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United Nations Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action, "Water for Sustainable Development", 2018–2028
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Item 9 of the provisional agenda*
Interactive dialogues

Interactive dialogue 1: water for health: access to water, sanitation and hygiene, including the human rights to safe drinking water and sanitation (Sustainable Development Goal targets 6.1, 6.2 and 6.3 and Goals 1, 3, 4, 5 and 17)

Concept paper prepared by the Secretariat

Summary

The present paper was prepared pursuant to paragraph 9 (d) of General Assembly resolution 75/212, in which the Assembly requested the Secretary-General of the United Nations Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action, "Water for Sustainable Development", 2018–2028, to prepare concept papers on each of the themes of the interactive dialogues, taking into account the relevant water-related processes of the Assembly and other possible contributions. The present paper concerns interactive dialogue 1, on "Water for health: access to water, sanitation and hygiene" (Sustainable Development Goal targets 6.1, 6.2 and 6.3 and Goals 1, 3, 4, 5 and 17). In the paper, the challenges, current status, interlinkages, opportunities for progress, transformative solutions and recommendations related to access to safe drinking water, hygiene and sanitation are set out.

* A/CONF.240/2023/1.

I. Introduction[1]

1. Drinking water and sanitation are human rights, and access to drinking water, sanitation and hygiene services is vital to health, development and social and economic progress.

2. The human rights to safe drinking water and sanitation have been recognized by the General Assembly. Safe and safely managed water, sanitation and hygiene can contribute to the implementation of and progress on almost all health and development goals. Improving water, sanitation and hygiene and water management will ensure positive health outcomes and is essential to the prevention of disease and injury. Prevention is both more just and more cost-effective than treating health problems after they arise.

3. Drinking water, sanitation and hygiene services must reach everyone, consistent with the promise to leave no one behind. Universal access to such services improves health and enables educational opportunities, workforce productivity and a more dignified, just and equal society, reducing inequalities between rich and poor, men and women, rural and urban dwellers, and people of different ethnicities, Indigenous Peoples and the rest of the population.

4. Sustainable Development Goal 6 includes a target of achieving universal and equitable access to safe and affordable drinking water, adequate, equitable sanitation and hygiene for all, and improved water quality. The indicators of success, the "proportion of people using safely managed drinking water and sanitation" and the "proportion of wastewater treated", inject a new level of ambition in terms of the levels of service to be achieved. Goal 6 also explicitly includes hygiene, which is not only an important factor in ensuring good health but also, in the form of menstrual health and hygiene management, essential to achieving the empowerment of women and gender equality.

5. The consequences of poor water, sanitation and hygiene disproportionately affect the most vulnerable, marginalized and disadvantaged, in particular women, people living with disabilities and Indigenous Peoples. Access to adequate water, sanitation and hygiene services can contribute to an upward spiral of prosperity and well-being and is an essential route out of poverty for individuals and communities, thereby leading to ending poverty in all its forms everywhere, as called for under Sustainable Development Goal 1. Increasing the proportion of people with access to such services will require, and can result in, corresponding increases in empowerment, participation and social mobilization.

6. A "transformative" approach to water, sanitation and hygiene is needed that interrupts all pathways for contamination of the environment and systematically prevents human exposure to pathogens.[2] This is consistent with the One Health approach, which encompasses interventions to protect the health of humans, animals and ecosystems while recognizing that they are part of an interconnected continuum.[3] Such an approach requires engagement across sectors – water, health and agriculture –

[1] The present concept paper has benefited from contributions from Member States, the United Nations system and a diverse group of stakeholders. See https://sdgs.un.org/conferences/water2023/documentation and www.un.org/sites/un2.un.org/files/final_water_consultation_report_19_oct.pdf.

[2] United Nations Children's Fund (UNICEF) and World Health Organization (WHO), "Implications of recent WASH and nutrition studies for WASH policy and practice", position paper, 2019.

[3] Food and Agriculture Organization of the United Nations (FAO), United Nations Environment Programme, WHO and World Organization for Animal Health, *One Health Joint Plan of Action (2022–2026): Working Together for the Health of Humans, Animals, Plants and the Environment* (Rome, 2022). Available at https://doi.org/10.4060/cc2289en.

to identify the root causes of disease and find sustainable solutions. It entails achieving higher levels of service and more comprehensively identifying and managing risks. These include upstream risks from human, animal and industrial activities that threaten water quantity and quality, and downstream risks, for instance, to food safety and sensitive aquatic environments from inadequately treated wastewater and sludge. These are far from abstract concepts. The coronavirus disease (COVID-19) pandemic has brought to light the urgency of action to prevent diseases that have complex human, animal and environmental transmission pathways.

7. There is an urgent need to dramatically increase political commitment to safely managed drinking water, sanitation and hygiene, to strengthen the governance and institutions required to deliver these services, and to significantly increase the financial resources available. Globally, at least a quadrupling of current rates of progress on water, sanitation and hygiene is needed to meet the Sustainable Development Goal targets.[4] In fragile contexts and the least developed countries, progress needs to be made even faster. While most people lacking access to water, sanitation and hygiene live in low- and lower-middle-income countries, there are substantial pockets of unserved people in middle- and high-income countries, where exclusion is often based on discrimination.[5]

8. Despite many challenges, there are examples of significant progress and success, as will be noted below. Many of the countries that have made rapid gains in improving water, sanitation and hygiene have done so as part of nation-building. Building institutions to support the provision of such services can contribute to good governance in general. A commitment to sustainable and safe water, sanitation and hygiene has been considered part of the social contract between governments and people, as well as a precondition for prosperity.[6]

II. Overview of the challenges, current status and interlinkages

9. The sections below provide a short summary of the current status of water, sanitation and hygiene and wastewater treatment. Much more detail can be found in the following reports: *State of the World's Drinking Water*, *State of the World's Sanitation*, *State of the World's Hand Hygiene* and *Progress on Wastewater Treatment*.

A. Status of household drinking water, sanitation and hygiene

10. To meet the criteria for a safely managed drinking water service, households must use an improved source that is accessible on premises, available when needed and free from contamination, corresponding to requirements articulated in the recognition by the United Nations of the human right to water.[7] To be safely managed,

[4] WHO and UNICEF, Progress on Household Drinking Water, Sanitation and Hygiene 2000–2020: Five Years into the SDGs (Geneva, 2021). Available at www.who.int/publications/i/item/9789240030848.

[5] Kaitlan J. Mattos and others, "Reaching those left behind: knowledge gaps, challenges, and approaches to achieving SDG 6 in high-income countries", *Journal of Water, Sanitation and Hygiene for Development*, vol. 11, No. 5 (September 2021), pp. 849–858. Available at https://doi.org/10.2166/washdev.2021.057.

[6] Henry Northover, Shin Kue Ryu and Timothy Brewer, "Achieving total sanitation and hygiene coverage within a generation – lessons from East Asia" (WaterAid, January 2016). Available at https://washmatters.wateraid.org/publications/achieving-total-sanitation-and-hygiene-coverage-within-a-generation-lessons-from-east.

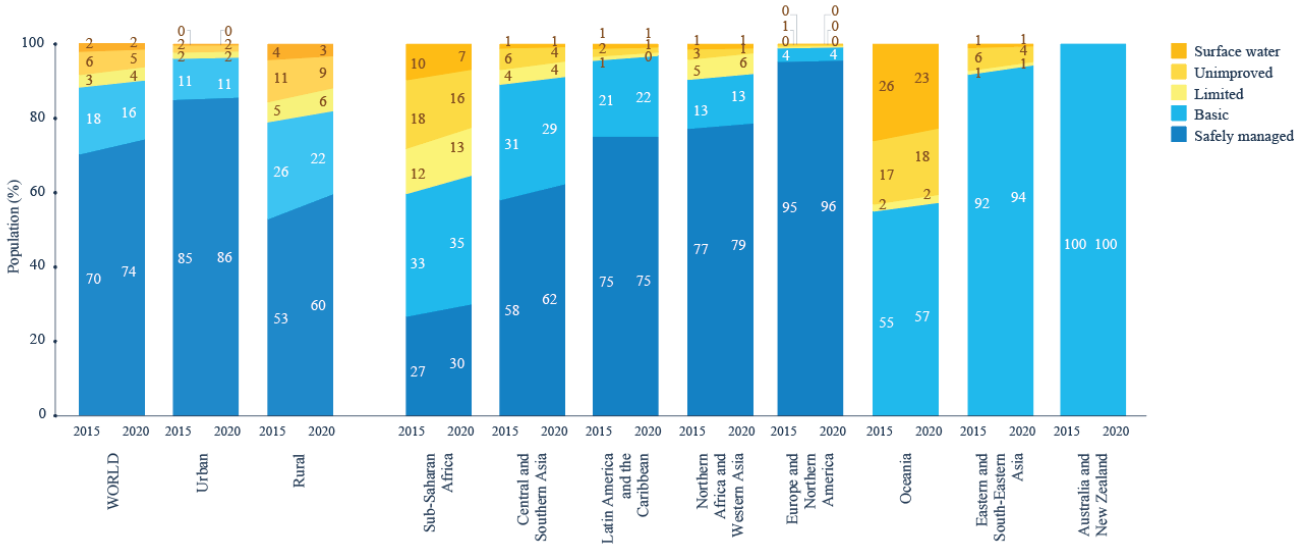
[7] WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), "JMP methodology: 2017 update and SDG baselines" (March 2018). Available at https://washdata.org/report/jmp-methodology-2017-update.

sanitation facilities should not be shared with other households, and the excreta produced should be treated and disposed of in situ, stored temporarily and then emptied and transported to treatment off-site, or transported through a sewer with wastewater and then treated off-site.

Drinking water

11. In the past two decades, investment in drinking water services has led to considerable increases in access. In 2020, almost three quarters of the world's population used safely managed drinking water. However, 2 billion people still did not use safely managed drinking water, 771 million did not use basic drinking water services and there were wide geographical disparities (see figure I). Far fewer people have safely managed drinking water services in rural areas than in urban ones, but the population without safely managed drinking water is actually increasing in urban areas due to population growth.[8]

Figure I
Global and regional drinking water coverage 2015–2020
(Percentage)



Source: United Nations Children's Fund (UNICEF) and World Health Organization (WHO) Joint Monitoring Programme for Water Supply, Sanitation and Hygiene.

12. However, climate change is exacerbating water scarcity and droughts, while flooding disrupts supplies and devastates communities. Pollutants threaten both human health and entire ecosystems. Rapid urbanization and population growth are limiting the ability of cities to deliver water to millions of people living in informal communities and slums, slowing progress on Sustainable Development Goal 11. The sustainability and functionality of rural water supply facilities remains a major challenge, and systems to maintain, repair and rehabilitate rural water technology are often missing or weak. Safely managed water services require resilient systems to deliver them: service providers that operate and maintain the infrastructure in a technical and financial efficiently manner, and all ancillary elements of the enabling environment to sustain those investments over time.

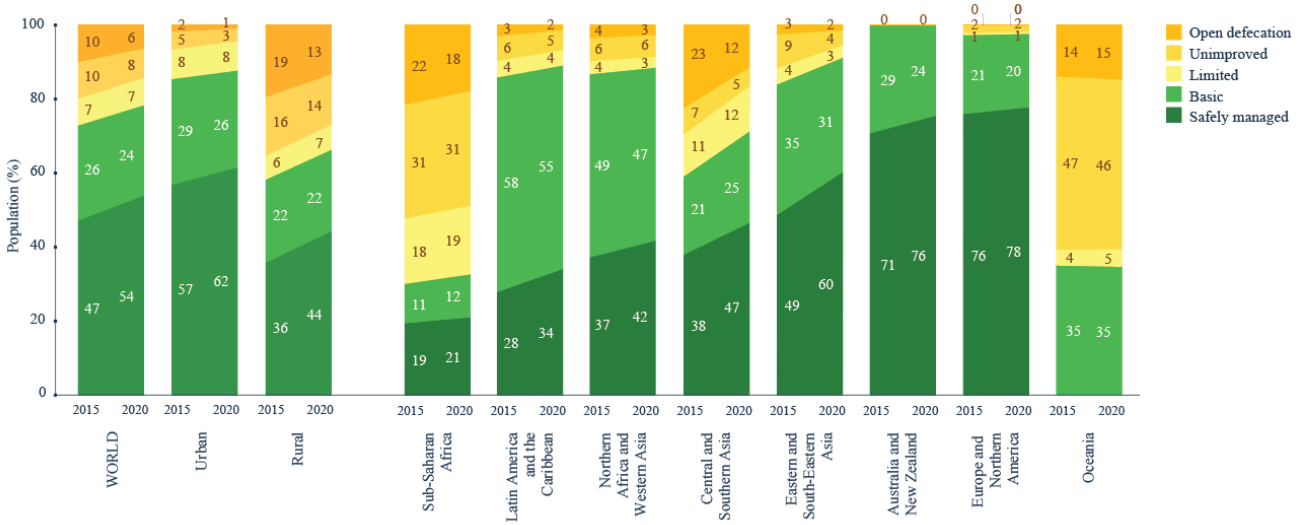
[8] WHO and UNICEF, *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2020*.

Sanitation and hygiene

Sanitation

13. Despite progress, in 2020 almost half of the world's population, 3.6 billion people, used sanitation services that left human waste untreated, threatening human and environmental health (see figure II). An estimated 494 million people practised open defecation, with rural dwellers, Indigenous Peoples and poor people much more likely to be without any sanitation services at all.[9,10]

Figure II
Global and regional sanitation coverage 2015–2020
(Percentage)



Source: WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene.

14. Some countries have made significant progress on eliminating open defecation[11] but have found it challenging to achieve and maintain basic levels of sanitation, as facilities must be durable enough to last multiple seasons; this is becoming even harder with the onset of climate change. Another challenge has been to make progress while also eliminating inequalities, yet inequalities based on ethnicity, gender, caste and other factors continue to exist.

15. On-site sanitation and decentralized wastewater treatment are growing as options to bring safely managed sanitation to everyone, no matter how challenging or remote their location. In addition, container-based sanitation provides an option for densely populated areas and refugee camps. These options place the emphasis on the management services that keep them running: waste collection, transportation, treatment and reuse. But households that are most in need of faecal sludge management services are often located in dense urban settings, and faecal sludge management is not addressed in many urban sanitation policies or plans.[12]

16. Regulation and standard setting are missing or weak. For instance, more than 80 per cent of countries have formal national standards for wastewater treatment, but

[9] Ibid.
[10] A/HRC/51/24.
[11] WHO and UNICEF, *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2020*.
[12] See https://glaas.who.int.

only 62 per cent of countries have a standard for safe use of wastewater and faecal sludge for agriculture and other productive purposes.[13]

17. Providing more formalized, safe, adequately paid and dignified jobs in the sanitation sector is key to providing safely managed sanitation services. Many more sanitation workers are needed, yet too often their work exposes them to hazards such as pathogens in faecal sludge and wastewater, injury from collapsing pits, asphyxiation from gases in sewers, social stigma and drug and alcohol abuse to cope with the dehumanizing conditions of sanitation work.[14]

Hygiene

18. Hand hygiene plays a significant role in controlling disease, but both access to the facilities to practise hand hygiene and support for the behaviours required are missing in many settings. It is estimated that 3 out of 10 people, or 2.3 billion globally, lack a facility with water and soap available to wash their hands at home, including 670 million who have no handwashing facility at all.[15]

19. Target 6.2 of the Sustainable Development Goals calls for "special attention to the needs of women and girls", but their menstrual health and hygiene needs frequently go unmet, due to gender inequality, discriminatory social norms, cultural taboos, poverty and lack of basic services. This has far-reaching negative impacts on their lives, restricting their mobility, freedom and choices; affecting attendance and participation in school and community life; compromising their safety; and causing stress and anxiety. The challenges are particularly acute in humanitarian crises. Clear government leadership and ministerial ownership of menstrual health and hygiene is essential; however, in many cases, menstrual health and hygiene fall between the mandates of ministries responsible for health, education, public works and women's affairs.[16]

B. Status of water, sanitation and hygiene outside the home

20. People need access to water, sanitation and hygiene services no matter where they are. This includes health-care facilities, schools, workplaces, places where food is prepared, markets, refugee camps and prisons. Data are often lacking for many of these non-household locations. Health-care facilities and schools are two particularly important examples for which data are available.

Health-care facilities

21. In 2021, 1.7 billion people globally lacked a basic water service at their health-care facility, including 857 million who used health-care facilities that had no water service at all. In general, water services are worse in rural health-care facilities than in urban ones, public facilities than private ones, and smaller health-care centres than

[13] Ibid.

[14] World Bank, International Labour Organization, WaterAid and WHO, "Health, safety and dignity of sanitation workers: an initial assessment" (Washington, D.C., World Bank, 2019). Available at https://documents1.worldbank.org/curated/en/316451573511660715/pdf/Health-Safety-and-Dignity-of-Sanitation-Workers-An-Initial-Assessment.pdf.

[15] UNICEF and WHO, *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2020*.

[16] UNICEF, *Guidance on Menstrual Health and Hygiene* (New York, 2019).

hospitals. Nearly one fifth of health-care facilities in least developed countries had no services at all.[17]

22. In the countries with available data, 1 in 10 health-care facilities had no sanitation services in 2021. Half of health-care facilities worldwide lacked basic hygiene services with water and soap or alcohol-based hand rub where patients received care and at toilets. Many health-care facilities lacked basic environmental cleaning and safe segregation and disposal of health-care waste.

Schools

23. Millions of children attend schools that lack basic drinking water. In 2021, 546 million children lacked a basic drinking water service at their school, including 288 million whose schools had no drinking water service at all. An estimated 539 million children attended a school that lacked basic sanitation, and 240 million children attended a school in which there was no sanitation facility at all. Almost half of schools globally lacked a basic hygiene service (handwashing facilities and soap and water). This means that, in 2021, 802 million children lacked a basic hygiene service at school, including 480 million children who attended schools with no hygiene service at all.[18]

C. Status of water, sanitation and hygiene in fragile contexts and humanitarian settings

24. Fragility poses a major threat to the achievement of the Sustainable Development Goals. In 2020, fragile contexts were home to almost a quarter of the world's population and more than three quarters of those living in extreme poverty.[19] In 2020, people living in fragile contexts were half as likely as those living in non-fragile contexts to have safely managed drinking water and safely managed sanitation services. They were also three times as likely to practise open defecation. Displaced populations, and migrants in general, are far less likely to have basic water and sanitation services than the rest of the population.[20]

25. While most people living in refugee camps collect drinking water from protected or treated sources, camps in many countries are unable to meet post-emergency targets for access to soap and toilets. In these situations, the vulnerability of women to sexual violence is multiplied.

26. In fragile contexts, only half of schools have basic water and sanitation. Over half of children without basic drinking water services at their school in 2021 lived in fragile contexts.[21] One fifth of health-care facilities in fragile contexts had no water or sanitation service at all (double the global average).[22]

27. People living in fragile contexts are more likely to suffer from political, economic and environmental crises. Water, sanitation and hygiene services in such

[17] UNICEF and WHO, *Progress on WASH in Health Care Facilities 2000–2021: Special Focus on WASH and Infection Prevention and Control (IPC)* (Geneva, 2022). Available at www.who.int/publications/i/item/progress-on-wash-in-health-care-facilities-2000-2021--special-focus-on-wash-and-infection-prevention-and-control-(ipc).

[18] UNICEF and WHO, *Progress on Drinking Water, Sanitation and Hygiene in Schools: 2000–2021 Data Update* (New York, 2022). Available at https://data.unicef.org/resources/jmp-wash-in-schools-2022.

[19] Organisation for Economic Co-operation and Development, *States of Fragility 2022* (Paris, 2022). Available at https://doi.org/10.1787/c7fedf5e-en.

[20] UNICEF and WHO, *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2020*.

[21] Ibid.

[22] UNICEF and WHO, *Progress on WASH in Health Care Facilities 2000–2021*.

contexts are often weak. In addition, water and sanitation can actually contribute to fragility. Global security analyses increasingly cite water as a strategic resource that, when not managed properly, can be a source of conflict and, in extreme cases, may threaten national and regional security. The failure of governments to provide water, sanitation and hygiene services as public goods can affect the social contract, resulting in instability. Inequitable provision of such services may also fuel grievances and affect social cohesion among communities.[23]

D. Status of wastewater treatment

28. Estimates show that just over half of household wastewater is discharged to the environment without adequate treatment, threatening public health and the environment. Wastewater collected in sewers is more likely to be safely treated than waste from septic tanks and other types of on-site systems. Globally, approximately three quarters of sewer wastewater flows are estimated to be safely treated, but more than half of the wastewater generated by households with septic tanks is estimated not to have been safely treated due to on-site systems that have been incorrectly designed, operated or maintained.[24]

29. Industrial wastewater potentially includes a wide range of toxic metals and chemicals. However, there is no official information available about the proportion of wastewater treated for 80 per cent of the world population, and for 95 per cent of the world's population regarding the proportion of industrial wastewater treated. The limited data available suggest that about a third of total and industrial wastewater receives some treatment before discharge.[25]

30. Improving wastewater management and treatment is fundamental for limiting the discharge of hazardous pollutants (nutrients, heavy metals, pharmaceuticals such as anti-inflammatory drugs, analgesics, antibiotics, hormones and microplastics) into the environment. Chemical and organic pollution from industrial sources can be persistent and bioaccumulate in the air, water and soil.

E. Status of policy setting, planning and resource allocation

31. Countries that are on track to achieve their national drinking-water coverage targets are more likely to have human and financial resources in place to implement their plans and more likely to have functional regulatory authorities and surveillance systems. In comparison, countries that need to accelerate progress to achieve their targets lack sufficient human and financial resources to implement their plans, are less likely to have functional regulatory authorities and have lower utilization of domestic capital commitments than countries that are on track. While many countries have formally approved policies, few have translated these into costed plans with sufficient financial and human resources to implement them (see figure III for the urban sector).[26]

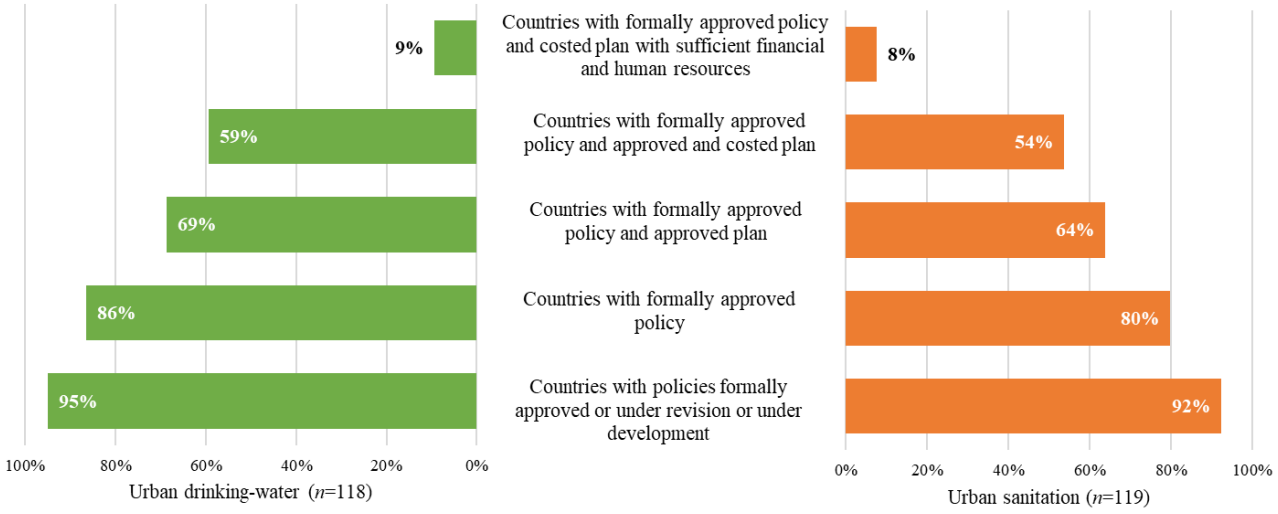
[23] UNICEF, *Water Under Fire Volume 1: Emergencies, Development and Peace in Fragile and Conflict-affected Contexts* (New York, 2019). Available at www.unicef.org/media/58121/file/Water-under-fire-volume-1-2019.pdf.

[24] United Nations Human Settlements Programme (UN-Habitat) and WHO, *Progress on Wastewater Treatment: Global Status and Acceleration Needs for SDG Indicator 6.3.1 – 2021* (Geneva, 2021). Available at www.unwater.org/app/uploads/2021/09/SDG6_Indicator_Report_631_Progress-on-Wastewater-Treatment_2021_EN.pdf.

[25] Ibid.

[26] https://glaas.who.int.

Figure III
Status of policy and planning for urban water and sanitation



Source: UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water.

F. Interlinkages

Fulfilment of human rights

32. The General Assembly recognized the human right to water and sanitation in 2010, and sanitation as a distinct human right in 2015. These human rights are assured for all, regardless of income, gender, disability status, age or ethnicity or any other status. Clear guidance for legal, regulatory and policy environments, as well as institutional practice, can be drawn from human rights principles.

33. The right to water entitles everyone to have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use. The right to sanitation entitles everyone to have physical and affordable access to sanitation, in all spheres of life, that is safe, hygienic, secure and socially and culturally acceptable, and that provides privacy and ensures dignity.

34. Physical presence is not the same as access. A water or sanitation service does not serve the whole community if it is too expensive, unreliable, unhygienic, unsafely located or not adapted for less able groups or children, or if it is not gender-segregated, in the case of toilets and washing facilities. Marginalized groups are often overlooked and sometimes face discrimination as they try to access water, sanitation and hygiene services.

35. States are duty bearers in terms of providing water and sanitation services to people, who are the rights holders. Rights holders must be able to claim their rights, and duty bearers must guarantee the rights to water and sanitation equally and without discrimination. Respect for human rights must be integrated into development plans

for all sectors, at all levels. Governments must take a human rights-based approach to water and sanitation improvements, ensuring that no one is left behind.[27]

Linkages to health and well-being (Sustainable Development Goal 3)

36. Good health encompasses not only the absence of disease, but also a complete state of mental and physical well-being. Safe and safely managed water, sanitation and hygiene and management of wastewater are intrinsically linked to health and contribute to Sustainable Development Goal 3 by preventing disease, supporting physical and mental well-being and contributing to nutrition, food safety and food security. Water, sanitation and hygiene not only prevent specific diseases, but also contribute to the resilience of health systems, increase pandemic preparedness, address antimicrobial resistance and improve health outcomes in general.

37. A lack of water, sanitation and hygiene causes 1.4 million deaths annually,[28] including from infectious diseases (such as diarrhoea and acute respiratory infections) and from chronic undernutrition. Poor water, sanitation and hygiene is the root cause of cholera, an acute diarrhoeal disease that can kill within hours if left untreated; in 2022 there were ongoing cholera outbreaks in 29 countries.[29] Repeated bouts of diarrhoea can contribute to a reduction in the nutrient and protein uptake of children, resulting in low height for age, or stunting. Stunting affected nearly one quarter of children under 5 years of age globally in 2020, and has impacts on cognitive as well as physical development.[30]

38. Water, sanitation and hygiene are key to combating neglected tropical diseases such as soil-transmitted helminth infections (worms), schistosomiasis and trachoma. Water is also the habitat for a number of vectors that carry disease, such as the mosquitoes that transmit malaria and dengue. Favourable mosquito breeding conditions may be created by poor management of water, wastewater, drainage and solid waste, and result in the rapid proliferation of diseases such as dengue. The global incidence of dengue has increased exponentially over the past several decades; half of the world's population is now estimated to be at risk.

39. Water, sanitation and hygiene services also reduce the need to treat infectious diseases with antibiotics, extending the lifespan of last-line-of-defence antimicrobials. Handwashing, maintenance of asepsis and medical waste management are essential for infection prevention at health facilities. Inadequate water, sanitation and hygiene in health-care facilities has been linked to the spread of antimicrobial-resistant infections, placing patients and staff at risk of serious infections that are hard to treat.[31]

40. Climate change is driving the increased spread of many communicable diseases, including diarrhoeal diseases, cholera and neglected tropical diseases. For instance, flooding results in increased mobility of pathogens. The COVID-19 pandemic has demonstrated the critical importance of water, sanitation and hygiene in households,

[27] "Human right to water and sanitation", United Nations fact sheet. Available at www.unwater.org/water-facts/human-rights-water-and-sanitation.

[28] Jennyfer Wolf and others, "Burden of disease attributable to unsafe drinking water, sanitation and hygiene in domestic settings: a global analysis for selected adverse health outcomes", *The Lancet* (forthcoming).

[29] WHO, "Cholera – global situation" (accessed 20 December 2022). Available at www.who.int/emergencies/disease-outbreak-news/item/2022-DON426.

[30] UNICEF, WHO and World Bank Group, *Levels and Trends in Child Malnutrition: Key Findings of the 2021 Edition of the Joint Child Malnutrition Estimates* (Geneva, WHO, 2021). Available at www.who.int/publications/i/item/9789240025257.

[31] FAO, World Organization for Animal Health and WHO, *Technical Brief on Water, Sanitation and Hygiene and Wastewater Management to Prevent Infections and Reduce the Spread of Antimicrobial Resistance* (2020).

schools and health-care facilities to efforts to prepare for, prevent and control future pandemics.

41. Chemical contaminants in drinking water pose a significant health burden, whether natural in origin or anthropogenic. These include lead (from household plumbing materials and handpumps), nitrate (from sewage contamination or agricultural runoff), mercury and heavy metals (from mining and industry) and fluoride and arsenic (which are naturally present in groundwater in many places). It is estimated that up to 220 million people are potentially exposed to drinking water containing elevated concentrations of arsenic. Long-term exposure to high levels of arsenic in drinking water and food irrigated with contaminated water can cause skin lesions and cancer, while in-utero and early childhood exposure to arsenic has been linked to impaired cognitive development and increased deaths in young adults.[32,33] Contamination of the Amazonian rivers with mercury as a result of small-scale gold mining has led to birth defects in Indigenous children. Indigenous Peoples are also disproportionately affected by water contamination as a result of oil spills.[34]

42. Other drinking water contaminants of emerging concern include pharmaceuticals, pesticides, perfluoroalkyl and polyfluoroalkyl substances and microplastics. Some chemical contaminants may not be of health concern at levels normally found in drinking water but may cause taste and colour issues, which may lead users to reject improved water sources and use more aesthetically acceptable but unsafe water sources, including surface water.

43. Poor sanitation increases health risks that are specific to women. For instance, women who suffer from worm infections and other diseases may become anaemic and undernourished, increasing the risk of maternal death. Women who lack sanitation may resort to harmful coping mechanisms, such as delayed urination or reduced water intake, resulting in urinary tract infections. Not only do poor water, sanitation and hygiene in health-care facilities compromise safe childbirth, but they also deter women from utilizing such facilities to give birth.[35]

Linkages to quality education (Sustainable Development Goal 4)

44. Every child has the right to a quality education, which includes access to water, sanitation and hygiene services while at school. The inclusion of water, sanitation and hygiene in schools in the Sustainable Development Goals reflects increasing recognition of their importance as key components of a “safe, non-violent, inclusive and effective learning environment” and as part of universal access to water, sanitation and hygiene, which emphasizes the need for them outside of the home.

45. The availability of functional and private school toilets can have a positive impact on health and learning outcomes, in particular for girls. Access to menstrual hygiene management is essential to keep girls in school. Nevertheless, global coverage of basic sanitation services in schools increased by only 1.14 per cent between 2015 and 2021.[36]

[32] World Health Organization fact sheet on arsenic. Available at www.who.int/news-room/fact-sheets/detail/arsenic.

[33] Joel Podgorski and Michael Berg, “Global threat of arsenic in groundwater”, *Science*, vol. 368, No. 6493 (22 May 2020), pp. 845–850.

[34] See www.ohchr.org/en/special-procedures/sr-toxics-and-human-rights.

[35] UNICEF and WHO, *State of the World’s Sanitation: An Urgent Call to Transform Sanitation for Better Health, Environments, Economies and Societies* (2020). Available at www.who.int/publications/i/item/9789240014473.

[36] UNICEF and WHO, *Progress on Drinking Water, Sanitation and Hygiene in Schools: 2000–2021 Data Update*.

Linkages to gender equality (Sustainable Development Goal 5) and the rights of people with disabilities

46. Globally, it is estimated that women and girls are responsible for water collection in 8 out of 10 households without water on premises.[37] Carrying water is particularly common in remote, rural and marginalized communities, such as Indigenous communities. Water collection exposes women and girls to fatigue, injury (including the risk of damage to the skeleton and muscular system, and of uterine prolapse) and risks to their personal safety, including sexual assault.[38] In the case of girls, it affects school attendance and completion. Safely managed water entails water available on premises, which contributes significantly to gender equality.

47. Poor sanitation disproportionately affects the most vulnerable and disadvantaged, in particular women and people living with disabilities. Workplaces that do not have adequate sanitation facilities can dissuade women from seeking employment, further reinforcing lower labour participation by women and their reduced access to resources. Similarly, lack of public toilets reduces the mobility of women and their participation in public life and the economy. Poor sanitation has been shown to act as a barrier to school attendance and enrolment in many countries. This affects girls in particular, especially after puberty, when their need for menstrual hygiene management may not be addressed. Sanitation workers, often stigmatized and marginalized, face unacceptable health risks and indignities in an unhealthy and unregulated environment.[39]

48. The ability to maintain personal hygiene has an important role to play in increasing feelings of dignity, privacy and safety, in particular among women and people living with disabilities, and decreasing feelings related to disgust and shame.[40] Menstrual health and hygiene management can help dismantle barriers and support girls and women in becoming full participants in society.[41]

Linkages to environmental protection, climate change mitigation, resilience and adaptation (Sustainable Development Goals 13, 14 and 15)

49. Safely managed water and sanitation services that incorporate a consideration of climate can be more resilient to the impacts of climate change, contribute to reducing greenhouse gas emissions and minimize the ecological impact of untreated and/or poorly managed human waste. The Intergovernmental Panel on Climate Change states that “the most effective measures to reduce vulnerability in the near term are programmes that implement and improve basic public health measures such as provision of clean water and sanitation”.[42]

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[37] UNICEF and WHO, *Safely Managed Drinking Water* (Geneva, 2017). Available at https://apps.who.int/iris/handle/10665/325897.

[38] Jo-Anne Geere and others, “Carrying water may be a major contributor to disability from musculoskeletal disorders in low income countries: a cross-sectional survey in South Africa, Ghana and Vietnam”, *Journal of Global Health*, vol. 8, No. 1 (June 2018). Available at www.ncbi.nlm.nih.gov/pmc/articles/PMC5825974.

[39] UNICEF and WHO, *State of the World’s Sanitation*.

[40] UNICEF and WHO, *State of the World’s Hand Hygiene: A Global Call to Action to Make Hand Hygiene a Priority in Policy and Practice* (New York, UNICEF, 2021). Available at www.who.int/publications/i/item/9789240036444.

[41] UNICEF, *Guidance on Menstrual Health and Hygiene*.

[42] Kirk Smith and others, “Human health: impacts, adaptation, and co-benefits”, *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Christopher Field and others, eds. (Cambridge, United Kingdom and New York, Cambridge University Press, 2014). Available at www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap11_FINAL.pdf.

50. The accelerated melting of glaciers, changes in the frequency, magnitude and timing of floods, more frequent and severe droughts, a decline in groundwater storage and a reduction in recharge, and water quality deterioration due to extreme events have all become more intensified due to anthropogenic climate change. These climate change impacts have significant impacts on access to safe drinking water and represent a threat to gains made in recent years.[43]

51. If sanitation facilities are not well built or adapted to adverse weather events, they may release effluent containing nitrogen and phosphorus from human urine and faeces into the environment during periods of heavy rain and flooding. In addition to contaminating drinking water, this can also lead to eutrophication in the receiving waters due to nutrient enrichment that promotes algae growth and depletes oxygen in water systems.[44] Partially treated and untreated wastewater, for instance, from poorly functioning municipal wastewater treatment plants, farms, factories and other sources, leads to degradation in the quality of receiving waters, having an impact on ambient water quality, water-related ecosystems and marine pollution (specifically coastal eutrophication).

52. Low-income communities are the most vulnerable to the climate-induced impacts of disrupted water and sanitation systems. These communities often live in flood-prone areas and are highly affected by drought and other extreme climatic events.

53. The water, sanitation and hygiene sector contributes to greenhouse gas emissions; the water sector alone is estimated to contribute as much as 5 per cent of total emissions.[45] Smart investment in the drinking water and sanitation sector can contribute to climate change mitigation while also reducing costs and building resilience.[46] This includes, for example, detecting and eliminating water leaks in piped systems, reducing waste with water-saving technologies (such as water meters and water-efficient fixtures and appliances), promoting the use of grey water for indoor and outdoor uses such as toilet flushing to reduce the use of treated and pumped water and improving the energy efficiency of water conveyance and treatment processes, among other things. Nature-based solutions, such as wetlands, can improve water quality and reduce the need for energy-intensive water treatment.[47] Safe and efficient wastewater management and reuse can mitigate climate change impacts by avoiding greenhouse gas emissions both directly from the breakdown of untreated waste discharged into the environment and indirectly through saving the energy required for treatment steps.[48]

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[43] Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability – Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Hans-Otto Pörtner and others, eds. (Cambridge University Press, 2022). Available at www.ipcc.ch/report/sixth-assessment-report-working-group-ii.

[44] Florian Thevenon and others, “Spatio-temporal distribution of organic and inorganic pollutants from Lake Geneva (Switzerland) reveals strong interacting effects of sewage treatment plant and eutrophication on microbial abundance”, *Chemosphere*, vol. 85, No. 5 (2011). Available at https://archive-ouverte.unige.ch/unige:17240.

[45] Available at Wen-Wei Li, Han-Qing Yu and Bruce Rittmann, “Chemistry: reuse water pollutants”, *Nature*, vol. 528 (3 December 2015). Available at www.nature.com/articles/528029a.

[46] UNICEF, “Why water, sanitation and hygiene must be top of your climate agenda”. Available at www.unicef.org/documents/why-water-sanitation-and-hygiene-must-be-top-your-climate-agenda.

[47] World Bank, *A Catalogue of Nature-based Solutions for Urban Resilience* (Washington, D.C., World Bank Group, 2021). Available at https://openknowledge.worldbank.org/handle/10986/36507.

[48] UN-Habitat and WHO, *Progress on Wastewater Treatment: Global Status and Acceleration Needs for Sustainable Development Goal Indicator 6.3.1* (Geneva, 2021).

III. Overview of opportunities for progress and transformative solutions

54. The existing and future challenges the world faces require the rapid development and deployment of innovative and transformative solutions. Nevertheless, there are already successful examples that have been implemented at scale in water, sanitation and hygiene. Many governments have already shown leadership and put into practice evidence-based solutions.

55. It is necessary to move away from "project-based" support and service delivery to strengthening the national and local systems required to deliver reliable, resilient and inclusive services at scale – services that can attract funding from users, government budget allocations and private finance.

56. Government leadership and willingness to drive change is key. This leadership must be encouraged and supported by a coalition of partners – the private sector, financial institutions, civil society, academia, donors and non-governmental organizations (NGOs) – working in close collaboration and with accountability to each other. Time is needed for systemic change to take hold and results to appear on the ground compared with a conventional project-driven, coverage-focused approach. Governments must establish a transformational culture and systems that facilitate collaboration across sectors. Donors will need to be patient, adaptive and process-focused, collaborating with other stakeholders in support of government leadership. Governments should also recognize that investments in water, sanitation and hygiene are "no-regret" investments that contribute to the achievement of multiple Sustainable Development Goals and the fulfilment of human rights obligations.

57. Opportunities for progress are presented below using the structure of Sustainable Development Goal 6 Global Acceleration Framework.

A. Financing

58. As public goods that deliver benefits for health, as well as social and economic development, water, sanitation and hygiene warrant strategic, well-targeted public funding. Public finance, including targeted subsidies, has been and remains critically important, even in strongly market-led economies.

59. There are multiple sources of funding for water, sanitation and hygiene that governments can access and combine, including taxes, transfers from external donors, and tariffs and user fees. Government investments must be used strategically to attract and optimize other investments, recognizing that most funding for water, sanitation and hygiene eventually comes from households themselves through the payment of tariffs and user fees. Some users may pay significantly more by purchasing water from tanker trucks or installing tanks to store water if they experience intermittent piped supply and, in many parts of the world, households invest in their own systems for drinking water supply and sanitation. However, reliance on self-supply for certain sectors of the population can result in inequalities; there is a role for government to play in regulating, supporting and helping to fund household-level systems.[49,50]

[49] John Butterworth and Sally Sutton, *Self-Supply: Filling the Gaps in Public Water Supply Provision* (Rugby, United Kingdom of Great Britain and Northern Ireland, Practical Action Publishing, 2021).

[50] Batsirai Majuru, Marc Suhrcke and Paul Hunter, "How do households respond to unreliable water supplies? A systematic review", *International Journal of Environmental Research and Public Health*, vol. 13, No. 12 (December 2016). Available at www.ncbi.nlm.nih.gov/pmc/articles/PMC5201363.

60. Public financing can leverage various forms of repayable finance, such as loans, bonds and other financing instruments. Governments can enter into public-private partnerships to access financing and expertise from the private sector. Governments can also address the financial system as a whole, for instance, by creating financial products for entrepreneurs interested in entering the sector, harnessing the power of financial technology (fintech)[51] and helping to improve the creditworthiness of utilities and local governments wishing to borrow. Policies need to make explicit what is to be funded, when and how government funds will be used, how equity will be achieved in allocations and how funding is to be coordinated.

61. In many countries, policy priorities and public fund allocations do not align. Governments find it hard to overcome inertia in terms of spending patterns, and the institutions that should use budget allocations are often weak. As a result, budget execution rates in the water sector are low; reviews of water sector public expenditure reveal that only an average of 72 per cent of budget allocations are actually spent.[52] Furthermore, the interdependencies between water supply and sanitation services, irrigation and hydropower go unrecognized in most countries, and most have failed to make clear investment decisions based on their integration.

62. Transparency and accountability are key, and governments must develop mechanisms to consult stakeholders about funding and financing decisions and make information related to them public.

63. Whether they are funded from public or private sources, it is essential that service providers perform well financially. Financially efficient service providers focus on reducing non-revenue water (through better revenue collection systems and leak detection and control), optimizing their energy use and optimizing staff resources. Improving service provider efficiency is critical to establishing creditworthiness, attracting investment from both the public and private sectors and reducing reliance on government transfers and development aid.

64. There is a consistent data gap in financial data and expenditures related to water, sanitation and hygiene, which can be filled through the use of the TrackFin methodology developed by WHO for producing water, sanitation and hygiene accounts.[53]

B. Data and information

65. Data on water, sanitation and hygiene that is reliable, consistent and disaggregated (including by age and gender) are essential to stimulate political commitment, inform policymaking and decision-making, identify those who are most vulnerable, enable well-targeted investments that maximize health, environmental and economic gains and allow governments to make timely course corrections. For many governments, improved data collection and analysis is a first step to identifying water, sanitation and hygiene needs, gaps and investment priorities.

66. Accurate and regular monitoring and data collection and management, including utilization of complementary data sources, such as meteorological and long-term

[51] John Ikeda and Ken Liffiton, “Fintech for the water sector: advancing financial inclusion for more equitable access to water” (World Bank Group, 2019). Available at https://openknowledge.worldbank.org/handle/10986/31417?locale-attribute=en.

[52] Global Water Security and Sanitation Partnership (GWSP), *GWSP 2022 Annual Report: 5 Years of Working Together Toward a Water-Secure World* (World Bank Group, 2022). Available at http://documents.worldbank.org/curated/en/099102211102224772/IDU0a8831b08028b604d070aa0104893aa4ceda2.

[53] UN-Water and WHO, *Reflecting on TrackFin 2012–2020: Key Results, Lessons Learned and the Way Forward* (Geneva, WHO, 2021). Available at https://apps.who.int/iris/handle/10665/341793.

climate projections, are essential to effectively target resources allocated to safely managed drinking water to respond to specific challenges, including climate change, declining water quality and disease outbreaks. Additional sources of data, including citizen science and the knowledge of Indigenous Peoples, should also be mobilized.

67. Reliable, accessible and publicly available data and reporting on drinking water and sanitation services increase accountability to customers, reduce openings for corruption and drive healthy competition among utilities or responsible agencies. However, the 2021–2022 UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water survey indicated that well under half of countries had regulators that issued publicly available reports for urban water, and that far fewer countries had regulators that did so for rural water or sanitation.[54] Governments should require disclosure of water use (withdrawal, discharge and reuse) by all major users.

68. Governments should address the need for consistent data on hygiene. Tools to collect data on hand hygiene in the health-care sector are available from WHO, and household surveys increasingly include a standardized handwashing module.

69. While many countries have data on the treatment of wastewater from sewers, relatively few have data on the collection, treatment and disposal of faecal sludge from on-site sanitation facilities such as septic tanks and latrines – an essential component of safely managed sanitation. There is also a lack of independent regulatory data – aggregated at the national level – for all steps of the sanitation chain, especially for non-sewered services. Only 32 per cent of countries reported having sanitation/ wastewater regulatory authorities that fully took corrective action in urban areas; for rural areas, that figure stood at only 23 per cent.[55]

C. Capacity development

70. Capacity development is essential to build strong foundations for the effective governance, financing, service delivery, innovation and data management needed for sustainable and equitable water, sanitation and hygiene services. It is also important to build the water, sanitation and hygiene economy that can contribute to economic growth and prosperity.

71. Developing a strong water, sanitation and hygiene sector will require a bigger, more diverse and gender-balanced workforce with better skills, but capacity development in this context is far more than just training. It encompasses (a) human resources development, ensuring that institutions tasked with the oversight and provision of water, sanitation and hygiene services employ the right types and numbers of adequately qualified, trained and motivated personnel, and that adequate training is in place to address staff turnover and new knowledge; (b) organizational development, ensuring that institutions are adequately empowered and use effective systems and procedures; and (c) resources, ensuring that institutions have access to sufficient financial, material and technical resources.

72. The sanitation workplace, in particular, requires increased regulation and formalization. Working conditions need to be progressively formalized to safeguard health and safety, to protect workers' rights and to ensure decent working conditions, as called for in Sustainable Development Goal 8. Mobilizing the private sector to capitalize on the "sanitation economy" requires building the skills of service

[54] See https://glaas.who.int.

[55] Global Analysis and Assessment of Sanitation and Drinking-Water 2018–2019 country survey.

providers and their ability to respond to environmental conditions and climate change.[56]

73. Likewise, professionalization and formalization of rural water supply management is needed, through the development of a cadre of professional borehole drillers, handpump technicians, construction supervisors and managers to replace the low-skilled volunteers that have historically supported rural water supply.[57,58]

74. Capacity is key to ensuring the success of hand hygiene initiatives. There are serious gaps in capacity for the promotion and sustained uptake of hand hygiene. In many cases, countries need to invest in entirely new skill sets, such as those required to create an enabling policy environment, promote hand hygiene, incentivize private sector engagement and regulate and enforce in line with policy objectives.

D. Innovation

75. Achieving universal access to water, sanitation and hygiene services requires innovative solutions that support equity and universality of services and help extend such services to the hardest-to-reach areas and groups. For instance, governments must think beyond conventional sewerage systems, which are costly and time-consuming to install, and beyond linear sanitation chains to the circular economy, in which both water and waste are recycled and reused. Innovation is needed in institutional approaches as well, for instance, through the development of new models for managing rural water point maintenance. Financial innovations are essential, such as new financial instruments for households, businesses and governments. Governments can enable innovation through sound regulation, performance criteria and standards that reduce risk but do not stifle new ideas and entrepreneurship.[59,60,61]

76. Innovation must also include consideration of the traditional knowledge of Indigenous Peoples, who have been managing water resources in a sustainable manner for generations, and whose customary knowledge can support better management.[62]

E. Governance

77. Good governance requires leadership, clear policy-setting, robust regulation, transparency and coordination. Governments must establish strong institutions to coordinate and regulate the activities of governmental agencies and of providers and users of water, sanitation and hygiene services, and generate public benefits. Water, sanitation and hygiene must be included in national policies, strategies and plans, and need to be backed by human and financial resources.

78. Many countries have significant policy gaps. For instance, one quarter of countries where open defecation is still practised lack specific policies and plans to

[56] UNICEF and WHO, *State of the World's Sanitation*.
[57] Harold Lockwood and Anna Le Gouais, "Professionalising community-based management for rural water services", briefing note (The Hague, IRC, 2015).
[58] Kerstin Danert and Cheikh Hamidou Kane, *A Turning Point for Manual Drilling in the Democratic Republic of Congo* (St. Gallen, Switzerland, Rural Water Supply Network, 2020), Available at www.unicef.org/drcongo/media/4581/file/COD-report-manual-drilling.pdf.
[59] UNICEF and WHO, *State of the World's Sanitation*.
[60] UNICEF, WHO and World Bank, *State of the World's Drinking Water: An Urgent Call to Action to Accelerate Progress on Ensuring Safe Drinking Water for All* (Geneva, WHO, 2022). Available at www.who.int/publications/i/item/9789240060807.
[61] UNICEF and WHO, *State of the World's Hand Hygiene*.
[62] A/HRC/51/24.

address it. Similarly, the critical issue of faecal sludge management is not addressed in one quarter of urban sanitation policies and plans. Even where policies are in place, few countries have adequate human and financial resources to support them. While most countries are responding to the Sustainable Development Goal imperative to "leave no one behind" and almost all countries report policy measures to reach poor populations with water, just over half report that they have identified the means of funding those policies.[63]

79. In many countries, regulations may exist but are not enforced for myriad reasons. A common issue stems from the institutional arrangements and underlying mandates of the various institutions. For instance, the responsibility for water quality surveillance might lie with a government ministry that has limited enforcement authority over a separate government ministry that is providing water services. Enforcement can also be weak in cases in which there is duplication and multiple institutions are mandated to regulate the same services, with no clear line of authority. In the sanitation sector, clearly defined leads and institutional arrangements across the sanitation service chain have enabled success in many countries.[64,65]

80. The health sector often neglects water, sanitation and hygiene as a prevention measure and focuses instead on clinical diagnosis and care, vaccines and medicines. Nevertheless, the health sector must fulfil critical functions to ensure that investments in water, sanitation and hygiene do in fact protect health and reduce the burden on the health system. These functions include integrating water, sanitation and hygiene into all health policies and programmes where they are needed for primary prevention; contributing to the development of health-protective regulations and standards related to water, sanitation and hygiene; using continuous, systematic collection, analysis and interpretation of health-related data (public health surveillance) to target investment in water, sanitation and hygiene in high disease-burden areas and prevent outbreaks; including the promotion and monitoring of water, sanitation and hygiene in local-level health services; and ensuring water, sanitation and hygiene in health-care facilities for patients, staff and carers. Challenges such as entrenched structures of funding, competing incentives and inconsistent implementation structures and institutional arrangements must be overcome.

81. Governments need to recognize that hygiene, including menstrual health and hygiene, is a crucial public policy issue, and that progress requires leadership, ownership, targets, strategies, road maps and dedicated budgets.

IV. Recommendations

82. **The below recommendations are presented with accompanying suggestions for actions that could be tracked between now and 2030. These actions require leadership from national Governments, coordination across ministries and sectors, and partnership with civil society, the private sector and academia.**

[63] See https://glaas.who.int.
[64] UNICEF and WHO, *State of the World's Sanitation*.
[65] UNICEF, WHO and World Bank, *State of the World's Drinking Water*.

A. Financing

Recommendation 1
Governments should develop clear policy objectives to guide funding and financing decisions, develop costed funding and financing strategies and increase public spending on water, sanitation and hygiene, recognizing their value as public goods. This includes:

- **Understanding all the costs of water, sanitation and hygiene service provision and making informed, evidence-based decisions on the allocation of funds and the setting of tariffs and user charges**
- **Partnering with financial system stakeholders (such as banks and credit agencies) and donors**
- **Establishing a conducive environment for the use of commercial repayable finance, both domestic and international**
- **Developing the expertise and understanding to comply with the requirements of climate finance and access it to expand water, sanitation and hygiene services**
- **Budgeting for the costs associated with a supportive regulatory environment**

Recommendation 2
Development partners should increase investments in the water, sanitation and hygiene sector, seeking ways to build systems, capacity and institutional strength, working in partnership with governments, in the spirit of Sustainable Development Goal 17

Recommendation 3
Governments should encourage and support improvements in the financial performance of water, sanitation and hygiene service providers, while development partners should support these efforts

Possible actions to track

- Development of a national funding and financing strategy
- Development of economic regulation for water services
- Increased levels of public investment
- Increased investments in systems strengthening by development partners
- Increased amount of development assistance channeled through government financial systems
- Improvements in service provider performance (using standard global metrics)
- Establishment of water, sanitation and hygiene accounts to track expenditures

B. Data and information

Recommendation 4
Governments should support the institutionalization of data collection and monitoring within national systems, the use of consistent methodologies, including standardized terms and questions, and the transparent sharing and use of the data collected. This includes:

- **Identifying gaps in data collection and analysis and prioritizing those areas in which missing data are a constraint, with particular emphasis on the identification of communities and individuals at risk of being left behind in service provision**
- **Making the collection and transparent sharing of data a requirement for all service providers receiving public finance**
- **Prioritizing the collection of data relevant to equality, including gender-disaggregated data and information on marginalized groups**

Recommendation 5
Development partners should change the way their results are measured, focusing on contributions to a reliable, resilient and inclusive service (measured by outcomes, not inputs)

Possible actions to track

- Establishment of government data collection and analysis that is consistent with the definition of safely managed water and sanitation
- Public reporting on service provider performance and progress to reach the unserved
- Establishment by development partners of monitoring systems that measure contribution to systems change

C. Capacity development

Recommendation 6
Governments should build robust and competent institutions and a capable and motivated workforce through a range of capacity-development approaches based on innovation, partnership and collaboration. This includes:

- **Assessing current capacity with respect to water, sanitation and hygiene policy and strategies, identifying gaps and developing capacity-building strategies**
- **Adopting approaches that overcome resource constraints, such as using private sector capacity to its full potential, harnessing the expertise and resources of NGOs and development agencies, and instituting peer-to-peer learning**
- **Building capacity in the health and education sectors to support water, sanitation and hygiene**
- **Diversifying the existing workforce and building a diverse and gender-balanced pipeline of future water and sanitation professionals**
- **Strengthening capacity to continue delivering during shocks, such as natural disasters**

Recommendation 7
Capacity should be built in technical areas specific to water, sanitation and hygiene services and also create a conducive enabling environment for sustainable water, sanitation and hygiene services. This includes:

- **Building competency in long-term planning and budgeting, improved cost recovery, revenue generation and financial sustainability**
- **Professionalizing water, sanitation and hygiene service delivery and supporting it through capacity development, in particular in small and rural systems**
- **Developing standards, regulations and professional certifications that support professionalization**
- **Strengthening capacity to integrate climate resilience and mitigation into planning, designing and delivering water, sanitation and hygiene services**

Possible actions to track

- Development of a national capacity building plan
- Establishment of national training institutions offering training relevant to water, sanitation and hygiene and wastewater treatment
- Establishment of standards, regulations and professional certifications for service providers and installers

D. Innovation

Recommendation 8
Governments should encourage innovation and experimentation with regard to water, sanitation and hygiene through supportive government policy and regulation, accompanied by rigorous monitoring and evaluation, demonstration and dissemination. This includes:

- **Regularly updating regulations to reflect changes in the evidence base and the availability of new technologies and service delivery models**
- **Encouraging innovation in methodologies and approaches, as well as in technologies, and supporting prototyping, demonstration, validation and scale-up**
- **Being proactive in setting forth clear specifications and targets for innovative products and methodologies**

Possible actions to track

- Establishment of innovation-friendly policy and financing mechanisms
- Establishment of mechanisms to incubate and test new technologies and methodologies, including the setting of specifications and targets and the support of real-world adaptive learning, led by government and supported by public sector and development partner investment

E. Governance

Recommendation 9
Governments should create an enabling policy environment, across multiple sectors (including water, health, education and other relevant sectors), that supports a progression towards universal access at higher service levels in households, health-care facilities and schools for all. This includes:

- **Establishing ambitious but feasible national water, sanitation and hygiene coverage and service-level targets**
- **Ensuring that there are no policy gaps and that policy exists for rural and urban water, sanitation and hygiene, and for wastewater treatment and faecal sludge management**
- **Ensuring that national and sub-national development plans include targets and strategies for achieving the national targets**
- **Clarifying institutional roles and responsibilities, making clear which delivery models are sanctioned**
- **Integrating water, sanitation and hygiene into regular health and education sector planning, budgeting, programming and monitoring in order to deliver quality water, sanitation and hygiene services in schools and health-care facilities**
- **Ensuring that public health surveillance data is shared by the health sector to inform water, sanitation and hygiene service delivery and to support outbreak prevention efforts, and including the promotion and monitoring of water, sanitation and hygiene within health programming**[66]
- **Ensuring that policies, regulatory arrangements, strategies and implementation models are inclusive and gender-sensitive, allowing the meaningful participation of women in decision-making and governance and leading to their social, political and economic empowerment**
- **Ensuring that marginalized groups, including Indigenous Peoples, are represented in coordination bodies**
- **Improving accountability mechanisms, including accountability to users, and facilitating the engagement of civil society to promote accountability**

Recommendation 10
Governments should address neglected policy issues that have particular relevance to the water, sanitation and hygiene subsectors by:

- **Defining sanitation as an essential service for which government is responsible and can be held accountable and establishing standards for service quality throughout the sanitation chain (sewered and non-sewered)**
- **Making hygiene a public policy issue, including both service availability and behaviours, backed with relevant regulation and enforcement**

Possible actions to track

- Establishment of feasible national targets

[66] For example, as undertaken within the context of the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

- Establishment of policy working groups by government, with membership across sectors and ministries
- Incorporation of water, sanitation and hygiene and wastewater treatment into national and sub-national plans and strategies, with parameters that are consistent with the ambition of achieving safely managed drinking water and sanitation, treatment of wastewater and universal basic hygiene
- Development of new stand-alone policies where appropriate

Recommendation 11
Governments should progressively strengthen existing water, sanitation and hygiene institutions, fill institutional gaps and facilitate coordination and collaboration. This includes:

- **Strengthening their systems supporting water, sanitation and hygiene services, working within the policy parameters specifying which service delivery models to use, and clarifying roles and mandates**
- **Supporting improvement in the operational performance of service providers and the establishment of management models that promote sustainable, professionalized service delivery**
- **Establishing a supportive and predictable regulatory environment backed up by legislation and clear policies, including standards for service quality**
- **Ensuring that enforcement of regulations is balanced with technical assistance for service providers, as appropriate**
- **Establishing regulation that protects all consumers, allows and encourages continuous improvement, innovation and cost recovery, and facilitates service provision for people living in poverty and those who are marginalized or vulnerable, consistent with the human rights to water and sanitation and the commitment to "leave no one behind"**

Possible actions to track

- Designation of lead agencies for each of sanitation, hygiene and water services, in both urban and rural areas
- Establishment of regulatory authorities for rural and urban water supply and sanitation
- Regular coordination activities bringing together multiple government ministries and development partners

V. Guiding questions

1. What are the data gaps that are holding back planning, investment and monitoring of progress towards the Sustainable Development Goals? What support do governments need to fill them?

2. How can we build champions for water, sanitation, hygiene and wastewater treatment in national and local government and use them to accelerate action?

3. What kind of policies for water, sanitation and hygiene and wastewater treatment are required to drive action, investment and accountability? Are "stand-alone" policies the most effective?

4. What should the role of development partners and the private sector be in supporting skill-building and institutional strengthening?

5. How can we work across government ministries and departments (health, agriculture, water resources) to optimize investments in water, sanitation and hygiene and ensure that they contribute to health, food security, equality and nation-building?

6. What concrete actions can we take to build trust and transparency in the water, sanitation and hygiene sector, ensuring the participation and consultation of all stakeholders?

7. What is the best way to track action over the next eight years? What are the most important actions to track for governments and development partners?