators that are not included in the basic service level are shown in Table 2. Both the basic and additional indicators are grouped into the elements of availability, accessibility, acceptability and quality, which derive from the human rights (Box 1). This report highlights illustrative examples of countries that monitor some of these additional indicators.

BOX 1

Progressive realization of the human rights to health and to safe water and sanitation

The right to health is widely recognized by UN member states and is central to, and dependent upon, the realization of other human rights, including the rights to safe water and sanitation. The right to health, according to the Committee on Economic, Social and Cultural Rights, as expressed in their General Comment No. 14,[3] includes the following core components:

- **Availability:** refers to the need for a sufficient quantity of functioning public health and health care facilities, goods and services, as well as programmes for all.
- **Accessibility**: requires that health facilities, goods and services must be accessible to everyone. Accessibility has four overlapping dimensions: non-discrimination, physical accessibility, economic accessibility (affordability) and information accessibility.
- **Acceptability**: relates to respect for medical ethics, cultural appropriateness and sensitivity to gender. Acceptability requires that health facilities, goods, services and programmes are people-centred and cater for the specific needs of diverse population groups in accordance with international standards of medical ethics for confidentiality and informed consent.
- **Quality**: facilities, goods and services must be scientifically and medically approved. Quality is a key component of Universal Health Coverage and includes the experience as well as the perception of health care. Quality health services should be safe, effective, people-centred, timely, equitable, integrated and efficient.

The human rights to water and sanitation use similar normative criteria. The Special Rapporteur has noted that, "Member States should establish standards for Accessibility, Availability, Quality, Affordability, Acceptability and Sustainability of water and sanitation services," and notes that standards should "apply to services within the home, as well as at work, school, **health centres**, in public places and in places of detention."[4]

A core principle of the right to health is that of progressive realization using maximum available resources. Governments are not required to immediately ensure full compliance with human rights obligations, and indeed resource limitations may mean that this is out of reach in the short term. Still, whatever level of resources they have at their disposal, governments can and must take immediate steps within their means towards the fulfilment of these rights. The 'service ladder' approach is useful for establishing targets to progressively improve services, no matter what the current level of coverage. Each government must decide what steps to take, and how to balance investments in primary, secondary and tertiary care. Governments may set targets on making sure that no health care facility has no WASH services, or ensuring universal access to basic services, or achieving higher levels of services.

'Functioning public health and health-care facilities, goods and services, as well as programmes, have to be available in sufficient quantity within the State party. The precise nature of the facilities, goods and services will vary depending on numerous factors, including the State party's developmental level. They will include, however, the underlying determinants of health, such as safe and potable drinking water and adequate sanitation facilities, hospitals, clinics and other health-related buildings…'

– General Comment No. 14, paragraph 12

[3] United Nations Economic and Social Council, General Comment No. 14: The right to the highest attainable standard of health, E/C.12/2000/4, UN, Geneva, 2000, <https://digitallibrary.un.org/record/425041>.

[4] de Albuquerque, Catarina, *Realising the Human Rights to Water and Sanitation: A handbook by the UN Special Rapporteur Catarina de Albuquerque*, UN Special Rapporteur on the human right to safe drinking water and sanitation, Portugal, 2014, <www.ohchr.org/en/issues/waterandsanitation/srwater/pages/handbook.aspx>.

INTRODUCTION

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), through the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), have produced regular updates on water, sanitation and hygiene (WASH) since 1990. The JMP tracked progress towards the Millennium Development Goals (MDGs) and is now responsible for monitoring global progress towards the WASH-related Sustainable Development Goal (SDG) targets.[5]

The SDG targets aim for 'universal access' to WASH services. This calls for greater attention to WASH services beyond the household, including in institutional settings such as schools, health care facilities and workplaces. Global efforts towards education for all recognize the role that WASH in schools plays in improving access to education and learning outcomes, especially for girls.[6] In 2018, the JMP published the first global assessment of WASH in schools. Likewise, the status of WASH in health care facilities, and the links with health outcomes, have received increasing attention in recent years. This report presents the first global assessment of water, sanitation, hygiene, health care waste management and environmental cleaning services in health care facilities and establishes baseline estimates for monitoring progress during the SDG period. It is complemented by another WHO and UNICEF report that outlines practical actions countries can take to improve WASH in health care facilities.[7]

WASH and health in the 2030 Agenda for Sustainable Development

In 2015, the 193 Member States of the United Nations General Assembly unanimously adopted the 2030 Agenda for Sustainable Development,[8] which established 17 SDGs and 169 global targets for development over the 2015–30 period. This ambitious and universal agenda applies to all countries and places an emphasis on 'leaving no one behind' and ensuring that gaps in services are identified and progressively eliminated.

SDG 6 aims to 'ensure available and sustainable management of water and sanitation for all' and includes targets for universal access to safe drinking water, sanitation and hygiene for all by 2030 (targets 6.1 and 6.2). The term 'universal' implies all settings, including households, schools, healthcare facilities, workplaces and public places, and 'for all' implies services that are suitable for women, men, girls and boys of all ages, including people living with disabilities.[9]

SDG 3 aims to 'ensure healthy lives and promote well-being for all at all ages' and includes a specific target (3.9) to reduce the burden of disease from unsafe water, unsafe sanitation and lack of hygiene. Other targets (3.1, 3.2) call for reducing maternal mortality and under-five and neonatal mortality, all of which are directly impacted by WASH conditions in health care settings. Indeed, countries can only achieve universal health coverage (target 3.8) when everyone has access to quality health care services, including health care facilities with basic WASH services.

These targets are highly ambitious but also inter-related and mutually reinforcing. In March 2018, the Secretary-General of the United Nations launched a global call to action for WASH in all health care facilities,[10] noting that health care facilities are essential tools in reducing disease, and that without basic WASH, health care facilities can instead contribute to more infections, prolonged hospital stays and preventable deaths, including of mothers and babies.

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[5] World Health Organization and the United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, *Progress on Drinking Water, Sanitation and Hygiene: 2017 update and SDG baselines*, WHO and UNICEF, Geneva, 2017, <https://washdata.org/report/jmp-2017-report-final>.

[6] UNESCO, 'Education for All Movement', UNESCO, 2017, <www.unesco.org/new/en/archives/education/themes/leading-the-international-agenda/education-for-all>, accessed 13 March 2019.

[7] World Health Organization and the United Nations Children's Fund, *Water, Sanitation, and Hygiene in Health Care Facilities: Practical steps to achieve universal access*. WHO and UNICEF, Geneva, 2019, <www.who.int/water_sanitation_health/publications/wash-in-health-care-facilities/en/index.html>.

[8] United Nations, Transforming our World: The 2030 Agenda for Sustainable Development, UN General Assembly Resolution A/RES/70/1, UN, Geneva, 21 October 2015, <www.un.org/ga/se/arch/view_doc.asp?symbol=A/RES/70/1&Lang=E>.

[9] World Health Organization and the United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, *WASH in the 2030 Agenda: New global indicators for drinking water, sanitation and hygiene*, WHO and UNICEF, 2017, <https://washdata.org/report/jmp-2017-wash-2030-agenda>.

[10] United Nations Secretary-General, 'Secretary-General's remarks at Launch of International Decade for Action "Water for Sustainable Development" 2018-2028 [as delivered]', UN, Geneva, 22 March 2018, <www.un.org/sg/en/content/sg/statement/2018-03-22/secretary-generals-remarks-launch-international-decade-action-water>, accessed 13 March 2019.

Monitoring WASH in health care facilities

This JMP report focuses on monitoring the status of WASH in health care facilities, while the companion document on practical actions[7] elaborates a global workplan and sets out eight steps countries can take to improve WASH in health care facilities:

1. Conduct situation analysis and assessment
2. Set targets and define roadmap
3. Establish national standards and regulation
4. Improve infrastructure and maintenance
5. Monitor and review data
6. Develop health workforce
7. Engage communities
8. Conduct operational research and share learning

This report represents a compilation and analysis of existing monitoring data that countries have already collected and reviewed (Step 5). The new JMP global database on WASH in health care facilities includes national data from 125 countries drawing upon assessments of over 560,000 health care facilities (see Annex 1 for details). Data have been extracted from 260 nationally representative facility assessments and mapped to a standardized set of global indicators for water, sanitation, hygiene, waste management and environmental cleaning services in health care facilities.

This report follows and supersedes a preliminary 2015 review of WASH in health care facilities[11] which drew attention to the problems of poor WASH in many health care facilities in low-income and middle-income countries. The findings of the two reports are not

[11] World Health Organization and the United Nations Children's Fund, *Water, Sanitation and Hygiene in Health Care Facilities: Status in low- and middle-income countries and way forward*, WHO and UNICEF, Geneva, 2015, <https://apps.who.int/iris/bitstream/handle/10665/154588/9789241508476_eng.pdf>.

directly comparable, as the previous report was based on a much smaller number of nationally representative assessments (20 nationally representative assessments drawing on 58,000 facilities, mostly in sub-Saharan Africa).

These indicators make up the JMP service ladders (Figure 1) which are used for global monitoring and provide internationally comparable statistics across countries and over time. The indicators of basic services (Table 3) were developed beginning in 2015 with a review of global norms[12] and existing national indicators and data collection tools. A draft set of harmonized indicators, and recommended core questions for use in data collection, were reviewed, modified and endorsed at a 2016 Expert Group Meeting involving representatives from the WASH and health sectors, as well as major international survey programmes.[13]

A BASIC WATER SERVICE	A BASIC SANITATION SERVICE	A BASIC HYGIENE SERVICE	A BASIC WASTE MANAGEMENT SERVICE	A BASIC ENVIRONMENTAL CLEANING SERVICE
Water is available from an improved source[14] on the premises.	Improved sanitation facilities[15] are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility.[16]	Functional hand hygiene facilities (with water and soap and/or alcohol-based hand rub) are available at points of care, and within five metres of toilets.	Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.	Basic protocols for cleaning are available, and staff with cleaning responsibilities have all received training.

TABLE 3 Global indicators for basic WASH services in health care facilities

[12] See in particular: World Health Organization, *Essential Environmental Health Standards in Health Care*, WHO, Geneva, 2008, <www.who.int/water_sanitation_health/publications/ehs_hc/en/>. and World Health Organization, *Safe Management of Wastes from Health-care Activities*, WHO, Geneva, 2014, <www.who.int/water_sanitation_health/publications/wastemanag/en>.

[13] World Health Organization and the United Nations Children's Fund, Meeting Report: Expert Group Meeting on Monitoring WASH in Health Care Facilities in the Sustainable Development Goals, WHO and UNICEF, Geneva, 2016, <https://washdata.org/report/jmp-2016-expert-group-meeting-winhcf>.

[14] Improved water sources are those which by nature of their design and construction have the potential to deliver safe water. These include piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water.

[15] Improved sanitation facilities are those designed to hygienically separate human excreta from human contact. These include wet sanitation technologies – such as flush and pour flush toilets connecting to sewers, septic tanks or pit latrines – and dry sanitation technologies – such as dry pit latrines with slabs, and composting toilets.

[16] A minimum of two toilets is required for outpatient settings (one toilet dedicated for staff and one gender-neutral toilet for patients that has menstrual hygiene facilities and is accessible for people with limited mobility). Two toilets may be sufficient for a small health care facility that only provides outpatient services, but larger facilities need more toilets.

The new indicators and questions were subsequently piloted and refined during 2016–17. The final set of core questions and indicators[17] represents a balance between normative requirements and practical constraints regarding the type and level of information that can reasonably be collected from all types of health care facilities and aggregated for global reporting during the SDG period.

Since they were first published in 2016, the basic WASH services indicators and associated core questions have been incorporated into guidelines, standards, policies and assessment tools in a range of health sub-sectors (Box 2, see also Annex 2 of *Water, Sanitation and Hygiene in Health Care Facilities: Practical steps to achieve universal access*[7]). They are also incorporated into the ongoing revision of the Health Facility Assessment Tool led by WHO as part of the ongoing Health Data Collaborative[18] effort.

BOX 2

Health sector products that include reference to WASH in health care facilities, 2016–18

[17] World Health Organization and the United Nations Children's Fund, *Core Questions and Indicators for Monitoring WASH in Health Care Facilities in the Sustainable Development Goals*, WHO and UNICEF, Geneva, 2018, <https://washdata.org/report/jmp-2018-core-questions-and-indicators-monitoring-winhcf-1>.

[18] Health Data Collaborative, <www.healthdatacollaborative.org>, accessed 13 March 2019.

WATER SERVICES IN HEALTH CARE FACILITIES

Workers in health care facilities need sufficient quantities of safe water to provide health care services. Drinking and cooking, hand hygiene, showering and bathing, and a variety of general and specialized medical uses all require reliable supplies of safe water. Water is also essential for cleaning rooms, beds, floors, toilets, sheets and laundry. It is central to patient experiences of health care, as it enables them to remain hydrated, to clean themselves, and to reduce the risk of infections.

Families and care-givers also need water to tend to patients and their own needs. Without water, a health care facility isn't a health care facility.

Different health care facilities have different water requirements depending on the type of health services offered and the scale of the facility. The quantity and quality of water available, the location and accessibility of water points within the health

facility, and the reliability of the water supply over time, are all important aspects of water services.[19] However, most facility assessments and health management information systems only collect limited information about water services in health care facilities.

This report introduces a water service ladder that uses data currently available from national sources to classify facilities as having **basic services**, **limited services** or **no service** (Figure 13). The basic service level does not represent a very high level of service, and this chapter also highlights examples of countries that collect additional information on their water services, such as the continuity, sufficiency and quality of water supplies. This data collection beyond the basic service level could potentially be used to monitor advanced service levels in the future; however, this information is not currently standardized or sufficiently widely available to be used for global monitoring.

Health care facilities are classified as having **basic water services** if they use water from an improved source located on the premises, and from which water is available at the time of the assessment. Health care facilities with an improved water source not located on the premises (but still within 500 metres) or that don't have water available at the time of the assessment are classified as having **limited water services**. Health care facilities with no water source, or that take water from an unimproved water source, or use an improved water source more than 500 metres away are classified as having **no water service**. In Senegal, the ECPSS 2017 facility assessment found that while nearly all health care facilities in the country had some kind of water source, less than half met the criteria for a basic water service (Figure 14).

WATER
Basic service Water is available from an improved source[20] on the premises.
Limited service An improved water source is within 500 metres of the premises, but not all requirements for basic service are met.
No service Water is taken from unprotected dug wells or springs, or surface water sources; or an improved source that is more than 500 metres from the premises; or there is no water source.

FIGURE 13 Basic water services ladder for health care facilities

Illustration of construction of water services ladder: Senegal

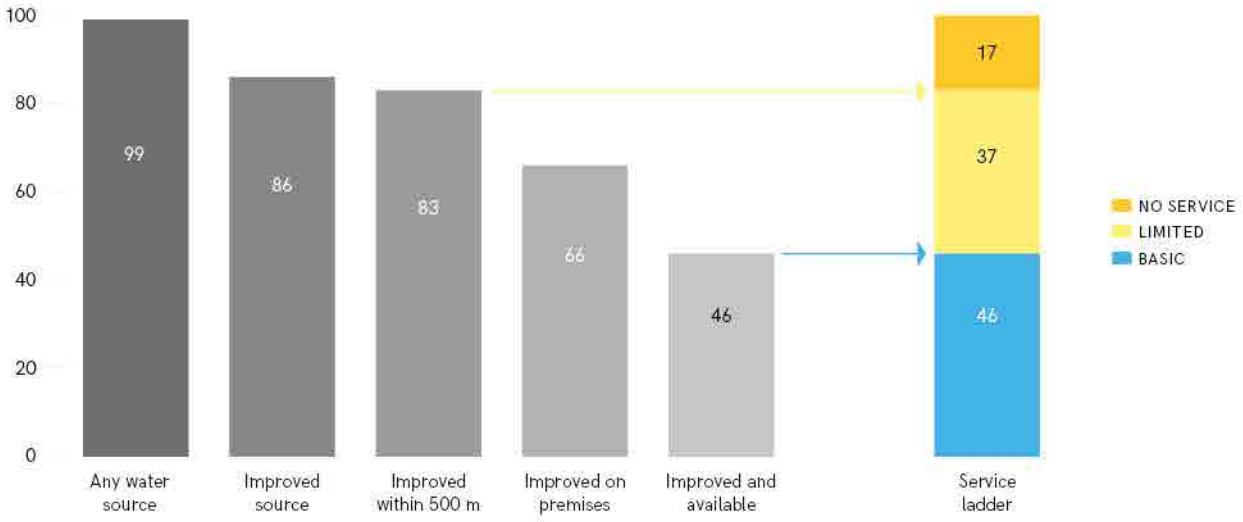

FIGURE 14 Proportion of health care facilities by type of water service, Sénégal Enquête Continue sur la Prestation des Services de Soins de Santé (ECPSS), 2017 (%)

[19] World Health Organization, *Essential Environmental Health Standards in Health Care*, WHO, Geneva, 2008, <www.who.int/water_sanitation_health/publications/ehs_hc/en>.

[20] Improved water sources are those which by nature of their design and construction have the potential to deliver safe water. These include piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water.

BASIC WATER SERVICES

Globally, 38 countries, with a combined population of 2.6 billion people, had enough data to make nationally representative estimates for **basic water services** in health care facilities in 2016 (Figure 15). More countries had data on other indicators, with 69 countries, representing 61% of the global population, able to report on the proportion of health care facilities with **no water service**. The JMP produces regional and global estimates[21] for new indicators, provided data are available for at least 30% of the relevant population.[22]

Globally, in 2016, 74% of health care facilities had **basic water services** (Figure 16). One in eight health care facilities (12%) had **no water service**, and the remaining 14% of health care facilities had **limited services**, meaning they either had access to an improved water source that was off the premises (but within 500 metres) or from which water was not available at the time of the assessment. Regional values for **basic water services** ranged from 51% in sub-Saharan Africa to 87% in Eastern and South-Eastern Asia (see Annex 2 for regional groupings.

In 2016, estimates of basic water services in health care facilities were available for 38 countries, representing 2.6 billion people

FIGURE 15 Data coverage for water services in health care facilities, by indicator, number of countries and population with data available (billions), 2016

Globally, one quarter of health care facilities lacked basic water services in 2016

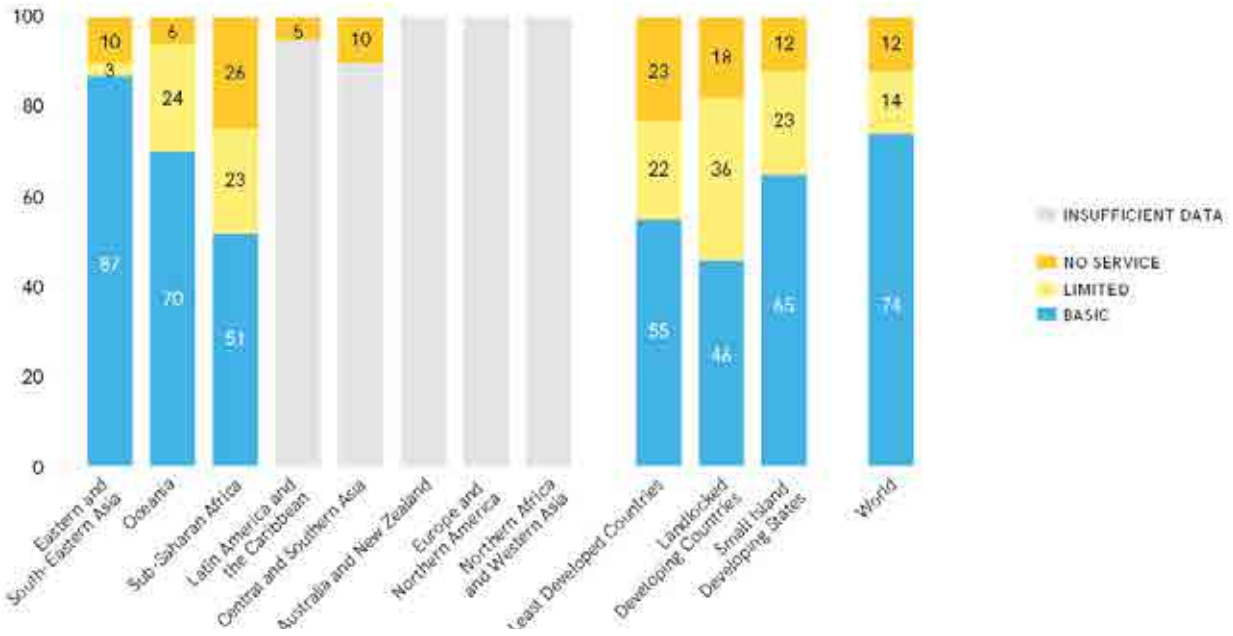

FIGURE 16 Regional and global water service coverage in health care facilities, 2016 (%)

[21] To prevent countries in a single region from having a disproportionate impact on global estimates, global estimates are calculated from regional estimates. See Annex 1: JMP Methods for more details.

[22] Since the global population in 2016 was 7.47 billion, global estimates can be made provided data were available for countries representing at least 2.24 billion people. Note that regional and global estimates are produced using national (or urban and rural) populations as weights, rather than the number of health care facilities (which would be more appropriate), because population data are more readily available than data on numbers of different types of health care facilities. For further details see Annex 1: JMP methods.

Improved water sources

Facility assessments typically ask what the main type of water supply is used by the health care facility for general purposes. In some cases, different water sources are used for different purposes (for example, cleaning and drinking), but for global monitoring the focus is on the main source. These sources are grouped into improved sources (piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water), unimproved sources (unprotected springs and wells, surface water, and other sources) and none (no water source). The type of water supply used by health care facilities varies widely between and within countries (Figure 17).

Health care facilities use a variety of different types of water supply

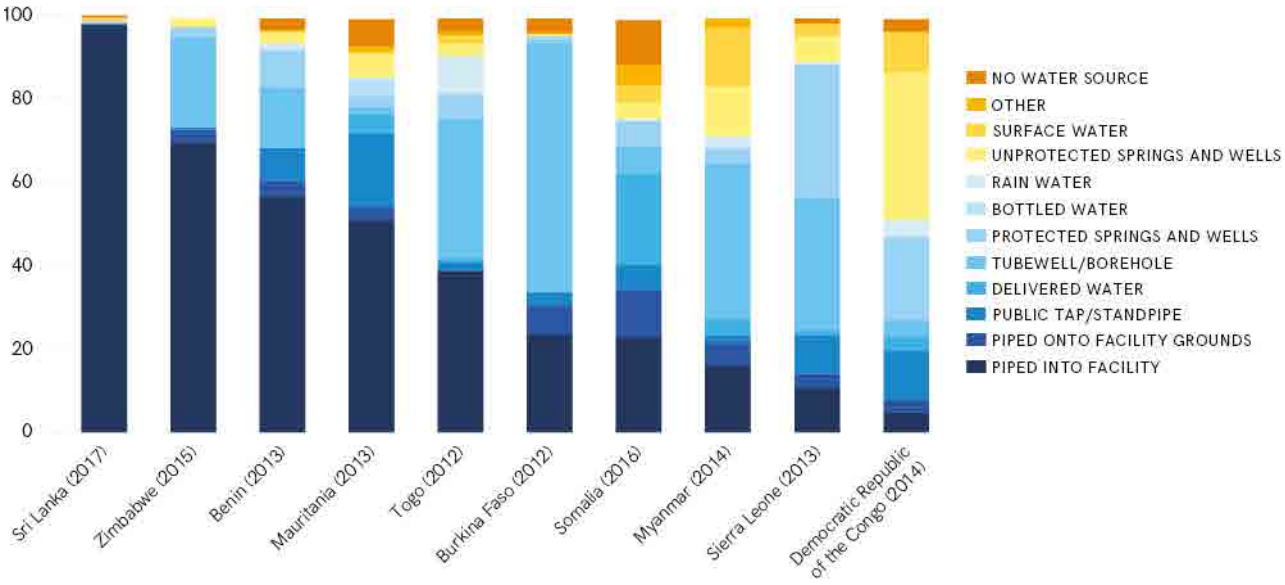

FIGURE 17 Proportion of health care facilities using different types of water supply, selected Service Availability and Readiness Assessment (SARA) surveys 2012–17 (%)

In some countries, a high proportion of health care facilities use an improved water source, but these are either located off the premises (Figure 18a) or water is not available (Figure 18b). For example, 94% of health care facilities in Cambodia used improved sources in 2016, but only 55% used improved sources on the premises. In the same year, 99% of facilities in Honduras used improved sources, but just 58% of facilities had water available from these improved sources. Globally, 89% of facilities used an improved water source; 78% were located on the premises and 83% had water available at the time of assessment. This shows the importance of not only providing infrastructure where needed but of ensuring it is maintained and operated properly.

Most health care facilities have improved water sources, but far fewer meet the criteria for basic water services

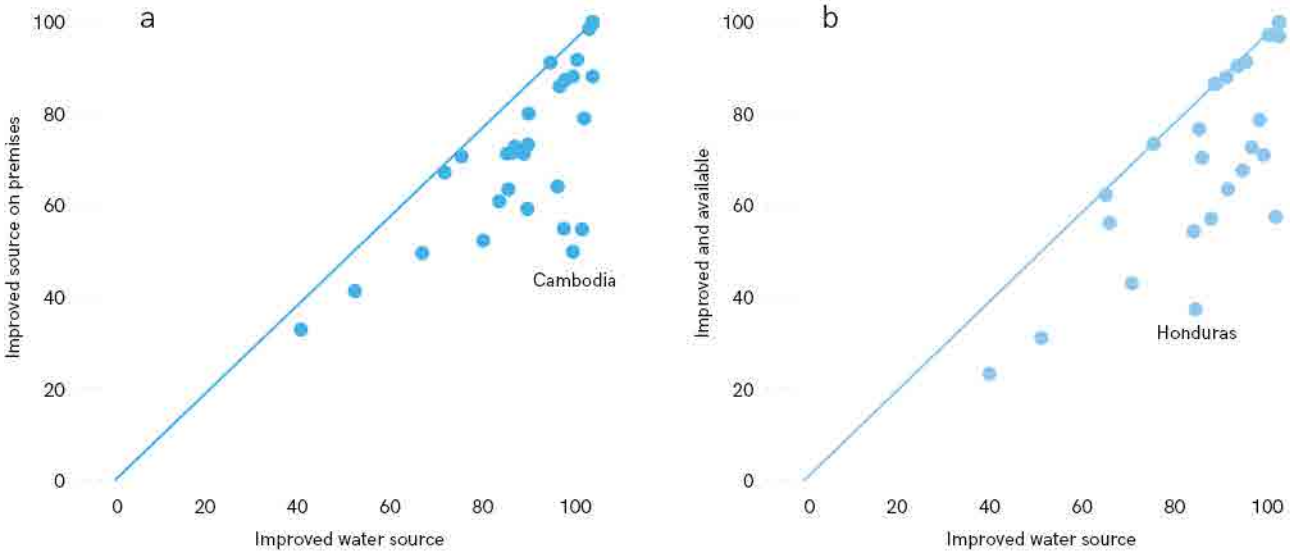

FIGURE 18 Proportion of health care facilities with improved water sources and improved sources on the premises (a, n=53) or with improved water sources from which water is available (b, n=40), by country (%)

Even when a health care facility has access to a water source, water may not always be available when needed due to interruptions in service, which can range from a few hours to several weeks or even months. Health care facilities may have coping mechanisms for shortages of medicines (emergency stocks) or electricity (backup generators) but it is much more difficult to plan for and cope with water shortages. Health care facilities may also have their own mechanical pumps reliant on the availability of electricity, so power cuts often result in water shortages. Where piped water is intermittent, health care facilities may use storage tanks to buffer supply, but such tanks are typically not maintained by the piped water provider and can easily become contaminated. Other mitigation strategies include collecting rainwater, using other sources, and using solar panels to ensure a reliable energy supply for water pumps.

BOX 3

Measurements of water availability

Different surveys and data sources measure the availability of water at health care facilities in different ways (Table 5). Some data collection tools collect information on the existence of water supplies but do not record whether they are operational at the time of assessment. The JMP recommends that surveys include a question such as 'Is water available from the main water supply at the time of the survey?'. Further work is needed to harmonize the definitions used in national data sources to enable comparison between countries.

Different surveys use different measures of availability

COUNTRY	SOURCE	YEAR	QUESTION	SOURCES COVERED	HEALTH CARE FACILITIES WITH OPERATIONAL WATER SUPPLIES (EXCLUDING HOSPITALS)
Afghanistan	EMONC	2009	Is the source permanently used? If no, how many months can you get water?	All	95% permanently used
Comoros	National assessment	2018	Services d'eau disponibles en tout temps et en quantité suffisante pour toutes les utilisations. *Water is always available in sufficient quantity for all uses.*	All	68% yes
Egypt	SPA	2004	Does this source of water for the facility vary seasonally?	All	75% no
Honduras	PAHO	2017	¿El agua se encuentra disponible al momento de la encuesta? *Is water available at the time of the survey?*	All	58% yes
Guinea-Bissau	National assessment	2017	When you open a tap in the center, does water come out?	Piped only	76% yes
Kenya	SDI	2012	During the past 3 months, how many times was the water supply from this source interrupted for more than two hours at a time?	All	96% 45 or fewer days with interruptions of two hours or more
Lesotho	HFS	2011	Does the facility have RELIABLE potable WATER SUPPLY 18 hours/day?	All	60% yes
Mexico	ENNVIH	2002	In the last month, how many days were you without water service?	All	83% never without service
Niger	PMA	2018	Pendant la journée d'aujourd'hui, l'eau courante a-t-elle été coupée pendant deux heures ou plus ? *Today, has the water supply been cut for two hours or more?*	Piped only	71% no
Sri Lanka	SARA	2017	What is the most commonly used source of water for the facility at this time? *(Observe that water is available from the source or in the facility on the day of the visit, e.g. check that the pipe is functioning.)*	All	99% sources with water available on the day of visit
Uganda	ABCE	2012	In a typical year, is there a time of year when there is a severe shortage or lack of water at this facility?	All	57% no
Uganda	WVI	2014	How many hours per week of water service does the health facility receive?	All	81% 84 hours or more (50% of time)
Uganda	PMA	2015	Does this facility have running water today? *(Select for running water only. If water was off for more than two hours today, mark no.)*	Running water only	37%*

* data not used for calculation of estimates

TABLE 5 Questions used to assess availability of water in facility assessments (see JMP country files for a complete list of national data sources)

Basic water coverage varies widely between countries

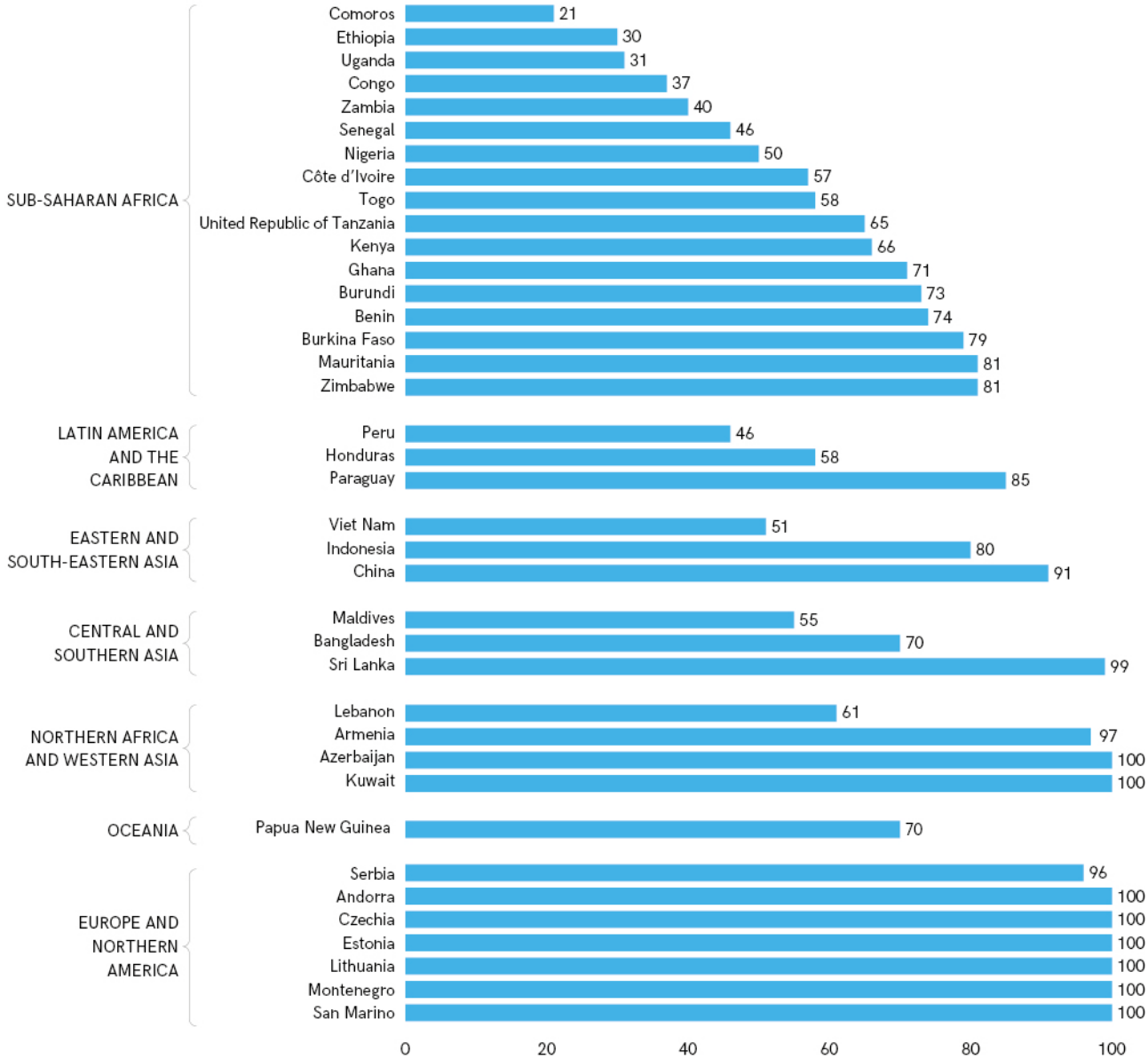

FIGURE 19 Proportion of health care facilities with basic water services, by country and SDG region, 2016 (%)

ADDITIONAL INDICATORS FOR MONITORING WATER IN HEALTH CARE FACILITIES

Each government must set its own standards for water supply in health care facilities and put programmes in place to improve services where necessary. The basic water service indicator serves as a useful starting point but does not incorporate many important aspects of water supply such as quality, continuity and sufficiency.[23] In many health care facilities, the basic service level is already met but water services still need improvement. Countries may consider additional indicators corresponding to more advanced service levels depending on their priorities and available resources. The following section provides illustrative, but not comprehensive, examples of additional indicators that have been tracked by countries.

Piped water

Ideally, all health care facilities, especially hospitals,[24] should have a continuous supply of piped water but in some countries this level of service is very ambitious. In all SDG regions with data, at least one assessment found that less than 60% of hospitals had a piped water supply into the building or the compound, and at least one assessment found that fewer than 25% of other health care facilities had piped water (Figure 20).

Piped water is more widely available in hospitals than in other health care facilities

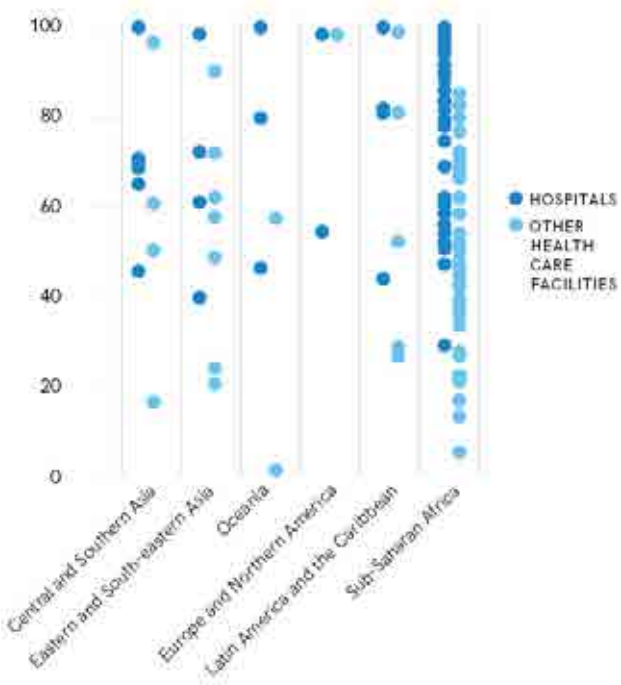

FIGURE 20 Piped water supplies in hospitals and other health care facilities, individual surveys from 50 countries with data available, 2010–18 (%)

Water quality

Whether piped or non-piped, water supplies can be contaminated. Water available in health care facilities should meet appropriate national standards or WHO Guideline Values[25] but having a basic water service does not necessarily mean that water quality standards are met. For example, while over half of hospitals in Bhutan had a basic water service in 2016, water was safe at only 59% of these (Figure 21). A 2016 assessment of public health centres in Lebanon found that 61% of facilities had a basic water service but a quarter of these facilities had faecally contaminated water. More than half of the health care facilities with unimproved water sources (no service) had faecally contaminated water. No water quality data could be collected from the health care facilities that had limited services in Bhutan or Lebanon because they did not have water available at the time of assessment.

Water can also be contaminated within the hospital network. In Costa Rica, where all hospitals had piped water supplies in 2017, 3% had water entering the facility that did not meet national drinking water standards,[26] while one in eight had intra-hospital piped supplies that did not meet standards (Figure 22). This also highlights the significance of where (and when) water samples are collected for testing.

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[23] World Health Organization, *Essential Environmental Health Standards in Health Care*, WHO, Geneva, 2008, <www.who.int/water_sanitation_health/publications/ehs_hc/en>.

[24] See discussion of the distinctions between hospitals and other types of health care facilities in Chapter 8: Inequalities.

[25] World Health Organization, *Guidelines for Drinking-Water Quality*, 4th ed. incorporating the first addendum, WHO, Geneva, 2017, <www.who.int/water_sanitation_health/publications/drinking-water-quality-guidelines-4-including-1st-addendum/en>.

[26] Including faecal coliforms, *Pseudomona aeruginosa,* and toxic chemicals.

Health care facilities with basic water services do not always meet national water quality standards

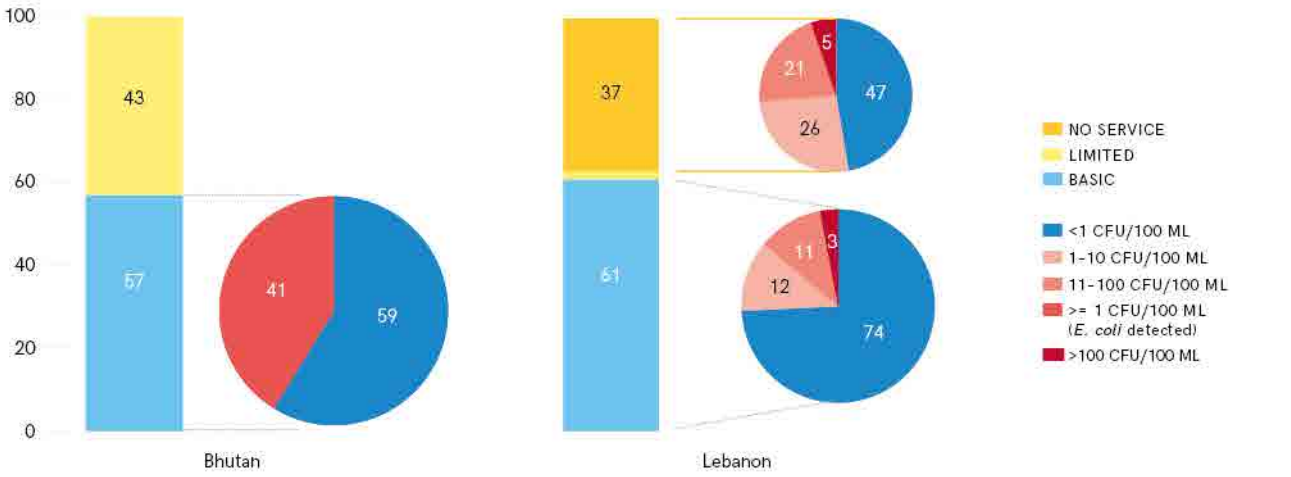


FIGURE 21 Proportion of facilities with water that meets national water quality standards for *E. coli* in Bhutan (2016, n=28 hospitals)[27] and Lebanon (2016, n=166 public health centres)[28] (%)

Water safety plans can help facilities mitigate risks to water quality, for instance by implementing on-site treatment. Water safety plans can also be informed by plumbing codes that help prevent cross-contamination and control pathogens such as *Legionella* which can thrive in biofilms within distribution systems.[29]

Water may be safe at the point of delivery and then become contaminated within the hospital network

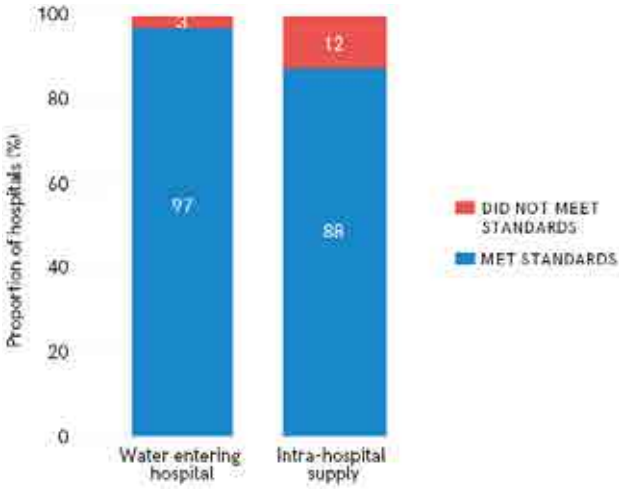


FIGURE 22 Proportion of hospitals in Costa Rica with water that met national water quality standards for faecal and toxic chemical contaminants (%)[30]

[27] Ministry of Health, *Understanding Water, Sanitation and Hygiene in Health Care Facilities: Status in hospitals of Bhutan*, Public Health Engineering Division, Thimphu, Bhutan, 2016, <www.washinhcf.org/documents/WASH-IN-HCF-Report-2016.pdf>.

[28] Sustainable Alternatives, *WASH in Public Health Centres in Lebanon*, report submitted to UNICEF in November 2017.

[29] enHealth, *Guidelines for Legionella Control in the Operation and Maintenance of Water Distribution Systems in Health and Aged Care Facilities*, Australian Government, Canberra, 2015, <www.health.gov.au/internet/main/publishing.nsf/content/A12B57E41EC9F326CA257BF0001F9E7D/$File/Guidelines-Legionella-control.pdf>.

[30] Alvarado, DM and Navarro, PR, *Estimación de la calidad del agua para consume humano en centros de salud de Costa Rica al año 2017*, Instituto Costarricense de Acueductos y Alcantarillados Laboratorio Nacional de Aguas, 2017.

Water continuity

A continuous supply of water is critical in health settings, particularly for emergency care and childbirth, but is not always available in health care facilities with basic water services. The JMP classifies facilities reporting that water is available most of the time (for example, at least 12 hours per day, four days per week or 15 days per month) as having water available (Box 3). For example, a survey in Peru found that 6% of health care facilities had basic water services with 12–23 hours of supply, while 27% had limited services because the water supply was available for fewer than 12 hours per day or unreported (Figure 23). In Uganda, 90% of facilities had 15 or fewer days in the previous month without water for two or more hours and were classified as having water available; 70% had continuous water every day for the previous month. Only 2% of health care facilities in Kenya lacked water for two or more hours in 45 or more of the last 90 days; 70% reported having no days with such service cuts over the previous 90 days. Figure 23 illustrates that the duration of service interruptions, and associated impact on the quality of health care provided, varies widely between and within countries.

In Peru, Uganda and Kenya, nearly one third of facilities did not have a continuous water supply

FIGURE 23 Proportion of health care facilities without water available over an average 24-hour period in Peru (WHO, 2017) and without water for two or more hours a day in the previous 30 days in Uganda (SDI, 2013) and previous 90 days in Kenya (SDI, 2012) (%)

Fewer hospitals in Bangladesh had drinking water for patients and staff compared to water for general use

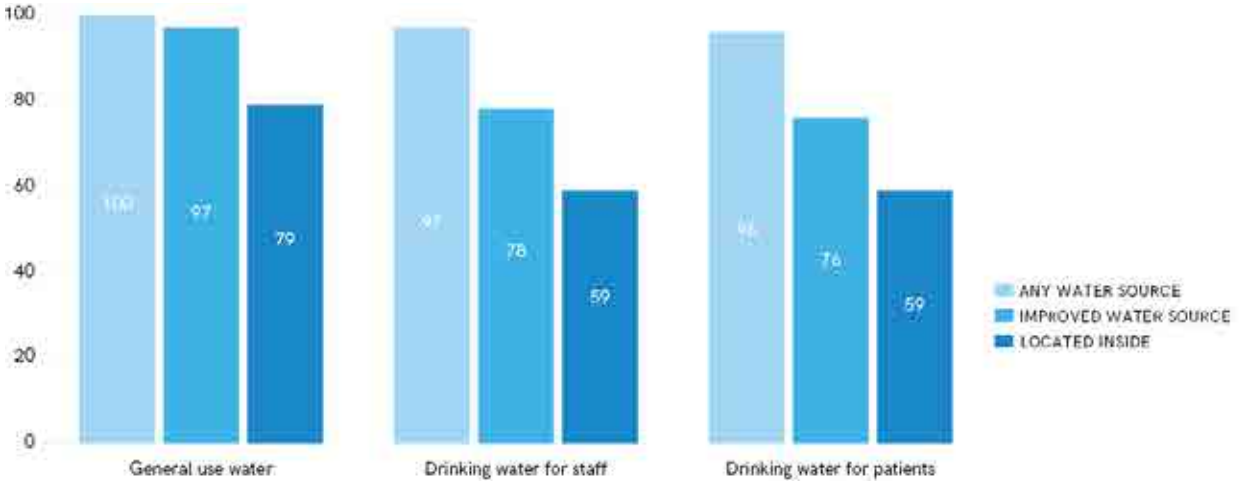


FIGURE 24 Proportion of hospitals in Bangladesh with water for general use and drinking water for patients and staff by facility type and location (National Hygiene Baseline Survey, 2014, n=875) (%)

Large quantities of water are required to provide quality care at health care facilities. While normative guidelines are available (Table 6) and should be considered when designing health care facilities, it is often not practical to monitor actual quantities at an aggregate level. A few countries have monitored water sufficiency based on health care worker perspectives.

Water storage can help mitigate short-term intermittency, bridge seasonal shortages and increase climate change resilience, but storage capacities are not always sufficient. For example, 82% of hospitals in Bhutan had a water storage tank in 2016, but 39% of facilities faced a severe shortage or lack of water every year. In Cambodia, 78% of health care facilities had a storage tank in 2010, but over half (51%) did not have sufficient water throughout the year. In West Bank and Gaza Strip, 15% of facilities relied on stored water in 2014, either as their main source or to supplement the piped water supply.

Drinking water

Water consumption is an important part of medical treatment (for example, to take medicines), recovery and maintaining health. Water carries nutrients to cells, protects organs and helps flush out waste. Women, specifically, may need large amounts of drinking water during childbirth and while breastfeeding. Health care facilities, especially those with inpatient services, should provide adequate quantities of safe drinking water to patients, staff and visitors, but this is not always the case. For example, in Bangladesh, 79% of hospitals had an improved water source located inside for general use, but only 59% had drinking water for patients and staff from a comparable source (Figure 24).

HEALTH CARE SETTING	MINIMUM WATER QUANTITY REQUIREMENT
Outpatients	5 litres/consultation
Inpatients	40–60 litres/patient/day
Inpatient therapeutic feeding centre	60 litres/patient/day
Cholera treatment centre	60 litres/patient/day
Severe acute respiratory diseases isolation centre	100 litres/patient/day
Operating theatre or maternity unit	100 litres/intervention
Viral haemorrhagic fever isolation centre	300–400 litres/patient/day

TABLE 6 Minimum water quantities required in health care settings[31]

[31] World Health Organization, *Essential Environmental Health Standards in Health Care*, WHO, Geneva, 2008, <www.who.int/water_sanitation_health/publications/ehs_hc/en>.

SANITATION SERVICES IN HEALTH CARE FACILITIES

Safe sanitation is a human right. Sanitation services in health care facilities are essential to deliver high quality care that improves the health, welfare and dignity of patients and staff and improves health outcomes. Inadequate sanitation in health care facilities can lead to people not seeking health care when they need it, and can reduce health care professionals' work satisfaction. Patients may have limited mobility or need adapted infrastructure to facilitate their safe and convenient use of toilets following surgery or childbirth.

Faeces are the principal source of bacteria, viruses and parasites that cause diarrhoeal diseases (including cholera and shigellosis) as well as many other infectious diseases. People who are sick shed many more pathogens in their faeces than healthy people.

People seeking care in health care facilities often have weakened immune systems and are particularly vulnerable to infection by faecal pathogens. Health care workers can also be put at risk of exposure to faecal pathogens in the workplace. Sanitary management of excreta in health care is particularly important to ensure faecal pathogens do not contaminate the health care facility environment or surrounding areas.

The sanitation ladder is used to classify health care facilities as having **basic services**, **limited services** or **no service** (Figure 25). The basic service level requires that health care facilities have usable toilets or latrines, but also that these sanitation facilities are accessible and cater to the needs of different kinds of users: staff and visitors, women and men, and those with limited mobility. This chapter also highlights examples of monitoring

SANITATION
Basic service Improved sanitation facilities[32] are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility.
Limited service At least one improved sanitation facility is available, but not all requirements for basic service are met.
No service Toilet facilities are unimproved (e.g. pit latrines without a slab or platform, hanging latrines, bucket latrines) or there are no toilets.

FIGURE 25 Basic sanitation services ladder for health care facilities

important aspects of sanitation services beyond the basic service level, such as the cleanliness of toilets and the systems for treatment and disposal of excreta, which are not monitored globally due to data limitations.

In 2017, a census of WASH conditions in institutional settings and public spaces was completed in Lebanon (Figure 26). The assessment found that nearly all public health centres (96%) had some kind of sanitation facility. However, only 83% had **improved services**, and the remaining 18% were classified as having **no sanitation service**. In all public health centres that had improved sanitation, the toilets were usable, and in most cases separate toilets were designated for women and men, and for staff. But relatively few had menstrual hygiene facilities, and even fewer were accessible for users with limited mobility.

The Lebanon survey is one of the few assessments with facility level data for all elements of **basic sanitation services**, and found that only 5% of health care facilities met all of the criteria. However, since information on the different elements of basic sanitation services in most cases come from different sources, the basic services indicator cannot always be calculated at the level of the individual health care facility. For the purposes of global monitoring, the JMP calculates the basic service indicator based on the minimum of the aggregate values for each element, which in the case of Lebanon is accessibility to those with limited mobility, at 16%.

Illustration of construction of sanitation services ladder: Lebanon

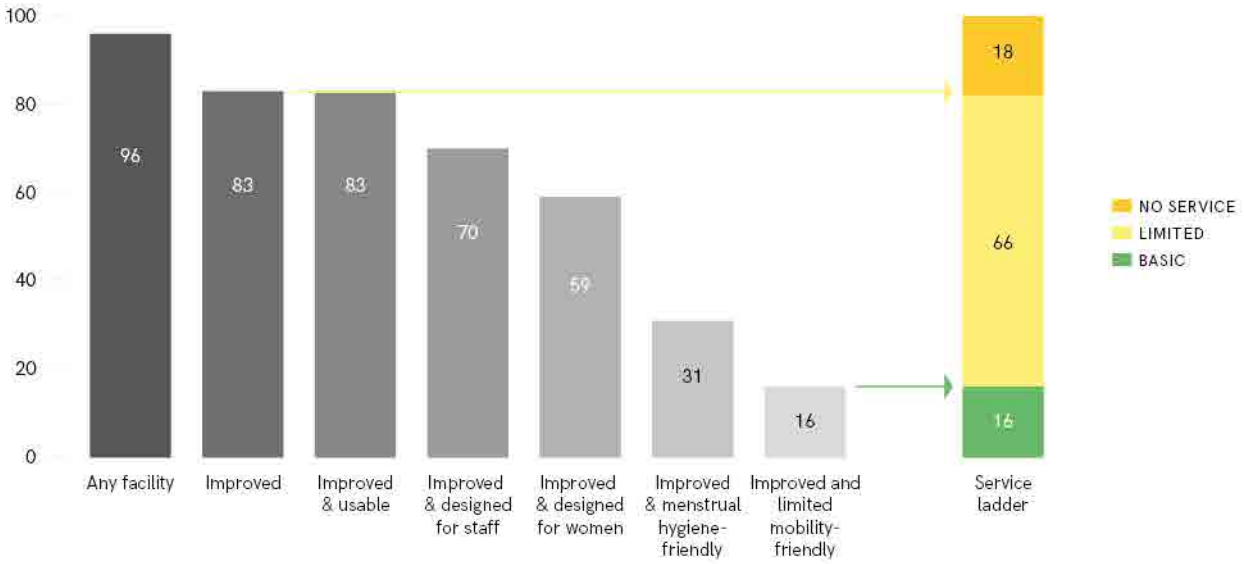


FIGURE 26 Proportion of public health centres by type and level of sanitation service, Lebanon, 2017[33] (%)

[32] Improved sanitation facilities are those designed to hygienically separate human excreta from human contact. These include wet sanitation technologies – such as flush and pour flush toilets connecting to sewers, septic tanks or pit latrines – and dry sanitation technologies – such as dry pit latrines with slabs, and composting toilets. In cases where health facility surveys use the generic term 'toilets', the JMP classes these as improved facilities. In cases where health facility surveys use the generic term 'toilets', the JMP classes these as improved facilities.

[33] Sustainable Alternatives, *WASH in Public Health Centres in Lebanon*, report submitted to UNICEF in November 2017.

BASIC SANITATION SERVICES

Data on the proportion of health care facilities with **no sanitation service** were available from 65 countries, representing 59% of the global population, which was sufficient to make a global estimate. A global estimate could also be made for the proportion of health care facilities with **improved** and usable sanitation facilities (48 countries, representing 35% of the global population). But far fewer countries had sufficient data to estimate the proportion of health care facilities with: sanitation facilities designated for women (19 countries, representing 0.5 billion people); separate toilets for staff and toilets adapted for limited mobility (each with 17 countries, representing 0.4 billion people); and sex-separated toilets that provided facilities for menstrual hygiene management (MHM) (ten countries, representing 0.2 billion people). Estimates for **basic sanitation services** were only available for 18 countries, representing 7% of the global population (Figure 27).

More than one in five health care facilities globally (21%) had **no sanitation service** in 2016 (Figure 28), meaning that they had unimproved toilets or no toilets at all. This translates to over 1.5 billion people having no sanitation service at their health care facility.

Estimates of basic sanitation services were available for 18 countries, with a population of 0.5 billion, in 2016

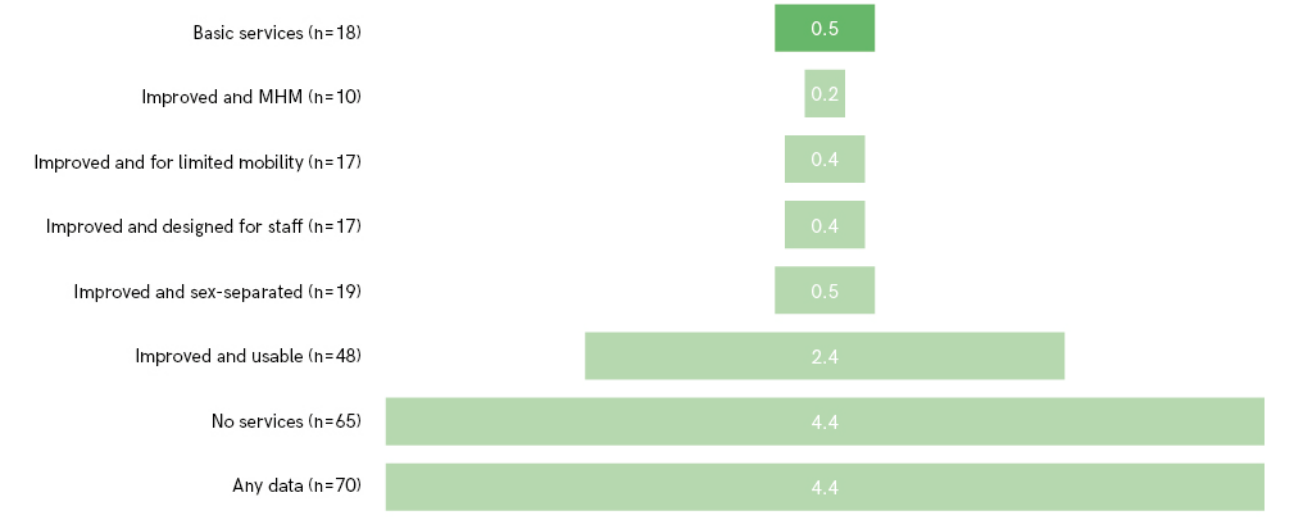


FIGURE 27 Data coverage for sanitation services in health care facilities, by indicator, number of countries and population with data available (billions), 2016

Globally, 21% of health care facilities had no sanitation service in 2016

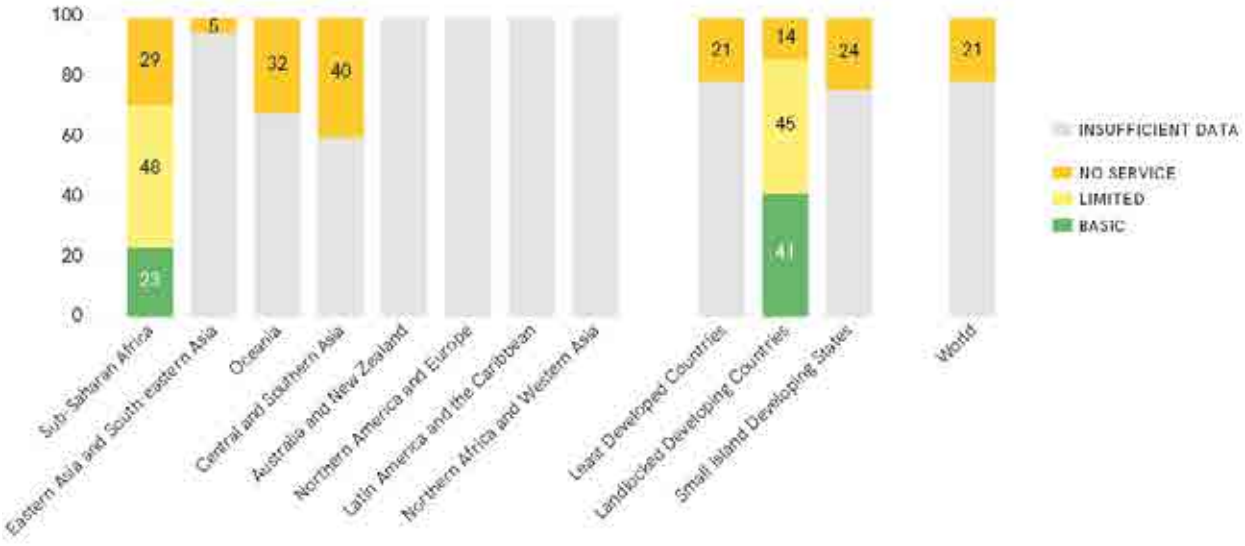


FIGURE 28 Regional and global sanitation services in health care facilities, 2016 (%)

Four SDG regions had estimates of **no sanitation service**, ranging from 5% in Eastern and South-Eastern Asia to 40% in Central and Southern Asia. In sub-Saharan Africa (the only SDG region to have an estimate for basic services) less than one in four health care facilities (23%) had **basic services**. Insufficient data were available to generate any regional estimates for the other four SDG regions.

Coverage of **basic sanitation services** varied widely among the 18 countries with estimates available in 2016 (Figure 29). In ten of these countries, fewer than one in four health care facilities had basic sanitation services.

Estimates of basic sanitation services were available for 18 countries in 2016

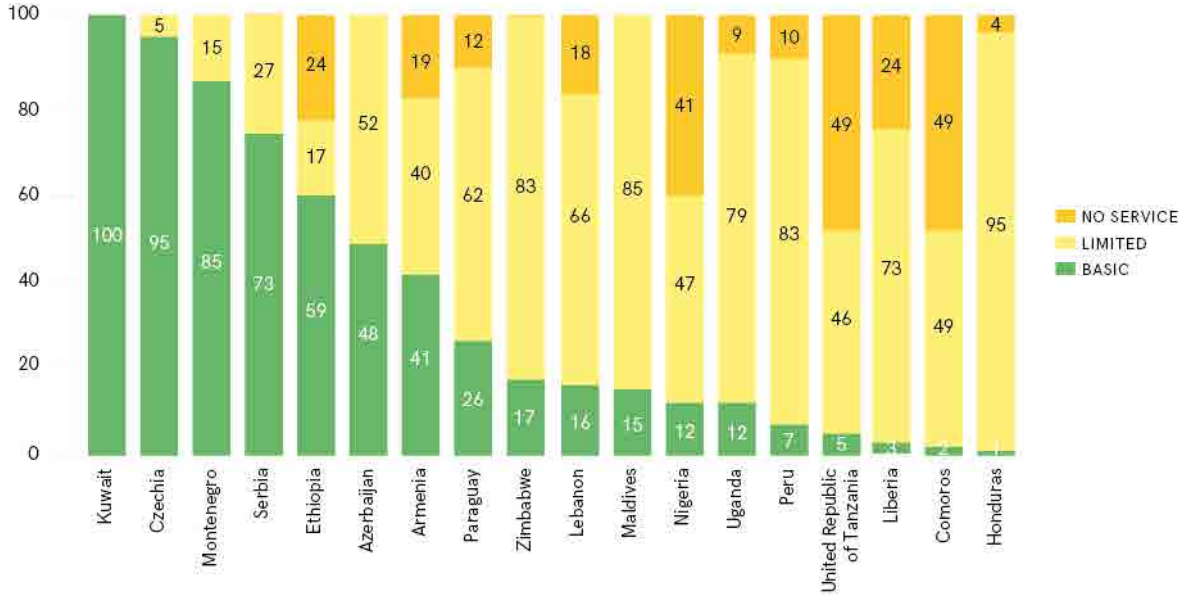


FIGURE 29 Sanitation services in health care facilities among countries with estimates for basic services in 2016 (%)

Sanitation technologies used in health care facilities vary widely across countries

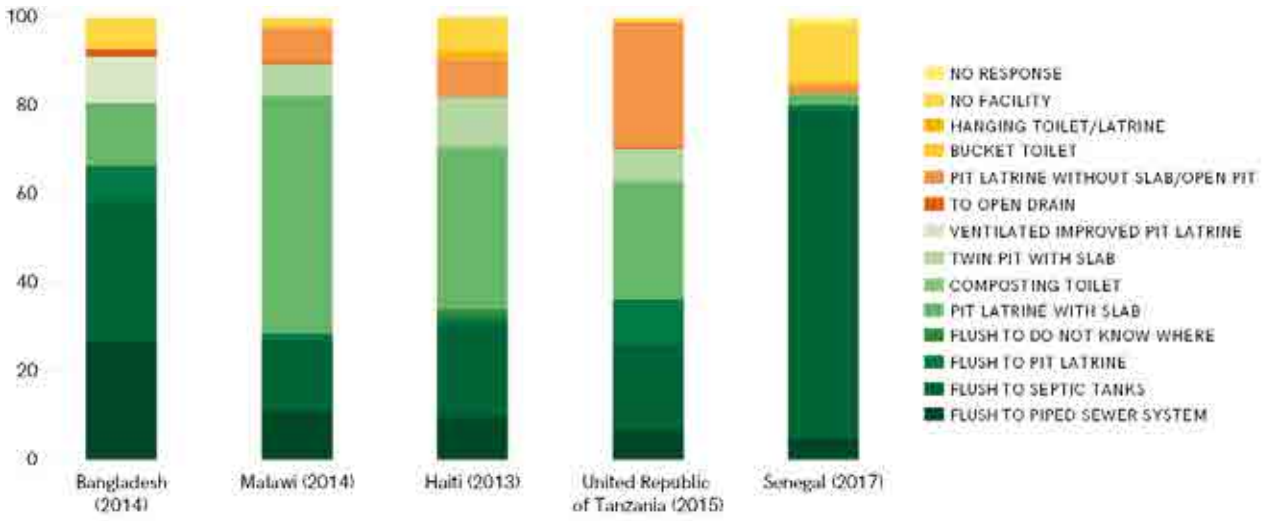


FIGURE 30 Sanitation infrastructure used in health care facilities, selected SPA surveys, 2013–17 (%)

Improved and usable

Part of the definition of basic sanitation services is that health care facilities should have improved and usable sanitation facilities. 'Improved' sanitation facilities are designed to hygienically separate excreta from human contact. Improved facilities include both wet systems (flush/pour flush toilets connected to piped sewer systems, septic tanks or pit latrines) and dry systems (ventilated improved pit latrines, dry pit latrines with slabs, or composting toilets).[34] 'Unimproved' facilities include pit latrines without a slab or platform, hanging latrines and bucket latrines.

Sanitation technologies vary widely across countries (Figure 30); in Senegal, most health care facilities have water-based systems with on-site septic tanks, while in Bangladesh, there are roughly equal proportions of health care facilities with sewer connections, septic tanks and pit latrines. By contrast, in Haiti, Malawi and the United Republic of Tanzania, dry latrines are more common.

Sometimes, health care facilities have toilets, but they are not **usable**. To be usable, toilets should be available, functional and private. Toilets may exist but not be **available** to patients and staff if they are located outside the premises or if they are locked and the key is not available at all times. Toilets may be **non-functional**; the toilet drain, or drop hole, might be blocked or overflowing, or the toilet structure could be cracked or leaking. Flush/pour-flush toilets are not functional if water is not available. Toilets can be considered unusable when they don't afford **privacy** by having closable doors that can be locked from the inside, and no large gaps or holes in walls.

Figure 31 shows that while most health care facilities have improved toilets, these are not always usable. For example, in Bangladesh, a 2017 national assessment[35] found that 99% of community clinics reported having at least one toilet, but over 28% reported having no functional toilet. This illustrates the challenge of moving beyond simply building sanitation infrastructure in health care facilities and ensuring toilets are maintained so patients and staff can use them when needed.

[34] For more information on and illustrations of the different types of improved sanitation facilities, see the fact sheets in: World Health Organization, *Guidelines on Sanitation and Health*, WHO, Geneva, 2018, <www.who.int/water_sanitation_health/publications/guidelines-on-sanitation-and-health/en>.

[35] Joseph G, Alam BB, Islam K, et al., *Water, Sanitation and Hygiene in Bangladesh's Community Health Clinics*, Food and Agriculture Organization (FAO) and World Bank, Dhaka, 2018.

Improved toilets are not always usable

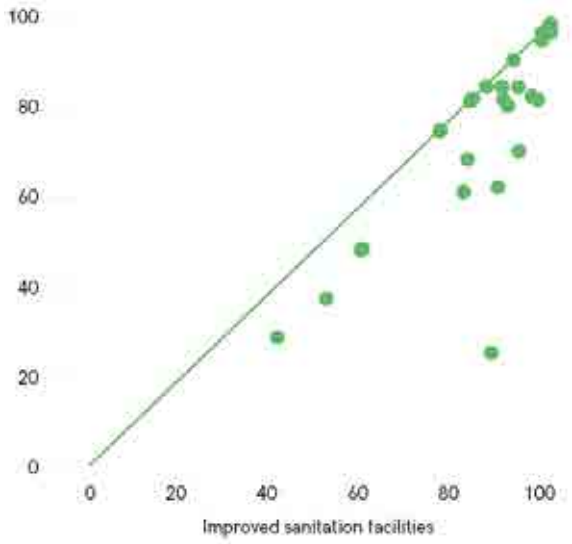
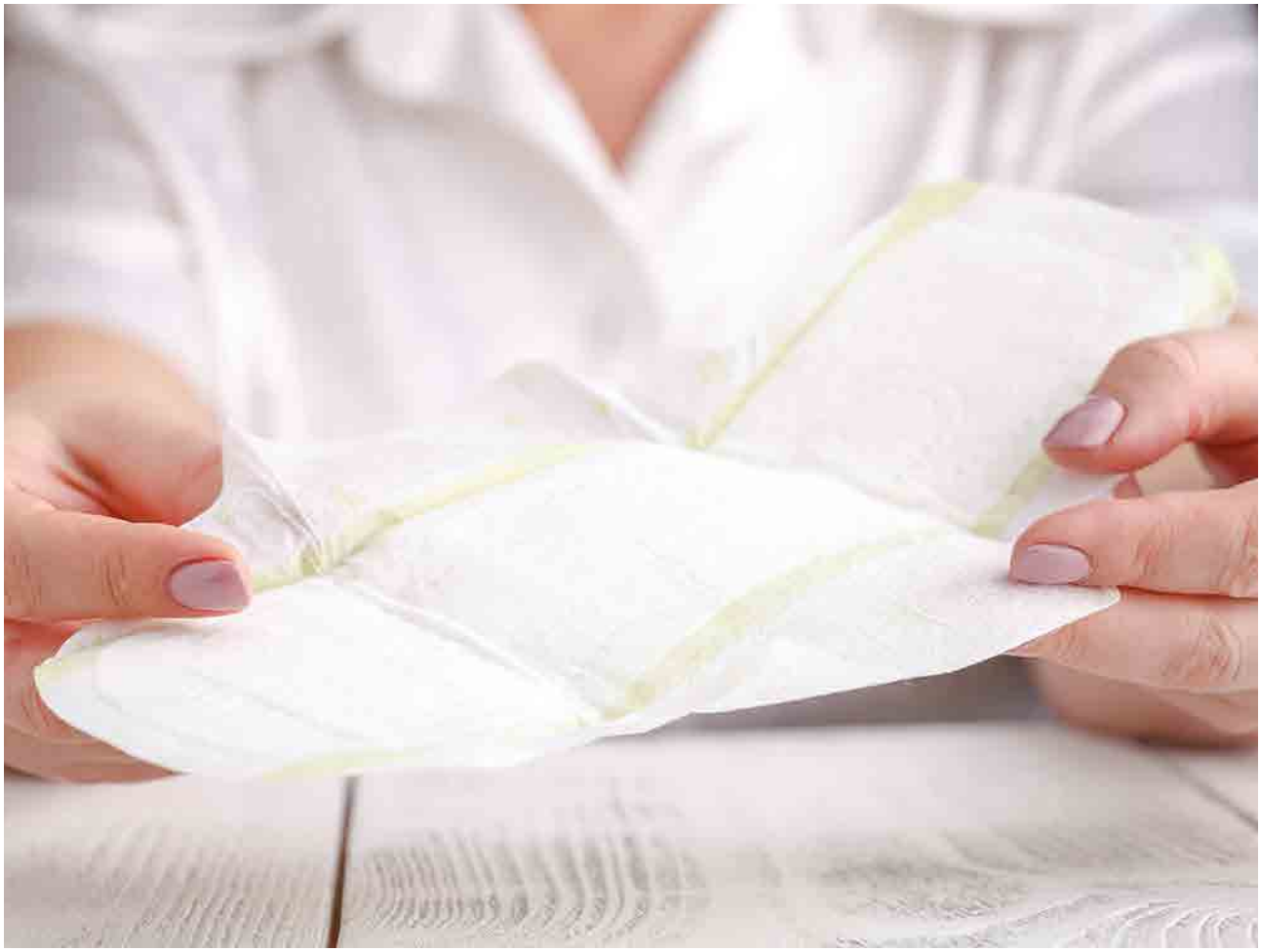


FIGURE 31 Proportion of health care facilities with improved and improved and usable sanitation, among countries with data available in 2016 (%)

The basic sanitation service level goes beyond simply having usable toilets, to ensuring toilets are available to different kinds of users.

- **Staff** at health care facilities should have dedicated toilets to reduce the risk of infections, particularly during outbreaks.
- **Women and men** should be able to use toilets in privacy. This is most commonly achieved through having separate toilets for women and men. However, especially in small facilities, a gender-neutral room with a single private toilet is also considered sex-separated, as it allows women and men to use the toilet privately and separately.
- The toilets available for women and girls should also provide facilities for **menstrual hygiene management**. They should have a bin with a lid for disposing of used menstrual hygiene products, and water and soap available in a private space for washing.



- Toilets should be available for patients with **limited mobility**, according to national standards. In the absence of national standards, toilets should be accessible without stairs or steps, should have a door at least 80 cm wide, and should have handrails or other guides attached to the floor or sidewalls. The door handle and seat should be within reach of people using wheelchairs or crutches/sticks.

To meet the criteria for a basic sanitation service, the health care facility must therefore have at least two toilets: one dedicated for staff, and one gender-neutral toilet for patients that has menstrual hygiene facilities and is accessible for people with limited mobility.

Many countries do not currently collect information on all the elements of basic sanitation services (Figure 32). To make the most use of the available data, for this report the JMP has produced estimates of basic sanitation services when data are available on improved and usable toilets, and at least two of the remaining four elements (staff, sex-separated, menstrual hygiene, and limited mobility).

Since these elements may come from different data sources, the basic service level is calculated as the minimum of the aggregate values for available elements. This limiting factor varies from country to country; most commonly, the availability of toilets accessible to those with limited mobility is lowest, but in the Maldives, sex-separated toilets were less commonly available. Data on menstrual hygiene facilities are often not available, but in Comoros, this was the limiting factor. In Azerbaijan, Czechia, Ethiopia and Paraguay, data weren't available on the accessibility of toilets to users with limited mobility; the basic service coverage could therefore be overestimated in those countries.

Many countries did not have data for all elements of basic sanitation services in 2016

Country	Facility	Improved	& Usable	& Dedicated for staff	& Sex-separated	& Menstrual hygiene	& Limited mobility	Basic
Kuwait	100	100	100	100	100	100	100	100
Czechia	100	100	100	98	95	95	-	95
Montenegro	100	100	100	100	100	100	85	85
Serbia	100	100	100	100	100	73	73	73
Ethiopia	96	76	76	71	59	-	-	59
Azerbaijan	100	100	98	48	100	100	-	48
Armenia	-	81	62	87	42	42	41	41
Paraguay	100	88	63	31	26	-	-	26
Zimbabwe	100	100	72	89	97	32	17	17
Lebanon	96	83	83	70	59	31	16	16
Maldives	100	100	99	80	15	30	57	15
Nigeria	84	59	49	46	-	31	12	12
Uganda	100	91	88	-	28	-	12	12
Peru	97	90	83	86	64	-	7	7
United Republic of Tanzania	99	51	51	6	36	-	5	5
Liberia	76	76	76	31	54	-	3	3
Comoros	-	51	38	43	9	2	7	2
Honduras	100	96	84	78	70	-	1	1

FIGURE 32 Proportion of health care facilities with elements of basic sanitation among countries with estimates in 2016 (%)

Estimates of improved sanitation were available for 65 countries in 2016

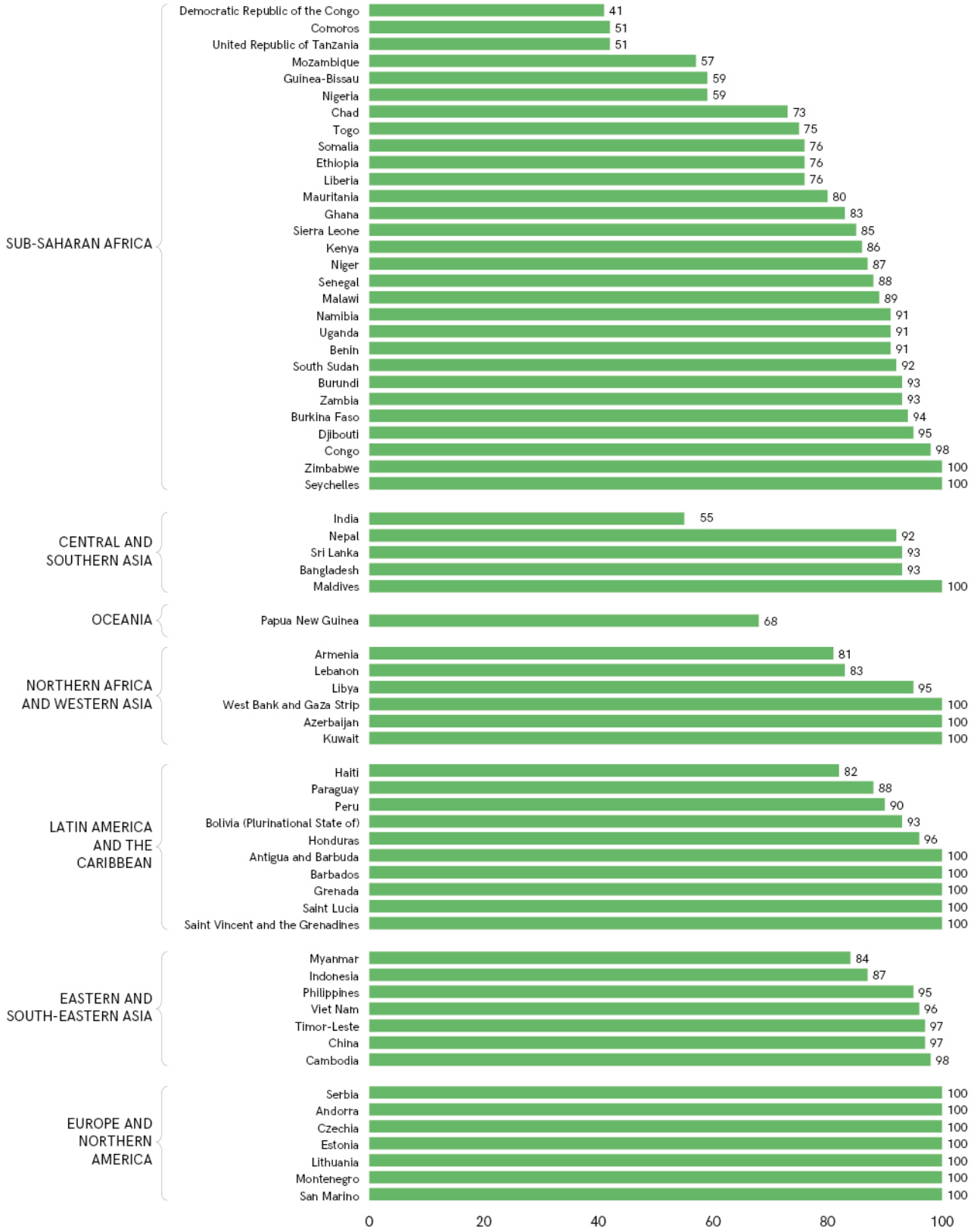


FIGURE 33 Improved sanitation coverage in health care facilities, 2016 (%)

ADDITIONAL INDICATORS FOR MONITORING SANITATION IN HEALTH CARE FACILITIES

As with water services, governments must set their own standards for sanitation services in health care settings. The global monitoring indicators include criteria for basic sanitation services but do not incorporate important aspects of sanitation such as sufficient numbers of toilets, faecal sludge management, toilet cleanliness, and additional details related to menstrual hygiene management. In health care facilities where the basic service level is already met, sanitation services may still need improvement. Additional indicators corresponding to more advanced service levels should be developed and monitored based on national priorities and available resources.

Number of toilets

The global indicator of basic sanitation services can be met by having a minimum of two toilets in outpatient settings (one toilet dedicated for staff and one gender-neutral toilet for patients that has menstrual hygiene facilities and is accessible for people with limited mobility). Two toilets may be enough for a small health care facility that only provides outpatient services but larger facilities need more toilets. Global norms call for at least one toilet per 20 users in inpatient settings and recommend that there be a toilet no more than 30 metres from all users.[36]

In Nigeria, the average number of toilets per health care facility is higher in urban areas than in rural areas (Figure 34), both for toilets for patients and for staff. However, urban facilities are larger, with an average of 16 health care workers per facility, compared to seven in rural areas.

Sewer connections

Many hospitals and other large health care facilities, especially in urban areas, are connected to municipal sewer systems. Out of the 20 countries with data available on hospital sewer connections, all of the hospitals in four countries were connected, while less than half of hospitals in 11 countries, and less than a quarter in seven countries, had sewer connections (Figure 35).

In Nigeria, the average rural health care facility had one toilet for patients

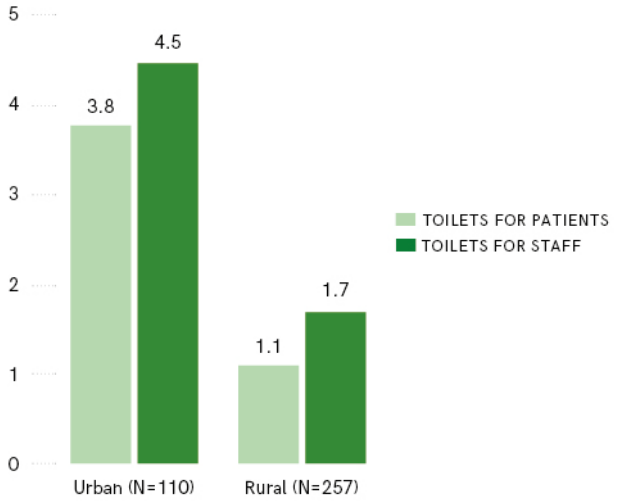


FIGURE 34 Average number of toilets per health care facility in Nigeria (WASH NORM, 2018)

BOX 4

Sanitation and antimicrobial resistance in health care facilities[37]

Antimicrobial resistance (AMR) among human pathogens has been identified by the World Health Organization as one of the greatest global threats to human health. Environmental reservoirs are the most important source of antibiotic resistance genes. Wastewater and faecal sludge from health care facilities pose a particular risk because they contain high levels of antibiotics, resistant pathogens and resistance genes. Open defecation, the discharge of untreated wastewater, and leakage from on-site sanitation systems at health care facilities can all lead to the release of antibiotics, resistant pathogens and resistance genes into environmental reservoirs, and therefore increases in antimicrobial resistance.

[36] World Health Organization, *Essential Environmental Health Standards in Health Care*, WHO, Geneva, 2008, <www.who.int/water_sanitation_health/publications/ehs_hc/en>.

[37] World Health Organization, *Guidelines on Sanitation and Health*, WHO, Geneva, 2018, <www.who.int/water_sanitation_health/sanitation-waste/sanitation/sanitation-guidelines/en>.

In 11 out of 20 countries with data, less than half of hospitals had sewer connections

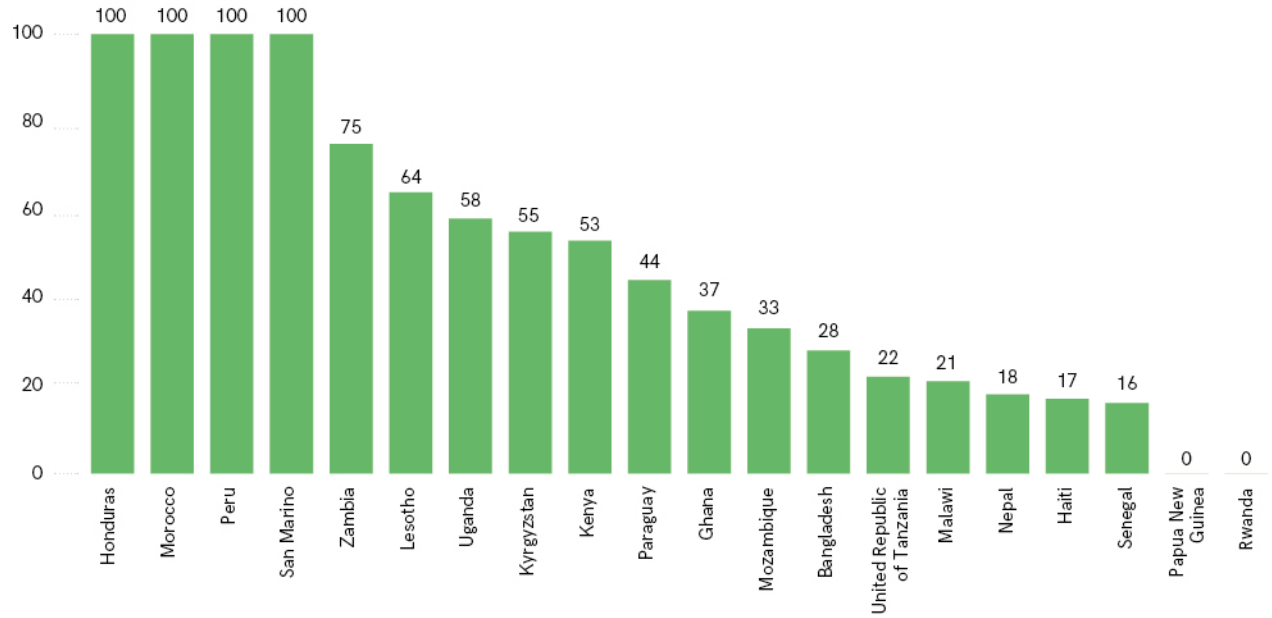


FIGURE 35 Proportion of hospitals with sewer connections, by country (2003–18) (%)

Most faecal sludge from basic health centres in Afghanistan is used as manure

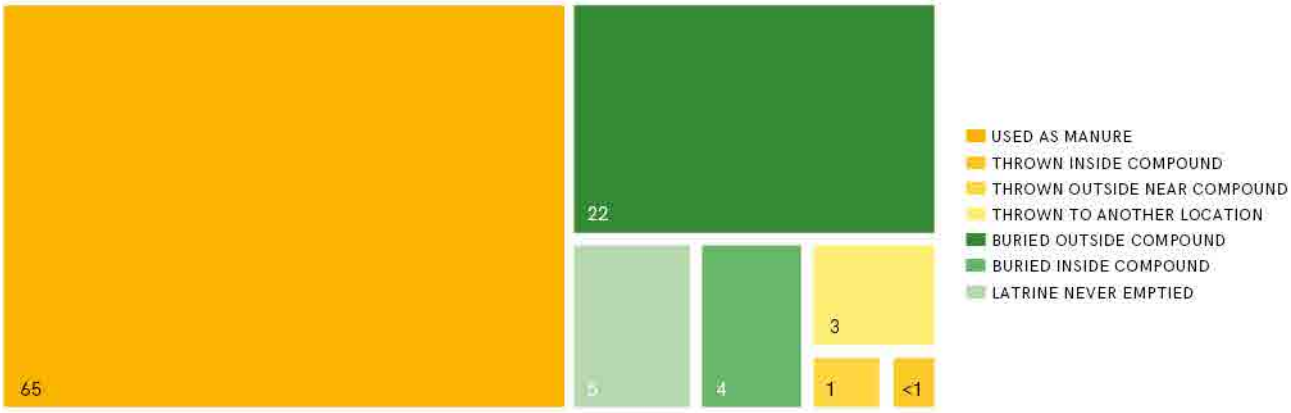


FIGURE 36 Proportion of basic health centres in Afghanistan by method of faecal waste disposal, 2009 (%)[38]

Faecal sludge management

Facilities without sewer connections need to manage the excreta collected in on-site systems, such as septic tanks and pit latrines. Sophisticated on-site wastewater treatment plants can provide an excellent level of treatment. However, when poorly managed, excreta from on-site systems can turn health care facilities into centres of disease transmission, particularly where diseases such as cholera are of high concern. Wastewater and faecal sludge from health care facilities is prone to contain high levels of hazardous biological and chemical contaminants, as well as antimicrobial residues, and should never be reused

[38] Ministry of Public Health (Islamic Republic of Afghanistan), Report for Baseline Study on Water Sanitation Services and Hygiene Practices in Basic Health Centres and Health Care Facilities, UNICEF and MoPH, Kabul, 2009.

in agriculture.[39] However, the final destination of wastewater and faecal sludge from health care facility latrines is rarely monitored, and in some settings reuse is widespread. A 2009 assessment in Afghanistan found that two thirds of basic health centres use faecal waste as manure (Figure 36).

Patient satisfaction

If patients feel the toilets at a health care facility are in an unacceptable condition, they may avoid using them (or choose not to visit the facility at all). This can lead to open defecation, or people withholding their needs leading to associated health effects such as incontinence and urinary tract infections. A 2011 assessment of patient perspectives on toilets in health care facilities in Lesotho revealed low levels of reported satisfaction from patients who used the toilets (Figure 37). There are many reasons why patients may be dissatisfied with the health care facility toilets, such as insufficient cleanliness, privacy, accessibility, lighting, availability of menstrual management facilities, and availability of baby-changing stations. Causes of dissatisfaction are often context-specific.

Health care facility toilets in Lesotho are not always acceptable to patients

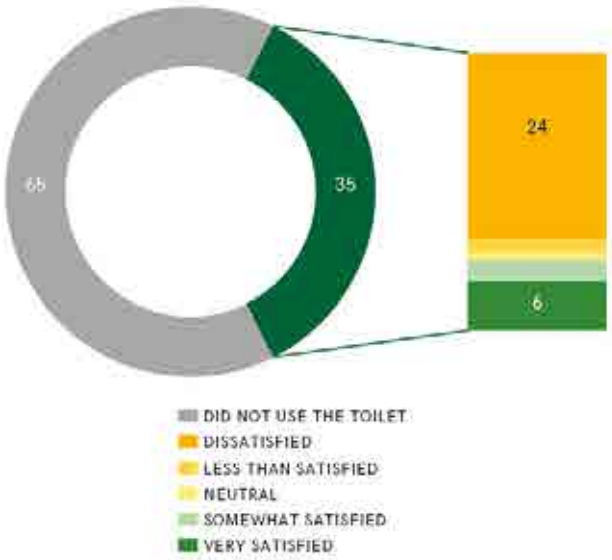


FIGURE 37 Proportion of patients by use of and satisfaction with toilets at health care facilities in Lesotho, 2011, n=639 (%)[40]

Toilet cleanliness

Clean toilets are more likely to be used and appreciated by patients and staff. Conversely, dirty toilets can lead to disease transmission between users, particularly as toilet users in health care facilities may shed large numbers of pathogens. Perceptions of cleanliness are subjective, and countries have assessed patient perspectives on toilet cleanliness in different ways. For example, in a 2018 patient satisfaction survey in Ireland, patients scored hospital toilet cleanliness at 8.4 out of ten on average. Some countries have monitored toilet cleanliness in health settings through trained enumerators (Figure 38). However, indicator definitions vary, and further harmonization is needed for cross-country comparison. For example, the assessment in the Philippines classified toilets as clean if they were observed to have a clean toilet bowl, walls, floor and ceiling. The Lebanon survey considered a health care facility to have clean toilets if they did not have a strong smell, significant numbers of flies or visible signs of faeces. Toilets were classified as 'somewhat clean' if there was some smell and/or sign of faecal matter in some but not all toilets. In contrast, the Nepal survey reported observed cleanliness as very good, good, acceptable, bad, or very bad, without further defining these categories.

Global standards for health care facilities recommend that toilets are cleaned whenever they are dirty, and at least twice a day, using disinfectant and a brush.[41] In Lebanon, 81% of facilities cleaned the toilets at least twice daily and 78% had clean toilets. Two thirds of hospitals in Bhutan cleaned the toilets in inpatient settings at least twice daily, while toilets in outpatient settings and consultation areas were cleaned at least twice daily at around half and one third of hospitals, respectively (Figure 39). A 2016 assessment in Tanzania cited reports of users not leaving the toilets clean after use and highlighted the need for education and awareness raising, in addition to cleaning and general hygiene.

Menstrual hygiene facilities and services

The kinds of facilities and services needed to manage menstruation are context-specific. Some women use

[39] World Health Organization, *Safe Management of Wastes from Health-care Activities*, WHO, Geneva, 2014, <www.who.int/water_sanitation_health/publications/wastemanag/en>.

[40] ICON-INSTITUT, Lesotho Health Facilities Survey, ICON-INSTITUT Public Health Sector GmbH, 2011.

[41] World Health Organization, *Essential Environmental Health Standards in Health Care*, WHO, Geneva, 2008, <www.who.int/water_sanitation_health/publications/ehs_hc/en>.

Toilets in health care facility toilets are not always clean

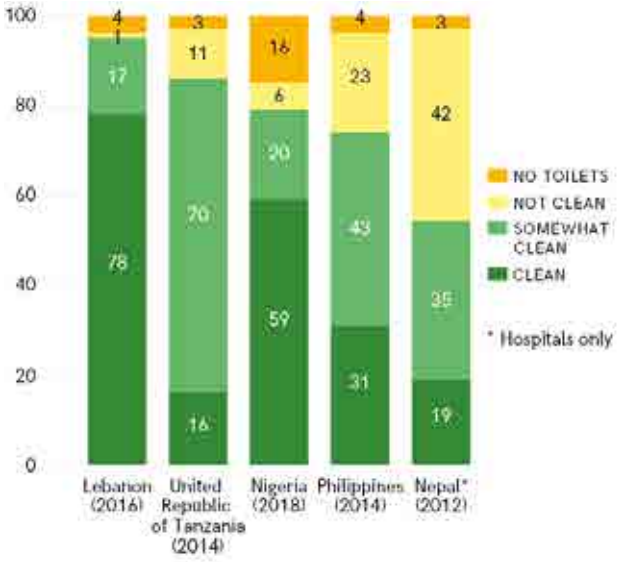


FIGURE 38 Proportion of health care facilities with clean toilets, by country (national definitions vary) (%)

In Bhutan, toilets were cleaned more frequently in inpatient than in outpatient areas

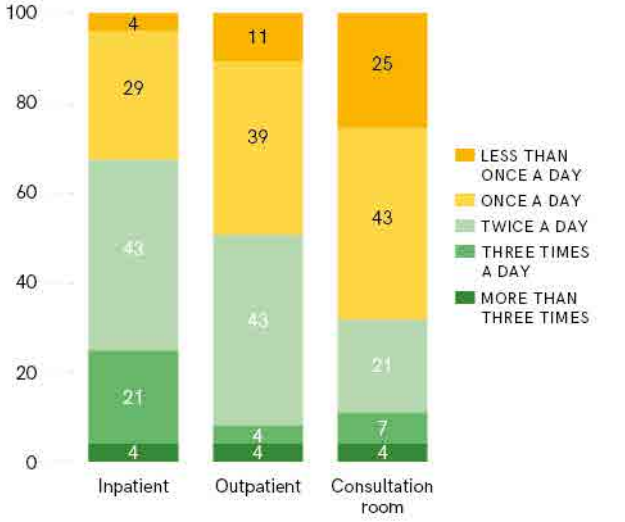


FIGURE 39 Frequency of toilet cleaning in Bhutan by hospital ward (National Assessment, 2016, n=28) (%)

disposable products, such as tampons and pads, to manage menstrual flow, while others use reusable materials, such as cloths or menstrual cups. Health care facilities should be able to accommodate users with different types of menstrual hygiene preferences. While a basic level of sanitation service includes having a bin for disposable menstrual materials and a private space with soap and water for washing, some countries monitor additional aspects of menstrual hygiene based on local needs and priorities. For example, over one third of health care facilities in Lebanon provided basic facilities for MHM in 2016, including water and soap, privacy and covered bins for disposal; fewer facilities provided additional services such as training on safe disposal of sanitary pads (Figure 40).

A 2018 study by the British Medical Association found that only 56% of hospital trusts and health boards in the United Kingdom routinely supply sanitary products to patients, with an additional 29% providing products in emergencies.[42] In response, the National Health Service of England indicated that hospitals would be required to provide free sanitary products to any patient who needs them by the summer of 2019.

Lebanon monitors multiple aspects of menstrual hygiene management in health care facilities

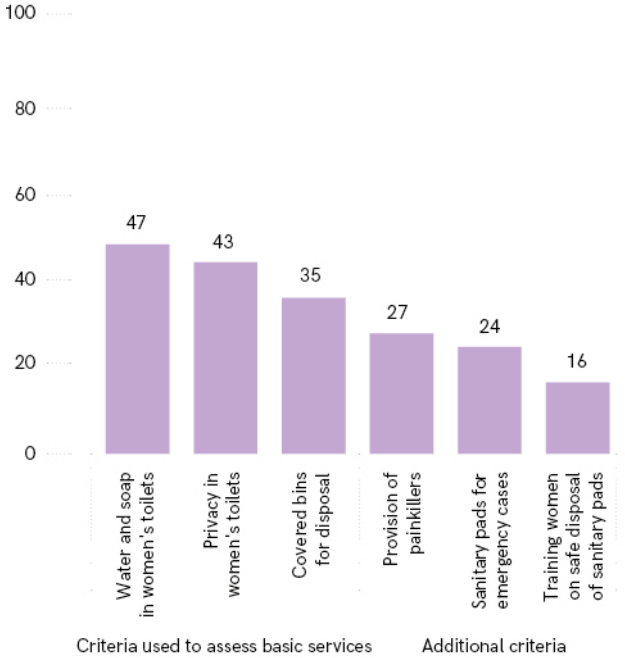


FIGURE 40 Proportion of health care facilities with different provisions for menstrual hygiene management in Lebanon (2016, n=166) (%)[43]

[42] British Medical Association, 'Sanitary product provision for inpatients', 4 February 2019, BMA, London, 2019, <www.bma.org.uk/collective-voice/policy-and-research/public-and-population-health/sanitary-product-provision-for-inpatients>, accessed 13 March 2019.

[43] Sustainable Alternatives, *WASH in Public Health Centres in Lebanon*, final survey report submitted to UNICEF in February 2018.

HYGIENE SERVICES IN HEALTH CARE FACILITIES

In 1847, the Hungarian obstetrician Ignaz Semmelweis discovered that the shocking rates of maternal mortality in the Vienna General Hospital were caused by the hospital's doctors, who would examine patients directly after conducting autopsies, without effectively cleaning their hands. Even without an understanding of germ theory, Semmelweis was able to dramatically reduce mortality by requiring doctors to clean their hands with a chlorine solution after completing autopsies. Since then, effective hand hygiene in health care facilities has been the cornerstone of infection prevention and control (IPC) guidelines and practices, and is today considered the primary measure for preventing health care associated infections and the spread of antimicrobial resistance.

Health care workers are the principal target of efforts to improve hand hygiene, since they care for multiple patients and may come into contact with blood and other bodily fluids. However, visitors to health care facilities can also spread pathogens on their hands, and it is important that health care facilities provide handwashing facilities with soap and water at toilets used by patients as well as other visitors who may be tending to patients' needs.

HYGIENE
Basic service Functional hand hygiene facilities (with water and soap and/or alcohol-based hand rub) are available at points of care, and within five metres of toilets.
Limited service Functional hand hygiene facilities are available either at points of care or toilets but not both.
No service No functional hand hygiene facilities are available either at points of care or toilets.

FIGURE 41 Basic hygiene services ladder for health care facilities

Interventions to improve hand hygiene in health care settings focus on engaging facility leaders and front line staff, educating health care workers, displaying reminders on posters and improving communications, monitoring practices and providing feedback, and above all ensuring that health care workers have easy access to soap and water, and/or alcohol-based hand rub (ABHR), and know how to use them effectively. WHO's five 'key moments' for hand hygiene in health care facilities are (1) before touching a patient, (2) before clean/aseptic procedures, (3) after body fluid exposure/risk, (4) after touching a patient, and (5) after touching patient surroundings.[44] There should be sufficient, and functional, hand hygiene facilities to ensure health care workers, caregivers and patients can carry out hand hygiene at all five key moments. Furthermore, WHO recommends using a multi-modal approach to improving hand hygiene, centred around evaluation and feedback, workplace reminders, and developing a climate of institutional safety.[45]

BOX 5

Soap and water, or alcohol-based hand rub?

It is quicker and easier to clean hands with alcohol-based hand rub (ABHR) rather than washing hands with soap and water. Encouraging the use of ABHR by health care workers can greatly improve hand hygiene compliance, as well as providing a backup when there are water shortages. However, ABHR is less effective when hands are visibly dirty or soiled with blood or other bodily fluids. In such cases (as well as after using the toilet), handwashing with soap and water is recommended. Some pathogens (such as *Clostridium difficile)* may not be effectively removed or inactivated by ABHR. If exposure to such pathogens is strongly suspected or proven, handwashing with soap and water is the preferred means of hand hygiene. Additional hygiene measures are required for preventing germ transmission, for example the use of personal protective equipment.[46]

[44] For more details see: World Health Organization, *WHO Guidelines on Hand Hygiene in Health Care*, World Health Organization, Geneva, 2009, <www.who.int/gpsc/5may/tools/9789241597906/en>.

[45] World Health Organization, *A Guide to the Implementation of the WHO Multimodal Hand Hygiene Improvement Strategy*, WHO, Geneva, 2009, <www.who.int/infection-prevention/publications/hh_implementation-guide/en>

[46] For more details see: World Health Organization, *WHO Guidelines on Hand Hygiene in Health Care*, World Health Organization, Geneva, 2009, <www.who.int/gpsc/5may/tools/9789241597906/en>.

Hand hygiene cannot be performed without access to hand hygiene facilities, and, for the purposes of national and global monitoring, the **basic services** indicator focuses on the availability of soap and water, or alcohol-based hand rub, at locations where patients receive care. The basic service level additionally includes having soap and water at toilets. If a health care facility has functional[47] hand hygiene facilities either at points of care or toilets, but not both, it is classified as having **limited services**, while facilities with no functional hand hygiene facilities at all are considered to have **no service**.

BOX 6

Points of care[44]

A point of care is defined as the place where three elements come together: the patient, the health care worker, and care or treatment involving contact with the patient or his/her surroundings (within the patient zone). The concept embraces the need to perform hand hygiene at recommended moments exactly where care delivery takes place. This requires that a hand hygiene product (for example, alcohol-based hand rub, or soap and water) be easily accessible and as close as possible – within arm's reach of where patient care or treatment is taking place. Point of care products should be accessible without having to leave the patient zone.

Health care facilities should have hand hygiene materials at all places where patients receive care. Some monitoring programmes track if hand hygiene materials are available at multiple locations within a health care facility, while others involve random spot checks at specific points of care. In order to make consistent comparisons, for global monitoring purposes, the availability of hand hygiene facilities at any point of care counts towards the basic service level. Wherever possible, the JMP uses data relating to hand hygiene in the outpatient department or general consultation area, even if other areas lack hand hygiene facilities.

Figure 42 illustrates that in China, nearly all health care facilities have handwashing facilities, most of which have water, but only a third have soap and water or alcohol-based hand rub at points of care (36%). Since two out of three Chinese health care facilities have soap and water at toilets (67%), the availability of hand hygiene materials at points of care is the limiting factor for **basic hygiene services**. Taking the minimum of the two values as the determining factor for the basic service may overestimate basic services, since some health care facilities could have hand hygiene facilities at points of care but not at toilets.

[47] To be considered functional, hand hygiene facilities at points of care must have either alcohol-based hand rub, or soap and water. If alcohol-based hand rub is used, health care staff may also carry a dispenser around between points of care. To be considered functional, hand hygiene facilities at toilets must have soap and water available within five metres of toilets. Alcohol-based hand rub is not considered adequate for hand hygiene at toilets, as it does not remove faecal matter from hands.

BASIC HYGIENE SERVICES

Illustration of construction of the hygiene services ladder: China

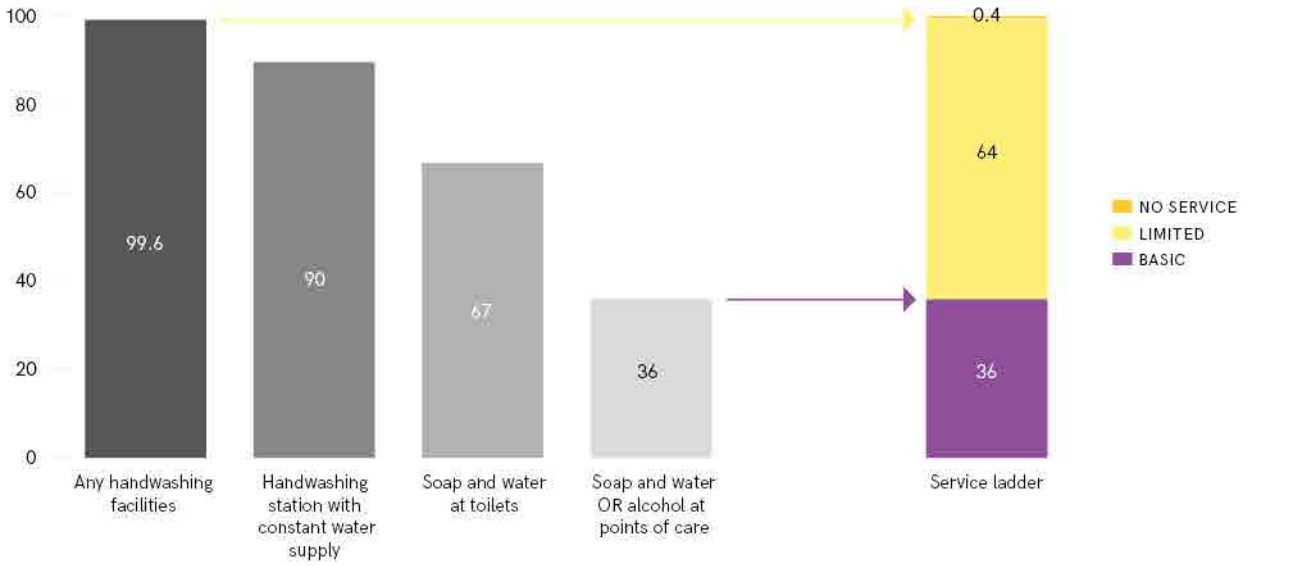
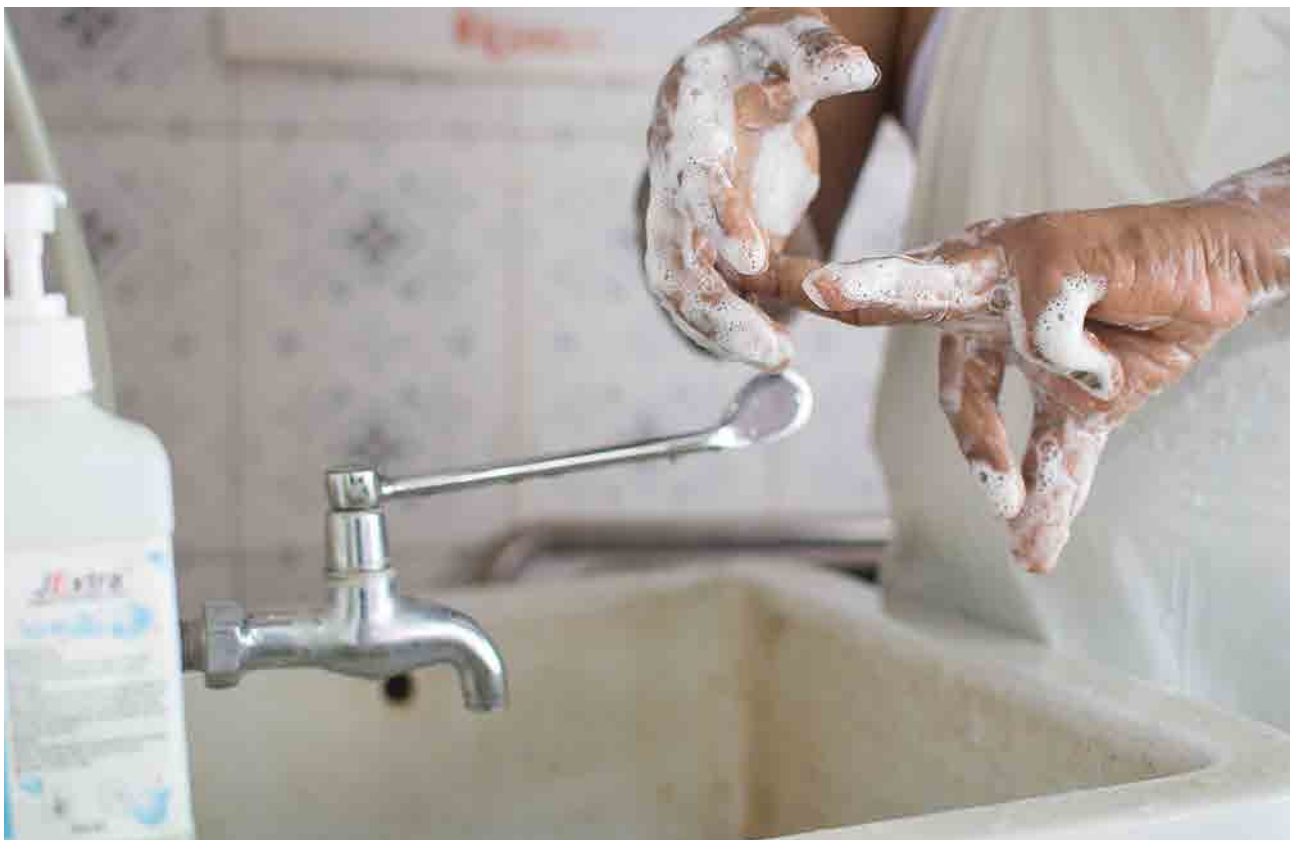


FIGURE 42 Proportion of health care facilities with hand hygiene facilities and soap and water or alcohol-based hand rub, China (Health Care Facilities Survey, 2018) (%)



Globally, 16% of health care facilities had no hygiene service in 2016

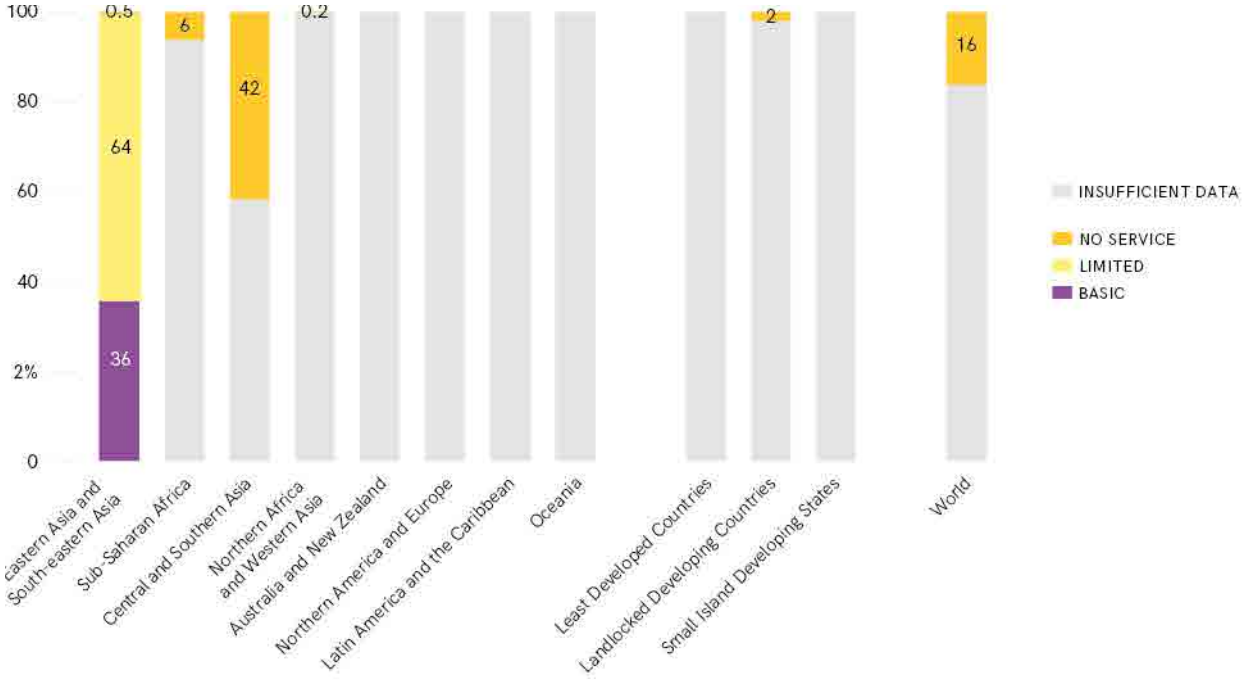


FIGURE 43 Regional and global hygiene services in health care facilities, 2016 (%)

Estimates of basic hygiene services were available for 14 countries, with a combined population of 1.7 billion, in 2016

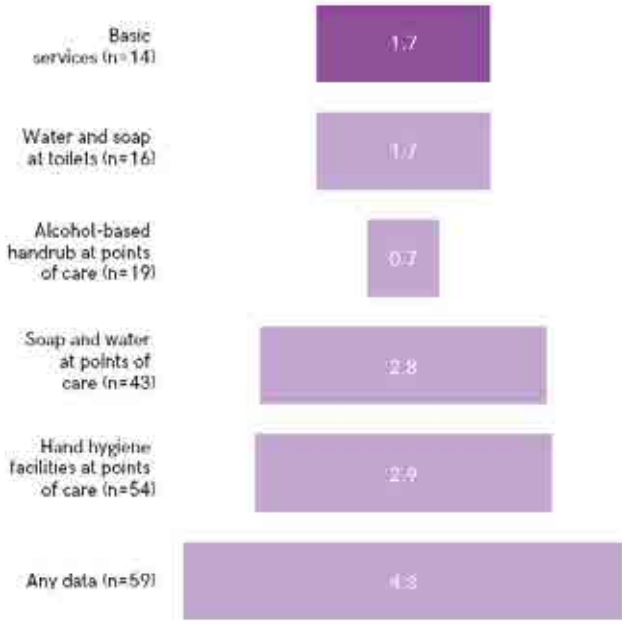


FIGURE 44 Data coverage for hygiene services in health care facilities, by indicator, number of countries and population with data available (billions), 2016

However, since the data for these different indicators may come from different surveys or datasets, it is not always possible to calculate basic services at the level of individual health care facilities, and the JMP makes this calculation based on the aggregate values for health care facilities in each domain.

Globally, in 2016, one in six health care facilities (16%) had **no hygiene service**, meaning that hand hygiene facilities were not available either at points of care or toilets (Figure 43). Only one SDG region, Eastern and South-Eastern Asia, had sufficient data to generate estimates for **basic hygiene services**, while four regions had sufficient data to calculate the proportion of health care facilities with **no hygiene service**. Insufficient data were available to make estimates for the four other SDG regions and very few high-income countries had data available in 2016.

Although health care facilities in high-income countries are more likely to have access to soap and running water (as well as improved sanitation), they may still face logistical and supply-chain hurdles for alcohol-based hand rub. Sometimes countries assert 100% coverage of basic services (noting that it is a legal requirement or building regulation), but in the

Estimates of basic hygiene services were available for 14 countries in 2016

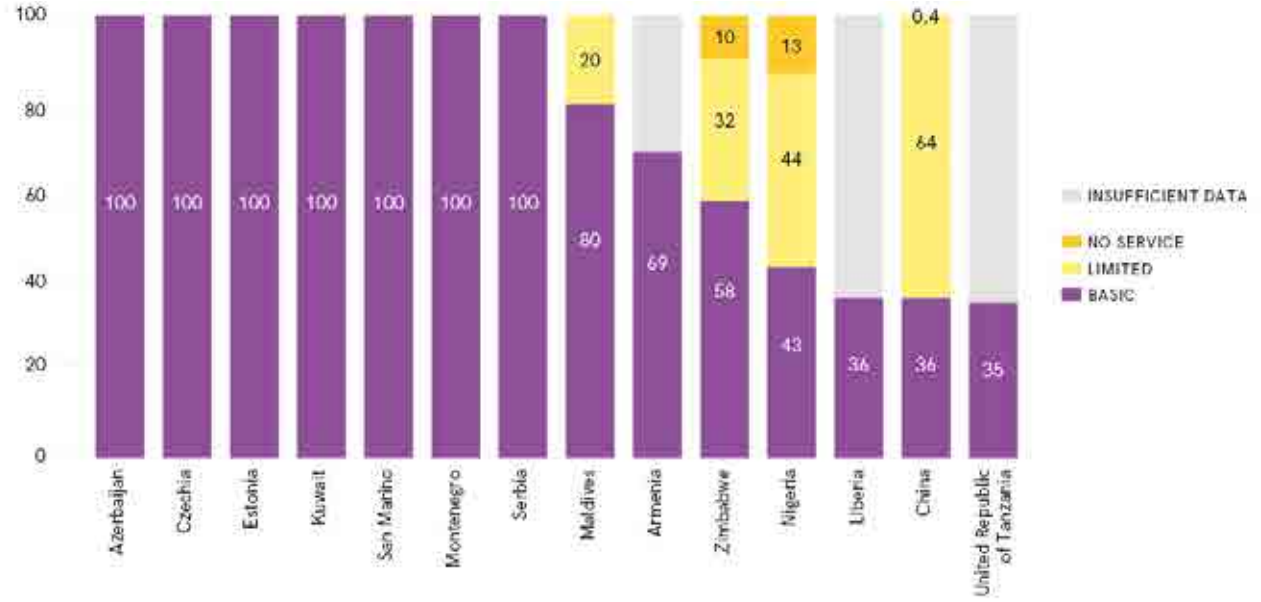


FIGURE 45 Hygiene services in health care facilities, 2016 (%)

absence of verified data on compliance, the JMP does not use such information to produce national estimates.

Estimates of **basic hygiene services** were available for 14 countries in 2016, with a combined population of 1.7 billion (Figure 44). This represents only 19% of the global population and is not sufficient to make a global estimate. In three of these countries insufficient data were available to distinguish between health care facilities with **limited services** and **no hygiene service** (Figure 45). Only 16 of the 59 countries with any data on hand hygiene had information about the availability of soap and water at toilets. Many more countries (55, with a combined population of 2.9 billion or 35% of the global population) collect information about the availability of hand hygiene facilities at points of care, though it is more common to collect data on soap and water than on alcohol-based hand rub. Globally, 57% of health care facilities had hand hygiene facilities at points of care.

Among the 19 countries with data on both soap and water and alcohol-based hand rub at points of care, some countries, including the United Republic of Tanzania, had relatively higher availability of handwashing facilities with soap and water, while others, such as Myanmar, had greater access to alcohol-based hand rub (Figure 46).

In some countries, soap and water are more commonly available at points of care; in others, alcohol-based hand rub is more common

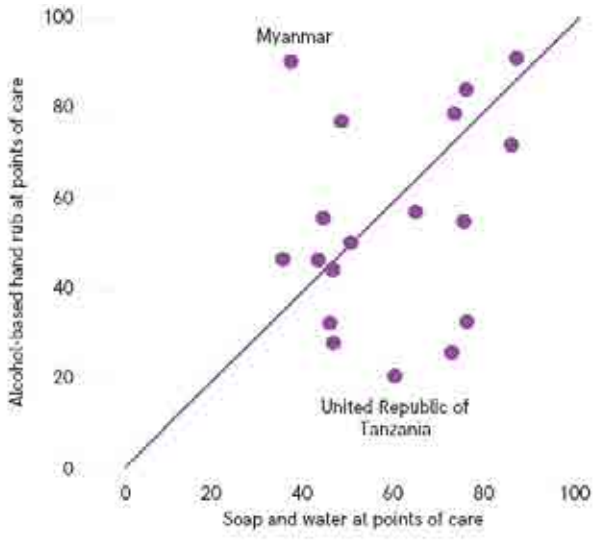


FIGURE 46 Proportion of health care facilities with alcohol-based hand rub and with soap and water at points of care, 19 countries with data available, 2016 (%)

Availability of hand hygiene materials at points of care varies widely between countries and regions, with most regions having at least one country with less than 50% coverage and at least one country with over 90% coverage (Figure 47).

Estimates of hand hygiene facilities at points of care were available for 55 countries in 2016

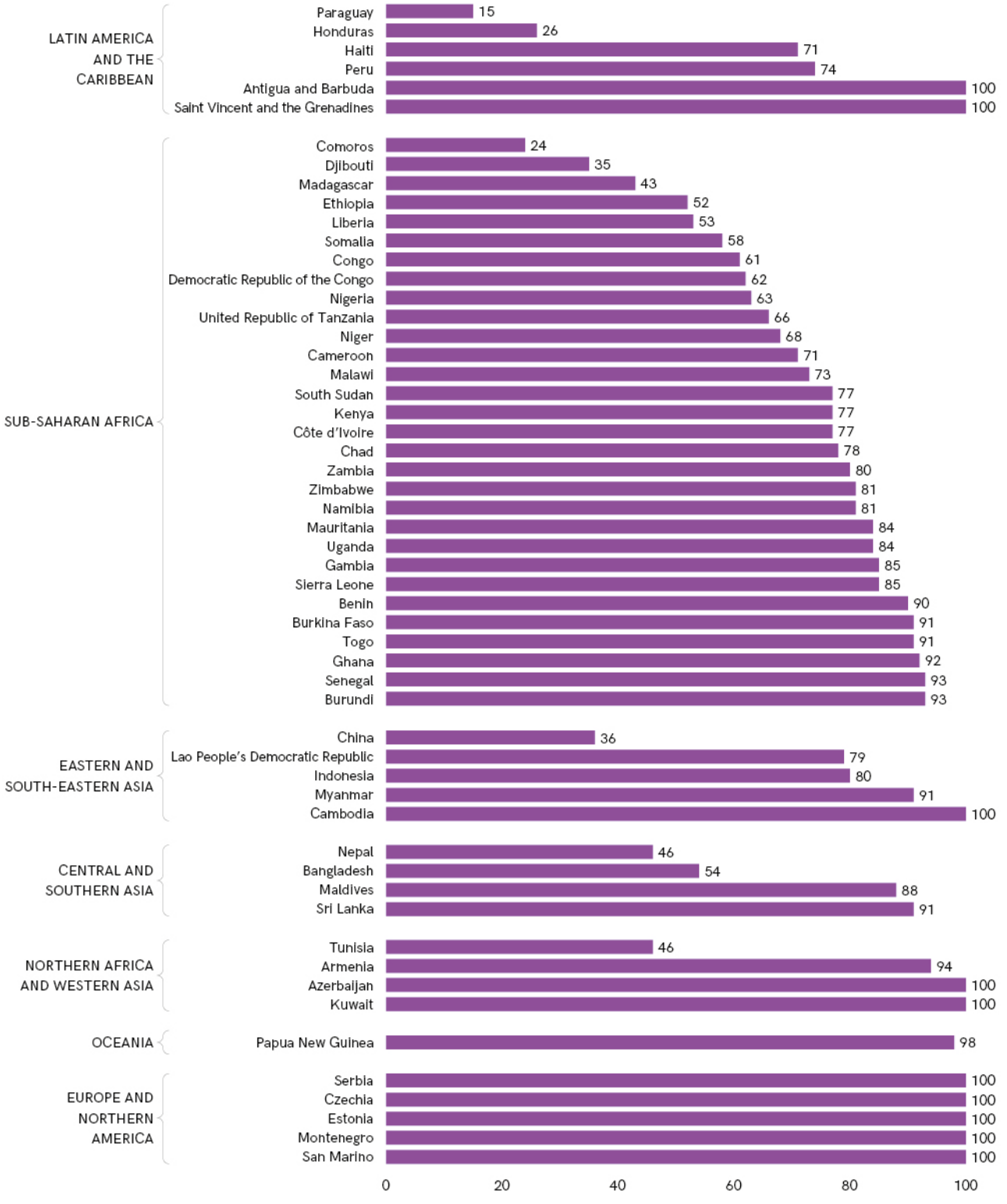


FIGURE 47 Proportion of health care facilities with hand hygiene materials at points of care, by country and SDG region, 2016 (%)

ADDITIONAL INDICATORS FOR MONITORING HYGIENE IN HEALTH CARE FACILITIES

Governments have a duty to set standards for hygiene in health care facilities and put programmes in place to improve services where necessary. The global indicator for basic hygiene services serves as a useful starting point but does not incorporate other important aspects of hygiene, such as hand hygiene technique and compliance at key moments, accessibility of handwashing stations in all points of care, or the presence and condition of bathing areas. In many health care facilities, the basic service level is already met, but hygiene services still need improvement. Countries where basic services are already the norm should consider developing and monitoring additional indicators corresponding to more advanced service levels. A few illustrative examples of national monitoring beyond the basic service level are provided here, but further work is required to standardize these measures.

Availability of hand hygiene supplies by hospital area

The basic hygiene service level includes the presence of soap and water or alcohol-based hand rub at points of care. Data from the general outpatient exam area are typically used, but availability can vary by type of exam room. In Malawi, hand hygiene facilities (running water and soap or alcohol-based hand rub) were available at 75% of delivery rooms and 65% of outpatient departments, but only 36% of child vaccination areas (Figure 48). Fewer than a third (31%) of health care facilities had hand hygiene materials available at all points of care. The outpatient department is the point of care used as the reference for global monitoring purposes, but this global metric reflects a potential overestimation of the availability of hand hygiene materials throughout the health care facility.

Hand hygiene practices

The presence of hand hygiene materials is necessary for but does not guarantee compliance at key

In Malawi, hand hygiene facilities are least likely to be found in child vaccination rooms

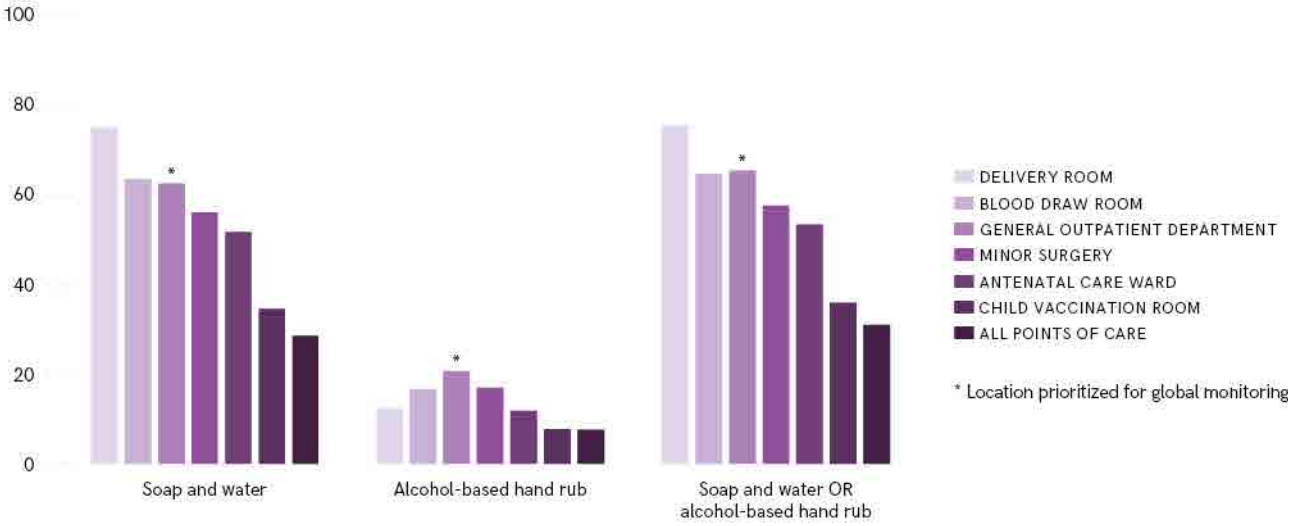


FIGURE 48 Proportion of examination rooms, by type, with soap and water and alcohol-based hand rub, observed at the time of visit at health care facilities in Malawi (Service Provision Assessment, 2013, n=540-977) (%)

moments. For example, in 2014, a survey involving a five-hour structured observation of nearly 5,000 hand hygiene opportunities at health care facilities in Bangladesh found that while 69% of hospitals had hand hygiene facilities at points of care, only 17% of health care workers washed their hands with soap after touching patients or wounds, and only 2% washed their hands with soap before patient contact or aseptic tasks (Figure 49). Similarly, while half the health care facilities in Cambodia in 2010 had handwashing facilities inside, health care workers washed their hands with soap during less than one in 30 consultations.

Hospital workers do not always practise hand hygiene at the five key moments

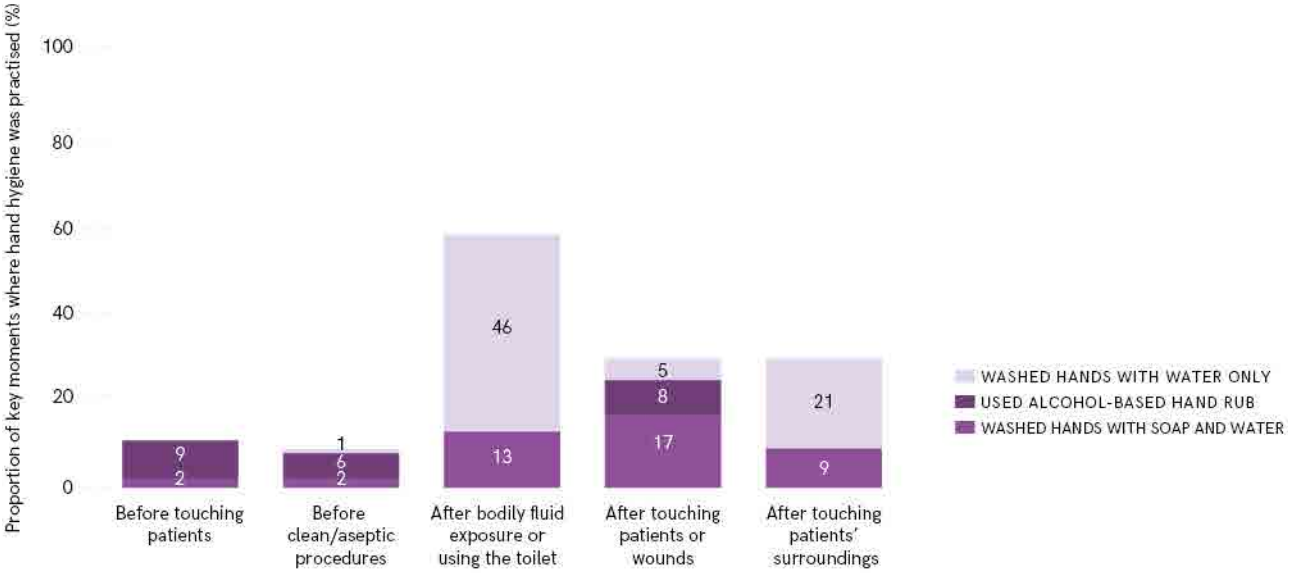


FIGURE 49 Hand hygiene compliance in hospitals in Bangladesh (National Hygiene Baseline Survey, 2014) (%)

Handwashing is often promoted at health care facilities without handwashing facilities

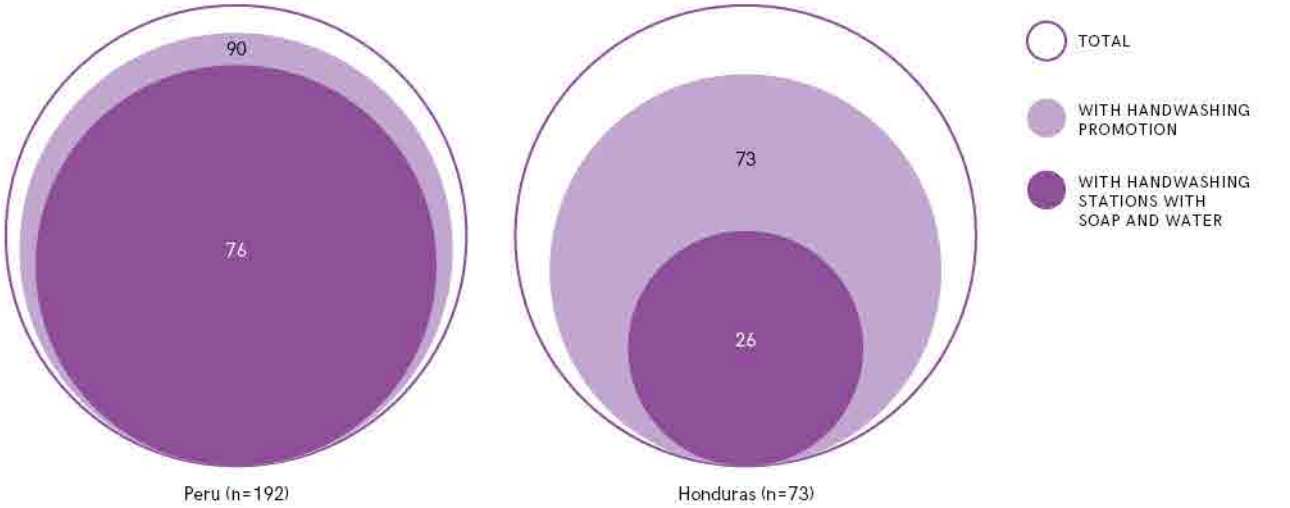


FIGURE 50 Proportion of health care facilities with handwashing facilities and with handwashing promotion, in Peru and Honduras (WHO, 2017) (%)

Over 95% of health care workers in Sierra Leone reported improving hand hygiene practices after learning about Ebola

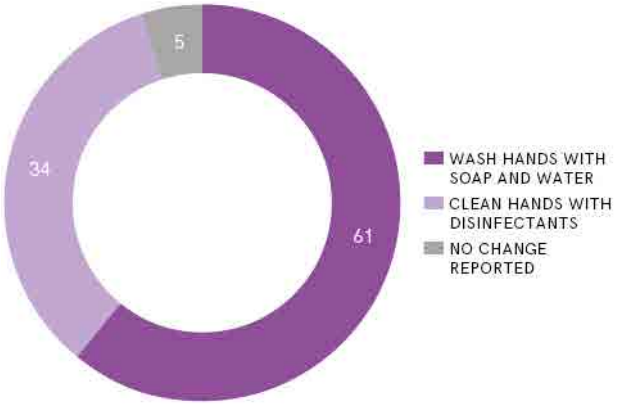


FIGURE 51 Proportion of health care workers in Sierra Leone that reported changing their hand hygiene behaviour after hearing of Ebola (Health Facility Survey, 2014) (%)

Hand hygiene promotion

Successful and sustained hand hygiene improvement is achieved by implementing multiple actions to tackle different obstacles and behavioural barriers. Promotional materials and strategies can only improve hand hygiene if hand hygiene facilities are available. In Peru, the proportion of health care facilities with training strategies and incentives for handwashing was 14 percentage points higher than the proportion with handwashing stations with soap and water available in 2017 (Figure 50). In Honduras, nearly half of health care facilities had handwashing promotion but inadequate supplies to practise proper hand hygiene.

Sierra Leone provides a positive example of change in attitudes towards handwashing in response to the Ebola epidemic. In a 2014 national census of primary health care facilities, over 95% of health care workers reported changing their handwashing behaviours since learning about Ebola (Figure 51). However, self-reported hand hygiene practices are often much higher than actual compliance due to respondent bias.

Accessibility of handwashing stations to all

Not only health care workers but also patients and visitors need to be able to wash their hands. Patients and visitors may include small children and people with limited mobility or vision. While few countries monitor the accessibility of handwashing stations in health care facilities, one survey in Lebanon found that roughly 40% of facilities had handwashing stations accessible to the youngest children and fewer than 20% had facilities accessible to those with limited mobility and vision (Figure 52).

Fewer than one in five health care facilities in Lebanon had handwashing stations accessible to those with limited mobility or vision in 2016

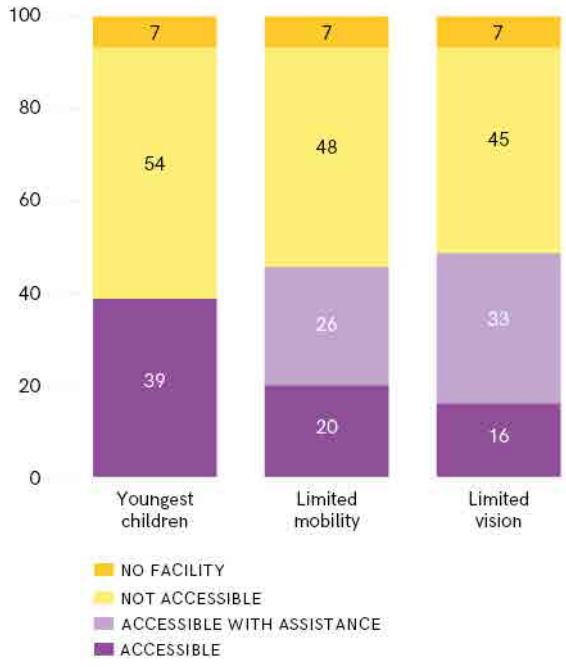


FIGURE 52 Proportion of health care facilities in Lebanon with handwashing stations accessible to small children and those with limited mobility or vision (2016, n=166) (%)[48]

Bathing areas

Bathing can reduce health care associated infections and improve patients' sense of well-being. Patients should be able to bathe in functional, clean and accessible facilities that respect their privacy and dignity. However, even where bathing facilities exist, they do not always meet patient needs. A 2004 sub-national assessment in the United Kingdom found that 10% of showers were not functioning and 28% of hospital wards did not have showers that were accessible to wheelchair users.[49] Comparison with similar studies from over 20 years before the assessment suggested a very slow rate of improvement.

[48] Sustainable Alternatives, *WASH in Public Health Centres in Lebanon*, final survey report submitted to UNICEF in February 2018.

[49] Monro, A and Mulley, GP, 'Hospital Bathrooms and Showers: A continuing saga of inadequacy', *Journal of the Royal Society of Medicine*, 2004, vol 97(5), pp 235-237, <https://journals.sagepub.com/doi/pdf/10.1177/014107680409700507>.

WASTE MANAGEMENT SERVICES IN HEALTH CARE FACILITIES

Most waste produced in health care facilities – about 85% – is not hazardous and can be disposed of along with general solid waste. The remaining 15% is either infectious, chemically hazardous or radioactive, and must be managed appropriately to prevent unsafe exposure to health care workers, patients, visitors, waste handlers and the public.[50] Used needles and other sharp materials are generally considered the most hazardous category of health care waste because they can easily cause needle stick injuries and subsequent infection.[51]

WASTE MANAGEMENT
Basic service Waste is safely segregated into at least three bins, and sharps and infectious waste are treated and disposed of safely.
Limited service There is limited separation and/or treatment and disposal of sharps and infectious waste, but not all requirements for basic service are met.
No service There are no separate bins for sharps or infectious waste, and sharps and/or infectious waste are not treated/disposed of safely.

FIGURE 53 Basic health care waste management services ladder

[50] World Health Organization, *Safe Management of Wastes from Health-care Activities*, WHO, Geneva, 2014, <www.who.int/water_sanitation_health/publications/wastemanag/en>.

[51] World Health Organization, *Management of Waste from Injection Activities at District Level*, WHO, Geneva, 2006, <www.who.int/management/quality/ManagementWasteInjections.pdf>.

Illustration of construction of the health care waste management services ladder: India

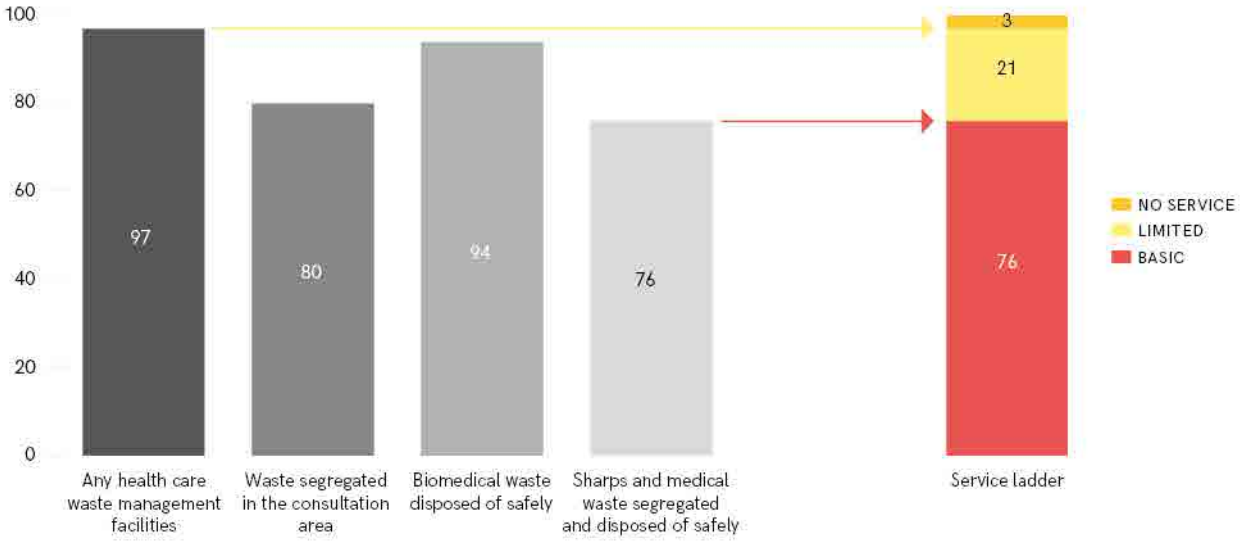


FIGURE 54 Waste management services in public district hospitals of India (Kayakalp, 2018) (%)

The first step in the management of health care waste is to segregate it into appropriate bags or containers at the point of generation, using at least three categories: general non-hazardous waste, infectious waste, and sharp waste. Following segregation, infectious and sharp waste should be securely stored, and then taken to facilities for treatment and disposal, either on the premises or at a designated off-site facility.

For global monitoring, the **basic services** indicator includes segregation of waste into at least three bins, and safe treatment and disposal of sharps and infectious waste. If a health care facility has partial systems for segregation and/or treatment of waste, such as burning waste in an open pit rather than a two-stage incinerator, it is classified as having **limited services**, while facilities without systems for waste segregation or treatment and disposal are considered to have **no service**.

The Indian Ministry of Health & Family Welfare launched the Kayakalp programme in 2015 to complement the broader efforts of the Swachh Bharat (Clean India) initiative. The Kayakalp scheme relies on monitoring a range of indicators related to cleanliness and infection control in health care facilities.[52] Health care facilities are assessed by peer organizations and then verified by third party inspection teams. Data on health care waste management from the 2018 assessment have been analysed by the Indian National Health Systems Resource Centre for 701 public district hospitals and data on primary health centres will be available later in 2019. The hospital data in Figure 54 show that nearly all (97%) district hospitals have some form of waste management, with only 3% being classified as having **no service**. Disposal of biomedical waste (including sharps and infectious waste) was also high at 94%. Waste segregation, including storage of sharps in puncture-proof containers and segregation of other biomedical wastes according to a 2016 national guideline, was lower at 80%. In all, 76% of Indian hospitals had both segregation and disposal and were classified as having **basic services**.

In 2016, data were available for only three out of eight SDG regions and these were not enough to make global estimates of waste management services in health care facilities (Figure 55). The most complete data were available for sub-Saharan Africa where **basic**, **limited** and **no service** indicators could be calculated. In addition, **basic services** could be calculated in the Oceania region, while in Northern Africa and Western Asia data were available for the **no service** indicator.

[52] Ministry of Health & Family Welfare, *Guidelines for Implementation of "Kayakalp" Initiative*, Government of India, New Delhi, undated, <www.nhm.gov.in/images/pdf/in-focus/Implementation_Guidebook_for_Kayakalp.pdf>.

BASIC WASTE MANAGEMENT SERVICES

In Least Developed Countries, 27% of health care facilities had basic health care waste management services in 2016

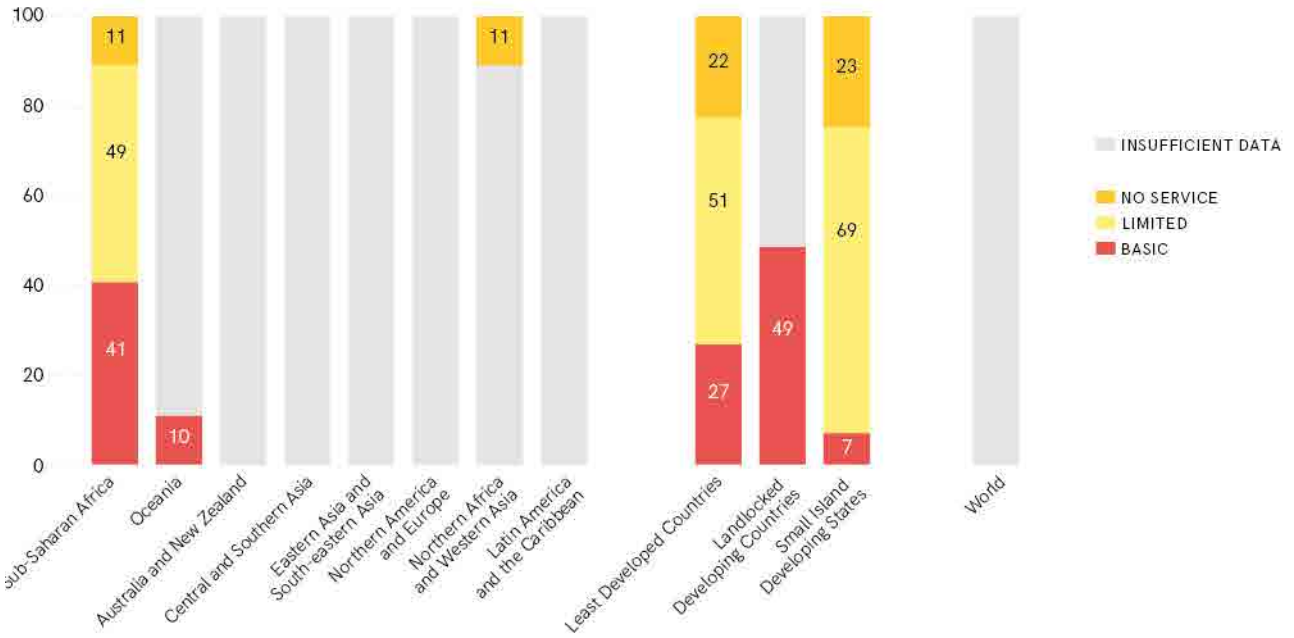


FIGURE 55 Regional and global waste management services in health care facilities, 2016 (%)

Data on basic health care waste management services were available for 48 countries, with a combined population of 1.4 billion, in 2016

FIGURE 56 Data coverage for health care waste management services in health care facilities, by indicator, number of countries and population with data available (billions), 2016

Data on **basic waste management services** in health care facilities (including hospitals and other health care facilities) were available from 48 countries (Figure 56), with a combined population of 1.4 billion or 19% of the global population, which is not enough to make a global estimate. However, there were enough data on **basic waste management** services in hospitals (46 countries, comprising 35% of the global population) to report that two thirds (65%) of hospitals globally have **basic services** (Figure 57), though this estimate is heavily influenced by the Kayakalp data from India (Figure 54), which found a fairly high level of services. Globally, treatment and disposal of infectious waste and sharps in hospitals were similar at about 80%, though in the case of India, both are reported together as treatment of biomedical waste. Segregation of waste was slightly lower, with only three out of four hospitals (75%) segregating waste into at least three bins.

Basic waste management services ranged from 100% in several high-income countries to single digits in some low-income countries (Figure 58). Only 28 out of the 48 countries with **basic** estimates could also disaggregate between **limited**

Globally one out of three hospitals lacked basic waste management services

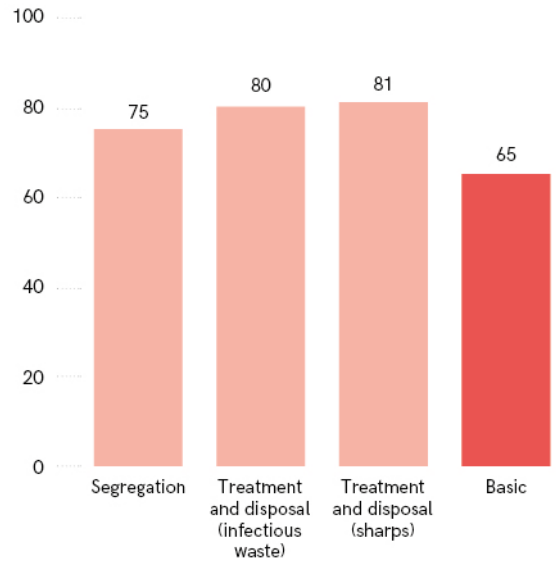


FIGURE 57 Health care waste management services in hospitals (n=46 countries), 2016 (%)

Waste is sometimes treated without being segregated, and segregated waste is often not treated

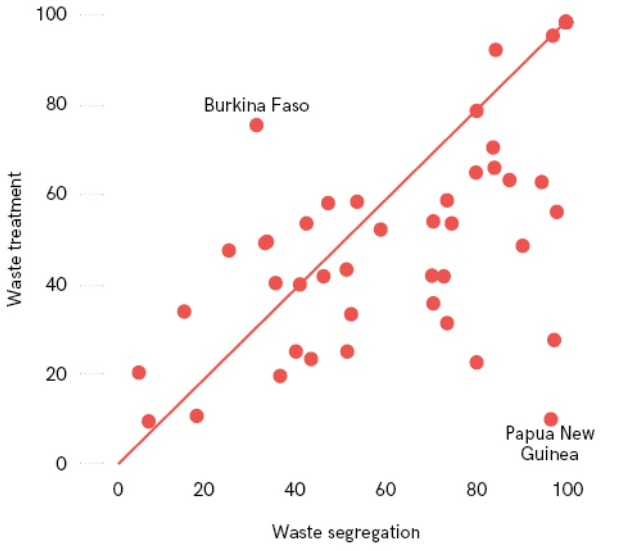


FIGURE 59 Waste segregation and treatment in health care facilities, 2016 (%)

services and **no service**. In ten of these countries, at least 10% of health care facilities had **no service**.

Of the 48 countries where data were available on both waste segregation and treatment, levels of waste segregation were higher than levels of waste treatment in 26 countries, while in 13 countries treatment was higher than segregation (Figure 59). In the remaining nine countries, segregation and treatment were equal, usually at 100%. In Papua New Guinea, waste segregation was nearly universal, but most waste was burnt in open pits, which doesn't count towards the basic service level. In contrast, in Burkina Faso treatment of both infectious waste and sharps was high, but segregation of infectious waste relatively low.

Estimates of basic health care waste management services were available for 48 countries in 2016

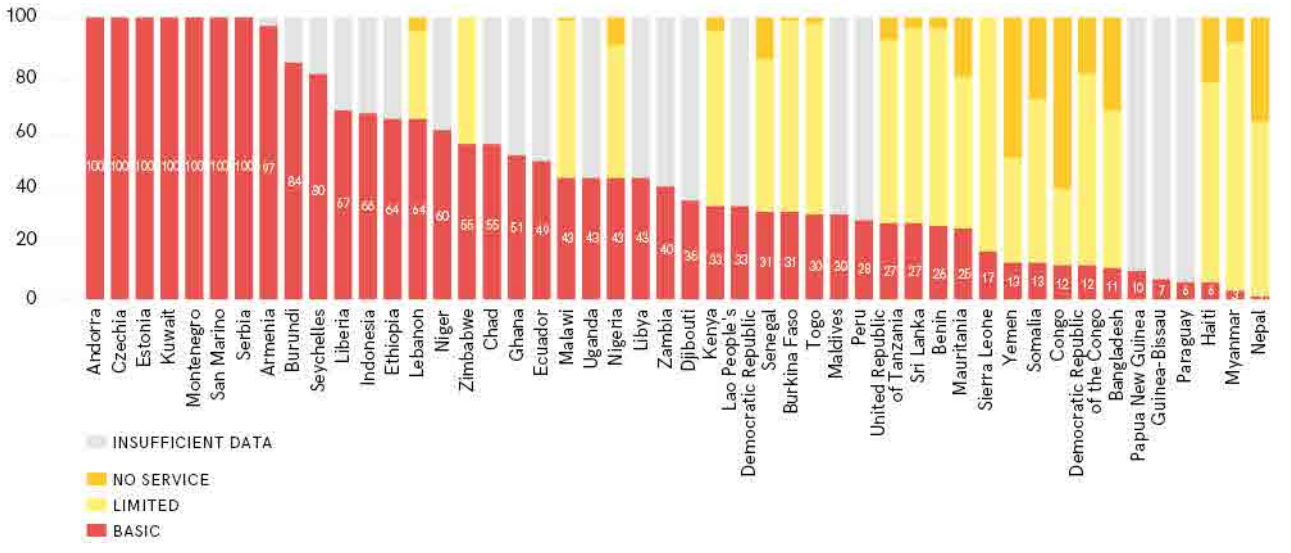


FIGURE 58 Waste management services in health care facilities, 2016 (%)

Estimates of safe segregation of health care waste were available for 60 countries in 2016

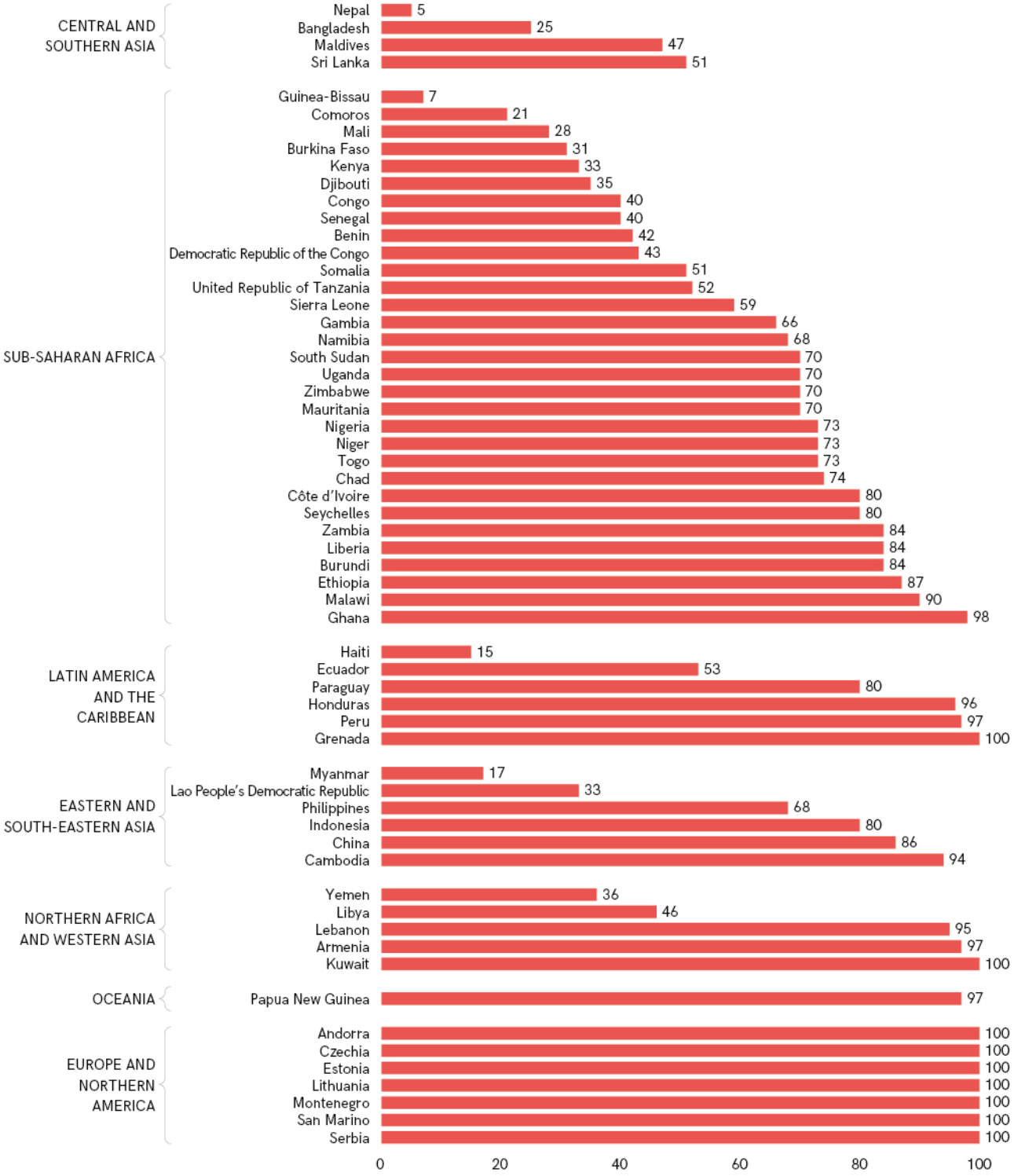


FIGURE 60 Proportion of health care facilities with waste segregation, by country and SDG region, 2016 (%)

Estimates for safe treatment and disposal of health care waste were available for 53 countries in 2016

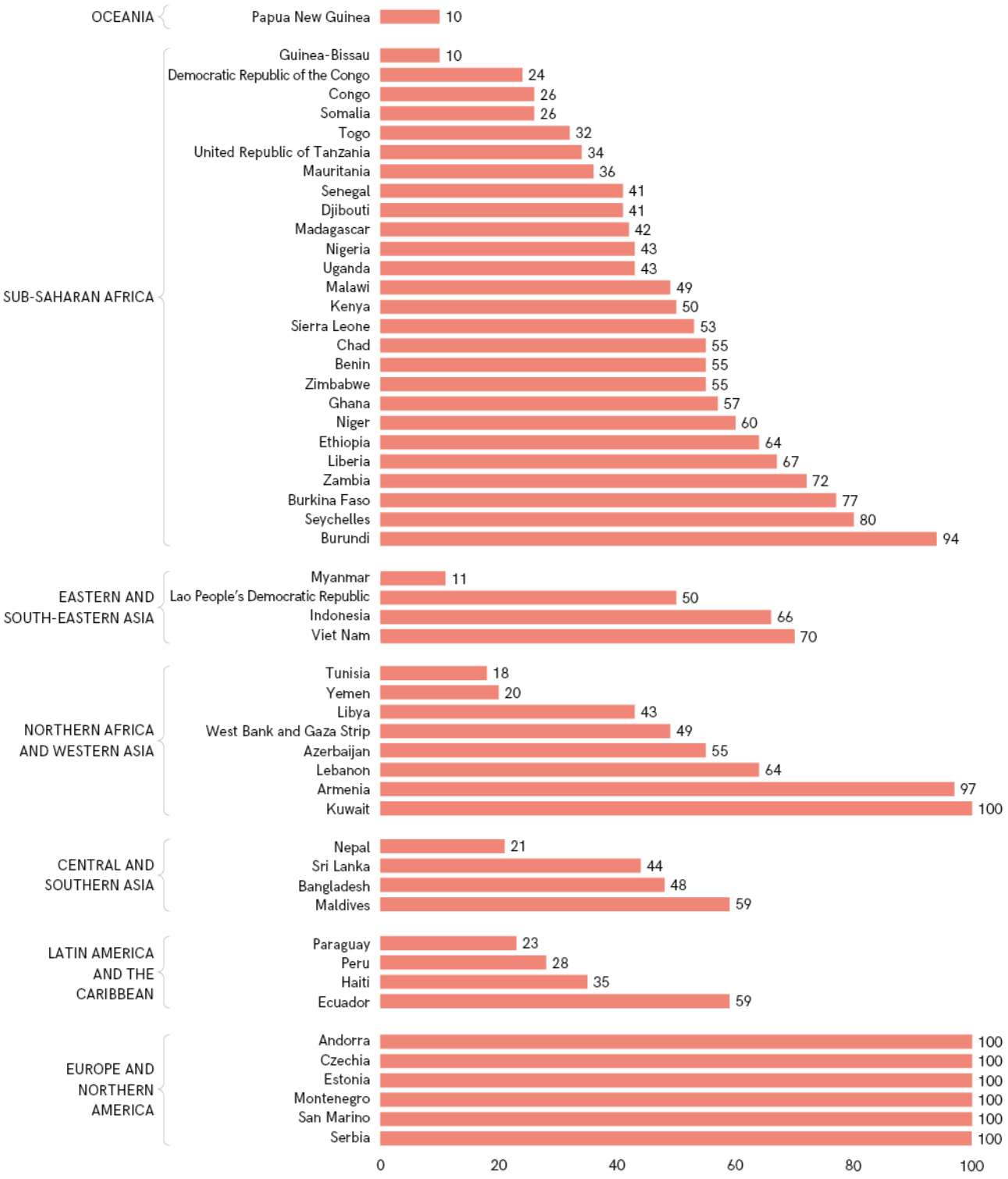


FIGURE 61 Proportion of health care facilities with waste treatment, by country and SDG region, 2016 (%)

Many countries collect information on segregation of health care waste, and national estimates were available for 60 countries in 2016 (Figure 60), representing 40% of the global population. On average, 60% of health care facilities had at least some segregation system. However, the way in which segregation is assessed varies considerably from survey to survey. Some simply record if there is a sharps box, while others check to see if sharps boxes are available in all waste-producing areas, are used properly (for example, not overfilled) and are appropriately labelled. Many surveys don't collect information about segregation of other waste or use of the recommended three bin system. The Service Availability and Readiness Assessment (SARA) surveys do collect information on the availability of sharps containers (safety boxes) and waste receptacles (pedal bins) with a lid and plastic liner for storage of infectious waste, and in most cases find that segregation and appropriate storage is significantly better for sharps than for infectious waste (Figure 62). Surveys that collect information only about sharps containers may therefore overestimate segregation practices in health care facilities.

Slightly fewer countries had national estimates on waste treatment and disposal than had estimates on waste segregation. National estimates on health care waste treatment were available for 53 countries, representing 21% of the global population. In six of the seven SDG regions where national data were available, at least one country had fewer than 25% of health care facilities practising safe health care waste treatment and disposal (Figure 61). Only around one in ten health care facilities in Papua New Guinea, Guinea-Bissau and Myanmar used safe treatment methods for infectious and sharps waste.

Waste segregation and storage is usually higher for sharps than for infectious waste

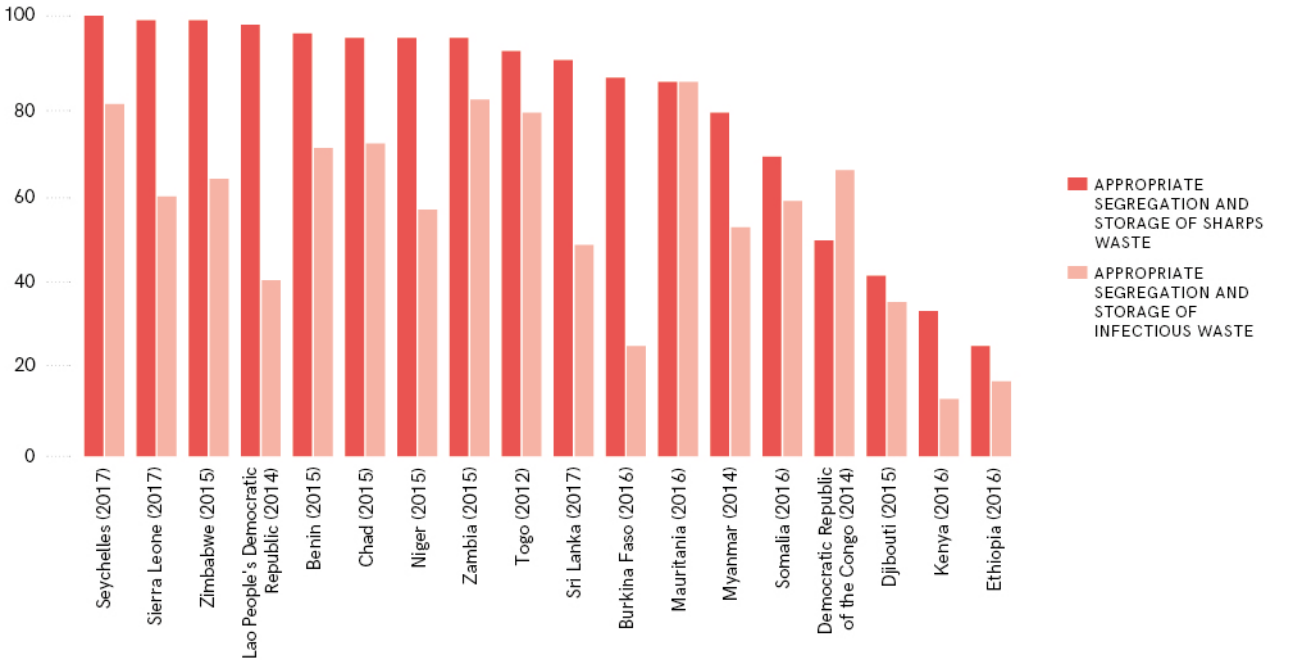


FIGURE 62 Appropriate segregation and storage of sharps and infectious waste in selected Service Availability and Readiness Assessment (SARA) surveys, 2012–17 (%)

Most countries report similar levels of treatment for sharps and infectious waste (Figure 63), and in many data sources, treatment is not reported separately for the two kinds of waste. Where there are differences, sharps waste tends to be slightly better managed than infectious waste. For example, the 2017 Service Provision Assessment survey in Senegal found that nearly 80% of sharps waste was removed off-site in protected containers, compared with 11% of infectious waste. Most infectious waste was instead treated on site, either in an incinerator, which counts towards the global basic services indicator, or through open burning, which does not (Figure 64). However, in Azerbaijan, all infectious waste, but only 55% of sharps waste, is reportedly treated appropriately.

A wide range of technologies are used to treat health care waste, and the most appropriate technology will depend on local circumstances, balancing the need to protect public health and the environment.

Sharps and infectious waste often receive similar levels of treatment

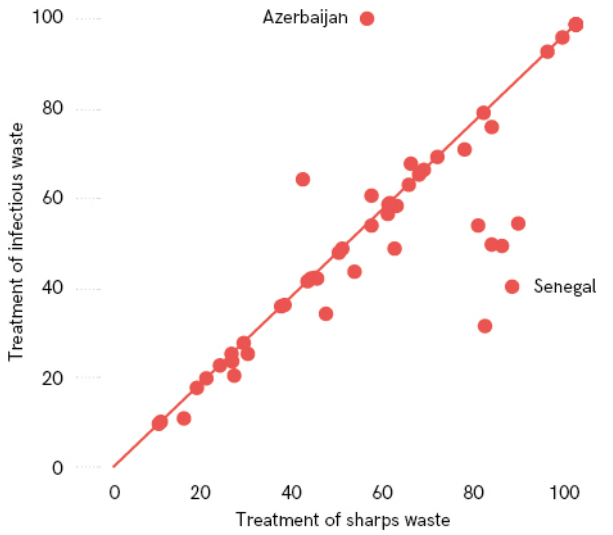


FIGURE 63 Treatment of infectious waste and sharps in health care facilities, 2016 (%)

Open burning of sharps waste is widespread

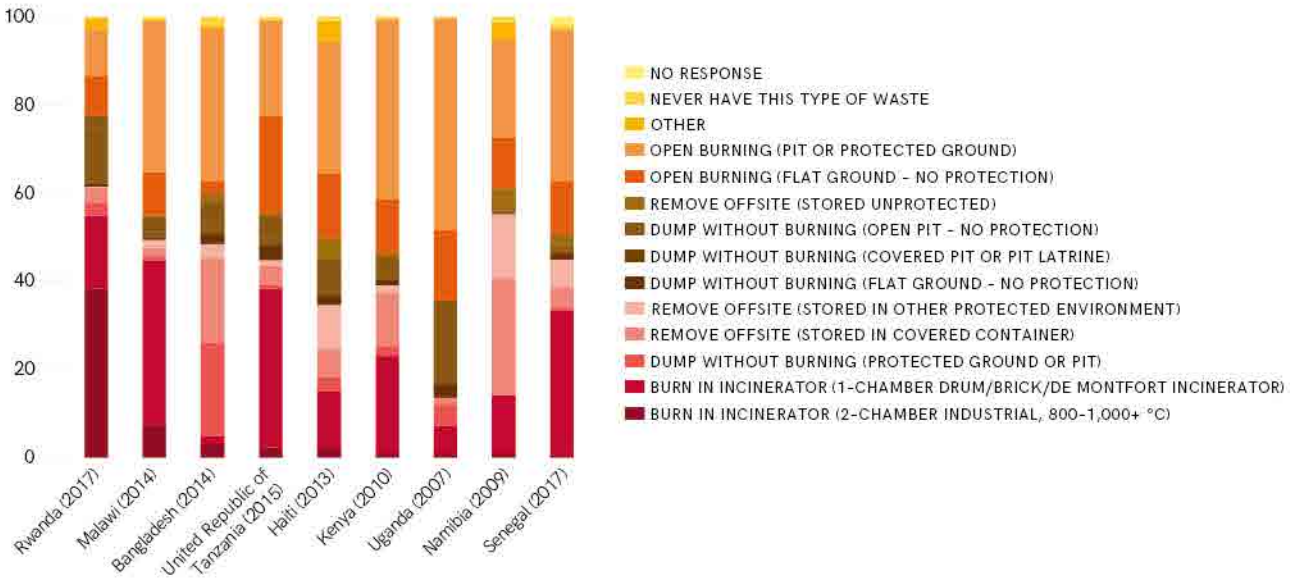


FIGURE 64 Method used for treatment and disposal of sharps in selected Service Provision Assessment (SPA) surveys 2012–17 (%)

In accordance with the Basel Convention,[53] it is recommended that waste treatment techniques that minimize the formation and release of chemicals or hazardous emissions should be prioritized. Incineration or burning is widely practised, but can cause serious environmental pollution, including the formation of highly toxic dioxin and furan compounds.

The Stockholm Convention[54] sets targets for avoiding the formation of dioxins and furans by either avoiding combustion-based technologies or ensuring that combustion is done at high temperature: a first chamber should reach at least 850 °C, while temperatures in a second chamber should reach at least 1,100 °C to minimize the formation of toxic compounds.[55] However, health care facilities in low-income and middle-income settings more commonly use simpler single-chamber incinerators or open burning (Figure 64), which don't reach high enough temperatures to prevent the formation of toxic chemicals. This may be the best available option as a transitional measure if the only alternative is uncontrolled dumping. Where low-temperature burning is practised, health care facilities should avoid burning PVC plastics and other chlorinated wastes that can lead to the formation of dioxins and furans.

For global monitoring, the JMP counts incineration, including single-stage, towards the basic service level, but does not count open burning. Burial in a protected lined pit or removal for treatment offsite are also counted towards the basic service level. In principle, steam-based technologies such as autoclaving, or innovative technologies such as microwave radiation and frictional heat treatment can also effectively decontaminate waste and would count towards the basic service level, but these are not commonly available in low-income and middle-income settings or recorded in most facility assessments. Some surveys (including SARA and SPA) collect information on a variety of treatment technologies (Figure 64), but many assessments only record if waste is burned.

[53] The most comprehensive global environmental treaty on hazardous and other wastes is: United Nations Environment Programme, The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, UN, Geneva, 1989, <www.basel.int/TheConvention/Overview>.

[54] United Nations Environment Programme, The Stockholm Convention on Persistent Organic Pollutants (POPs), UN, Geneva, 1989 <www.pops.int> a global treaty to protect human health and the environment from highly dangerous, long-lasting chemicals, by restricting and ultimately eliminating their production, use, trade, release and storage.

[55] World Health Organization, *Safe Management of Wastes from Health-care Activities*, WHO, Geneva, 2014, <www.who.int/water_sanitation_health/publications/wastemanag/en>.

ADDITIONAL INDICATORS FOR MONITORING WASTE MANAGEMENT IN HEALTH CARE FACILITIES

Governments must set their own standards for health care waste management and put programmes in place to improve their services in line with strengthening the health system. The global indicator for basic services is a useful starting point, but does not incorporate important aspects of waste management, such as whether incinerators function reliably, how waste generation can be minimized, and disposal of placentas in delivery settings. Even in health care facilities with a basic service, waste management services may still need improvement. Where resources allow, additional indicators should be monitored based on national priorities.

Incinerator functionality

High temperature two-chamber incineration is considered a safe treatment method for health care waste, as it minimizes the formation of toxic compounds. However, in some countries, incinerators at health care facilities are not functional or fuel is not available to operate them (Figure 65). For example, in Malawi, over half of health care facilities had an incinerator, but at the time of the survey, the incinerator was functional at 88% of these facilities and fuel was available at only 45%. In Somalia, 15% of health care facilities had an incinerator, but 60% and 66% of those had a functional system and fuel available, respectively.

Waste minimization

Health care waste that is not safely treated can have harmful effects on human and environmental health. In some countries, a large quantity of infectious and sharps waste produced at health care facilities is released into the environment without safe treatment. In Yemen, for example, a 2017 assessment of 72 hospitals found that each generated on average roughly 8.2 kg of sharps waste per day, of which 5 kg was not safely segregated and only 1.3 kg was safely segregated and treated (Figure 66). Similarly, 11.8 kg of infectious waste was produced per day on average, but only 1.5 kg was safely segregated and treated.

While it is critical to ensure hazardous health care waste is safely treated and disposed of, it is also important to exclude non-hazardous waste from waste streams that

Waste incinerators are not always functional and do not always have fuel available to operate

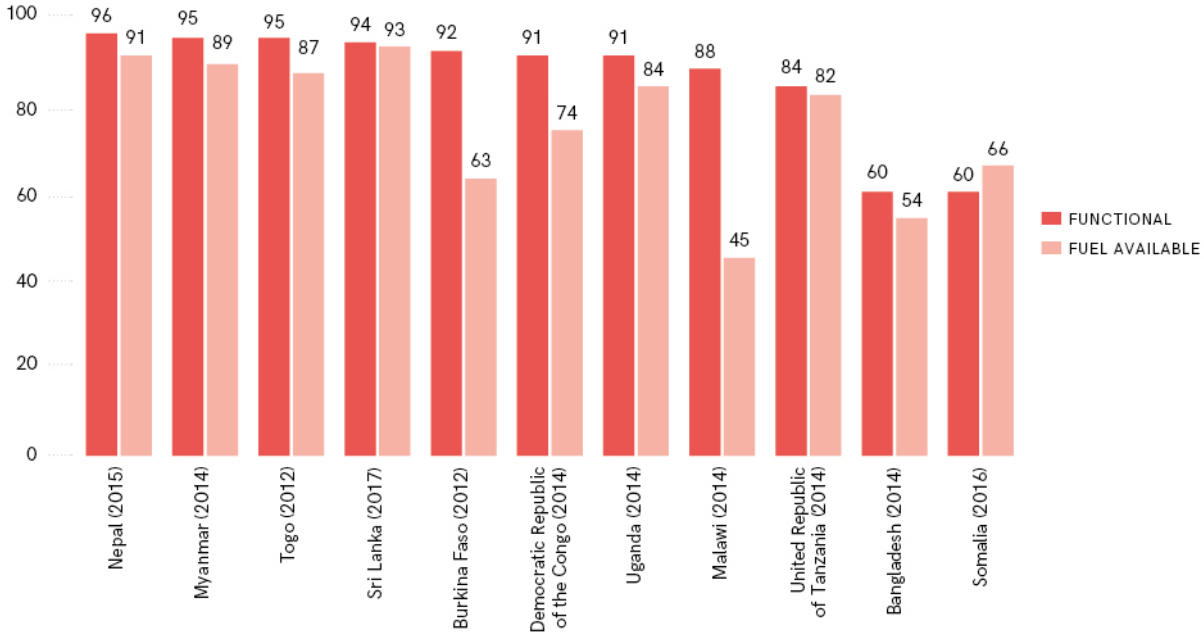


FIGURE 65 Proportion of health care facilities with waste incinerators that were functional and had fuel available at the time of the survey, by country (%)

require costly treatment processes, such as sterilization or high-temperature incineration. A 2014 evaluation of the contents of infectious waste streams in Irish health care facilities identified 66% of the waste stream as contaminated, 19% as clean packaging material that was non-hazardous, and 15% as uncontaminated and potentially not of risk (Figure 67). The cost of incorrect segregation of non-hazardous waste into the hazardous health care waste stream was an estimated 700 Euro per tonne. Based on the amount of waste produced (1.9 kg and 0.2 kg per in-patient bed at hospitals and health centres, respectively) the government estimated hospitals could save up to 27,000 Euro per year and health centres could save up to 6,000 Euro per year by ensuring non-hazardous waste is excluded from hazardous waste streams.[56]

In addition to the financial implications of appropriately separating waste, there are other resource limitations to consider, including space and disposal site management. In South Africa, health care facilities produced approximately 45,000 tonnes of health care waste in 2013. Authorized disposal sites have been unable to manage the large quantities of incoming health care waste and illegal dumping has been reported.[57] Segregating non-hazardous waste and excluding it from the hazardous waste stream reduces the amount of waste to be treated and, in places where safe disposal sites are overextended, can help alleviate health risks associated with illegal dumping of medical waste. Best practice waste management will aim to avoid or recover and recycle as much material as possible, to reduce the need for waste treatment and disposal.

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[56] Irish Environmental Protection Agency, *Reducing Waste in Irish Healthcare Facilities: Results, guidance and tips from a 3-year programme*, CIT Press, Cork, 2014, <www.epa.ie/pubs/advice/green%20business/Reducing-food-waste-in-Irish-healthcare-Facilities-foodwaste-guidance-booklet-reduced-size.pdf>.

[57] Olanyiy, FC, Ogola, JS, and Tshitangano, TG, 'A review of medical waste management in South Africa', *Open Environmental Sciences*, 2018, 10, pp 34-45, <benthamopen.com/FULLTEXT/TOENVIRJ-10-34>.

Much of the waste produced in Yemen hospitals was not segregated or treated

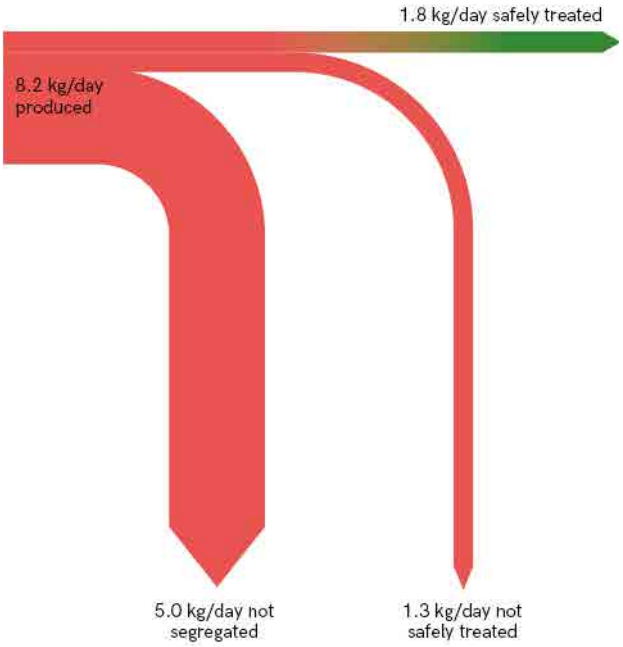


FIGURE 66 Production, segregation and treatment of sharps waste in Yemen hospitals (WHO Emergency Health and Nutrition Project, 2017) (%)

Placenta disposal

Pathological waste management should include safe placenta disposal in any delivery setting. Placentas, and pathological waste generally, should not be treated with chemical disinfectants, which destroy the microorganisms that aid the decomposition process. Safe burial of pathological waste in cemeteries or safe burning in crematoriums are recommended disposal options. A common treatment method in low-resource settings is a placenta pit, which allows the solids to biodegrade and liquids to percolate into the ground. In some cultures, mothers and their families may prefer to take the placenta home or bury it themselves. While few countries have data on placenta disposal, Cambodia provides an interesting example from 2016. In 69% of hospitals and health centres, placenta waste was typically treated in onsite protected placenta pits, in 20% the mother usually took the placenta home, in 6% the placenta was buried on the facility grounds, and the remaining 5% of facilities did not have delivery services (Figure 68). When health care workers were asked what the major WASH-related constraints were at the facility, 7% of respondents specifically mentioned the lack of a placenta pit.

Better segregation could reduce the amount of health care waste sent for treatment

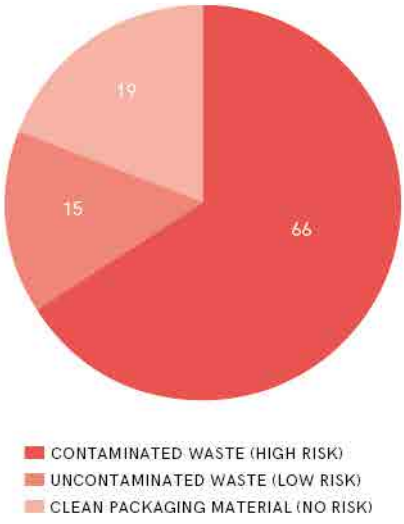


FIGURE 67 Proportion of waste in the Irish health care waste stream by level of contamination (Ireland EPA, 2014) (%)

Placentas are often placed in a placenta pit or taken home by the mother

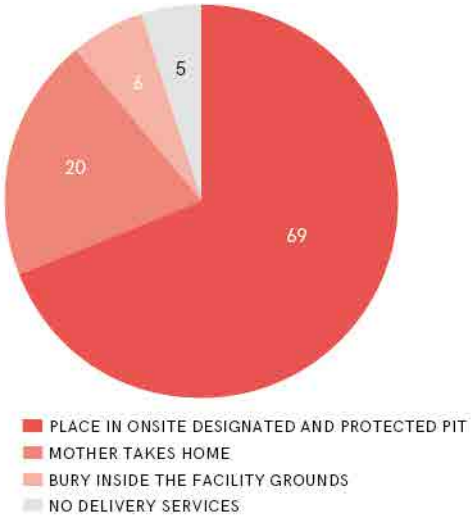


FIGURE 68 Placenta disposal methods in Cambodian hospitals and health centres (National Institute of Public Health, 2016, n=117) (%)

ENVIRONMENTAL CLEANING SERVICES IN HEALTH CARE FACILITIES

Environmental contamination plays a role in the transmission of health care associated infections (HCAI). Some of the pathogens frequently linked with HCAI can survive for months on surfaces such as bed rails, tables and floors.[58] Effective environmental cleaning is a fundamental intervention for infection prevention and control (IPC) and has been shown to significantly reduce the transmission of HCAI. Environmental cleaning refers to the cleaning and disinfection (when necessary) of environmental surfaces (for example, bed rails, call buttons, chairs) and surfaces of non-critical patient care equipment (for example, IV poles, stethoscopes).[59] Environmental cleaning also includes the cleaning and disinfection of floors and bathrooms, and the management of spills of blood and bodily fluids.

Environmental cleaning requires products such as cleaning tools (for example, cleaning cloths and wipes, mops, buckets) and cleaning materials (for example, detergents, disinfectants) as well as personal protective equipment for the cleaning staff. Also, fundamentally, environmental cleaning requires access to sufficient quantities of clean water. Different products and materials should be used for different types of cleaning, including routine cleaning conducted on a regular basis, terminal cleaning conducted after patient discharge, and responsive cleaning following specific events, such as spills of blood or bodily fluids.

ENVIRONMENTAL CLEANING
Basic service Basic protocols for cleaning are available, and staff with cleaning responsibilities have all received training.
Limited service There are cleaning protocols and/or at least some staff have received training on cleaning.
No service No cleaning protocols are available and no staff have received training on cleaning.

FIGURE 69 Basic environmental cleaning services ladder for health care facilities

All health care facilities should establish environmental cleaning policies that describe the required type and frequency of cleaning for different purposes, who is responsible for doing the cleaning, and how cleaning should be performed and recorded. Health care facilities should develop written protocols or standard operating procedures (SOPs) that specify the tools and materials that should be used for each type of cleaning and provide step-by-step instructions on the process. SOPs should also describe preparatory steps, including the use of personal protective equipment, and final steps, such as the management of soiled cleaning supplies.

[58] World Health Organization, *Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level*, WHO, Geneva, 2016, <www.who.int/gpsc/ipc-components/en>.

[59] Centers for Disease Control and Prevention and Infection Control Africa Network, *Best Practices for Environmental Cleaning in Healthcare Facilities* (DRAFT), CDC and ICAN, Atlanta, 2019.

BASIC ENVIRONMENTAL CLEANING SERVICES

Policies and SOPs are only effective when health care workers are aware of them and trained in their implementation. Environmental cleaning policies should clearly identify who is responsible for which types of cleaning and establish requirements for foundational and refresher trainings for all staff with cleaning responsibilities.

This report introduces an environmental cleaning service ladder that defines a basic minimum level of service for all health care facilities and uses data currently available from national sources to classify facilities as having **basic services**, **limited services**, or **no service** (Figure 69). The **basic service** level consists of having written protocols available and ensuring all staff with cleaning responsibilities have received training. Facilities that either have no protocols in place or have provided some but not all staff with training on environmental cleaning are classified as having **limited services**, while facilities lacking both protocols and training are considered to have **no service**.

Globally, only four countries had national estimates for **basic** environmental cleaning in health care facilities (Figure 70). An additional three countries had data on either the availability of cleaning protocols or the training of health care workers (Figure 71). Among the countries with both sets of information, protocols were more commonly available than training in the Maldives and Tunisia, while training was slightly more prevalent than having protocols in Montenegro.

Estimates of basic environmental cleaning services were available for four countries in 2016

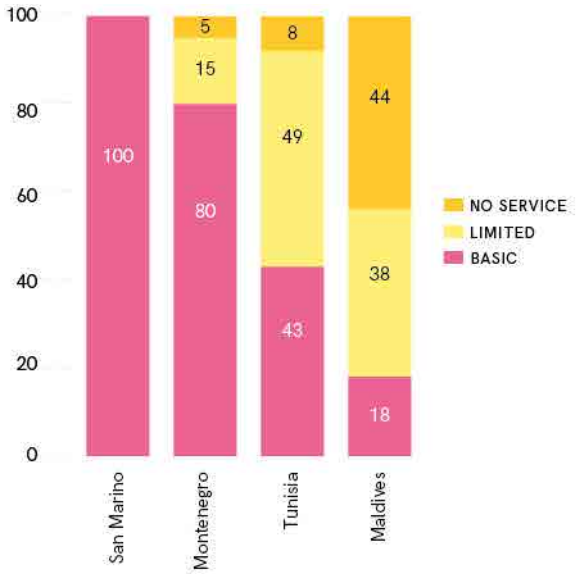


FIGURE 70 Basic environmental cleaning services in health care facilities, 2016 (%)

Not all health care facilities had environmental cleaning protocols and not all staff had received training in countries with data in 2016

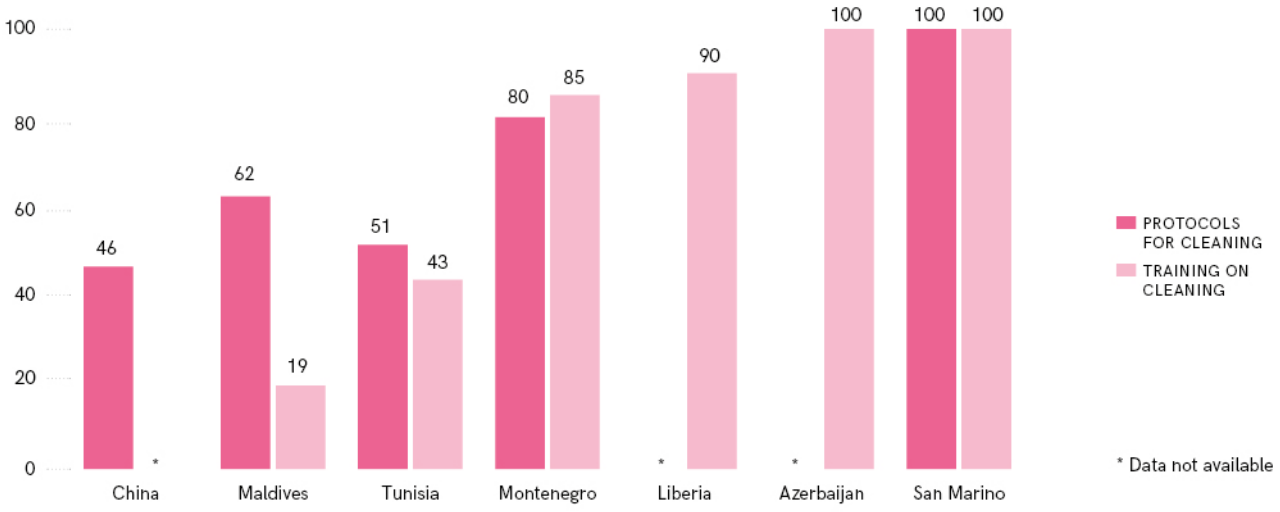


FIGURE 71 Protocols and training on environmental cleaning services in health care facilities, 2016 (%)

ADDITIONAL INDICATORS FOR MONITORING ENVIRONMENTAL CLEANING IN HEALTH CARE FACILITIES

Governments must set their own standards for environmental cleaning in health care facilities and put programmes in place to improve their services in line with strengthening the health system. The global indicator for basic environmental cleaning services is a useful starting point but does not incorporate important aspects, such as observed cleanliness, cleaning frequency, availability of cleaning supplies and use of personal protective equipment. In some health care facilities, the basic service level may have already been met but environmental cleaning services still need improvement. Countries may consider additional indicators corresponding to more advanced service levels depending on the priorities and available resources. The following examples illustrate national monitoring beyond the basic service level for environmental cleaning in health care facilities and are not intended to be comprehensive.

Observed cleanliness

While monitoring the elements of basic environmental cleaning services (availability of protocols and extent of training) is typically more objectively comparable and less resource intensive than observing facility cleanliness directly, data on observed cleanliness of health care facilities can provide useful additional information. Surveys in Malawi, Senegal and Bangladesh provide examples of monitoring systems in which survey teams conduct spot checks within facilities and record whether counters, tables and chairs appear to have been wiped clean and floors have been swept (Figure 72). In Tunisia, the overall cleanliness score for health care facilities was 54%, based on five observed criteria:[60]

- cleaning schedules are posted
- cleaning schedules are respected
- floors, walls and ceilings are clean
- absence of unpleasant smells or tobacco odour
- absence of dust and dirt on furniture

Cleaning frequency

Global guidelines recommend that all horizontal surfaces in health care facilities are cleaned at least daily and whenever they are dirty.[61] Wet mopping with hot water and detergent is advised. While few countries have data on the frequency and methods of cleaning at health care facilities, routine cleaning may be much less frequent than once per day at some facilities and even fewer clean facilities daily with hot water and detergent. For example, in Bhutan, only 68% of hospitals mopped with chlorine or detergent,[62] while in Cambodia, 79% of facilities were cleaned at least once per day and 53% used detergent daily in 2016 (Figure 73).

Availability of cleaning supplies

A consistent supply of cleaning materials, including detergent and disinfectant, is needed for routine cleaning, but disinfectant is often unavailable.

Health care facilities are not always clean

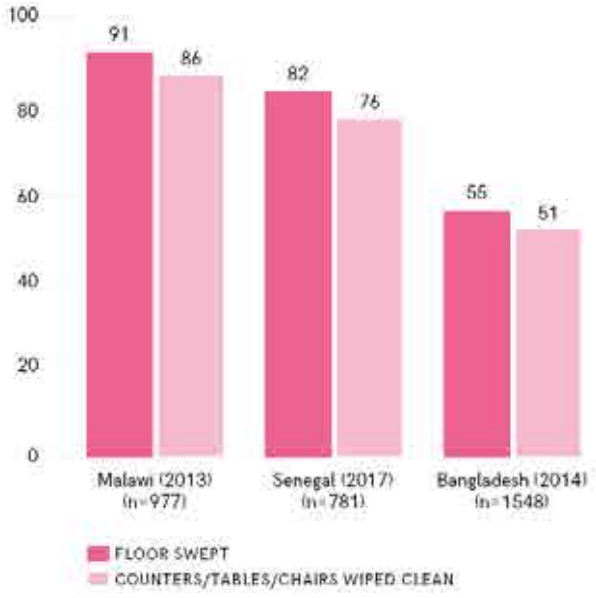


FIGURE 72 Observed cleanliness in health care facilities in Malawi, Senegal and Bangladesh (%)

Half of health care facilities in Cambodia were cleaned daily with detergent in 2016

FIGURE 73 Cleaning frequency and use of detergent in health care facilities in Cambodia (National Institute of Public Health, 2016, n=116) (%)

[60] Ministre de Santé, *Evaluation de l'état de l'hygiène des centres de santé de base et des unites de soins hospitaliers*, République Tunisienne, Tunis, 2017, <winhcf.org>.

[61] World Health Organization, *Essential Environmental Health Standards in Health Care*, WHO, Geneva, 2008, <www.who.int/water_sanitation_health/publications/ehs_hc/en>.

[62] Bhutan Ministry of Health, *Understanding Water, Sanitation & Hygiene in Health Care Facilities: Status in hospitals of Bhutan*, Public Health Engineering Division, city, 2016, <www.washinhcf.org/documents/WASH-IN-HCF-Report-2016.pdf>.

Out of 21 countries with data, fewer than three quarters of health care facilities in seven countries had disinfectant available in the outpatient exam room at the time of the survey (Figure 74). In Somalia, fewer than 40% of facilities had disinfectant available in the outpatient exam room in 2016.

Cleaning supplies at different points of care

Separate cleaning equipment should be available at each point of care. In some health care facilities, there is a wide gap between different areas. In Malawi, for example, 87% of delivery areas had disinfectant available in 2013, while disinfectant was present in only 47% of child vaccination areas (Figure 75). A similar pattern was observed in Tanzanian health care facilities in 2014. Senegal, on the other hand, had similar availability between different points of care in 2017.

In seven out of 21 countries with data, fewer than three quarters of health care facilities had disinfectant in the outpatient exam room

FIGURE 74 Proportion of health care facilities with environmental disinfectant available in the outpatient exam room for 21 countries, 2012–17 (%)

Disinfectant availability may vary by point of care

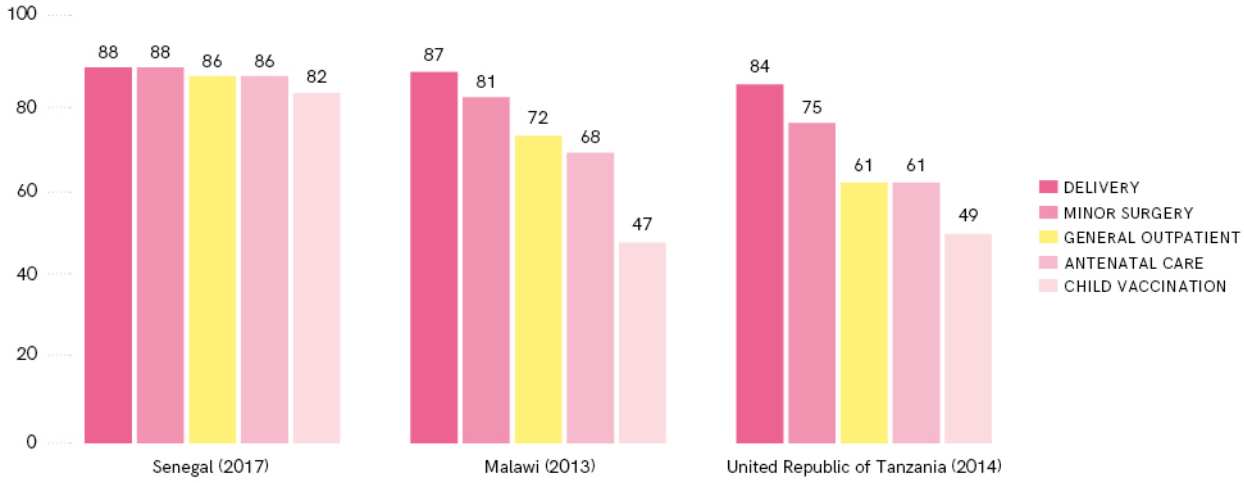


FIGURE 75 Proportion of health care facilities with environmental disinfectant available at different points of care in Senegal, Malawi and United Republic of Tanzania (%)

INEQUALITIES

Inequalities in access to health care are widespread between and within countries. Poor and marginalized groups often lack access and are among the most vulnerable to disease and preventable deaths. There continue to be large disparities between rich and poor populations in access to health care services, especially those needed to reduce maternal and child mortality and morbidity. Inequalities in access to health care are pronounced in low-income and middle-income countries, but inequity is prevalent in high-income settings too.[63]

Yet the right to health is a fundamental human right for all, affirmed by numerous human rights conventions as well as in the WHO 1946 Constitution.[64] In 2008, the Commission on Social Determinants of Health called for strengthening the monitoring of health equity and reducing inequities.[65] Since then, increasing attention has been paid to quantitatively assessing inequalities in health,[66] and a major determinant of inequality in health outcomes is inequality in access to primary, secondary and tertiary health care across communities. Barriers to equitable access to care include out-of-pocket costs and distance to health care facilities, but also the availability and quality of services at different kinds of facilities.

Previous chapters in this report have focused on WASH services at the national, regional and global levels. Aggregate statistics such as these are useful for tracking progress globally and for cross-country comparison but

[63] World Health Organization, Organisation for Economic Co-operation and Development, and World Bank, *Delivering Quality Health Services: A global imperative for universal health coverage*, WHO, OECD and World Bank, Geneva, 2018, <www.who.int/servicedeliverysafety/quality-report/publication/en>.

[64] Constitution of the World Health Organization, WHO, Geneva, 1946, <www.who.int/about/who-we-are/constitution>.

[65] Commission on Social Determinants of Health, *Closing the Gap in a Generation: Health equity through action on the social determinants of health*, Final Report of the Commission on Social Determinants of Health, WHO, Geneva, 2008, <www.who.int/social_determinants/thecommission/finalreport/en>.

[66] See for example: World Health Organization, *Monitoring Health Inequality: An essential step for achieving health equity*, WHO, Geneva, 2015, <https://apps.who.int/iris/bitstream/handle/10665/133849/WHO_FWC_GER_2014.1_eng.pdf>.

mask inequalities in access within countries. These can be examined by disaggregating WASH services by different dimensions of inequality (or 'stratifiers') and highlighting gaps in service. An individual facility assessment survey might collect many kinds of information that could be used for disaggregating indicators of different services. However, these stratifiers are not always consistent from one survey to another, even within the same country. This report focuses on three high-level stratifiers that are included in many assessments:

- **Health care facility type**. Health facilities can range from advanced training hospitals with thousands of staff who perform complex procedures to rural outpatient clinics with only one or two staff who have minimal training and resources. Different types of facilities offer different types of health services, and coverage of WASH and other basic services may differ widely by facility type. National assessments and monitoring systems do not use a consistent classification of facility types but many do record if facilities being assessed are hospitals or not. Accordingly, the JMP has produced estimates separately for hospitals and other types of facilities, classified as non-hospitals.

- **Managing authority**. In most countries, health care services are delivered through a mix of government health care facilities (for example, public hospitals, health centres, and clinics) and non-government facilities, which may include facilities managed by for-profit private corporations, not-for-profit providers (including faith-based organisations) and individual health care providers. Some assessments collect information only on government facilities, while others assess different types of non-government facilities. Relatively few countries have a single national database covering all health care facility management authorities.

- **Geography**. Health care facilities are not evenly distributed throughout countries, and facilities in remote areas may be more likely to lack basic services. Most assessments record the location of health care facilities by sub-national region, district or other administrative unit. While data on sub-national areas are important for national planning, they cannot easily be aggregated to regional and global scales. Some assessments record whether health care facilities are located in urban or rural areas, which is a more useful distinction for regional and global analysis.

Generally, fewer countries have disaggregated data for WASH services than have national data for all the different service areas (Figure 76). For example, while 38 countries have data on basic water services at the national scale, half as many (19) have data for urban and rural areas.

Many countries lack disaggregated data for basic WASH services

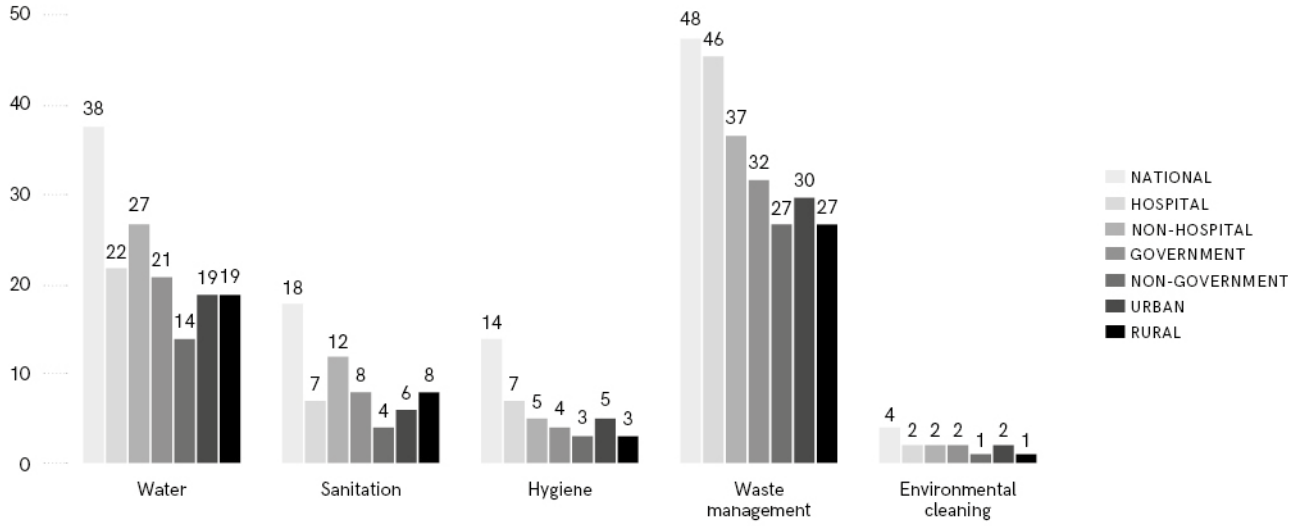


FIGURE 76 Number of countries with national and disaggregated data on basic WASH services, 2016

Countries are more likely to have disaggregated data on individual elements of the basic service indicators than on the basic service indicators themselves, but still there are only a few individual elements with enough disaggregated data to make global estimates possible (Table 7). Furthermore, the unequal distribution of data complicates analysis of inequalities at the regional and global scales, because the countries contributing to global estimates may differ from one statistic to another. Table 7 shows that globally 90% of hospitals and 54% of non-hospitals have hand hygiene facilities at points of care. Both statistics draw on data from 35–38% of the global population. However, the hospital data are heavily influenced by India, which did not have comparable data on non-hospitals, while the non-hospital estimate reflects the influence of data from China, which lacked comparable data for hospitals. Comparisons of aggregate statistics should therefore be made with caution.

A more robust analysis can be made by comparing paired estimates for countries that have data for both settings. Figure 77 illustrates that in most countries with

GLOBAL INDICATOR	BETTER SITUATION	WORSE SITUATION
No water service	Hospitals: 4%	Non-hospitals: 11%
No water service	Non-government: 6%*	Government: 12%
No water service	Urban: 5%	Rural: 15%
No sanitation service	Hospitals: 9%	Non-hospitals: 20%
No sanitation service	Government: 16%	Non-government: 36%
Hand hygiene at points of care	Hospitals: 90%	Non-hospitals: 54%
Waste segregation	Hospitals: 75%	Non-hospitals: 60%

* Data from 2015: Insufficient data to make a global estimate for 2016.

TABLE 7 Disaggregated global estimates of WASH service elements in 2016

Water and sanitation services are more likely to be lacking in rural areas, in non-hospitals and in government health care facilities

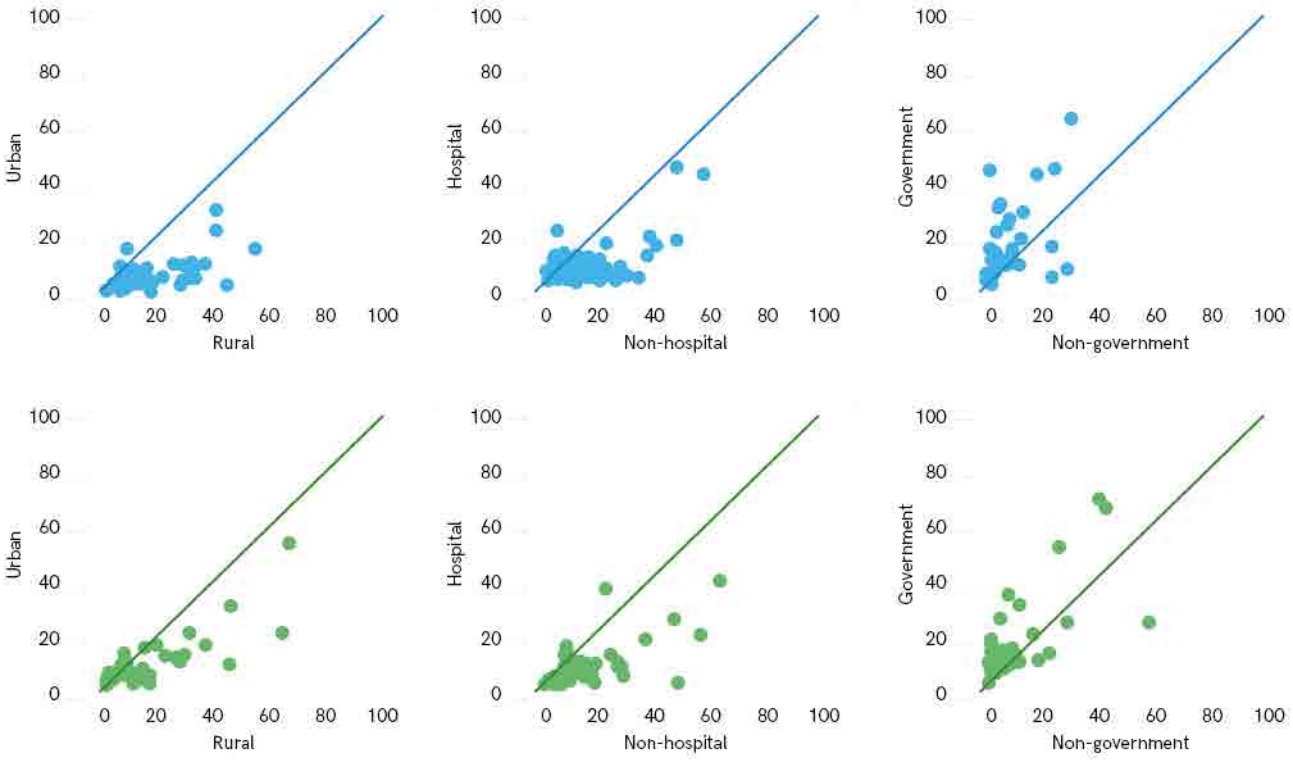


FIGURE 77 Proportion of health care facilities with no water or sanitation services in 2016, by stratifiers of inequality (%)

data, health care facilities with no water and sanitation services are more likely to be found in rural areas, and that hospitals are less likely to have no services than non-hospitals. Government facilities are slightly more likely to have no water or sanitation services than non-government facilities, but there is greater variation between countries for this stratifier. This may in part be due to differences in non-government facilities, which could include both small community clinics and large private hospitals.

Data on the location and type of water source, and the availability of water from the source, often come from different sources, but the JMP makes use of all available national data to produce estimates (see Annex 1: JMP methods). In some cases, all of the information needed to calculate basic service coverage is available from a single data source (Figure 78). The ECPSS 2017 survey found that while nearly all health care facilities in Senegal (>98%) had some kind of water facility and use of improved sources was high (>85%) in all settings, coverage of basic water services was substantially lower in rural areas than in urban areas. Non-hospitals and government facilities also had lower coverage of basic services, because even when they had improved water supplies, water was not always available at the time of the assessment.

Basic water services in health care facilities can vary widely by setting

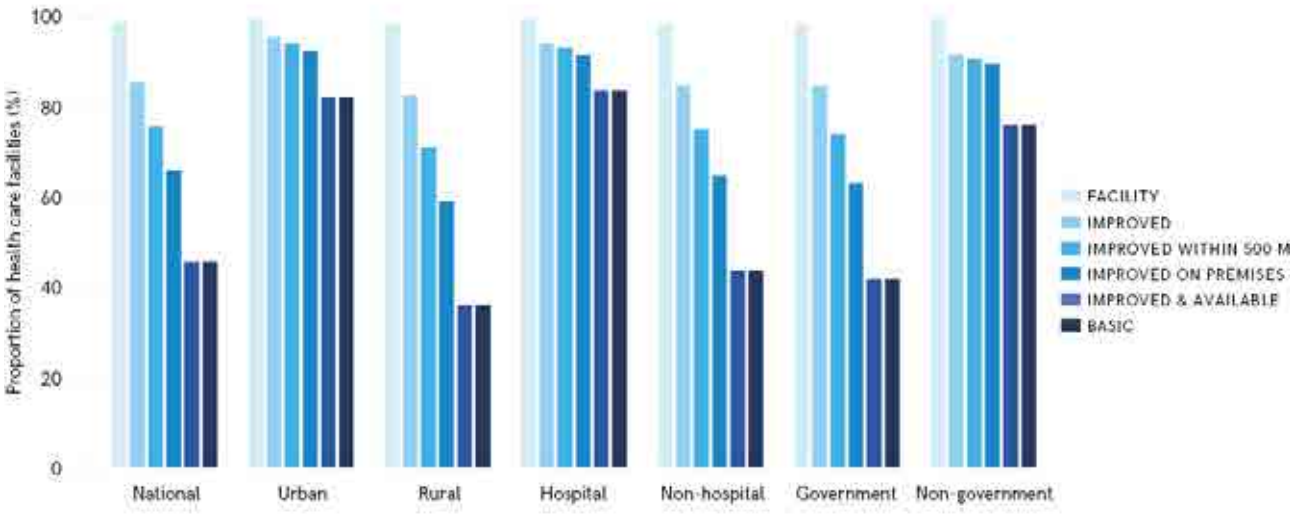


FIGURE 78 Water services in Sénégal, Enquête Continue sur la Prestation des Services de Soins de Santé (ECPSS), 2017 (%)

Facility type

There is no universal classification system describing the different types of facilities that make up a national health system. There is a general typology of services, including primary, secondary and tertiary care, where secondary and tertiary health care services are usually, though not always, delivered in hospitals following referral from a primary care professional.

Hospitals are large health care settings providing a range of inpatient and outpatient care. Countries have different definitions of what constitutes a hospital, and normally have a range of kinds of hospitals performing various functions (Table 8). The number of beds available for inpatient services is one characteristic that distinguishes different types of hospitals.

Primary health care may be delivered in hospitals but, in many cases, patients' first point of contact with the health system is in a smaller health care facility. A wide range of facilities apart from hospitals can offer primary care, but there is not a consistent set of terms to describe these different institutions. These smaller health care facilities may be found in rural, peri-urban or urban settings, and often provide outpatient but not inpatient care. Some of the more commonly used terms for facilities other than hospitals include:

- Health centre, primary health centre, community health centre
- Clinic, polyclinic
- Health post
- Basic health unit
- Infirmary
- Dispensary
- Specialty clinic (for example, dental, mental health)
- Physician's office
- Mobile clinic (for example, vaccination)

Where data permit, the JMP groups all health care facilities that are not classified as hospitals into non-hospitals for aggregate analysis, excluding very small facilities (for example, dispensaries, physician's offices, mobile clinics) and specialty clinics. Since countries always have many more non-hospitals than hospitals, the national statistics for all health care facilities are heavily influenced by the conditions in non-hospitals.

Many countries have disaggregated data on different WASH services for hospitals and non-hospitals. Generally, services are higher in hospitals, and in some cases there are large gaps (Figure 79). For example, in the Democratic Republic of the Congo, coverage of hygiene at points of care and basic waste management was more than 20 percentage points higher in hospitals than non-hospitals, and more than 40 points higher for improved water on the premises and improved sanitation. In Burkina Faso, 86% of hospitals, but only 32% of other health care facilities, had basic waste management services. In Bangladesh and Zimbabwe, the disparities between hospitals and non-hospitals were much smaller. In a small number of cases (for example, Liberia and Ghana), coverage for some WASH services was higher in non-hospitals than in hospitals.

FACILITY TYPE	DESCRIPTION	RELATED TERMS
Tertiary-level hospital	Highly specialized staff and technical equipment – for example, cardiology, intensive care and specialized imaging units; clinical services highly differentiated by function; could have teaching activities; size ranges from 300 to 1,500 beds	• National hospital • Central hospital • Academic, teaching or university hospital
Secondary-level hospital	Highly differentiated by function with five to ten clinical specialties; size ranges from 200 to 800 beds	• Regional hospital • Provincial hospital • General hospital
Primary-level hospital	Few specialties – mainly internal medicine, obstetrics and gynecology, pediatrics and general surgery, or just general practice; limited laboratory services available for general but not specialized pathological analysis	• District hospital • Rural hospital • Community hospital • General hospital

TABLE 8 Descriptions and terms for different types of hospital[67]

[67] Jamison, DT et al., eds., *Disease Control Priorities in Developing Countries*, second edition, Chapter 66 'Referral hospitals', The International Bank for Reconstruction and Development and World Bank, Washington D.C., and Oxford University Press, New York, 2006, <www.who.int/management/referralhospitals.pdf>.

Disaggregated data reveal disparities between hospitals and non-hospitals

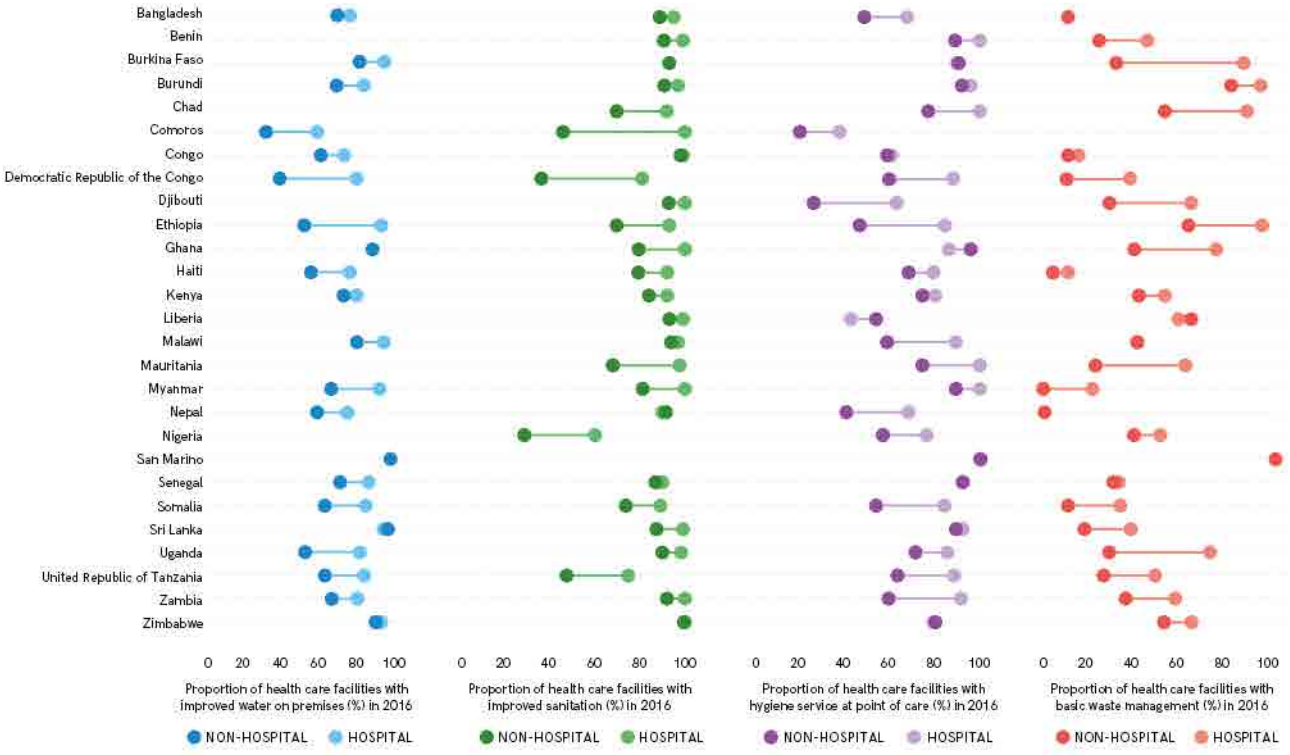


FIGURE 79 Proportion of health care facilities with improved water on premises, improved sanitation, hand hygiene facilities at points of care, and basic waste management, 2016 (%)

These disparities can affect the ability of health care workers at smaller facilities to provide quality care. For example, in Central African Republic, staff at 62% of health care facilities and 86% of health posts had to collect water from sources located off the premises, compared to 26% of hospitals (Figure 80). Among these, water collection was reported to take over 30 minutes each way at 10% of hospitals, 9% of health care facilities and 13% of health posts. Large disparties were also recorded in Cambodia, where 80% of hospitals cleaned the facility with detegent at least once per day compared with 48% of other health care facilities (Figure 81). While no hospitals reported cleaning less frequently than every two days, 12% of other health care facilities cleaned with detergent only once per week.

Within the general classes of hospitals and non-hospitals there can also be significant variability in WASH infrastructure and services (Figure 83). In Nepal, different kinds of hospitals had between 67% and 100% coverage with sewer connections or septic tanks, while piped water coverage in non-hospitals ranged from 43% among sub-health posts to 71% in HIV testing and counselling sites.

Staff working in non-hospitals in Central African Republic spend more time collecting water

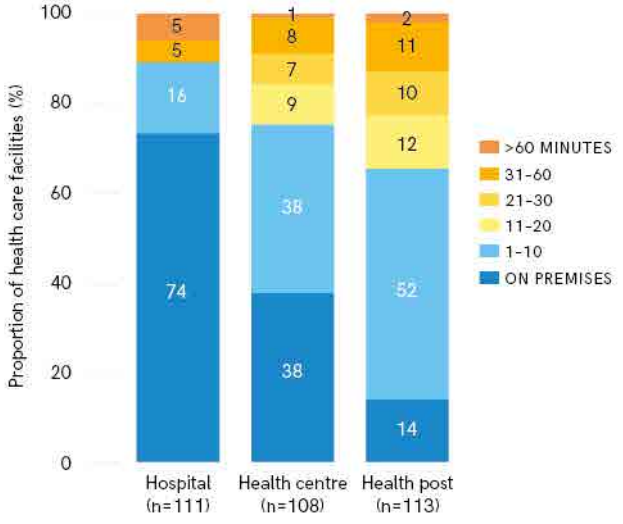


FIGURE 80 One-way travel time to water source (minutes) in Central African Republic (Health Facility Baseline Survey, 2016) (%)

Hospitals are cleaned more frequently than other health facilities in Cambodia

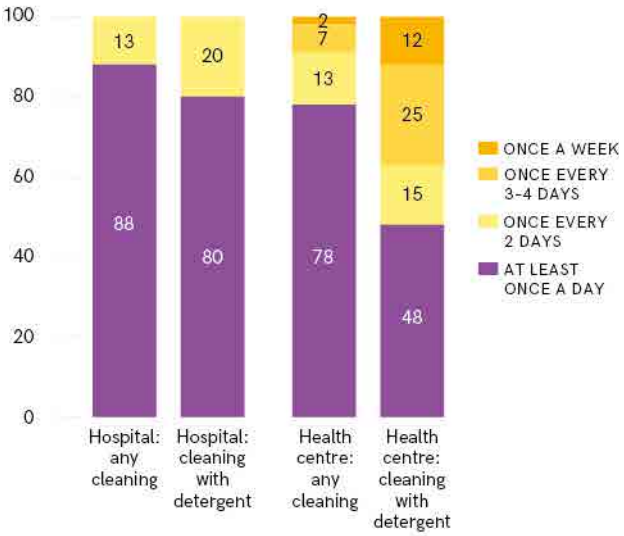


FIGURE 81 Frequency of cleaning in Cambodian health centres and hospitals (National Institute of Public Health, 2016)

Managing authority

Governments often directly manage health care facilities, either through central or local government institutions. Non-governmental health care facilities may be managed by for-profit private corporations, not-for-profit providers (including faith-based organizations), and individual health care providers such as private doctors.

In some countries, and for some indicators, coverage is higher for government facilities, but the opposite is true in other cases. Globally, twice as many government facilities (12%) had no water service compared to non-government facilities (6%),[68] but the reverse was true in Kenya, Benin and Ghana (Figure 83). Globally, non-government facilities were more than twice as likely to have no sanitation service (36%) than government facilities (16%), but in 16 out of 27 countries with data, government facilities were more likely to have no sanitation service. Figure 83 shows there is no clear

Access to piped water and sewer connections or septic tanks varies widely among hospitals and non-hospitals in Nepal

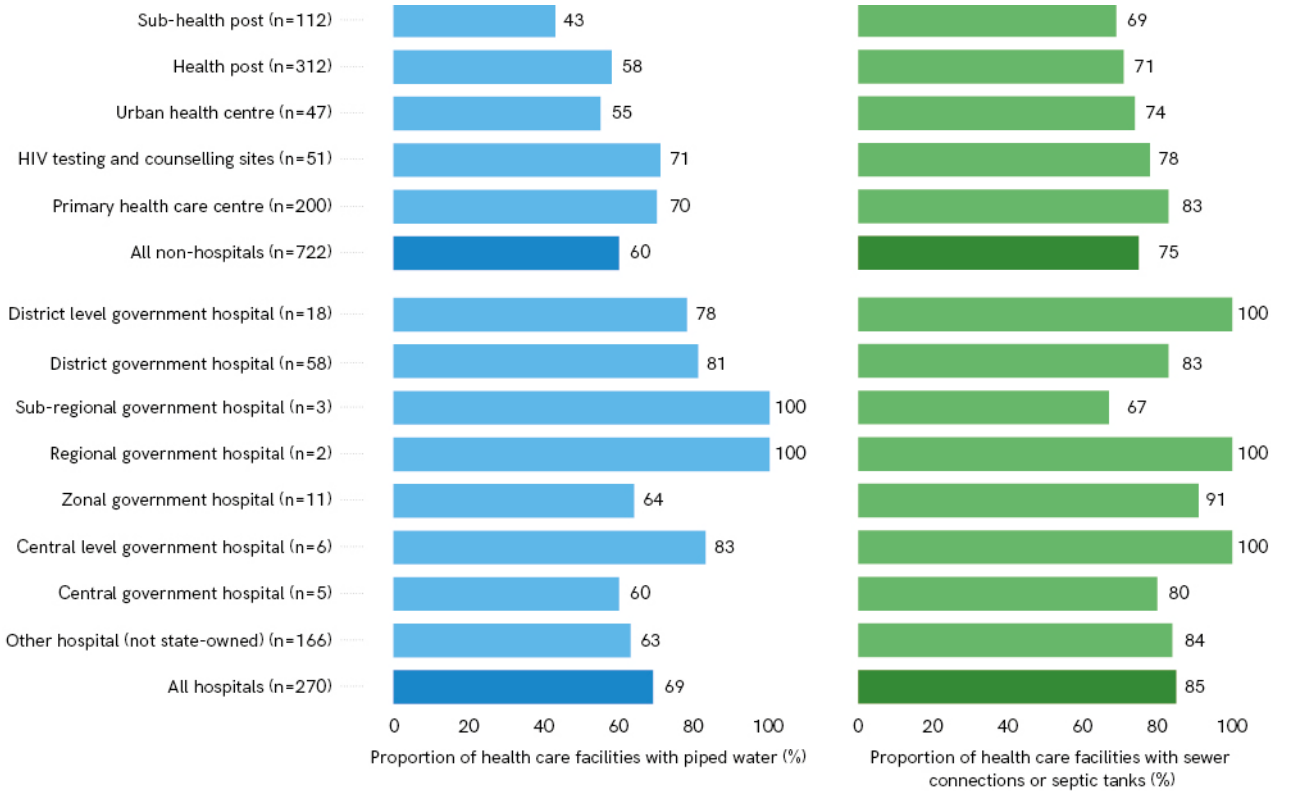


FIGURE 82 Proportion of health care facilities in Nepal with piped water and sewer connections or septic tanks, by facility type (Service Provision Assessment, 2015) (%)

[68] Globally, 6% of non-government health care facilities had no water service in 2015. Data were not sufficient to make a global estimate for 2016.

pattern from country to country between government and non-government facilities. Likewise, Figure 84 shows that in six countries with comparable data, improved sanitation coverage didn't show any consistent pattern among different kinds of non-government managing authorities.

There are no clear patterns in WASH services by health care facility managing authority

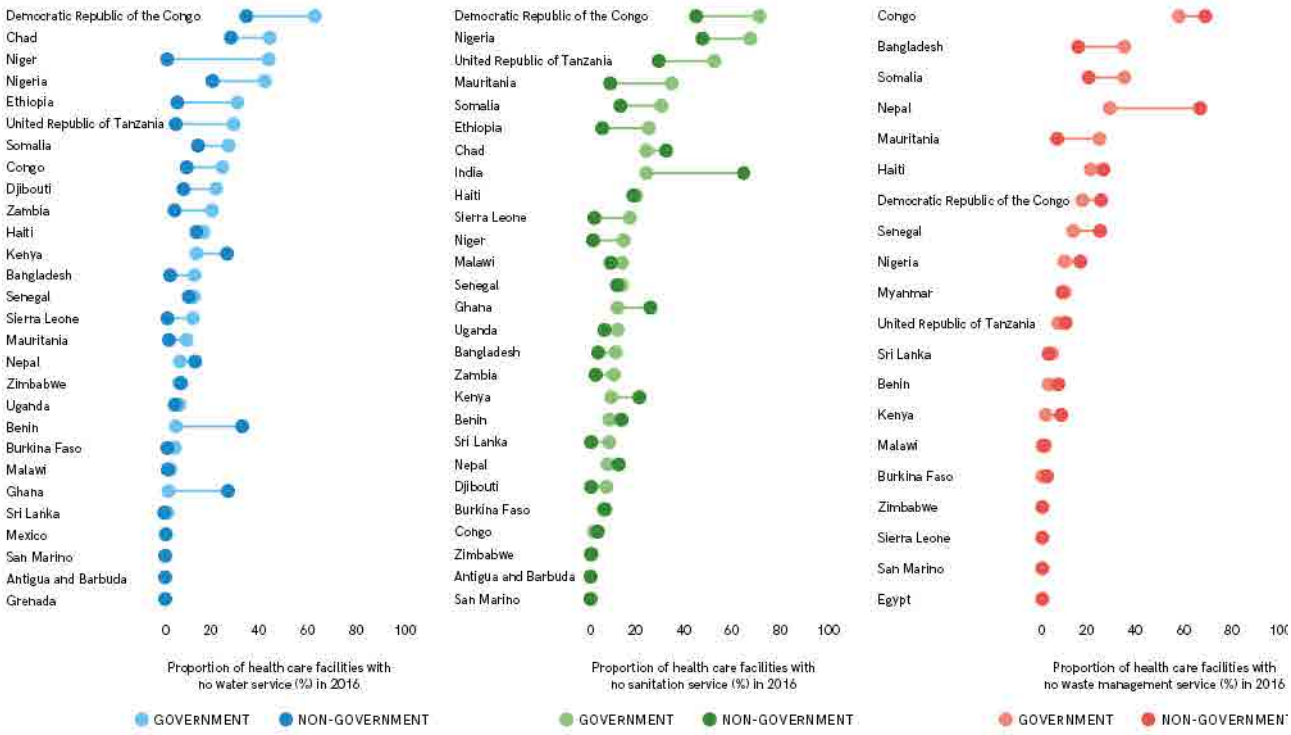


FIGURE 83 Proportion of health care facilities with no water, sanitation and waste management services, by managing authority, 2016 (%)

No clear trends are evident by type of non-government health care facility

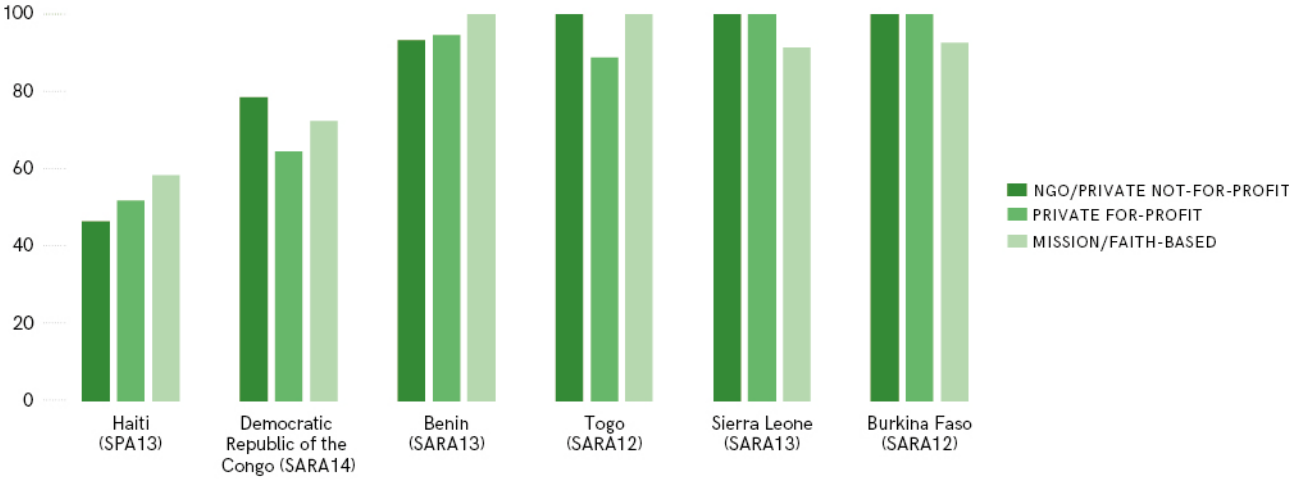


FIGURE 84 Proportion of health care facilities with improved sanitation, among non-government managing authorities (%)

WASH services are usually better in urban health care facilities

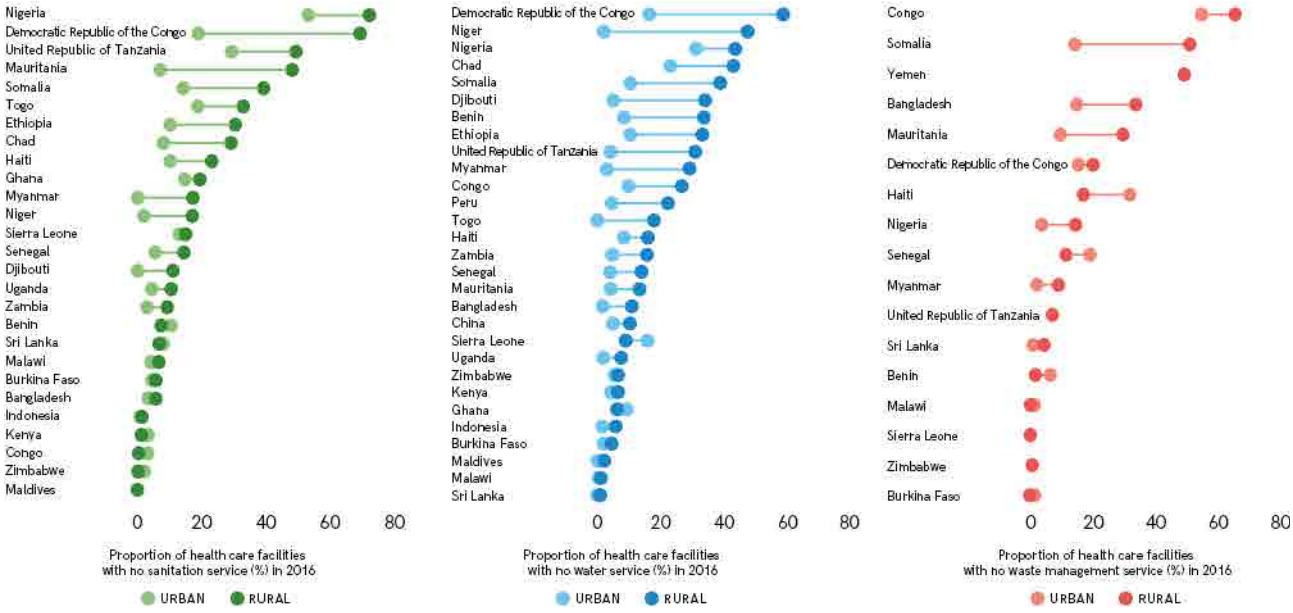


FIGURE 85 Proportion of health care facilities with no water, sanitation and waste management services, by urban and rural location, 2016 (%)

Geography

Geographic location is a strong driver of inequality, and people living in rural or remote areas often face difficulty in accessing quality health care, especially beyond primary care. Many low-income and middle-income countries have large rural populations and can have large numbers of small health care facilities. In such cases, national statistics are dominated by rural facilities. In the majority of countries with disaggregated data available, rural health care facilities have consistently poorer WASH services than urban facilities (Figure 85). The greatest disparities are observed in the Democratic Republic of the Congo, with a gap of 50 percentage points for no sanitation service, and in Niger, where 47% of rural but only 2% of urban health care facilities had no water service.

WASH services in health care facilities vary in different parts of Tunisia

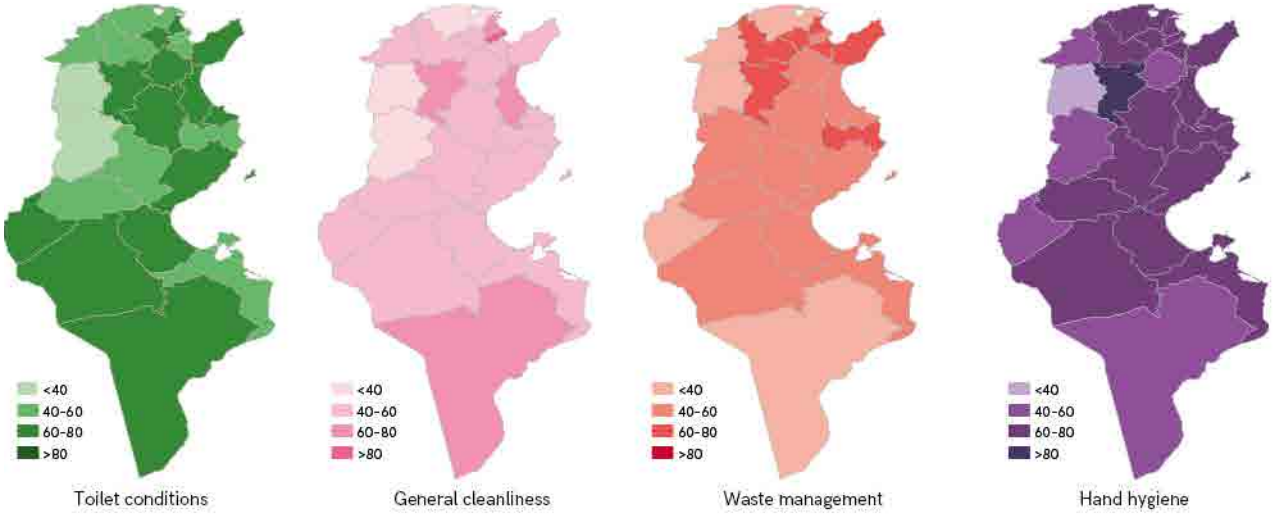


FIGURE 86 WASH services in health care facilities in Tunisia, by region (2017)

Water quality in Lebanese health care facilities varies widely by directorate

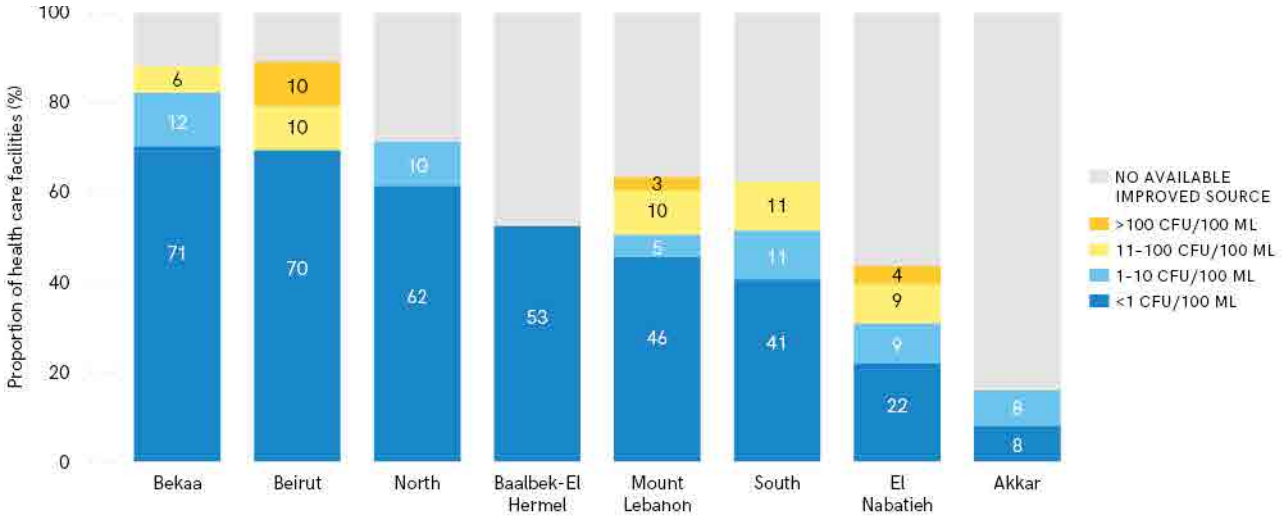


FIGURE 87 Presence of *E. coli* in improved water sources at public health centres in Lebanon[69] (2016, n=166) (%)

Many facility assessments allow for disaggregation by sub-national regions, such as states or districts, which can shed light on regional disparities. Figure 86 shows that in Tunisia, health care facilities in the southernmost region of Tataouine have better conditions in toilets and general cleanliness, but relatively poorer hand hygiene and waste management, compared to neighboring regions.[70]

According to a 2017 national assessment of WASH in public health centres in Lebanon, over 70% of health care facilities in Bekaa governorate had water from an improved source that was free from *E. coli*, while in Akkar governorate, 85% of health care facilities had no available improved water source, and water was contaminated with *E. coli* in half of the facilities that could be tested (Figure 87).

[69] Sustainable Alternatives, *WASH in Public Health Centres in Lebanon*, final survey report submitted to UNICEF in February 2018.

[70] Ministre de Santé, *Evaluation de l'état de l'hygiène des centres de santé de base et des unites de soins hospitaliers*, République Tunisienne, Tunis, 2017. Quality of service in each domain was assessed through a checklist that included 5–15 criteria per domain.

BOX 7

Fragile states

Demand for health care is often greatest in times of conflict, violence and instability, though these same conditions can disrupt WASH and other services necessary to provide quality care. The World Bank's Fragility, Conflict and Violence Group[71] classifies 19 of the 51 countries in the SDG region of sub-Saharan Africa as fragile.

Figure 88 shows that WASH services in health care facilities in sub-Saharan Africa are consistently lower in fragile states compared with non-fragile states. Figure 89 shows that in some of the regions most affected by the recent conflict in the Syrian Arab Republic, less than one quarter of health centres had functional water supplies in 2017.

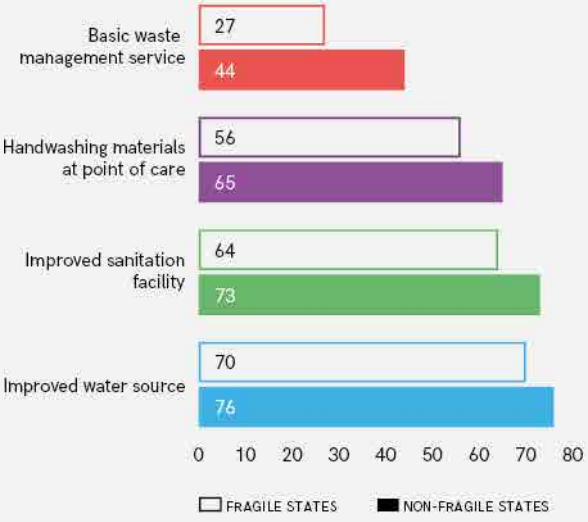


FIGURE 88 WASH services in health care facilities in fragile and other states in sub-Saharan Africa, 2016 (%)

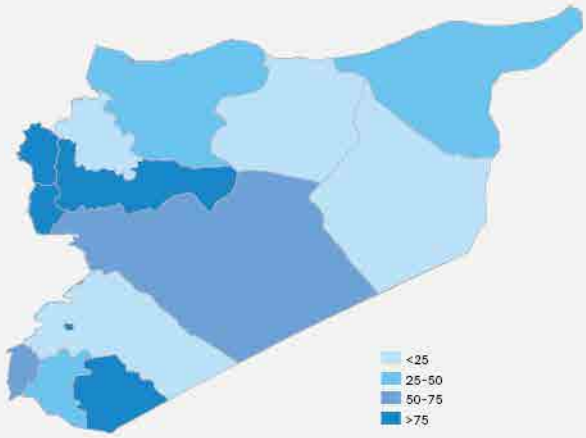


FIGURE 89 Functional water supplies in Syrian hospitals (Health Emergency Resources Availability Mapping Systems (HeRAMS)/Annual Public Hospitals Report, 2017) (%)

[71] World Bank, *Fragility, Conflict & Violence*, World Bank, 2019, <www.worldbank.org/en/topic/fragilityconflictviolence>, accessed 13 March 2019.

Universal access to WASH at home and in health care facilities

WASH services are generally better in health care facilities than in households. In two thirds of countries (66%) with comparable data, health care facilities were more likely to have improved water sources than households. In 84% of countries, improved sanitation was higher in health care facilities (Figure 90). In 85% of countries, health

Health care facilities tend to have better WASH services than households

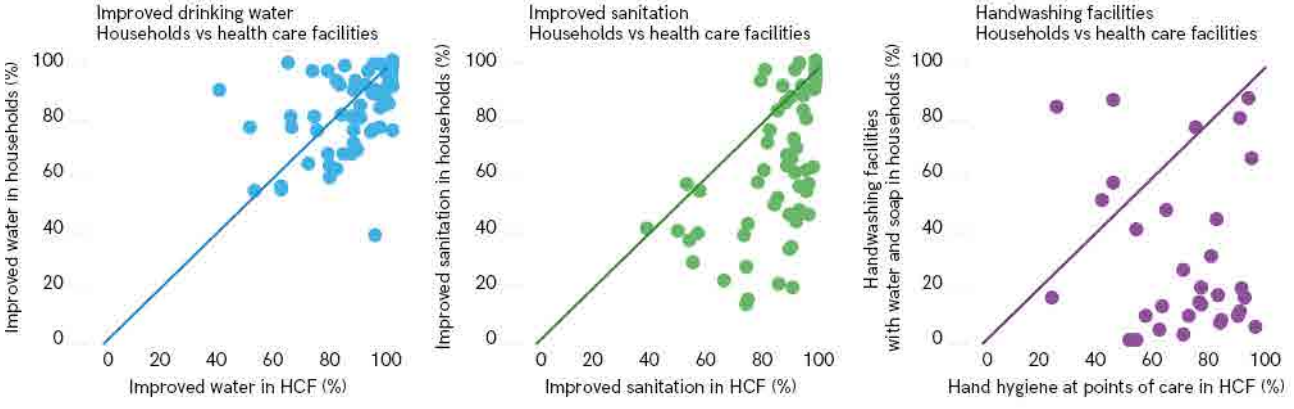


FIGURE 90 WASH services at health care facilities and households (2015), among countries with data available for both settings (%)

care facilities were more likely to have hand hygiene materials at points of care than households were likely to have handwashing facilities with soap and water. As more and better data become available, it will be possible to conduct further analysis of overlapping inequalities in access to WASH in households, schools, health care facilities and other settings.

BOX 8

WASH and births

Globally there has been a substantial increase in the proportion of women who give birth at health care facilities. Whereas in 2000 just half (51%) of women globally gave birth in a health care facility, in 2017 three out of four (76%) women delivered their babies in a health care facility. In many countries, the shift from home deliveries to facility deliveries has been a key objective of the health sector with the aim to improve delivery outcomes and the quality of maternal and newborn care.

It is estimated that one in five births globally take place in Least Developed Countries (LDCs), and that, each year, 17 million women in these countries give birth in health care facilities with inadequate water, sanitation and hygiene. Basic water services were just as likely to be available at home as at health care facilities in LDCs (62% vs 55%) but women were more likely to lack sanitation and hygiene facilities at home. Handwashing facilities were available at points of care in two out of three health care facilities in these countries but just 27% of the population had a handwashing facility with water and soap at home.

Delivery rooms require tailored WASH services to ensure a safe and dignified delivery and minimize the risks of infections including sepsis, a leading cause of both maternal and neonatal mortality. The WHO/UNICEF JMP convened an expert group to develop core questions and indicators for monitoring WASH and related IPC in delivery rooms. These questions are recommended for use in health care facility assessments, which include visits to areas where different services are offered, as well as dedicated emergency obstetric and newborn care surveys. Basic WASH services in the delivery room include: running water, a usable toilet accessible to women during labour, handwashing facilities, sterile equipment, a shower or bath for women, waste segregation and placenta disposal, and protocols and training for cleaning the delivery room. Related IPC includes sterile gloves, a cord tie and blade to cut the umbilical cord, and a clean surface or material for women to deliver on (or a 'clean birth kit').

Assessments of the conditions in delivery rooms are available from several countries and show that many women face risks due to inadequate WASH services and IPC measures in the delivery room (Figure 91).

Essential WASH services and IPC measures are often lacking in delivery rooms

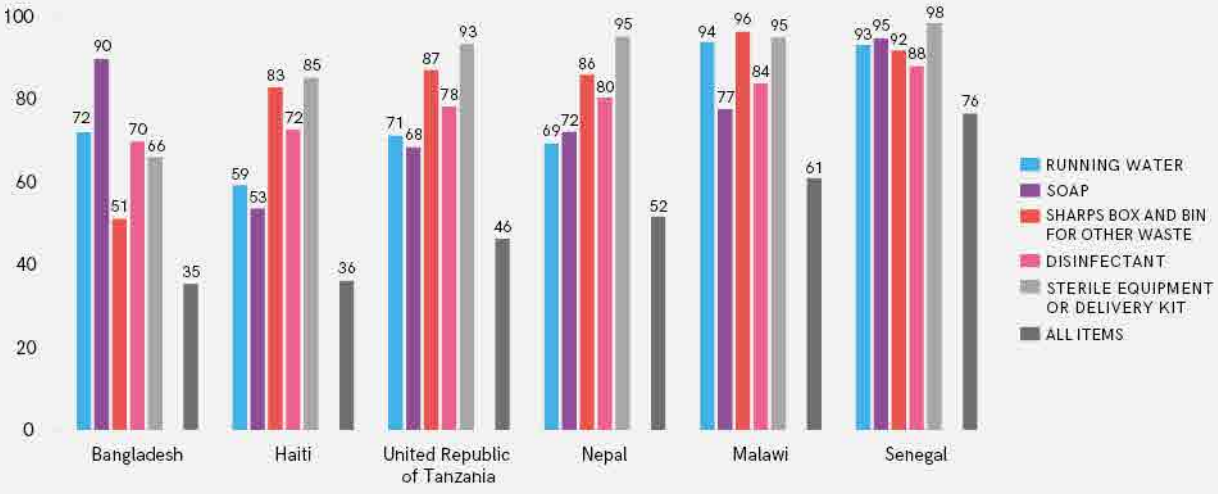
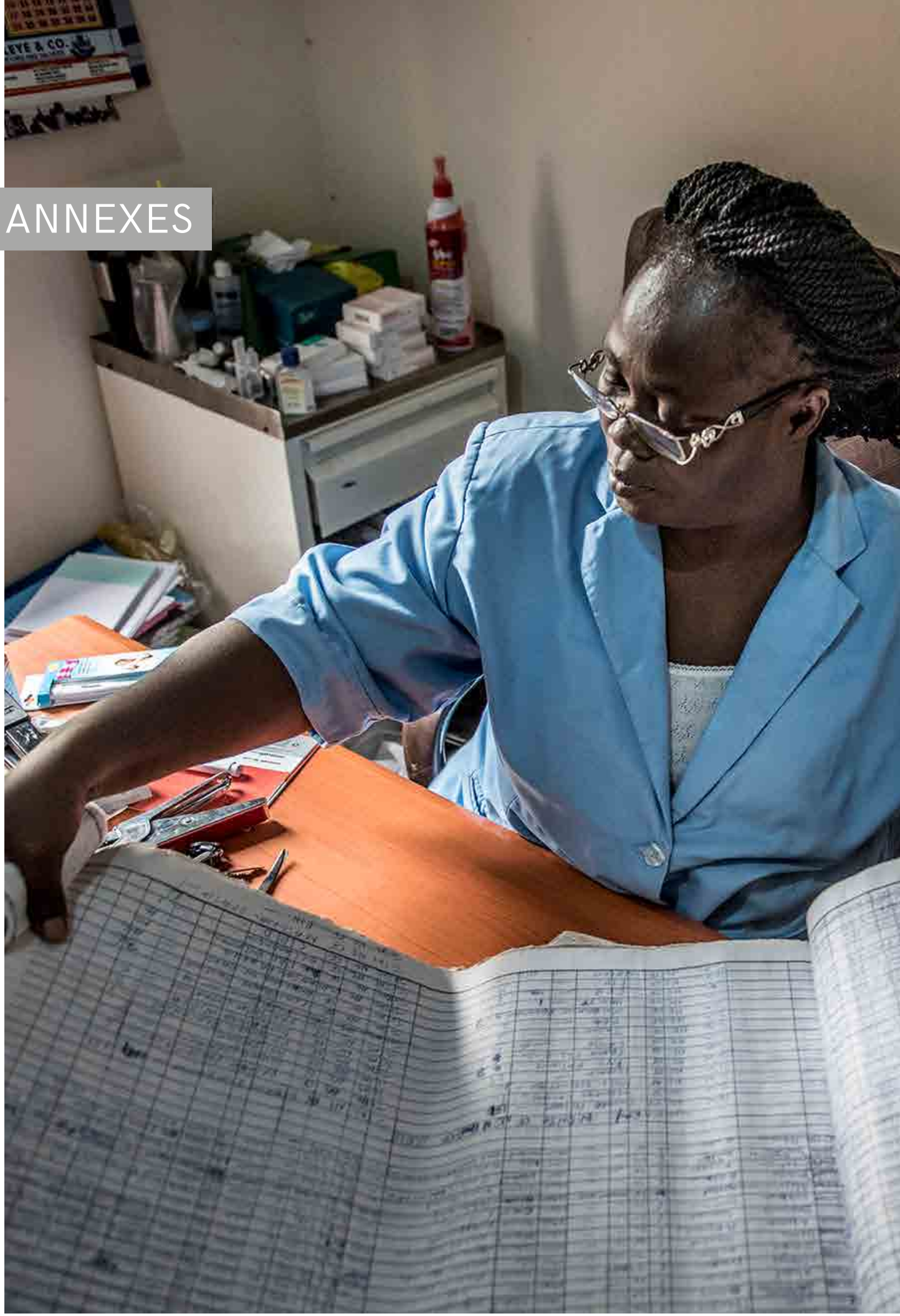


FIGURE 91 Proportion of health care facilities with observed WASH and related IPC in the delivery room, Service Provision Assessments (2013–17) (%)

ANNEXES



ANNEX 1 | JMP methods

Since it was established in 1990, the JMP has been instrumental in developing norms and standards to benchmark and compare progress on drinking water, sanitation and hygiene across countries and regularly convenes expert groups to provide technical advice on methodological issues. The JMP uses a linear regression model to generate **estimates** for all years within the reference period, rather than simply referring to a single data source. The methodology used to produce estimates for WASH in health care facilities builds on established methods developed by the JMP for monitoring WASH services in households[72] and schools.

Identification of national data sources

All data used to produce estimates come from national data sources. In preparation for this report, the JMP identified over 500 potential sources of data. In some cases data could not be used because they were not nationally representative, they did not include relevant WASH information, they were too old (only data from 2000 onwards were collected) or a comprehensive report or microdata file could not be located. In total, WASH information was extracted from 260 data sources from 125 countries (Figure 1-1).

Data extraction and classification

Data were extracted from these data sources and matched to global indicators related to the service ladders for water, sanitation, hygiene, waste management, and environmental cleaning. Data were fairly evenly spread between the water, sanitation, hygiene and waste management service areas, with approximately 200 data sources for each area, but sparse for environmental cleaning, with only 21 data sources (Figure 1-2).

Some data sources could not be used for producing estimates, for various reasons including:

- Communication from national authorities that the data were not considered reliable or appropriate for use
- The classification of the data was based on a few generic categories which were not aligned with JMP categories
- Data were not representative of the target class of health care facilities (national, hospital, non-hospital, government, non-government, urban or rural)
- Data were representative but the number of health care facilities assessed was too small. Data were excluded when less than 50 health care facilities were assessed, except for small countries in which case data were excluded if less than 30% of the total number of health care facilities were assessed.
- Data were markedly different from other data points from a similar timeframe

In total, 217 of the 260 data sources were used for at least some WASH indicators (Figure 1-2).

The number of facilities assessed in these data sources ranged from one to nearly 100 000. In total, the 260 data sources drew upon 560 000 health care facilities, and the 217 data sources used for estimations drew upon 550 000 health care facilities (Figure 1-3). In some cases the same health care facilities may have been assessed multiple times in different years.

The JMP classifies water and sanitation facilities into improved and unimproved types. Improved water sources are those which by nature of their design and construction have the potential to deliver safe water, while improved sanitation facilities are those designed to hygienically separate human excreta from human contact.[73]

If data sources classified health care facilities as being located in urban or rural areas, those classifications were used without any changes. Likewise, if a facility was called any type of 'hospital' it was classified as such during data extraction. In some data sources, facilities were classified as 'government' or 'non-government', or similar terms such as 'public' and

[72] World Health Organization and the United Nations Children's Fund, *JMP Methodology: 2017 update and SDG baselines*, WHO and UNICEF, Geneva, 2017, <https://washdata.org/report/jmp-methodology-2017-update>.

[73] For further details see: World Health Organization and the United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, *Progress on Drinking Water, Sanitation and Hygiene: 2017 update and SDG baselines*, WHO and UNICEF, Geneva, 2017, <https://washdata.org/report/jmp-2017-report-final>.

BOX 9

International facility assessment programmes

Most assessments of health care facilities are led by national authorities, typically the Ministry of Health or the National Statistical Office. A number of international programmes support such assessments and have produced data used in this report. Some of the largest programmes are:

- The **Service Availability and Readiness Assessment (SARA)** programme, supported by the World Health Organization.
- The **Service Provision Assessment (SPA)** programme, supported by the United States Agency for International Development through the Demographic and Health Surveys programme.
- The **Performance Monitoring and Accountability 2020 (PMA2020)** initiative, supported by the Bill and Melinda Gates Foundation with technical support from the Johns Hopkins University.
- The **Emergency Obstetric and Newborn Care (EMONC)** surveys have been conducted in a number of countries, often with technical support from Columbia University's Adverting Maternal Death and Disability programme.
- The **Pacific Hazardous Waste Management Project (PHWMP)** conducted a baseline study in 14 Pacific Island Countries in 2014, under the leadership of the Secretariat of the Pacific Regional Environment Programme with support from ENVIRON Australia and the European Commission.
- The **Service Delivery Indicators (SDI)** project focuses on collecting data from primary schools and frontline health facilities, with support from the World Bank.

Seven international programmes accounted for half of the data sources used in this report

FIGURE 1-1 Sources of data used in the 2019 global baseline report

- **World Vision** is a global relief, development and advocacy organization that works in nearly 100 countries around the world. It has partnered with the Water Institute at the University of North Carolina to conduct a WASH programme evaluation, including assessments of conditions in schools and health care facilities in rural areas.

Together, these seven programmes supported more than half (153) of the health care facility assessments that this report draws upon. More than 100 additional data sources were identified during JMP country consultations. Relatively few countries provided data drawing on administrative sources such as routine data collection through health management information systems.

National data sources available and used in the JMP 2019 report

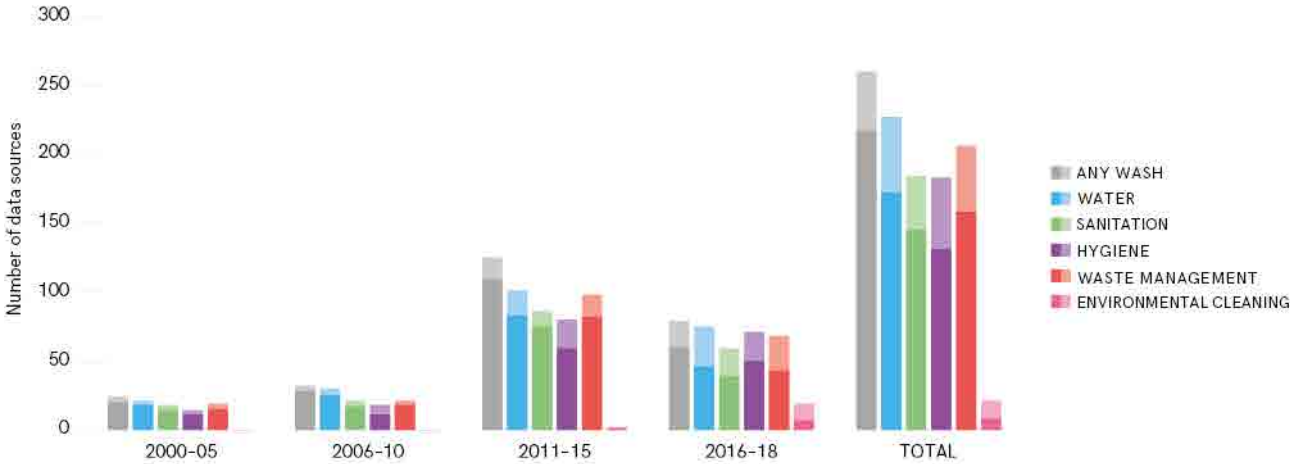


FIGURE 1-2 National data sources used (dark colours) and identified but not used (light colours) in the JMP 2019 report on WASH in health care facilities

Number of health care facilities assessed in national data sources

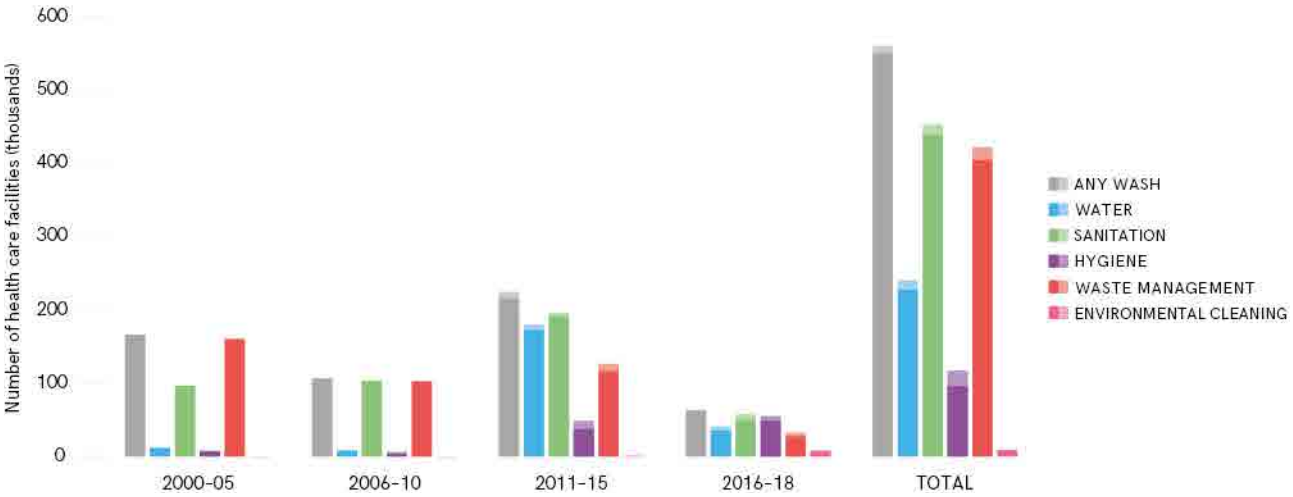


FIGURE 1-3 Number of health care facilities assessed with data used (dark colours) and identified but not used (light colours) in the JMP 2019 report on WASH in health care facilities

'private'. If the data source did not disaggregate by managing authority, in some cases the entire data source could be assigned to either government or non-government categories.

If data were available from different wards or areas in a facility, data from the general consultation or outpatient department areas were given priority for extraction. If data from general consultation areas and outpatient departments were not available, the availability of the WASH service in any of the other available locations was recorded for use in calculating global indicators.

Country estimates

The JMP WASH in health care facilities country files contain a complete list of data sources available for each year since 2000 and show how national data correspond to the international standard classifications used for global monitoring. The JMP uses a simple linear regression to generate estimates from all of the available data points. Regressions are made separately for each of the classes of health care facilities (national, hospital, non-hospital, government, non-government, urban or rural).

Trends are calculated if there are two or more data points available spanning at least four years. If the data points span less than four years then an average is used. Regressions are extrapolated two years after the last data point, and two years before the first data point.

The earliest and latest estimates from the regression are then extended for an additional four years. For example, if the last data point was from 2008, estimates could be made for the years 2009–14 but not for 2015 or 2016 (see the example on hand hygiene facilities at points of care in Figure 1-4).

The basic services indicators are all composite indicators, drawing on two or more sub-indicators. Data on different sub-indicators may come from different data sources, so it is not always possible to combine the different sub-indicators at the level of an individual health care facility. Accordingly, the JMP combines the sub-indicators by taking the minimum of each available sub-indicator for any given year. The basic sanitation indicator comprises a large number of sub-indicators. To make the most use of the available data, for this report the JMP has produced estimates of basic sanitation services when data are available on improved and usable toilets, and at least two of the remaining four elements (staff, sex-separated, menstrual hygiene, and limited mobility). In the sanitation example in Figure 1-4, data are available for improved and usable toilets, as well as for limited mobility, but this is not enough to produce estimates for basic services.

Regional and global estimates

Regional estimates are made by summing up country estimates for each of the classes of health care facilities. Ideally, estimates from each country should

The JMP uses linear regressions to derive estimates from available data points

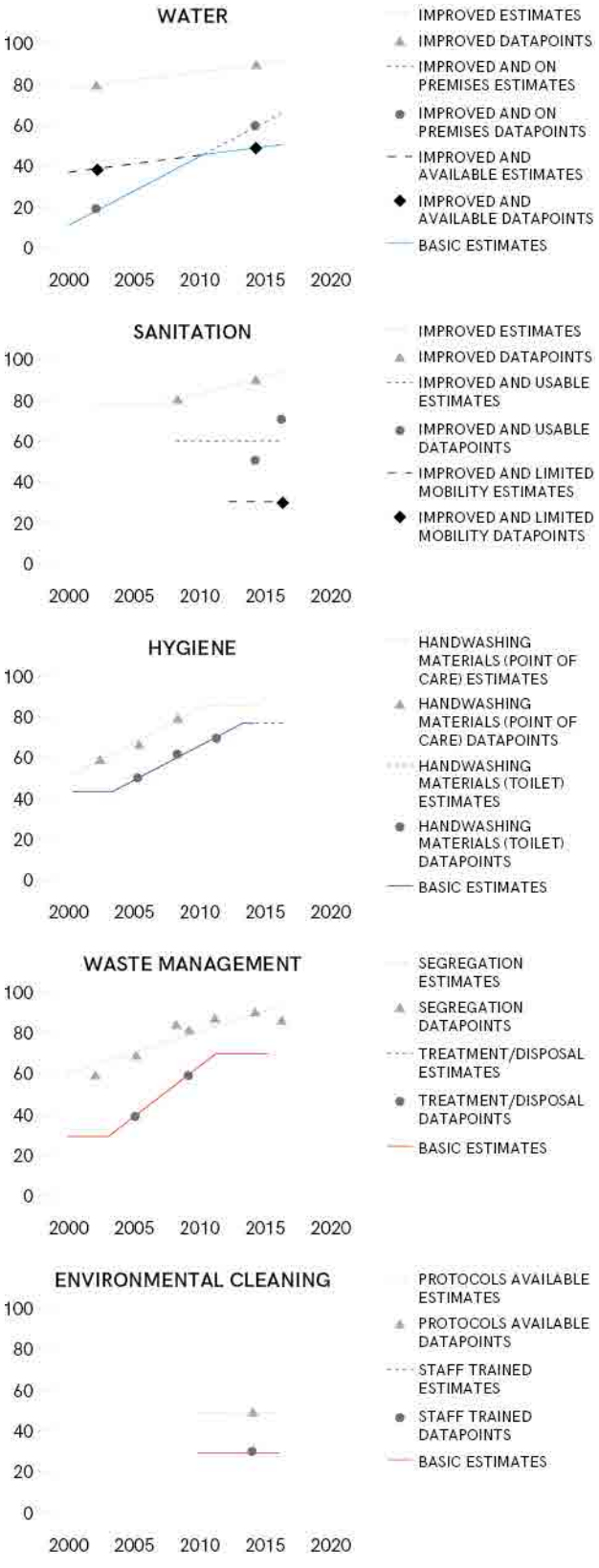


FIGURE 1-4 Examples of linear regressions producing estimates for WASH services

be weighted by the total number of health care facilities in that class for the country. However, complete statistics on the number of each class of health care facility are not available for all countries. Accordingly, for this report the JMP has used national, urban or rural population to weight estimates from individual countries, using the most recent data from the UN Population Division. National populations were taken from the World Population Prospects 2017 revision, while the proportion of population living in rural areas was taken from the World Urbanization Prospects 2018 revision. Regional estimates are made when data are available from countries with a combined population of at least 30% of the total regional population. Figure 1-5 shows the proportion of the population in each region and globally for which data were available. The lighter colours indicate indicators with less than 30% data coverage, for which no regional estimates were made. Medium colours indicate that countries representing 30-50% of the population had data, and estimates were made but should be interpreted with caution. Estimates are more robust when they are based on at least 50% of the population from the region (darker colours).

Global estimates are also only made when there are data for countries representing at least 30% of the global population. However, to prevent a few large countries having a disproportionate influence on the estimates, especially when many countries still lack estimates, global estimates are calculated by first creating regional estimates for all SDG regions, even if the region has less than 30% data coverage, and then making a weighted average from the regional estimates.

Country consultation

Preliminary estimates were produced and sent to countries for a formal period of consultation and review at the beginning of November 2018. Countries were requested to provide technical feedback by the end of December 2018. In some cases, extensions were requested and made until mid-January. WHO and UNICEF endeavoured to consult with all countries and to respond to the feedback and queries received, especially where JMP definitions or methods differed from those used by national stakeholders.

Accessing the data

Country, regional and global estimates for the main indicators are provided in Annexes 3 and 4 of this report, for the most recent year available. These data can also be accessed on the JMP website <https://washdata.org> which provides estimates for all available years since 2000. The website includes additional estimates for sub-indicators which contribute to the basic service levels, as well

Data coverage for many regions and classes of health care facilities is low

REGION	BASIC WATER SERVICES						
	Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
Central and Southern Asia	10	1	10	85	1	10	10
Eastern and South-Eastern Asia	91	14	13	5	91	72	0
Europe and Northern America	13	0	0	0	0	0	0
Latin America and the Caribbean	10	0	0	0	52	10	0
Northern Africa and Western Asia	11	4	0	0	0	0	0
Oceania	77	0	0	0	77	0	0
Sub-Saharan Africa	49	33	49	40	46	40	35
Least Developed Countries	48	25	54	47	35	46	44
Landlocked Developing Countries	52	40	55	46	52	46	41
Small Islands Developing States	32	2	1	3	30	0	0
World	35	7	16	27	33	27	7

REGION	BASIC SANITATION SERVICES						
	Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
Central and Southern Asia	0	0	0	9	0	0	0
Eastern and South-Eastern Asia	0	0	0	0	0	0	0
Europe and Northern America	11	0	0	0	0	0	0
Latin America and the Caribbean	10	0	0	0	52	10	0
Northern Africa and Western Asia	11	4	0	0	0	0	0
Oceania	0	0	0	0	0	0	0
Sub-Saharan Africa	41	14	38	18	32	22	22
Least Developed Countries	22	16	28	35	27	21	21
Landlocked Developing Countries	41	30	42	27	41	38	37
Small Islands Developing States	4	2	1	3	3	0	0
World	7	1	7	5	8	4	3

REGION	NO WATER SERVICES						
	Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
Central and Southern Asia	86	10	10	87	86	12	12
Eastern and South-Eastern Asia	99	91	91	22	99	81	0
Europe and Northern America	13	0	0	0	0	0	0
Latin America and the Caribbean	41	8	13	29	37	39	29
Northern Africa and Western Asia	22	4	0	49	9	5	46
Oceania	77	0	0	6	77	0	0
Sub-Saharan Africa	83	70	80	77	90	75	73
Least Developed Countries	83	69	75	77	86	75	68
Landlocked Developing Countries	80	48	64	71	72	66	67
Small Islands Developing States	83	54	29	54	79	38	38
World	61	32	42	40	61	36	16

REGION	NO SANITATION SERVICES						
	Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
Central and Southern Asia	86	10	85	87	86	86	86
Eastern and South-Eastern Asia	99	15	24	8	99	81	0
Europe and Northern America	13	0	0	2	0	0	0
Latin America and the Caribbean	15	2	8	2	55	12	12
Northern Africa and Western Asia	16	4	0	3	3	0	0
Oceania	77	0	0	0	77	0	0
Sub-Saharan Africa	80	67	80	73	82	72	71
Least Developed Countries	83	69	74	73	83	74	66
Landlocked Developing Countries	80	48	64	67	72	66	64
Small Islands Developing States	82	54	29	45	78	40	37
World	59	12	50	33	61	52	31

<30%
30-50%
>50%

<30%
30-50%
>50%

FIGURE 1-5 Data coverage for different classes of health care facilities, by region (%)

as for additional regional groupings not included in the printed report. The website allows users to create, download and share a variety of customized charts, tables and maps. Users can also download all of the individual JMP country files which list the national data sources currently available in the global database and show how these have been used to generate internationally comparable estimates for WASH in health care facilities.

REGION	BASIC HYGIENE SERVICES						
	Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
Central and Southern Asia	0	0	0	76	0	0	0
Eastern and South-Eastern Asia	72	0	0	0	72	72	0
Europe and Northern America	12	0	0	2	2	0	0
Latin America and the Caribbean	0	0	0	0	0	0	0
Northern Africa and Western Asia	8	4	0	0	0	0	0
Oceania	0	0	0	0	0	0	0
Sub-Saharan Africa	27	6	8	7	7	7	7
Least Developed Countries	6	6	6	6	6	6	6
Landlocked Developing Countries	7	4	3	5	4	4	4
Small Islands Developing States	1	2	1	0	0	0	0
World	23	1	1	19	20	20	1

BASIC WASTE MANAGEMENT SERVICES						
Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
12	10	10	87	12	12	12
17	15	17	17	17	16	16
12	0	0	2	2	0	0
14	4	11	6	12	14	6
23	4	0	16	3	13	0
77	0	0	12	77	0	0
74	67	75	70	74	72	69
76	69	69	75	75	76	70
70	48	60	65	68	65	59
72	54	29	46	71	37	37
19	12	22	35	18	18	17

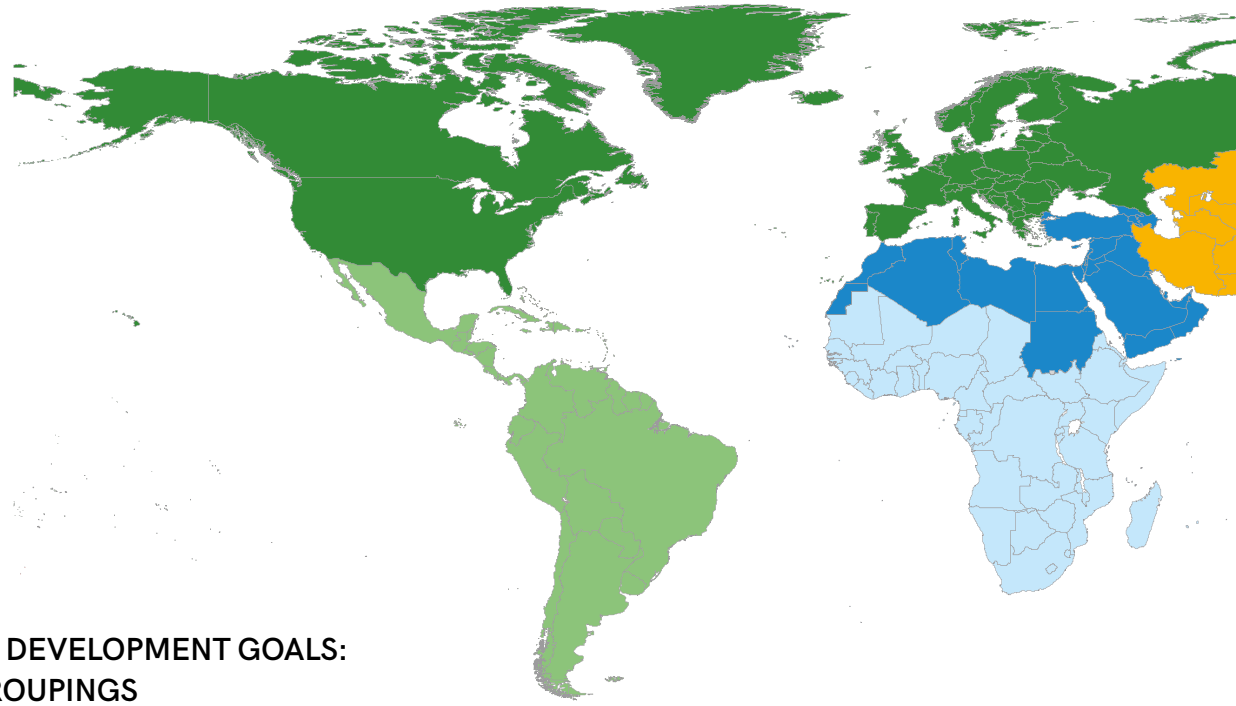
REGION	NO HYGIENE SERVICES						
	Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
Central and Southern Asia	74	0	0	74	74	74	74
Eastern and South-Eastern Asia	86	14	13	13	86	86	13
Europe and Northern America	7	0	0	2	0	0	0
Latin America and the Caribbean	0	0	0	0	0	0	0
Northern Africa and Western Asia	54	4	0	46	46	46	46
Oceania	0	0	0	0	0	0	0
Sub-Saharan Africa	49	45	50	45	49	49	31
Least Developed Countries	19	13	23	17	19	19	11
Landlocked Developing Countries	48	37	49	41	46	46	27
Small Islands Developing States	1	2	1	0	0	0	0
World	48	8	12	28	48	48	27

NO WASTE MANAGEMENT SERVICES						
Total	Urban	Rural	Hospital	Non-hospital	Government	Non-government
12	10	10	86	12	12	12
3	2	4	3	3	3	3
12	0	0	0	0	0	0
2	2	5	2	2	2	2
64	13	18	59	59	59	46
0	0	0	3	0	0	0
49	48	41	48	49	49	49
56	58	48	63	56	56	51
19	11	12	19	19	19	19
37	53	28	42	37	37	37
12	7	13	29	12	12	11

<30%
30-50%
>50%

<30%
30-50%
>50%

ANNEX 2 | Regional groupings



SUSTAINABLE DEVELOPMENT GOALS: REGIONAL GROUPINGS

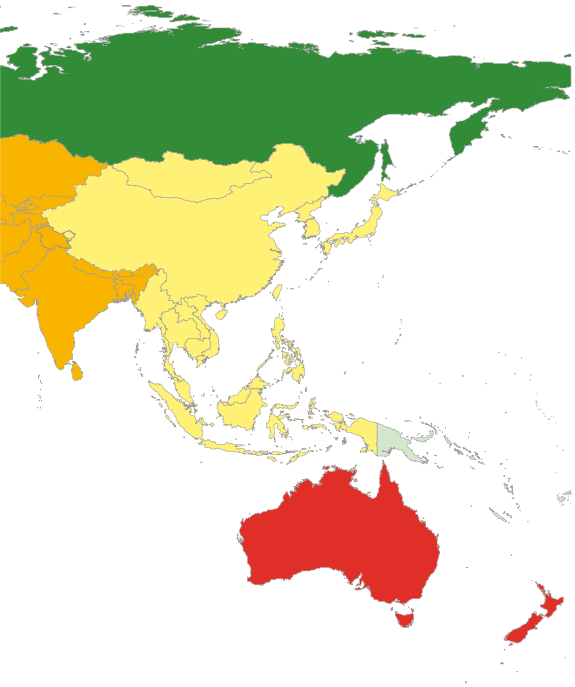
AUSTRALIA AND NEW ZEALAND: Australia, New Zealand.

CENTRAL AND SOUTHERN ASIA: Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan, Maldives, Nepal, Pakistan, Sri Lanka, Tajikistan, Turkmenistan, Uzbekistan.

EASTERN AND SOUTH-EASTERN ASIA: Brunei Darussalam, Cambodia, China, China (Hong Kong Special Administrative Region), China (Macao Special Administrative Region), Democratic People's Republic of Korea, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Myanmar, Mongolia, Philippines, Republic of Korea, Singapore, Thailand, Timor-Leste, Viet Nam.

LATIN AMERICA AND THE CARIBBEAN: Anguilla, Antigua and Barbuda, Argentina, Aruba, Bahamas, Barbados, Belize, Bolivia (Plurinational State of), Bonaire, Sint Eustatius and Saba (Caribbean Netherlands), Brazil, British Virgin Islands, Cayman Islands, Chile, Colombia, Costa Rica, Cuba, Curaçao, Dominica, Dominican Republic, Ecuador, El Salvador, Falkland Islands (Malvinas), French Guiana, Guadeloupe, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sint Maarten (Dutch part), Suriname, Trinidad and Tobago, Turks and Caicos Islands, United States Virgin Islands, Uruguay, Venezuela (Bolivarian Republic of).

EUROPE AND NORTHERN AMERICA: Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bermuda, Bulgaria, Canada, Channel Islands, Croatia, Czech Republic, Denmark, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Greenland, Holy See, Hungary, Ireland, Iceland, Isle of Man, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Saint Pierre and Miquelon, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America.



NORTHERN AFRICA AND WESTERN ASIA: Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, Turkey, United Arab Emirates, West Bank and Gaza Strip, Western Sahara, Yemen.

OCEANIA (EXCLUDING AUSTRALIA AND NEW ZEALAND): American Samoa, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna Islands.

SUB-SAHARAN AFRICA: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Mozambique, Namibia, Niger, Nigeria, Réunion, Rwanda, Saint Helena, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

OTHER REGIONAL GROUPINGS

LANDLOCKED DEVELOPING COUNTRIES (LLDCS)
Afghanistan, Armenia, Azerbaijan, Bhutan, Bolivia (Plurinational State of), Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Eswatini, Ethiopia, Kazakhstan, Kyrgyzstan, Lao People's Democratic Republic, Lesotho, Malawi, Mali, Mongolia, Nepal, Niger, North Macedonia, Paraguay, Republic of Moldova, Rwanda, South Sudan, Tajikistan, Turkmenistan, Uganda, Uzbekistan, Zambia, Zimbabwe.

LEAST DEVELOPED COUNTRIES (LDCS)
Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Timor-Leste, Togo, Tuvalu, Uganda, United Republic of Tanzania, Vanuatu, Yemen, Zambia.

SMALL ISLAND DEVELOPING STATES (SIDS)
American Samoa, Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bonaire, Sint Eustatius and Saba (Caribbean Netherlands), British Virgin Islands, Cabo Verde, Cayman Islands, Comoros, Cook Islands, Cuba, Curaçao, Dominica, Dominican Republic, Fiji, French Polynesia, Grenada, Guadeloupe, Guam, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, Marshall Islands, Mauritius, Micronesia (Federated States of), Montserrat, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Seychelles, Singapore, Sint Maarten (Dutch part), Solomon Islands, Suriname, Timor-Leste, Tonga, Trinidad and Tobago, Turks and Caicos Islands, Tuvalu, United States Virgin Islands, Vanuatu.

ANNEX 3.1 | National water estimates

WATER				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
Afghanistan	2013	31 732	24	49	26	25	75	49	-	-	-	-	-	49	26	25	75	49
Andorra	2016	77	88	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	2016	101	25	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Armenia	2016	2 925	63	97	3	0	100	97	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	9 725	55	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	162 952	35	70	13	16	84	73	-	-	2	98	93	42	47	11	89	71
Benin	2016	10 872	46	74	0	26	74	-	92	0	8	92	-	66	0	34	66	-
Bhutan	2016	798	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	2016	207 653	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burkina Faso	2016	18 646	28	79	17	4	96	88	85	13	2	98	85	63	32	5	95	92
Burundi	2016	10 524	12	73	13	13	87	73	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	15 762	23	-	-	6	94	55	-	-	-	-	-	-	-	-	-	-
Cameroon	2016	23 439	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chad	2016	14 453	23	-	-	41	59	-	-	-	23	77	-	-	-	43	57	-
China	2016	1 403 500	57	91	1	9	91	91	-	-	5	95	-	-	-	10	90	-
Comoros	2016	796	29	21	18	61	39	33	-	-	-	-	-	-	-	-	-	-
Congo	2016	5 126	66	37	45	18	82	64	61	29	10	90	90	9	64	27	73	51
Côte d'Ivoire	2016	23 696	50	57	29	14	86	71	64	23	13	87	87	-	-	-	-	-
Czech Republic	2016	10 611	74	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	78 736	43	-	-	50	50	41	-	-	16	84	84	-	-	59	41	31
Djibouti	2016	942	78	-	-	18	82	-	-	-	5	95	-	-	-	34	66	-
Egypt	2010	84 108	43	77	18	5	95	92	-	-	-	-	-	-	-	-	-	-
Eritrea	2012	4 561	36	-	-	14	86	77	-	-	-	-	-	-	-	-	-	-
Estonia	2016	1 312	69	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Eswatini	2016	1 343	23	-	-	0	100	88	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	102 403	20	30	39	31	69	67	76	14	11	90	85	25	42	33	67	52
Gambia	2016	2 039	60	-	-	4	96	50	-	-	-	-	-	-	-	8	92	32
Ghana	2016	28 207	55	71	26	3	97	92	79	12	9	91	91	71	23	6	94	94
Grenada	2016	107	36	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Guinea-Bissau	2016	1 816	43	-	-	8	92	-	-	-	-	-	-	-	-	-	-	-
Guyana	2014	763	26	52	25	23	77	52	-	-	-	-	-	-	-	-	-	-
Haiti	2016	10 847	53	-	-	14	86	59	-	-	8	92	92	-	-	16	84	55
Honduras	2016	9 113	56	58	42	1	99	99	-	-	-	-	-	-	-	-	-	-
India	2016	1 324 171	33	-	-	9	91	-	-	-	-	-	-	-	-	-	-	-
Indonesia	2016	261 115	54	80	7	13	87	80	91	8	2	98	98	86	8	6	94	90
Kenya	2016	48 462	26	66	18	17	83	72	68	28	4	96	84	63	30	6	94	73

- = no estimate. NA = not applicable. For unrounded estimates see www.washdata.org.

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic water services *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
Afghanistan	2013	-	-	-	-	-	49	26	25	75	49	49	26	25	75	49	-	-	-	-	-
Andorra	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	2016	-	-	0	100	100	-	-	0	100	100	-	-	0	100	100	-	-	0	100	100
Armenia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	78	15	7	93	78	-	-	12	88	72	71	17	12	88	71	92	6	2	98	92
Benin	2016	95	5	0	-	-	73	0	27	73	-	82	14	4	-	-	69	0	31	69	-
Bhutan	2016	57	43	0	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	2016	-	-	-	-	-	89	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burkina Faso	2016	88	10	2	98	97	70	25	5	95	83	75	22	4	96	94	-	-	1	99	44
Burundi	2016	-	-	8	92	85	-	-	15	85	71	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	-	-	0	100	63	-	-	12	88	47	-	-	6	94	55	-	-	-	-	-
Cameroon	2016	57	37	7	93	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chad	2016	-	-	16	84	-	-	-	41	59	-	-	-	42	58	-	-	-	27	73	-
China	2016	-	-	-	-	-	91	1	9	91	91	91	1	9	91	91	-	-	-	-	-
Comoros	2016	20	40	40	60	60	21	17	62	38	31	-	-	-	-	-	-	-	-	-	-
Congo	2016	47	47	6	94	75	36	45	19	81	62	28	49	23	77	57	53	38	9	91	75
Côte d'Ivoire	2016	-	-	-	-	-	42	38	19	81	61	62	28	11	89	79	-	-	-	-	-
Czech Republic	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	-	-	15	85	82	-	-	51	49	40	-	-	61	39	30	-	-	33	67	58
Djibouti	2016	-	-	0	100	-	-	-	22	78	-	-	-	20	80	-	-	-	8	92	-
Egypt	2010	84	16	0	100	99	76	18	6	94	91	77	17	6	94	91	79	21	0	100	99
Eritrea	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Estonia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eswatini	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	87	8	5	95	95	41	30	29	71	53	23	48	29	71	70	73	22	5	95	92
Gambia	2016	-	-	0	100	75	-	-	5	95	48	-	-	5	96	45	-	-	-	-	-
Ghana	2016	85	12	4	96	90	63	27	10	90	90	77	22	1	99	99	40	34	25	75	55
Grenada	2016	-	-	0	100	100	-	-	0	100	100	-	-	0	100	100	-	-	0	100	100
Guinea-Bissau	2016	-	-	-	-	-	-	-	7	93	-	-	-	-	-	-	-	-	-	-	-
Guyana	2014	72	11	18	82	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	2016	-	-	4	96	78	-	-	15	85	56	-	-	15	85	58	-	-	12	88	60
Honduras	2016	-	-	-	-	-	52	47	1	99	98	58	42	1	99	99	-	-	-	-	-
India	2016	94	2	5	95	-	-	-	7	93	-	-	-	-	-	-	-	-	-	-	-
Indonesia	2016	-	-	2	98	-	80	7	13	87	80	-	-	-	-	-	-	-	-	-	-
Kenya	2016	57	35	8	92	82	63	16	21	79	75	62	26	13	87	70	71	4	25	75	74

ANNEX 3.1 | National water estimates

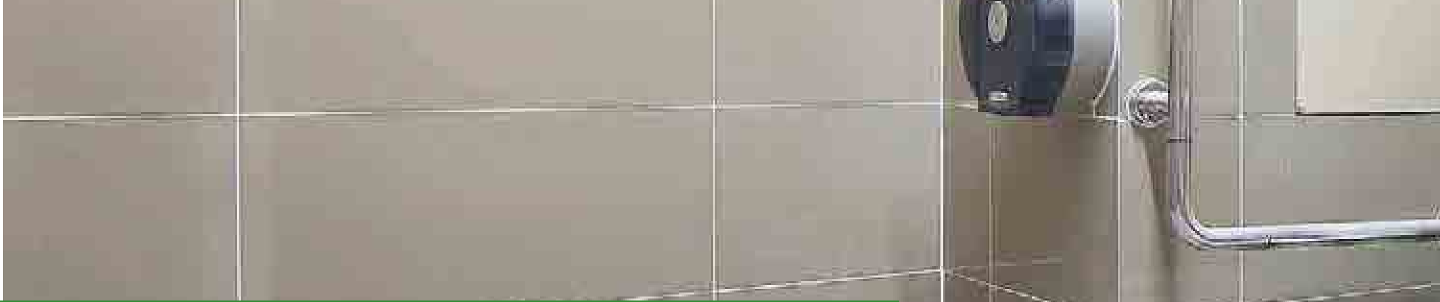
WATER				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
Kuwait	2016	4 053	100	100	0	0	100	100	100	0	0	100	-	-	-	-	-	-
Kyrgyzstan	2016	5 956	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	6 007	88	61	2	37	64	-	-	-	-	-	-	-	-	-	-	-
Lesotho	2015	2 135	27	57	38	4	96	57	-	-	-	-	-	51	43	5	95	51
Liberia	2016	4 614	50	-	-	50	50	-	-	-	-	-	-	-	-	-	-	-
Libya	2016	6 293	80	-	-	28	72	-	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	2 908	67	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Madagascar	2016	24 895	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malawi	2016	18 092	17	-	-	2	98	79	-	-	0	100	100	80	19	1	99	80
Maldives	2016	428	39	55	43	2	98	55	25	75	0	100	-	55	42	2	98	55
Mali	2016	17 995	41	-	-	11	89	-	-	-	-	-	-	-	-	-	-	-
Mauritania	2016	4 301	52	81	8	11	89	-	88	8	4	-	-	60	27	13	-	-
Montenegro	2016	629	66	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Mozambique	2016	28 829	35	-	-	20	80	-	-	-	-	-	-	55	31	15	85	66
Myanmar	2016	52 885	30	-	-	27	73	71	-	-	3	97	97	-	-	29	71	69
Namibia	2016	2 480	48	-	-	1	99	-	-	-	-	-	-	-	-	-	-	-
Nepal	2016	28 983	19	-	-	7	93	64	-	-	-	-	-	-	-	-	-	-
Nicaragua	2014	6 014	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niger	2016	20 673	16	-	-	39	61	-	-	-	2	98	-	-	-	47	53	-
Nigeria	2016	185 990	49	50	15	36	64	50	-	-	31	69	-	-	-	43	57	-
Papua New Guinea	2016	8 085	13	70	24	6	94	88	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	6 725	61	85	8	7	93	86	-	-	-	-	-	-	-	-	-	-
Peru	2016	31 774	78	46	36	18	82	71	-	-	5	95	91	-	-	22	78	55
Philippines	2016	103 320	46	-	-	20	81	61	-	-	-	-	-	-	-	20	81	61
Republic of Moldova	2014	4 070	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rwanda	2016	11 918	17	-	-	-	-	-	-	-	-	-	-	64	34	3	97	91
Saint Kitts and Nevis	2016	55	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saint Vincent and the Grenadines	2016	110	51	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
San Marino	2016	33	97	100	0	0	100	100	100	0	0	100	100	-	-	-	-	-
Senegal	2016	15 412	46	46	43	12	88	74	82	13	4	96	94	36	50	14	86	66
Serbia	2016	8 820	56	96	4	0	100	-	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	7 396	41	-	-	26	74	74	-	-	16	84	84	-	-	9	91	70
Solomon Islands	2014	576	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Somalia	2016	14 318	44	-	-	22	78	66	-	-	10	90	90	-	-	39	61	47
South Africa	2016	56 015	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Sudan	2016	12 231	19	-	-	36	64	-	-	-	-	-	-	-	-	-	-	-

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic water services *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
Kuwait	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	2016	70	24	6	94	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lesotho	2015	86	14	0	100	86	54	41	5	95	54	-	-	-	-	-	-	-	-	-	-
Liberia	2016	-	-	43	57	-	-	-	52	48	-	-	-	-	-	-	-	-	-	-	-
Libya	2016	-	-	14	86	-	-	-	24	76	-	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madagascar	2016	-	-	-	-	-	-	-	5	95	-	-	-	-	-	-	-	-	-	-	-
Malawi	2016	-	-	0	100	97	80	19	1	99	82	-	-	2	98	71	-	-	1	99	87
Maldives	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mali	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mauritania	2016	95	3	3	-	-	78	15	7	-	-	77	14	9	-	-	88	10	2	-	-
Montenegro	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mozambique	2016	-	-	-	-	-	54	32	14	86	64	-	-	-	-	-	-	-	-	-	-
Myanmar	2016	-	-	2	98	95	-	-	31	69	68	-	-	28	72	70	-	-	-	-	-
Namibia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nepal	2016	-	-	10	90	77	-	-	6	94	60	-	-	6	94	62	-	-	12	88	71
Nicaragua	2014	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niger	2016	-	-	1	99	-	-	-	36	64	-	-	-	42	58	-	-	-	1	99	-
Nigeria	2016	-	-	13	87	-	-	-	43	57	-	-	-	40	60	-	-	-	19	81	-
Papua New Guinea	2016	-	-	-	-	-	71	24	5	95	88	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	-	-	-	-	-	-	-	-	-	-	85	8	7	93	86	-	-	-	-	-
Peru	2016	-	-	-	-	-	45	27	28	72	57	46	27	27	73	58	-	-	-	-	-
Philippines	2016	-	-	-	-	-	-	-	20	81	61	-	-	20	81	61	-	-	-	-	-
Republic of Moldova	2014	-	-	24	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rwanda	2016	-	-	-	-	-	63	36	2	98	98	-	-	-	-	-	-	-	0	100	-
Saint Kitts and Nevis	2016	-	-	-	-	-	-	-	0	100	100	-	-	-	-	-	-	-	0	100	100
Saint Vincent and the Grenadines	2016	-	-	-	-	-	-	-	-	-	-	-	-	0	100	100	-	-	-	-	-
San Marino	2016	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100
Senegal	2016	84	7	9	91	88	44	45	12	88	73	42	46	12	88	72	76	14	10	90	88
Serbia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	-	-	-	-	-	-	-	13	87	74	-	-	11	89	72	-	-	1	99	92
Solomon Islands	2014	67	33	0	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Somalia	2016	-	-	3	97	86	-	-	23	77	64	-	-	26	74	63	-	-	13	87	73
South Africa	2016	-	-	-	-	-	-	-	0	100	-	-	-	-	-	-	-	-	-	-	-
South Sudan	2016	-	-	9	91	-	-	-	40	60	-	-	-	-	-	-	-	-	-	-	-

ANNEX 3.1 | National water estimates

WATER				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
Sri Lanka	2016	20 798	18	99	0	1	99	99	100	0	0	100	100	99	0	1	99	99
Timor-Leste	2016	1 269	30	-	-	4	96	92	-	-	-	-	-	-	-	-	-	-
Togo	2016	7 606	41	58	29	13	87	58	86	14	0	100	86	-	-	18	82	47
Trinidad and Tobago	2016	1 365	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	2016	11 403	68	-	-	5	95	91	-	-	-	-	-	-	-	-	-	-
Uganda	2016	41 488	23	31	65	4	96	36	52	47	2	98	76	38	54	8	92	47
United Republic of Tanzania	2016	55 572	32	65	14	21	79	65	87	9	4	96	87	54	15	31	69	54
Viet Nam	2016	94 569	35	51	46	3	97	51	-	-	-	-	-	-	-	-	-	-
West Bank and Gaza Strip	2016	4 791	76	-	-	2	98	93	-	-	-	-	-	-	-	-	-	-
Zambia	2016	16 591	42	40	45	15	85	48	58	37	5	95	85	51	33	16	84	61
Zimbabwe	2016	16 150	32	81	13	6	94	94	89	5	5	95	95	80	14	7	93	92

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic water services *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
Sri Lanka	2016	93	3	3	97	97	99	0	1	99	99	99	0	1	99	99	100	0	0	100	100
Timor-Leste	2016	-	-	0	100	100	-	-	4	96	91	-	-	-	-	-	-	-	-	-	-
Togo	2016	43	38	18	82	43	78	18	4	96	86	51	33	16	84	51	-	-	-	-	-
Trinidad and Tobago	2016	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	2016	-	-	-	-	-	-	-	5	95	91	-	-	5	95	91	-	-	-	-	-
Uganda	2016	61	30	9	91	83	42	54	3	97	53	22	72	6	94	24	41	55	4	96	48
United Republic of Tanzania	2016	86	14	0	100	86	64	14	21	79	64	57	15	28	72	57	85	11	4	96	85
Viet Nam	2016	46	53	1	99	46	52	44	4	96	52	-	-	-	-	-	-	-	-	-	-
West Bank and Gaza Strip	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zambia	2016	58	40	2	98	82	51	34	16	84	68	36	45	19	81	38	49	47	4	96	79
Zimbabwe	2016	90	6	5	95	95	80	14	6	94	93	81	14	6	94	93	81	13	7	93	93



ANNEX 3.2 | National sanitation estimates

SANITATION				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable
Afghanistan	2013	31 732	24	-	-	37	63	-	-	-	-	-	-	-	-	37	63	-
Andorra	2016	77	88	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	2016	101	25	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Armenia	2016	2 925	63	41	40	19	81	62	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	9 725	55	48	52	0	100	98	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	162 952	35	-	-	7	93	71	-	-	3	97	97	-	-	6	94	84
Barbados	2016	285	31	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Benin	2016	10 872	46	-	-	9	91	-	-	-	11	89	-	-	-	7	93	-
Bolivia (Plurinational State of)	2016	10 888	69	-	-	7	93	-	-	-	-	-	-	-	-	-	-	-
Brazil	2016	207 653	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burkina Faso	2016	18 646	28	-	-	6	94	-	-	-	4	96	-	-	-	6	94	-
Burundi	2016	10 524	12	-	-	7	93	86	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	15 762	23	-	-	2	98	98	-	-	-	-	-	-	-	-	-	-
Chad	2016	14 453	23	-	-	27	73	-	-	-	8	92	-	-	-	29	71	-
China	2016	1 403 500	57	-	-	3	97	83	-	-	-	-	-	-	-	-	-	-
Colombia	2016	48 653	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comoros	2016	796	29	2	49	49	51	38	-	-	-	-	-	-	-	-	-	-
Congo	2016	5 126	66	-	-	2	98	96	-	-	3	97	94	-	-	0	100	99
Czech Republic	2016	10 611	74	95	5	0	100	100	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	78 736	43	-	-	59	41	29	-	-	19	81	52	-	-	69	31	23
Djibouti	2016	942	78	-	-	5	95	-	-	-	0	100	-	-	-	11	89	-
Egypt	2010	84 108	43	-	-	9	91	82	-	-	-	-	-	-	-	-	-	-
Eritrea	2012	4 561	36	-	-	18	82	65	-	-	-	-	-	-	-	-	-	-
Estonia	2016	1 312	69	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	102 403	20	59	17	24	76	76	66	23	10	90	85	3	67	30	70	65
Ghana	2016	28 207	55	-	-	17	83	83	-	-	15	85	85	-	-	19	81	81
Grenada	2016	107	36	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Guinea-Bissau	2016	1 816	43	-	-	41	59	49	-	-	-	-	-	-	-	-	-	-
Haiti	2016	10 847	53	-	-	18	82	69	-	-	10	90	90	-	-	23	77	77

- = no estimate. NA = not applicable. For unrounded estimates see www.washdata.org.

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic sanitation services *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable
Afghanistan	2013	-	-	-	-	-	-	-	37	63	-	-	-	37	63	-	-	-	-	-	-
Andorra	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	2016	-	-	0	100	100	-	-	-	-	-	-	-	0	100	100	-	-	0	100	100
Armenia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	62	33	5	95	93	-	-	10	90	90	-	-	10	90	90	-	-	3	97	97
Barbados	2016	-	-	-	-	-	-	-	-	-	-	-	-	0	100	100	-	-	-	-	-
Benin	2016	-	-	1	99	-	-	-	9	91	-	-	-	8	92	-	-	-	12	88	-
Bolivia (Plurinational State of)	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	2016	-	-	-	-	-	24	75	1	99	86	-	-	-	-	-	-	-	-	-	-
Burkina Faso	2016	-	-	-	-	-	-	-	6	94	-	-	-	5	95	-	-	-	6	94	-
Burundi	2016	-	-	3	97	94	-	-	8	92	84	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	-	-	-	-	-	-	-	-	-	-	-	-	2	98	98	-	-	-	-	-
Chad	2016	-	-	7	93	-	-	-	29	71	-	-	-	23	77	-	-	-	31	69	-
China	2016	-	-	-	-	-	-	-	3	97	83	-	-	3	97	83	-	-	-	-	-
Colombia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	100	-
Comoros	2016	20	80	0	100	60	1	47	52	48	36	-	-	-	-	-	-	-	-	-	-
Congo	2016	-	-	2	98	97	-	-	2	98	96	-	-	1	99	98	-	-	3	97	94
Czech Republic	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	-	-	18	82	44	-	-	61	39	29	-	-	70	30	24	-	-	44	56	37
Djibouti	2016	-	-	0	100	-	-	-	6	94	-	-	-	6	94	-	-	-	0	100	-
Egypt	2010	-	-	5	95	89	-	-	9	91	81	-	-	10	90	80	-	-	2	98	97
Eritrea	2012	-	-	20	80	59	-	-	17	83	66	-	-	-	-	-	-	-	-	-	-
Estonia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	79	14	6	94	90	3	69	28	72	66	59	17	24	76	76	89	6	5	95	94
Ghana	2016	-	-	0	100	100	-	-	20	80	80	-	-	11	89	89	-	-	25	75	75
Grenada	2016	-	-	0	100	100	-	-	-	-	-	-	-	0	100	100	-	-	-	-	-
Guinea-Bissau	2016	-	-	-	-	-	-	-	43	57	47	-	-	-	-	-	-	-	-	-	-
Haiti	2016	-	-	7	93	90	-	-	20	80	66	-	-	18	82	61	-	-	18	82	76

ANNEX 3.2 | National sanitation estimates

SANITATION				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable
Honduras	2016	9 113	56	1	95	4	96	84	-	-	-	-	-	-	-	-	-	-
India	2016	1 324 171	33	-	-	45	55	-	-	-	-	-	-	-	-	35	65	-
Indonesia	2016	261 115	54	-	-	13	87	-	-	-	1	99	-	-	-	1	99	-
Kenya	2016	48 462	26	-	-	14	86	86	-	-	3	97	97	10	88	1	99	84
Kuwait	2016	4 053	100	100	0	0	100	100	100	0	0	100	100	-	-	-	-	-
Kyrgyzstan	2016	5 956	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	2016	6 758	34	-	-	-	-	68	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	6 007	88	16	66	18	83	83	-	-	-	-	-	-	-	-	-	-
Lesotho	2015	2 135	27	0	97	3	97	43	-	-	-	-	-	0	97	3	97	41
Liberia	2016	4 614	50	3	73	24	76	76	-	-	-	-	-	-	-	-	-	-
Libya	2016	6 293	80	-	-	5	95	-	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	2 908	67	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Madagascar	2016	24 895	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malawi	2016	18 092	17	-	-	11	89	86	-	-	4	96	96	-	-	7	93	89
Maldives	2016	428	39	15	85	0	100	99	50	50	0	100	100	13	87	0	100	99
Mali	2016	17 995	41	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
Mauritania	2016	4 301	52	-	-	20	80	-	-	-	7	93	-	-	-	48	52	-
Montenegro	2016	629	66	85	15	0	100	100	-	-	-	-	-	-	-	-	-	-
Mozambique	2016	28 829	35	-	-	43	57	-	-	-	-	-	-	2	61	37	63	61
Myanmar	2016	52 885	30	-	-	16	84	-	-	-	0	100	-	-	-	17	83	-
Namibia	2016	2 480	48	-	-	9	91	81	-	-	-	-	-	-	-	-	-	-
Nepal	2016	28 983	19	-	-	8	92	92	-	-	-	-	-	-	-	-	-	-
Nicaragua	2016	6 150	58	-	-	-	-	-	-	-	-	-	-	-	-	9	92	-
Niger	2016	20 673	16	-	-	13	87	26	-	-	2	98	64	-	-	17	83	21
Nigeria	2016	185 990	49	12	47	41	59	49	-	-	53	47	44	-	-	72	28	27
Papua New Guinea	2016	8 085	13	-	-	32	68	-	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	6 725	61	26	62	12	88	63	-	-	-	-	-	-	-	-	-	-
Peru	2016	31 774	78	7	83	10	90	83	-	-	-	-	-	-	-	-	-	-
Philippines	2016	103 320	46	-	-	5	95	-	-	-	-	-	-	-	-	5	95	-
Rwanda	2016	11 918	17	-	-	-	-	-	-	-	-	-	-	-	-	3	97	88

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic sanitation services *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable
Honduras	2016	-	-	-	-	-	0	95	5	95	82	1	95	4	96	84	-	-	-	-	-
India	2016	-	-	17	83	83	-	-	39	61	-	-	-	23	77	-	-	-	63	37	-
Indonesia	2016	-	-	-	-	-	-	-	13	87	-	-	-	-	-	-	-	-	-	-	-
Kenya	2016	-	-	8	92	92	8	77	15	85	73	-	-	9	91	91	-	-	20	80	80
Kuwait	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	2016	-	-	0	100	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	2016	-	-	-	-	55	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lesotho	2015	0	100	0	100	57	0	97	3	97	41	-	-	-	-	-	-	-	-	-	-
Liberia	2016	4	95	1	99	92	3	91	6	94	85	-	-	-	-	-	-	-	-	-	-
Libya	2016	-	-	11	89	-	-	-	8	92	-	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madagascar	2016	-	-	-	-	-	-	-	0	100	-	-	-	-	-	-	-	-	-	-	-
Malawi	2016	-	-	4	96	96	-	-	6	94	87	-	-	13	87	87	-	-	8	92	92
Maldives	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mali	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mauritania	2016	-	-	2	98	-	-	-	31	69	-	-	-	33	67	-	-	-	8	92	-
Montenegro	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mozambique	2016	-	-	-	-	-	2	65	33	67	67	-	-	-	-	-	-	-	-	-	-
Myanmar	2016	-	-	0	100	-	-	-	18	82	-	-	-	16	84	-	-	-	-	-	-
Namibia	2016	-	-	13	87	74	-	-	8	92	84	-	-	-	-	-	-	-	-	-	-
Nepal	2016	-	-	9	91	91	-	-	8	92	92	-	-	7	93	93	-	-	12	88	88
Nicaragua	2016	-	-	-	-	-	-	-	9	92	-	-	-	-	-	-	-	-	-	-	-
Niger	2016	-	-	5	95	-	-	-	14	86	-	-	-	14	86	22	-	-	1	99	-
Nigeria	2016	-	-	39	61	60	-	-	69	31	29	-	-	66	34	32	-	-	46	54	53
Papua New Guinea	2016	-	-	-	-	-	-	-	33	67	-	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	-	-	-	-	-	-	-	-	-	-	26	62	12	88	63	-	-	-	-	-
Peru	2016	-	-	-	-	-	5	84	11	89	82	7	83	10	90	83	-	-	-	-	-
Philippines	2016	-	-	-	-	-	-	-	5	95	-	-	-	5	95	-	-	-	-	-	-
Rwanda	2016	-	-	-	-	-	-	-	3	97	89	-	-	-	-	-	-	-	-	-	-

ANNEX 3.2 | National sanitation estimates

SANITATION				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable
Saint Kitts and Nevis	2016	55	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saint Lucia	2016	178	19	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Saint Vincent and the Grenadines	2016	110	51	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
San Marino	2016	33	97	-	-	0	100	100	-	-	0	100	100	-	-	-	-	-
Senegal	2016	15 412	46	-	-	12	88	88	-	-	5	95	95	-	-	14	86	86
Serbia	2016	8 820	56	73	27	0	100	100	-	-	-	-	-	-	-	-	-	-
Seychelles	2016	94	56	-	-	0	100	-	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	7 396	41	-	-	15	85	85	-	-	13	87	87	-	-	15	85	85
Somalia	2016	14 318	44	-	-	24	76	-	-	-	14	86	-	-	-	39	61	-
South Sudan	2016	12 231	19	-	-	8	92	84	-	-	-	-	-	-	-	-	-	-
Sri Lanka	2016	20 798	18	-	-	7	93	93	-	-	8	92	92	-	-	7	93	93
Tajikistan	2012	7 995	27	-	-	6	94	43	-	-	-	-	-	-	-	-	-	-
Timor-Leste	2016	1 269	30	-	-	3	97	93	-	-	-	-	-	-	-	-	-	-
Togo	2016	7 606	41	-	-	25	75	66	-	-	19	81	67	-	-	33	67	66
Uganda	2016	41 488	23	12	79	9	91	88	15	80	5	95	94	3	86	10	90	86
United Republic of Tanzania	2016	55 572	32	5	46	49	51	51	9	61	29	71	71	2	49	49	51	51
Viet Nam	2016	94 569	35	-	-	4	96	-	-	-	-	-	-	-	-	-	-	-
West Bank and Gaza Strip	2016	4 791	76	-	-	0	100	-	-	-	-	-	-	-	-	-	-	-
Zambia	2016	16 591	42	-	-	7	93	91	-	-	3	97	97	1	90	9	91	85
Zimbabwe	2016	16 150	32	17	83	0	100	72	24	74	2	98	24	16	84	0	100	79

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL: Basic sanitation services (improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)	HOSPITAL: Limited sanitation services (improved, not meeting all criteria for basic)	HOSPITAL: No sanitation service (no facility or unimproved)	HOSPITAL: Improved	HOSPITAL: Improved and useable	NON-HOSPITAL: Basic sanitation services (improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)	NON-HOSPITAL: Limited sanitation services (improved, not meeting all criteria for basic)	NON-HOSPITAL: No sanitation service (no facility or unimproved)	NON-HOSPITAL: Improved	NON-HOSPITAL: Improved and useable	GOVERNMENT: Basic sanitation services (improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)	GOVERNMENT: Limited sanitation services (improved, not meeting all criteria for basic)	GOVERNMENT: No sanitation service (no facility or unimproved)	GOVERNMENT: Improved	GOVERNMENT: Improved and useable	NON-GOVERNMENT: Basic sanitation services (improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)	NON-GOVERNMENT: Limited sanitation services (improved, not meeting all criteria for basic)	NON-GOVERNMENT: No sanitation service (no facility or unimproved)	NON-GOVERNMENT: Improved	NON-GOVERNMENT: Improved and useable
Saint Kitts and Nevis	2016	-	-	0	100	100	-	-	0	100	100	-	-	-	-	-	-	-	-	-	-
Saint Lucia	2016	-	-	-	-	-	-	-	-	-	-	-	-	0	100	100	-	-	-	-	-
Saint Vincent and the Grenadines	2016	-	-	-	-	-	-	-	-	-	-	-	-	0	100	100	-	-	-	-	-
San Marino	2016	100	0	0	100	100	-	-	-	-	-	100	0	0	100	100	-	-	0	100	100
Senegal	2016	-	-	9	91	91	-	-	12	88	88	-	-	12	88	88	-	-	11	89	89
Serbia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seychelles	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	-	-	-	-	-	-	-	15	85	85	-	-	16	84	84	-	-	2	98	98
Somalia	2016	-	-	10	90	-	-	-	25	75	-	-	-	29	71	-	-	-	12	88	-
South Sudan	2016	-	-	6	94	88	-	-	9	91	82	-	-	-	-	-	-	-	-	-	-
Sri Lanka	2016	-	-	1	99	99	-	-	12	88	88	-	-	8	92	92	-	-	0	100	100
Tajikistan	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Timor-Leste	2016	-	-	0	100	100	-	-	4	96	93	-	-	-	-	-	-	-	-	-	-
Togo	2016	-	-	36	64	62	-	-	24	76	72	-	-	28	72	64	-	-	-	-	-
Uganda	2016	-	-	2	98	98	4	87	9	91	88	11	78	11	89	86	11	83	6	94	92
United Republic of Tanzania	2016	8	68	24	76	76	4	45	50	50	50	3	45	51	49	49	6	66	28	72	72
Viet Nam	2016	-	-	1	99	97	-	-	5	95	-	-	-	-	-	-	-	-	-	-	-
West Bank and Gaza Strip	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zambia	2016	-	-	0	100	100	1	92	7	93	90	-	-	10	90	80	-	-	2	98	98
Zimbabwe	2016	36	64	0	100	36	14	86	0	100	78	21	80	0	100	74	15	85	0	100	72

ANNEX 3.3 | National hygiene estimates

HYGIENE				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
Afghanistan	2013	31 732	24	-	-	-	-	28	-	-	-	-	-	-	-	-	-	28
Antigua and Barbuda	2016	101	25	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
Armenia	2016	2 925	63	69	-	-	94	69	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	9 725	55	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	162 952	35	-	-	-	54	-	-	-	-	90	-	-	-	-	47	-
Benin	2016	10 872	46	-	-	-	90	-	-	-	-	95	-	-	-	-	87	-
Bhutan	2016	798	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burkina Faso	2016	18 646	28	-	-	0	91	-	-	-	0	91	-	-	-	0	95	-
Burundi	2016	10 524	12	-	-	-	93	-	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	15 762	23	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
Cameroon	2016	23 439	55	-	-	-	71	-	-	-	-	-	-	-	-	-	-	-
Chad	2016	14 453	23	-	-	-	78	-	-	-	-	92	-	-	-	-	80	-
China	2016	1 403 500	57	36	64	0	36	67	-	-	-	-	-	-	-	-	-	-
Comoros	2016	796	29	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-
Congo	2016	5 126	66	-	-	-	61	-	-	-	-	61	-	-	-	-	61	-
Côte d'Ivoire	2016	23 696	50	-	-	2	77	-	-	-	4	77	-	-	-	-	-	-
Czech Republic	2016	10 611	74	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	78 736	43	-	-	-	62	-	-	-	-	83	-	-	-	-	57	-
Djibouti	2016	942	78	-	-	-	35	-	-	-	-	45	-	-	-	-	24	-
Egypt	2010	84 108	43	9	91	0	63	10	-	-	-	-	-	-	-	-	-	-
Estonia	2016	1 312	69	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	102 403	20	-	-	2	52	-	-	-	1	64	-	-	-	3	33	-
Gambia	2016	2 039	60	-	-	-	85	-	-	-	-	-	-	-	-	-	-	-
Ghana	2016	28 207	55	-	-	0	92	-	-	-	0	94	-	-	-	0	89	-
Grenada	2016	107	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guinea-Bissau	2016	1 816	43	-	-	-	-	57	-	-	-	-	-	-	-	-	-	-
Haiti	2016	10 847	53	-	-	-	71	-	-	-	-	73	-	-	-	-	70	-

- = no estimate. NA = not applicable. For unrounded estimates see www.washdata.org.

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic hygiene services *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
Afghanistan	2013	-	-	-	-	-	-	-	-	-	28	-	-	-	-	28	-	-	-	-	-
Antigua and Barbuda	2016	-	-	-	100	-	-	-	-	100	-	-	-	-	100	-	-	-	-	100	-
Armenia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	-	-	-	69	-	-	-	-	51	-	-	-	-	51	-	-	-	-	90	-
Benin	2016	-	-	-	100	-	-	-	-	89	-	-	-	-	89	-	-	-	-	92	-
Bhutan	2016	57	-	-	93	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burkina Faso	2016	-	-	0	90	-	-	-	0	91	-	-	-	0	90	-	-	-	-	97	-
Burundi	2016	-	-	-	96	-	-	-	-	93	-	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-
Cameroon	2016	-	-	-	76	-	-	-	-	-	-	-	-	-	71	-	-	-	-	89	-
Chad	2016	-	-	-	100	-	-	-	-	78	-	-	-	-	82	-	-	-	-	83	-
China	2016	-	-	-	-	-	36	64	0	36	67	36	64	0	36	67	-	-	-	-	-
Comoros	2016	-	-	-	40	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-
Congo	2016	-	-	-	63	-	-	-	-	61	-	-	-	-	58	-	-	-	-	65	-
Côte d'Ivoire	2016	-	-	-	-	-	-	-	4	72	-	-	-	0	81	-	-	-	-	-	-
Czech Republic	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	-	-	-	89	-	-	-	-	61	-	-	-	-	55	-	-	-	-	74	-
Djibouti	2016	-	-	-	64	-	-	-	-	29	-	-	-	-	31	-	-	-	-	61	-
Egypt	2010	4	96	0	65	5	10	90	0	63	11	6	94	0	62	6	27	73	0	71	30
Estonia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	-	-	1	85	-	-	-	2	49	-	-	-	2	42	-	-	-	2	68	-
Gambia	2016	-	-	-	100	-	-	-	-	83	-	-	-	-	-	-	-	-	-	-	-
Ghana	2016	-	-	0	87	-	-	-	0	96	-	-	-	0	92	-	-	-	-	-	-
Grenada	2016	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-
Guinea-Bissau	2016	-	-	-	-	-	-	-	-	-	59	-	-	-	-	-	-	-	-	-	-
Haiti	2016	-	-	-	80	-	-	-	-	70	-	-	-	-	64	-	-	-	-	75	-

ANNEX 3.3 | National hygiene estimates

HYGIENE				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
India	2016	1 324 171	33	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-
Indonesia	2016	261 115	54	-	-	1	80	-	-	-	1	83	-	-	-	1	77	-
Kenya	2016	48 462	26	-	-	0	77	-	-	-	0	81	-	-	-	0	74	-
Kuwait	2016	4 053	100	100	0	0	100	100	100	0	0	100	100	-	-	-	-	-
Kyrgyzstan	2016	5 956	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	2016	6 758	34	-	-	-	79	-	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	6 007	88	-	-	1	-	93	-	-	-	-	-	-	-	-	-	-
Liberia	2016	4 614	50	36	-	-	53	36	-	-	-	-	-	-	-	-	-	-
Libya	2016	6 293	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	2 908	67	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-
Madagascar	2016	24 895	36	-	-	-	43	-	-	-	-	-	-	-	-	-	-	-
Malawi	2016	18 092	17	-	-	-	73	-	-	-	-	85	-	-	-	-	53	-
Maldives	2016	428	39	80	20	0	88	86	75	25	0	100	75	80	20	0	88	86
Mauritania	2016	4 301	52	-	-	-	84	-	-	-	-	92	-	-	-	-	64	-
Mongolia	2016	3 027	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montenegro	2016	629	66	100	-	-	100	100	-	-	-	-	-	-	-	-	-	-
Mozambique	2016	28 829	35	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-
Myanmar	2016	52 885	30	-	-	-	91	-	-	-	-	100	-	-	-	-	90	-
Namibia	2016	2 480	48	-	-	-	81	-	-	-	-	-	-	-	-	-	-	-
Nepal	2016	28 983	19	-	-	-	46	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	2016	6 150	58	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-
Niger	2016	20 673	16	-	-	0	68	-	-	-	0	80	-	-	-	1	58	-
Nigeria	2016	185 990	49	43	44	13	63	43	-	-	2	72	-	-	-	0	56	-
Papua New Guinea	2016	8 085	13	-	-	-	98	-	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	6 725	61	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-
Peru	2016	31 774	78	-	-	-	74	-	-	-	-	-	-	-	-	-	-	-
Rwanda	2016	11 918	17	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-
Saint Kitts and Nevis	2010	51	31	-	-	-	92	-	-	-	-	-	-	-	-	-	-	-

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic hygiene services *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
India	2016	76	0	24	99	78	-	-	50	-	-	-	-	39	-	-	-	-	62	-	-
Indonesia	2016	-	-	1	88	-	-	-	1	78	-	-	-	1	82	-	-	-	2	70	-
Kenya	2016	-	-	0	80	-	-	-	1	76	-	-	-	0	76	-	-	-	-	79	-
Kuwait	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	2016	62	-	-	74	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	2016	-	-	-	60	-	-	-	-	89	-	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Liberia	2016	-	-	-	45	-	-	-	-	55	-	-	-	-	-	-	-	-	-	-	-
Libya	2016	-	-	-	94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	100	0	0	100	100	99	-	-	99	100	-	-	-	-	-	-	-	-	-	-
Madagascar	2016	-	-	-	-	-	-	-	-	43	-	-	-	-	43	-	-	-	-	-	-
Malawi	2016	-	-	-	90	-	-	-	-	60	-	-	-	-	58	-	-	-	-	86	-
Maldives	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mauritania	2016	-	-	-	100	-	-	-	-	76	-	-	-	-	73	-	-	-	-	97	-
Mongolia	2016	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	-	-	-	-
Montenegro	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mozambique	2016	-	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-
Myanmar	2016	-	-	-	100	-	-	-	-	90	-	-	-	-	91	-	-	-	-	-	-
Namibia	2016	-	-	-	86	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-
Nepal	2016	-	-	-	70	-	-	-	-	43	-	-	-	-	43	-	-	-	-	73	-
Nicaragua	2016	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-
Niger	2016	-	-	-	86	-	-	-	0	66	-	-	-	0	68	-	-	-	-	90	-
Nigeria	2016	-	-	1	77	-	-	-	1	59	-	-	-	1	62	-	-	-	1	73	-
Papua New Guinea	2016	-	-	-	-	-	-	-	-	99	-	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-
Peru	2016	-	-	-	-	-	-	-	-	75	-	-	-	-	74	-	-	-	-	-	-
Rwanda	2016	-	-	-	-	-	-	-	-	70	-	-	-	-	-	-	-	-	-	-	-
Saint Kitts and Nevis	2010	-	-	-	67	-	-	-	-	96	-	-	-	-	95	-	-	-	-	86	-

ANNEX 3.3 | National hygiene estimates

HYGIENE				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
Saint Vincent and the Grenadines	2016	110	51	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
San Marino	2016	33	97	100	0	0	100	100	100	0	0	100	100	-	-	-	-	-
Senegal	2016	15 412	46	-	-	-	93	-	-	-	-	94	-	-	-	-	81	-
Serbia	2016	8 820	56	100	-	-	100	100	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	7 396	41	-	-	-	85	-	-	-	-	90	-	-	-	-	85	-
Somalia	2016	14 318	44	-	-	-	58	-	-	-	-	77	-	-	-	-	30	-
South Sudan	2016	12 231	19	-	-	-	77	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	2016	20 798	18	-	-	-	91	-	-	-	-	98	-	-	-	-	89	-
Togo	2016	7 606	41	-	-	-	91	-	-	-	-	95	-	-	-	-	-	-
Trinidad and Tobago	2010	1 328	54	-	-	-	84	-	-	-	-	-	-	-	-	-	-	-
Tunisia	2016	11 403	68	-	-	-	46	-	-	-	-	-	-	-	-	-	-	-
Uganda	2016	41 488	23	-	-	1	84	-	-	-	1	87	-	-	-	1	85	-
United Republic of Tanzania	2016	55 572	32	35	-	-	66	35	61	-	-	81	61	21	-	-	59	21
Zambia	2016	16 591	42	-	-	-	80	-	-	-	-	83	-	-	-	-	53	-
Zimbabwe	2016	16 150	32	58	32	10	81	-	70	25	5	83	-	57	33	11	81	-

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic hygiene services *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(hand hygiene facilities at points of care and water and soap at toilets)*	**Limited hygiene services** *(hand hygiene facilities missing at points of care or toilets)*	**No hygiene service** *(hand hygiene facilities missing at points of care and toilets)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
Saint Vincent and the Grenadines	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-
San Marino	2016	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100
Senegal	2016	-	-	-	93	-	-	-	-	93	-	-	-	-	92	-	-	-	-	95	-
Serbia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	-	-	-	-	-	-	-	-	85	-	-	-	-	83	-	-	-	-	97	-
Somalia	2016	-	-	-	85	-	-	-	-	56	-	-	-	-	52	-	-	-	-	71	-
South Sudan	2016	-	-	-	80	-	-	-	-	76	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	2016	-	-	-	93	-	-	-	-	90	-	-	-	-	91	-	-	-	-	99	-
Togo	2016	-	-	-	-	-	-	-	-	90	-	-	-	-	92	-	-	-	-	-	-
Trinidad and Tobago	2010	-	-	-	51	-	-	-	-	89	-	-	-	-	85	-	-	-	-	-	-
Tunisia	2016	-	-	-	-	-	-	-	-	46	-	-	-	-	46	-	-	-	-	-	-
Uganda	2016	-	-	0	86	-	-	-	1	72	-	-	-	1	84	-	-	-	-	96	-
United Republic of Tanzania	2016	58	-	-	89	58	33	-	-	65	33	24	-	-	58	24	57	-	-	85	57
Zambia	2016	-	-	-	91	-	-	-	-	61	-	-	-	-	80	-	-	-	-	84	-
Zimbabwe	2016	56	35	9	80	-	59	32	10	81	-	53	35	12	78	-	61	31	9	96	-

ANNEX 3.4 | National waste management estimates

WASTE MANAGEMENT				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated
Afghanistan	2013	31 732	24	-	-	-	-	83	-	-	-	-	-	-	-	-	-	83
Andorra	2016	77	88	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	2010	95	26	-	-	-	65	-	-	-	-	-	-	-	-	-	-	-
Armenia	2016	2 925	63	97	-	-	97	97	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	9 725	55	-	-	-	-	55	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	162 952	35	11	56	32	25	48	38	47	15	55	75	9	57	34	22	46
Benin	2016	10 872	46	26	70	4	42	55	29	64	7	42	62	24	74	2	42	49
Bhutan	2016	798	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	2015	207 848	86	-	-	17	56	-	-	-	-	-	-	-	-	-	-	-
Burkina Faso	2016	18 646	28	31	69	1	31	77	33	65	2	33	85	23	77	0	23	83
Burundi	2016	10 524	12	84	-	-	84	94	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	15 762	23	-	-	-	94	-	-	-	-	-	-	-	-	-	-	-
Chad	2016	14 453	23	55	-	-	74	55	70	-	-	70	75	55	-	-	71	55
China	2016	1 403 500	57	-	-	-	86	-	-	-	-	-	-	-	-	-	-	-
Comoros	2016	796	29	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-
Congo	2016	5 126	66	12	27	60	40	26	12	32	55	45	25	12	21	66	34	27
Cook Islands	2016	17	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	2016	23 696	50	-	-	-	80	-	-	-	-	80	-	-	-	-	-	-
Czech Republic	2016	10 611	74	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	78 736	43	12	68	20	43	24	17	67	16	43	35	10	69	21	43	21
Djibouti	2016	942	78	35	-	-	35	41	43	-	-	43	45	26	-	-	26	37
Ecuador	2016	16 385	64	49	-	-	53	59	53	-	-	58	66	42	-	-	45	50
Egypt	2010	84 108	43	17	83	0	33	45	-	-	-	-	-	-	-	-	-	-
Estonia	2016	1 312	69	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	102 403	20	64	-	-	87	64	85	-	-	93	85	54	-	-	94	54
Gambia	2016	2 039	60	-	-	-	66	-	-	-	-	-	-	-	-	-	-	-
Ghana	2016	28 207	55	51	-	-	98	57	53	-	-	96	59	50	-	-	92	55
Grenada	2016	107	36	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
Guinea-Bissau	2016	1 816	43	7	-	-	7	10	-	-	-	-	-	-	-	-	-	-
Haiti	2016	10 847	53	6	71	23	15	35	8	60	32	17	48	4	78	18	13	26
Honduras	2016	9 113	56	-	-	-	96	-	-	-	-	-	-	-	-	-	-	-
India	2016	1 324 171	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indonesia	2016	261 115	54	66	-	-	80	66	66	-	-	84	68	64	-	-	76	64

- = no estimate. NA = not applicable. For unrounded estimates see www.washdata.org.

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic waste management services *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	**Waste segregated**	**Waste treated**	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	**Waste segregated**	**Waste treated**	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	**Waste segregated**	**Waste treated**	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	**Waste segregated**	**Waste treated**
Afghanistan	2013	-	-	-	-	-	-	-	-	-	83	-	-	-	-	83	-	-	-	-	-
Andorra	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	2010	-	-	-	67	-	-	-	-	64	-	-	-	-	56	-	-	-	-	75	-
Armenia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh	2016	11	47	42	25	52	11	59	30	25	47	9	57	34	22	46	37	48	15	54	74
Benin	2016	45	55	0	68	73	25	71	4	41	54	30	67	3	46	60	17	76	7	34	44
Bhutan	2016	86	-	-	96	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	2015	-	-	-	-	-	-	-	-	93	-	-	-	10	64	-	-	-	26	47	-
Burkina Faso	2016	86	9	5	95	91	32	67	1	32	74	23	77	0	23	89	38	60	2	38	81
Burundi	2016	94	-	-	94	94	81	-	-	81	94	-	-	-	-	-	-	-	-	-	-
Cambodia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	94	-	-	-	-	-	-
Chad	2016	88	-	-	90	88	53	-	-	76	53	57	-	-	73	57	60	-	-	60	66
China	2016	-	-	-	-	-	-	-	-	86	-	-	-	-	86	-	-	-	-	-	-
Comoros	2016	-	-	-	60	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-
Congo	2016	16	31	53	47	31	12	27	61	39	25	14	30	57	44	26	10	24	67	33	24
Cook Islands	2016	50	-	-	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	2016	-	-	-	-	-	-	-	-	69	-	-	-	-	92	-	-	-	-	-	-
Czech Republic	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Democratic Republic of the Congo	2016	38	54	8	65	57	11	69	20	42	23	11	72	17	47	22	13	62	25	37	27
Djibouti	2016	64	-	-	64	65	29	-	-	29	57	31	-	-	31	52	61	-	-	61	92
Ecuador	2016	67	-	-	72	82	48	-	-	52	58	46	-	-	50	56	63	-	-	70	77
Egypt	2010	22	78	0	37	56	15	85	0	32	42	-	-	0	34	-	-	-	0	23	-
Estonia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	2016	94	-	-	94	95	63	-	-	86	63	68	-	-	89	68	72	-	-	76	72
Gambia	2016	-	-	-	63	-	-	-	-	67	-	-	-	-	-	-	-	-	-	-	-
Ghana	2016	74	-	-	93	84	39	-	-	100	42	56	-	-	98	58	18	-	-	61	23
Grenada	2016	-	-	-	100	-	-	-	-	100	-	-	-	-	100	-	-	-	-	100	-
Guinea-Bissau	2016	-	-	-	-	-	7	-	-	7	10	-	-	-	-	-	-	-	-	-	-
Haiti	2016	12	63	26	22	52	5	72	23	14	32	6	73	20	16	30	5	69	25	14	37
Honduras	2016	-	-	-	-	-	-	-	-	95	-	-	-	-	96	-	-	-	-	-	-
India	2016	76	21	3	80	94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indonesia	2016	84	-	-	90	92	58	-	-	77	58	70	-	-	83	70	39	-	-	60	50

ANNEX 3.4 | National waste management estimates

WASTE MANAGEMENT				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated
Kenya	2016	48 462	26	33	62	5	33	50	60	-	-	91	60	44	-	-	97	51
Kiribati	2016	114	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	2016	4 053	100	100	0	0	100	100	100	0	0	100	100	-	-	-	-	-
Kyrgyzstan	2016	5 956	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	2016	6 758	34	33	-	-	33	50	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	6 007	88	64	31	5	95	64	-	-	-	-	-	-	-	-	-	-
Lesotho	2015	2 135	27	47	33	20	80	57	-	-	-	-	-	46	36	19	81	52
Liberia	2016	4 614	50	67	-	-	84	67	-	-	-	-	-	-	-	-	-	-
Libya	2016	6 293	80	43	-	-	46	43	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	2 908	67	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
Madagascar	2014	23 590	35	42	-	-	78	42	-	-	-	-	-	-	-	-	-	-
Malawi	2016	18 092	17	43	56	1	90	49	43	56	2	83	54	43	56	0	92	47
Maldives	2016	428	39	30	-	-	47	59	50	-	-	50	75	29	-	-	47	58
Mali	2016	17 995	41	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-
Marshall Islands	2016	53	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mauritania	2016	4 301	52	25	54	21	70	36	46	44	10	67	67	7	63	30	45	19
Micronesia (Federated States of)	2016	105	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mongolia	2016	3 027	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montenegro	2016	629	66	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Myanmar	2016	52 885	30	3	88	9	17	11	30	67	3	71	48	1	89	9	14	8
Namibia	2013	2 317	45	20	77	3	53	55	-	-	-	-	-	-	-	-	-	-
Nauru	2016	11	100	-	-	-	-	-	-	-	-	-	-	NA	NA	NA	NA	NA
Nepal	2016	28 983	19	1	62	36	5	21	-	-	-	-	-	-	-	-	-	-
Niger	2016	20 673	16	60	-	-	73	60	64	-	-	71	70	48	-	-	75	48
Nigeria	2016	185 990	49	43	47	10	73	43	50	46	4	80	50	36	49	15	67	36
Niue	2016	2	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palau	2016	22	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Papua New Guinea	2016	8 085	13	10	-	-	97	10	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	6 725	61	6	-	-	80	23	-	-	-	-	-	-	-	-	-	-
Peru	2016	31 774	78	28	-	-	97	28	-	-	-	-	-	-	-	-	-	-
Philippines	2016	103 320	46	-	-	-	68	-	-	-	-	-	-	-	-	-	68	-
Rwanda	2011	10 516	17	49	47	3	91	62	-	-	-	-	-	-	-	-	-	-

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic waste management services *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated
Kenya	2016	53	38	9	62	89	42	54	4	65	68	47	51	2	72	73	47	46	8	60	58
Kiribati	2016	50	0	50	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	2016	72	-	-	72	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lao People's Democratic Republic	2016	18	-	-	18	70	40	-	-	40	40	-	-	-	-	-	-	-	-	-	-
Lebanon	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lesotho	2015	64	14	21	79	86	45	35	20	80	53	-	-	-	-	-	-	-	-	-	-
Liberia	2016	59	-	-	88	59	63	-	-	88	63	-	-	-	-	-	-	-	-	-	-
Libya	2016	50	-	-	84	50	39	-	-	39	42	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	97	-	-	100	97	92	-	-	100	92	-	-	-	-	-	-	-	-	-	-
Madagascar	2014	-	-	-	-	-	40	-	-	81	40	42	-	-	76	42	-	-	-	-	-
Malawi	2016	41	58	1	88	41	41	58	1	90	57	39	61	0	94	72	46	52	1	85	46
Maldives	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mali	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marshall Islands	2016	0	-	-	100	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mauritania	2016	62	36	2	90	64	23	55	22	54	40	18	58	24	51	35	61	33	6	77	72
Micronesia (Federated States of)	2016	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mongolia	2016	-	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-	-	-	-	-
Montenegro	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Myanmar	2016	22	73	5	68	37	1	90	9	11	8	2	89	9	17	10	46	46	9	69	71
Namibia	2013	33	62	4	58	87	19	78	3	52	51	19	79	2	34	51	25	70	5	31	67
Nauru	2016	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nepal	2016	1	35	64	4	43	1	73	26	5	13	1	71	28	4	13	2	32	65	5	44
Niger	2016	-	-	-	62	-	56	-	-	76	56	58	-	-	74	58	-	-	-	68	-
Nigeria	2016	51	45	4	73	52	40	48	12	73	40	42	49	9	77	42	26	58	16	40	50
Niue	2016	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palau	2016	0	-	-	100	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Papua New Guinea	2016	-	-	-	-	-	9	-	-	98	9	-	-	-	-	-	-	-	-	-	-
Paraguay	2016	-	-	-	-	-	-	-	-	-	-	6	-	-	80	23	-	-	-	-	-
Peru	2016	-	-	-	-	-	27	-	-	98	27	28	-	-	97	28	-	-	-	-	-
Philippines	2016	-	-	-	-	-	-	-	-	68	-	-	-	-	68	-	-	-	-	-	-
Rwanda	2011	67	31	2	93	79	48	49	3	90	60	49	50	1	94	61	49	45	6	86	63

ANNEX 3.4 | National waste management estimates

WASTE MANAGEMENT				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated
Saint Kitts and Nevis	2016	55	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Marino	2016	33	97	100	0	0	100	100	100	0	0	100	100	-	-	-	-	-
Senegal	2016	15 412	46	31	54	15	40	41	23	57	19	32	58	33	56	12	44	33
Serbia	2016	8 820	56	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-
Seychelles	2016	94	56	80	-	-	80	80	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	7 396	41	17	83	0	59	53	27	73	0	70	39	15	85	0	49	31
Solomon Islands	2016	599	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Somalia	2016	14 318	44	13	58	29	51	26	20	65	15	66	34	2	46	52	28	13
South Sudan	2016	12 231	19	-	-	-	70	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	2016	20 798	18	27	69	4	51	44	47	51	1	66	69	19	76	5	45	34
Tajikistan	2012	7 995	27	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-
Timor-Leste	2016	1 269	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Togo	2016	7 606	41	30	68	2	73	32	43	50	7	75	48	-	-	-	-	-
Tonga	2016	107	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trinidad and Tobago	2010	1 328	54	-	-	-	87	-	-	-	-	-	-	-	-	-	-	-
Tunisia	2016	11 403	68	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-
Tuvalu	2016	11	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uganda	2016	41 488	23	43	-	-	70	43	44	-	-	65	49	24	-	-	75	35
United Republic of Tanzania	2016	55 572	32	27	65	7	52	34	43	49	7	60	54	19	74	8	46	28
Vanuatu	2016	270	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viet Nam	2016	94 569	35	-	-	-	-	70	-	-	-	-	-	-	-	-	-	-
West Bank and Gaza Strip	2016	4 791	76	-	-	-	-	49	-	-	-	-	-	-	-	-	-	-
Yemen	2016	27 584	35	13	37	50	36	20	-	-	50	-	-	-	-	50	-	-
Zambia	2016	16 591	42	40	-	-	84	72	61	-	-	90	76	40	-	-	89	63
Zimbabwe	2016	16 150	32	55	45	0	70	55	90	9	0	95	90	46	54	0	64	46

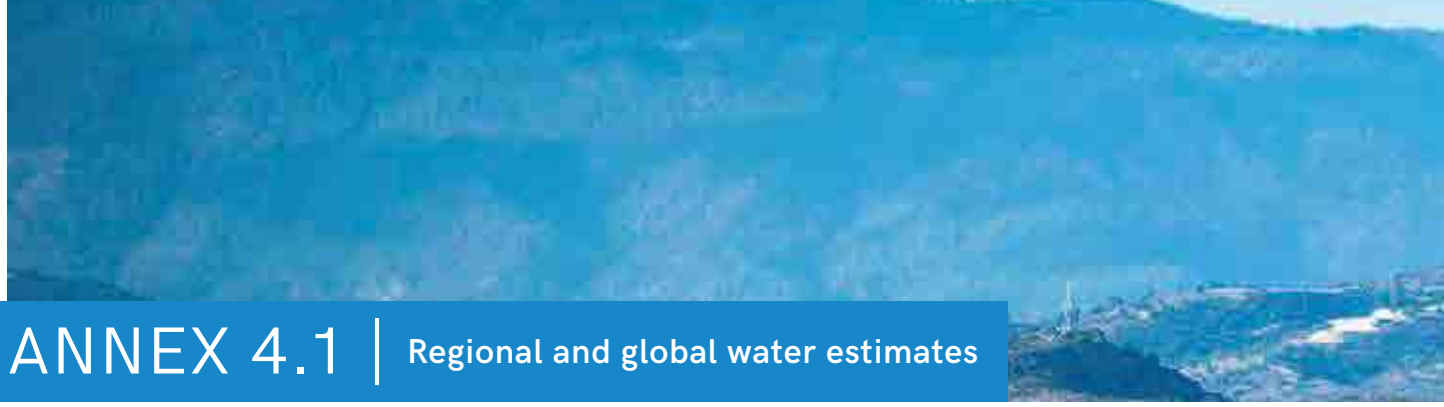
COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic waste management services *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated	**Basic waste management services** *(waste segregated and treated and disposed of safely)*	**Limited waste management services** *(waste not segregated or treated and disposed safely)*	**No waste management service** *(waste not segregated nor treated and disposed safely)*	Waste segregated	Waste treated
Saint Kitts and Nevis	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-
San Marino	2016	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100
Senegal	2016	33	44	24	39	69	31	55	14	41	39	31	56	13	40	37	31	45	24	39	59
Serbia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seychelles	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sierra Leone	2016	-	-	-	-	-	16	84	0	50	31	15	85	0	48	31	41	59	0	89	46
Solomon Islands	2016	58	-	-	100	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Somalia	2016	34	64	2	93	42	11	57	32	48	24	12	54	34	44	25	15	66	19	67	28
South Sudan	2016	-	-	-	-	-	-	-	-	64	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	2016	38	60	1	63	52	18	76	6	39	38	23	74	4	47	40	72	25	3	87	84
Tajikistan	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Timor-Leste	2016	40	60	0	100	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Togo	2016	-	-	-	-	-	28	70	2	72	29	30	68	2	74	32	-	-	-	-	-
Tonga	2016	13	88	0	100	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trinidad and Tobago	2010	-	-	-	64	-	-	-	-	91	-	-	-	-	88	-	-	-	-	-	-
Tunisia	2016	-	-	-	-	-	-	-	-	-	18	-	-	-	-	18	-	-	-	-	-
Tuvalu	2016	100	0	0	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uganda	2016	72	-	-	92	72	29	-	-	68	33	41	-	-	85	41	42	-	-	60	52
United Republic of Tanzania	2016	49	47	4	60	58	26	66	7	52	39	20	74	7	50	31	47	43	10	58	61
Vanuatu	2016	0	-	-	100	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viet Nam	2016	-	-	-	-	92	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-
West Bank and Gaza Strip	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yemen	2016	7	44	49	32	19	-	-	60	-	-	14	35	51	36	20	-	-	-	-	-
Zambia	2016	57	-	-	72	87	36	-	-	86	67	46	-	-	87	86	63	-	-	95	86
Zimbabwe	2016	64	34	2	64	71	53	47	0	71	53	51	49	0	68	51	73	27	0	79	73

ANNEX 3.5 | National environmental cleaning estimates

ENVIRONMENTAL CLEANING				NATIONAL					URBAN					RURAL				
COUNTRY, AREA OR TERRITORY	Year	Population (thousands)	% urban	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols and/or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols and/or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols and/or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning
Azerbaijan	2016	9 725	55	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-
China	2016	1 403 500	57	-	-	-	46	-	-	-	-	-	-	-	-	-	-	-
India	2016	1 324 171	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Liberia	2016	4 614	50	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	2 908	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maldives	2016	428	39	18	38	44	62	19	50	25	25	75	50	17	38	44	62	18
Montenegro	2016	629	66	80	15	5	80	85	-	-	-	-	-	-	-	-	-	-
San Marino	2016	33	97	100	0	0	100	100	100	0	0	100	100	-	-	-	-	-
Tunisia	2016	11 403	68	43	49	8	51	43	-	-	-	-	-	-	-	-	-	-

- = no estimate. NA = not applicable. For unrounded estimates see www.washdata.org.

COUNTRY, AREA OR TERRITORY	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic environmental cleaning services *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols and/or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols and/or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols and/or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols and/or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning
Azerbaijan	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	2016	-	-	-	-	-	-	-	-	46	-	-	-	-	46	-	-	-	-	-	-
India	2016	73	8	19	74	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Liberia	2016	-	-	-	-	89	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-
Lithuania	2016	-	-	-	100	-	-	-	-	98	-	-	-	-	-	-	-	-	-	-	-
Maldives	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montenegro	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Marino	2016	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100	100	0	0	100	100
Tunisia	2016	-	-	-	-	-	43	49	8	51	43	43	49	8	51	43	-	-	-	-	-



ANNEX 4.1 | Regional and global water estimates

WATER				NATIONAL					URBAN					RURAL				
REGION	Year	Population (thousands)	% urban	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
SDG REGIONS																		
Australia and New Zealand	2016	28 787	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	1 916 054	35	-	-	10	90	-	-	-	-	-	-	-	-	-	-	-
Eastern and South-Eastern Asia	2016	2 283 684	57	87	3	10	90	85	-	-	4	96	-	-	-	11	89	-
Europe and Northern America	2016	1 100 041	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	639 049	80	-	-	5	95	92	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	492 324	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oceania	2016	11 331	23	70	24	6	94	88	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	995 695	39	51	23	26	74	60	75	8	16	84	86	49	23	29	71	59
OTHER REGIONAL GROUPINGS																		
Least Developed Countries	2016	979 388	33	55	22	22	78	64	-	-	7	93	89	43	32	25	75	60
Landlocked Developing Countries	2016	491 970	30	45	36	18	82	66	71	22	7	93	85	42	35	23	77	62
Small Island Developing States	2016	68 321	61	65	23	11	89	71	-	-	8	92	92	-	-	-	-	-
WORLD	2016	7 466 964	54	74	14	12	88	79	-	-	5	95	-	-	-	15	85	-

- = no estimate. For unrounded estimates see www.washdata.org.

REGION	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic water services *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises	**Basic water services** *(improved, available and on premises)*	**Limited water services** *(improved, not available and/or not on premises)*	**No water service** *(unimproved or no facility)*	Improved water source	Improved water on premises
SDG REGIONS																					
Australia and New Zealand	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	92	3	5	95	-	-	-	7	93	-	-	-	-	-	-	-	-	-	-	-
Eastern and South-Eastern Asia	2016	-	-	-	-	-	87	3	10	90	85	90	0	10	90	88	-	-	-	-	-
Europe and Northern America	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	-	-	-	-	-	82	12	6	94	89	-	-	6	94	90	-	-	-	-	-
Northern Africa and Western Asia	2016	-	-	1	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	100	-
Oceania	2016	-	-	-	-	-	71	24	5	95	88	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	76	16	8	92	86	55	19	25	75	64	47	24	28	71	60	67	18	14	86	74
OTHER REGIONAL GROUPINGS																					
Least Developed Countries	2016	79	14	7	93	84	54	25	21	79	63	51	26	23	77	60	78	13	9	91	79
Landlocked Developing Countries	2016	79	15	6	94	90	51	30	18	82	64	35	46	19	81	63	64	30	6	94	77
Small Island Developing States	2016	-	-	6	94	82	66	22	12	88	70	-	-	15	85	59	-	-	12	88	61
WORLD	2016	-	-	4	96	-	85	4	11	89	78	-	-	12	88	79	-	-	-	-	-

ANNEX 4.2 | Regional and global sanitation estimates

SANITATION				NATIONAL					URBAN					RURAL				
REGION	Year	Population (thousands)	% urban	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable
SDG REGIONS																		
Australia and New Zealand	2016	28 787	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	1 916 054	35	-	-	40	60	-	-	-	-	-	-	-	-	31	69	-
Eastern and South-Eastern Asia	2016	2 283 684	57	-	-	5	95	83	-	-	-	-	-	-	-	-	-	-
Europe and Northern America	2016	1 100 041	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	639 049	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	492 324	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oceania	2016	11 331	23	-	-	32	68	-	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	995 695	39	23	48	29	71	63	-	-	27	73	64	4	60	36	64	56
OTHER REGIONAL GROUPINGS																		
Least Developed Countries	2016	979 388	33	-	-	21	78	68	-	-	10	90	82	-	-	24	76	66
Landlocked Developing Countries	2016	491 970	30	42	44	14	86	78	-	-	6	94	81	4	78	19	81	70
Small Island Developing States	2016	68 321	61	-	-	24	76	70	-	-	10	90	90	-	-	-	-	-
WORLD	2016	7 466 964	54	-	-	21	79	78	-	-	-	-	-	-	-	23	77	-

- = no estimate. For unrounded estimates see www.washdata.org.

REGION	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic sanitation services *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable	**Basic sanitation services** *(improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)*	**Limited sanitation services** *(improved, not meeting all criteria for basic)*	**No sanitation service** *(no facility or unimproved)*	Improved	Improved and useable
SDG REGIONS																					
Australia and New Zealand	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	-	-	15	85	85	-	-	35	65	-	-	-	21	79	-	-	-	55	45	-
Eastern and South-Eastern Asia	2016	-	-	-	-	-	-	-	5	95	83	-	-	3	97	83	-	-	-	-	-
Europe and Northern America	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	-	-	-	-	-	21	76	3	97	84	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oceania	2016	-	-	-	-	-	-	-	33	67	-	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	-	-	17	83	74	4	61	35	65	57	-	-	37	63	56	-	-	25	75	70
OTHER REGIONAL GROUPINGS																					
Least Developed Countries	2016	57	34	8	92	84	-	-	22	78	72	-	-	24	76	71	-	-	13	87	84
Landlocked Developing Countries	2016	-	-	5	95	88	4	81	15	85	79	42	43	15	85	76	62	32	7	93	92
Small Island Developing States	2016	-	-	6	94	90	-	-	26	74	65	-	-	17	83	63	-	-	18	82	76
WORLD	2016	-	-	9	91	88	-	-	20	80	80	-	-	16	84	81	-	-	36	64	-

ANNEX 4.3 | Regional and global hygiene estimates

HYGIENE				NATIONAL					URBAN					RURAL				
REGION	Year	Population (thousands)	% urban	**Basic hygiene services** *(facility with water and soap)*	**Limited hygiene services** *(facility with water, but no soap)*	**No hygiene service** *(no facility or no water)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(facility with water and soap)*	**Limited hygiene services** *(facility with water, but no soap)*	**No hygiene service** *(no facility or no water)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(facility with water and soap)*	**Limited hygiene services** *(facility with water, but no soap)*	**No hygiene service** *(no facility or no water)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
SDG REGIONS																		
Australia and New Zealand	2016	28 787	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	1 916 054	35	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-
Eastern and South-Eastern Asia	2016	2 283 684	57	36	64	0	45	67	-	-	-	-	-	-	-	-	-	-
Europe and Northern America	2016	1 100 041	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	639 049	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	492 324	62	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
Oceania	2016	11 331	23	-	-	-	98	-	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	995 695	39	-	-	6	69	-	-	-	1	79	-	-	-	1	59	-
OTHER REGIONAL GROUPINGS																		
Least Developed Countries	2016	979 388	33	-	-	-	66	-	-	-	-	85	-	-	-	-	57	-
Landlocked Developing Countries	2016	491 970	30	-	-	2	68	-	-	-	1	78	-	-	-	3	57	-
Small Island Developing States	2016	68 321	61	-	-	-	80	-	-	-	-	74	-	-	-	-	-	-
WORLD	2016	7 466 964	54	-	-	16	57	-	-	-	-	-	-	-	-	-	-	-

- = no estimate. For unrounded estimates see www.washdata.org.

REGION	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic hygiene services *(facility with water and soap)*	**Limited hygiene services** *(facility with water, but no soap)*	**No hygiene service** *(no facility or no water)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(facility with water and soap)*	**Limited hygiene services** *(facility with water, but no soap)*	**No hygiene service** *(no facility or no water)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(facility with water and soap)*	**Limited hygiene services** *(facility with water, but no soap)*	**No hygiene service** *(no facility or no water)*	Hand hygiene materials at points of care	Handwashing facilities near toilets	**Basic hygiene services** *(facility with water and soap)*	**Limited hygiene services** *(facility with water, but no soap)*	**No hygiene service** *(no facility or no water)*	Hand hygiene materials at points of care	Handwashing facilities near toilets
SDG REGIONS																					
Australia and New Zealand	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	76	0	24	95	78	-	-	50	-	-	-	-	39	-	-	-	-	62	-	-
Eastern and South-Eastern Asia	2016	-	-	-	-	-	36	64	0	44	67	36	64	0	45	67	-	-	-	-	-
Europe and Northern America	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Oceania	2016	-	-	-	-	-	-	-	-	99	-	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	-	-	1	84	-	-	-	1	64	-	-	-	1	65	-	-	-	2	79	-
OTHER REGIONAL GROUPINGS																					
Least Developed Countries	2016	-	-	-	83	-	-	-	-	61	-	-	-	-	62	-	-	-	-	83	-
Landlocked Developing Countries	2016	-	-	1	85	-	-	-	2	63	-	-	-	2	60	-	-	-	-	81	-
Small Island Developing States	2016	-	-	-	78	-	-	-	-	80	-	-	-	-	65	-	-	-	-	75	-
WORLD	2016	-	-	-	90	-	-	-	18	54	-	-	-	14	54	-	-	-	-	-	-

ANNEX 4.4 | Regional and global waste management estimates

WASTE MANAGEMENT				NATIONAL					URBAN					RURAL				
REGION	Year	Population (thousands)	% urban	Basic waste management services *(improved and available)*	Limited waste management services *(improved, not available)*	No waste management service *(no facility or unimproved)*	Waste segregated	Waste treated	Basic waste management services *(improved and available)*	Limited waste management services *(improved, not available)*	No waste management service *(no facility or unimproved)*	Waste segregated	Waste treated	Basic waste management services *(improved and available)*	Limited waste management services *(improved, not available)*	No waste management service *(no facility or unimproved)*	Waste segregated	Waste treated
SDG REGIONS																		
Australia and New Zealand	2016	28 787	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	1 916 054	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eastern and South-Eastern Asia	2016	2 283 684	57	-	-	-	82	-	-	-	-	-	-	-	-	-	-	-
Europe and Northern America	2016	1 100 041	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	639 049	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	492 324	62	-	-	11	-	39	-	-	-	-	-	-	-	-	-	-
Oceania	2016	11 331	23	10	-	-	97	10	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	995 695	39	40	49	11	65	47	47	45	8	72	55	35	51	14	70	42
OTHER REGIONAL GROUPINGS																		
Least Developed Countries	2016	979 388	33	27	51	22	49	43	39	46	15	59	60	24	54	22	51	40
Landlocked Developing Countries	2016	491 970	30	49	-	-	68	56	67	-	-	80	75	44	-	-	81	52
Small Island Developing States	2016	68 321	61	8	69	23	45	24	9	58	32	18	48	-	-	-	-	-
WORLD	2016	7 466 964	54	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-

- = no estimate. For unrounded estimates see www.washdata.org.

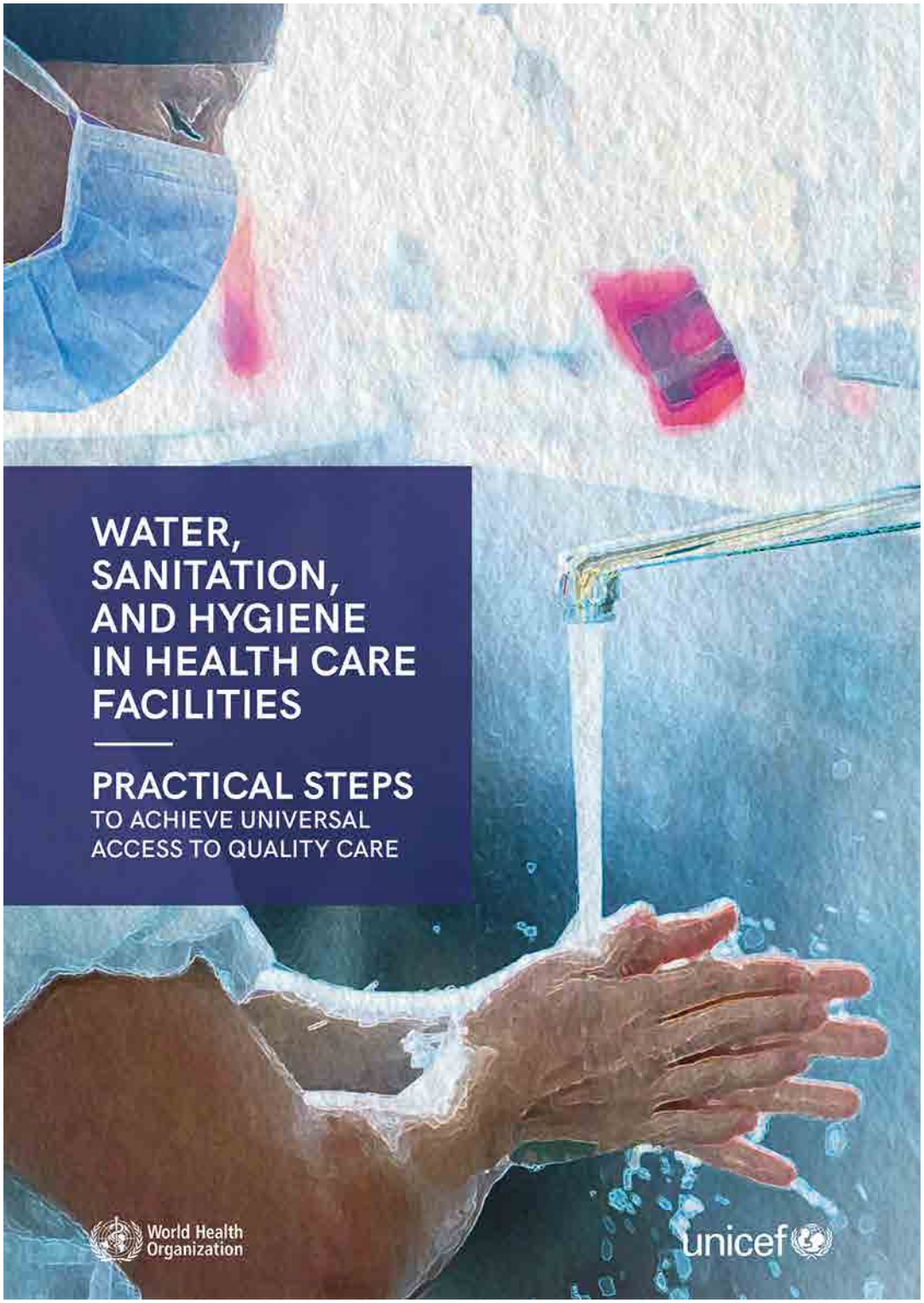
		HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
REGION	Year	**Basic waste management services** *(improved and available)*	**Limited waste management services** *(improved, not available)*	**No waste management service** *(no facility or unimproved)*	Waste segregated	Waste treated	**Basic waste management services** *(improved and available)*	**Limited waste management services** *(improved, not available)*	**No waste management service** *(no facility or unimproved)*	Waste segregated	Waste treated	**Basic waste management services** *(improved and available)*	**Limited waste management services** *(improved, not available)*	**No waste management service** *(no facility or unimproved)*	Waste segregated	Waste treated	**Basic waste management services** *(improved and available)*	**Limited waste management services** *(improved, not available)*	**No waste management service** *(no facility or unimproved)*	Waste segregated	Waste treated
SDG REGIONS																					
Australia and New Zealand	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	67	24	8	72	88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eastern and South-Eastern Asia	2016	-	-	-	-	-	-	-	-	81	-	-	-	-	83	-	-	-	-	-	-
Europe and Northern America	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	-	-	-	-	-	-	-	-	88	-	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	-	-	11	-	-	-	-	13	-	-	-	-	11	-	-	-	-	0	-	-
Oceania	2016	-	-	-	-	-	9	-	-	98	9	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	60	34	6	76	69	38	50	12	68	46	40	51	10	71	48	39	46	15	55	53
OTHER REGIONAL GROUPINGS																					
Least Developed Countries	2016	42	34	24	59	62	26	52	21	48	42	25	53	21	49	42	40	42	17	56	61
Landlocked Developing Countries	2016	71	-	-	78	80	46	-	-	69	54	47	-	-	72	58	54	-	-	64	65
Small Island Developing States	2016	17	60	23	38	50	6	71	23	45	21	6	73	20	17	30	5	69	25	15	37
WORLD	2016	65	-	-	75	80	-	-	-	60	-	-	-	-	59	-	-	-	-	-	-

ANNEX 4.5 | Regional and global environmental cleaning estimates

ENVIRONMENTAL CLEANING				NATIONAL					URBAN					RURAL				
REGION	Year	Population (thousands)	% urban	Basic environmental cleaning services *(cleaning protocols and staff trained)*	Limited environmental cleaning services *(cleaning protocols or some staff trained)*	No environmental cleaning service *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	Basic environmental cleaning services *(cleaning protocols and staff trained)*	Limited environmental cleaning services *(cleaning protocols or some staff trained)*	No environmental cleaning service *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	Basic environmental cleaning services *(cleaning protocols and staff trained)*	Limited environmental cleaning services *(cleaning protocols or some staff trained)*	No environmental cleaning service *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning
SDG REGIONS																		
Australia and New Zealand	2016	28 787	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	1 916 054	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eastern and South-Eastern Asia	2016	2 283 684	57	-	-	-	46	-	-	-	-	-	-	-	-	-	-	-
Europe and Northern America	2016	1 100 041	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	639 049	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	492 324	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oceania	2016	11 331	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	995 695	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OTHER REGIONAL GROUPINGS																		
Least Developed Countries	2016	979 388	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landlocked Developing Countries	2016	491 970	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Small Island Developing States	2016	68 321	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WORLD	2016	7 466 964	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- = no estimate. For unrounded estimates see www.washdata.org.

REGION	Year	HOSPITAL					NON-HOSPITAL					GOVERNMENT					NON-GOVERNMENT				
		Basic environmental cleaning services *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning	**Basic environmental cleaning services** *(cleaning protocols and staff trained)*	**Limited environmental cleaning services** *(cleaning protocols or some staff trained)*	**No environmental cleaning service** *(no protocols and no staff trained)*	Protocols for cleaning	Training on cleaning
SDG REGIONS																					
Australia and New Zealand	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central and Southern Asia	2016	73	8	19	74	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eastern and South-Eastern Asia	2016	-	-	-	-	-	-	-	-	46	-	-	-	-	46	-	-	-	-	-	-
Europe and Northern America	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America and the Caribbean	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Africa and Western Asia	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oceania	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Saharan Africa	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OTHER REGIONAL GROUPINGS																					
Least Developed Countries	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landlocked Developing Countries	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Small Island Developing States	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WORLD	2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



For information on the practical steps countries can take to improve WASH in health care facilities, refer to the companion document by WHO and UNICEF.

www.who.int/water_sanitation_health/publications/wash-in-health-care-facilities/en

WASH in Health Care Facilities

UN WATER

UN-Water coordinates the efforts of United Nations entities and international organizations working on water and sanitation issues. By doing so, UN-Water seeks to increase the effectiveness of the support provided to Member States in their efforts towards achieving international agreements on water and sanitation. UN-Water publications draw on the experience and expertise of UN-Water's Members and Partners.

PERIODIC REPORTS:

Sustainable Development Goal 6 Synthesis Report 2018 on Water and Sanitation

The SDG 6 Synthesis Report 2018 on Water and Sanitation was published in June 2018 ahead of the High-level Political Forum on Sustainable Development where Member States reviewed SDG 6 in-depth. Representing a joint position from the United Nations family, the report offers guidance to understanding global progress on SDG 6 and its interdependencies with other goals and targets. It also provides insight into how countries can plan and act to ensure that no one is left behind when implementing the 2030 Agenda for Sustainable Development.

Sustainable Development Goal 6 Indicator Reports

This series of reports shows the progress towards targets set out in SDG 6 using the SDG global indicators. The reports are based on country data, compiled and verified by the United Nations agencies serving as custodians of each indicator. The reports show progress on drinking water, sanitation and hygiene (WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene for targets 6.1 and 6.2), wastewater treatment and ambient water quality (UN Environment, UN-Habitat and WHO for target 6.3), water use efficiency and level of water stress (FAO for target 6.4), integrated water resources management and transboundary cooperation (UN Environment, UNECE and UNESCO for target 6.5), ecosystems (UN Environment for target 6.6) and means for implementing SDG 6 (UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water for targets 6.a and 6.b).

World Water Development Report

This annual report, published by UNESCO on behalf of UN-Water, represents the coherent and integrated response of the United Nations system to freshwater-related issues and emerging challenges. The theme of the report is harmonized with the theme of World Water Day (22 March) and changes annually.

Policy and Analytical Briefs

UN-Water's Policy Briefs provide short and informative policy guidance on the most pressing freshwater-related issues that draw upon the combined expertise of the United Nations system. Analytical Briefs provide an analysis of emerging issues and may serve as basis for further research, discussion and future policy guidance.

UN-WATER PLANNED PUBLICATIONS 2019

- Update of UN-Water Policy Brief on Water and Climate Change
- UN-Water Policy Brief on the Water Conventions
- UN-Water Analytical Brief on Water Efficiency

More Information on UN-Water Reports at www.unwater.org/publications

WATER

In 2016:

- **38** countries and **three of the eight** SDG regions had sufficient data to estimate coverage of **basic** water services in health care facilities.
- **74%** of health care facilities globally had **basic** water services, meaning water was available from an improved source on the premises.
- **12%** of health care facilities globally had **no water service**, meaning they either used water from an improved source more than 500 metres from the premises or an unimproved source, or had no water source at all.
- **4%** of hospitals and **11%** of other health care facilities had **no water service**.
- **896 million** people globally had **no water service** at their health care facility.

SANITATION

In 2016:

- **18** countries and only **one** SDG region had sufficient data to estimate coverage of **basic** sanitation services in health care facilities.
- In sub-Saharan Africa, **23%** of health care facilities had **basic** services.
- **21%** of health care facilities globally had **no sanitation service**, meaning they had unimproved toilets or no toilets at all.
- **9%** of hospitals and **20%** of other health care facilities had **no sanitation service**.
- **More than 1.5 billion** people globally had **no sanitation service** at their health care facility.

HYGIENE

In 2016:

- **14** countries had sufficient data to estimate coverage of **basic** hygiene services in health care facilities, meaning that functional hand hygiene facilities were available both at points of care, and at toilets.
- **One out of six** health care facilities (16%) had **no hygiene service**, meaning they lacked hand hygiene facilities at points of care, as well as soap and water at toilets.
- Relatively few countries had data on the availability of handwashing facilities at toilets but more data were available on hand hygiene facilities at points of care.
- **58%** of health care facilities globally had hand hygiene facilities at points of care.
- In sub-Saharan Africa, **84%** of hospitals had hand hygiene facilities at points of care, compared to **64%** of other health care facilities.

WASTE MANAGEMENT

In 2016:

- **48** countries had sufficient data to estimate coverage of **basic** waste management services in health care facilities.
- **27%** of health care facilities in Least Developed Countries had **basic** health care waste management services.
- **40%** of health care facilities in sub-Saharan Africa had **basic** health care waste management services.
- **60%** of health care facilities had systems for segregating waste.
- In sub-Saharan Africa, **60%** of hospitals and **38%** of other health care facilities had basic waste management services. **Seven out of ten** government health care facilities (71%) and **half** of non-government health care facilities (55%) safely segregated waste.

ENVIRONMENTAL CLEANING

In 2016:

- Only **four** countries had sufficient data to estimate coverage of **basic** environmental cleaning services in health care facilities.
- There were not enough countries with basic estimates to calculate regional global coverage of **basic** environmental cleaning services.

JMP website: washdata.org

World Health Organization

WHO UNICEF JMP

unicef

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