



World Health
Organization

Buruli ulcer
Chagas disease
Dengue and chikungunya
Dracunculiasis
Echinococcosis

Foodborne trematodiasis

Human African trypanosomiasis

Leishmaniasis

Leprosy

Lymphatic filariasis

*Mycetoma, chromoblastomycosis
and other deep mycoses*

Onchocerciasis

Rabies

Scabies and other ectoparasitoses

Schistosomiasis

Soil-transmitted helminthiasis

Snakebite envenoming

Taeniasis and cysticercosis

Trachoma

Yaws

**ENDING THE NEGLECT TO
ATTAIN THE SUSTAINABLE
DEVELOPMENT GOALS**

**A GLOBAL STRATEGY ON WATER,
SANITATION AND HYGIENE TO
COMBAT NEGLECTED TROPICAL
DISEASES**

2021–2030

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Ending the neglect to attain the Sustainable Development Goals: a global strategy on water, sanitation and hygiene to combat neglected tropical diseases, 2021–2030

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Foreword

Neglected tropical diseases (NTDs) strike unequally – causing ill health, disability and death, primarily among the poorest people of the world. Access to safe water, sanitation and hygiene (WASH) is essential to prevention, care and treatment for many of these diseases.

More than one billion people globally are affected by or at risk of NTDs. Most live in low- and middle-income countries, often in poor-quality housing, and lack access to fundamental services such as clean water, decent sanitation, adequate hygiene and access to health care. Current estimates show that 785 million people lack access to even a basic water service, over 2 billion people do not have access to basic sanitation, and 3 billion lack handwashing facilities at home.

Since the first global strategy on WASH for NTDs was published in 2015, WASH and NTD partners have continued to deepen their collaboration. The inclusion of more ambitious cross-cutting targets on WASH in the new road map for NTDs, *Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030*, is a testament to this partnership. We have made progress but we must now take up the challenge to leave no one behind in the fight against these diseases.

The COVID-19 pandemic has been a stark reminder that water, sanitation and hygiene must be central to our collective work for global health – whether that involves combatting novel diseases or ancient diseases of poverty, such as NTDs.

Fundamentals for action against NTDs include resilient health systems based on primary care, improved access to WASH, and continuing emphasis on disease prevention and hygiene promotion. Resilient health systems will be better equipped to not only to deliver improved health outcomes for NTDs but also to manage outbreaks and other health crises.

This renewed strategy is a collective call to action: Governments, civil society, international agencies, funders, and the public and private sectors must work together to provide the political leadership and long-term investment in the health and WASH systems needed to fulfil its goals.

We have come a long way since the first global strategy on WASH and NTDs. Our hope is that, by building on our success so far, we can support countries in effective delivery of WASH alongside other NTD interventions. We can defeat these diseases once and for all, paving the way for sustainable development and shared prosperity.



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Glossary

Basic drinking-water services

Drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing (Improved drinking water sources are those that have the potential to deliver safe water by nature of their design and construction, and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water).

Basic hygiene services

Availability of a handwashing facility on premises with soap and water.

Basic sanitation services

Use of improved facilities which are not shared with other households (improved sanitation facilities are those designed to hygienically separate excreta from human contact, and include: flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs).

Equity

The absence of avoidable or remediable differences among groups of people defined socially, economically, demographically, geographically or by sex.

Health Management Information System

An information system specially designed to assist in the management and planning of health programmes, as opposed to delivery of care.

Hygiene interventions

Broadly relates to conditions and practices to maintain health and prevent disease; within WASH programmes, hygiene efforts tend to focus on maintaining personal cleanliness, and often narrowly on promoting handwashing with soap at critical times. A broader definition may include food hygiene measures, environmental hygiene (e.g. cleaning of surfaces), menstrual hygiene, or hygiene interventions specific to prevention and control of diseases (e.g. face and hand cleanliness for trachoma and cysticercosis, shoe wearing for soil-transmitted helminthiases and animal management for zoonotic diseases).

Multi-year NTD plans

Provide programme goals, objectives and a 3–5-year strategy based on extensive situation analysis, and address all components of the NTD programmes relevant to the country including costing and financing requirements.

Preventive chemotherapy

Large-scale use of medicines, either alone or in combination, in public health interventions. Mass drug administration is one form of preventive chemotherapy; other forms could be limited to specific population groups such as school-aged children and women of childbearing age.

Safely managed sanitation services

Use of improved facilities which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site.

Safely managed drinking-water services

Drinking water from an improved water source which is located on premises, available when needed and free from faecal and priority chemical contamination.

Sanitation interventions

Interventions to increase access to and use of facilities and services for the safe disposal of human urine and faeces (but not usually other types of waste). A safe sanitation system is a system designed and used to separate human excreta from human contact at all steps of the sanitation service chain from toilet capture and containment through emptying, transport, treatment (in-situ or off-site) and final disposal or end use. A holistic approach to addressing faecal risks from source to safe use or disposal is facilitated through sanitation safety planning. As a household moves away from open defecation towards use of better sanitation services, and ultimately to safely managed systems, health benefits increase.

Sustainable WASH

Sustainability of WASH services refers to the continued functioning and utilization of water and sanitation services as well as lasting changes in human behaviour around hygiene and safe sanitation. Sustainability is about services that continue in use indefinitely and that consequently transform people's lives for good.

Universal health coverage

The goal of universal health coverage is to ensure that all people obtain the health services (both prevention and treatment) they need without suffering financial hardship when paying for them. This requires: a strong, efficient, well-run health system; a system for financing health services; access to essential medicines and technologies; and a sufficient capacity of well-trained, motivated health workers.

Vector control

Measures of any kind against infection-transmitting mosquitoes or sandflies, intended to limit their ability to transmit infection.

Veterinary public health

A component of public health that focuses on the application of veterinary science to protect and improve the physical, mental and social well-being of humans.

Water interventions

Interventions may consist of increasing access to a safe water supply for the purposes of drinking, other domestic use, household production and livelihood generation; improvements of drinking-water quality through water source improvements; low-cost strategies to treat and safely store drinking-water at the point of consumption; and water safety planning. More broadly, water interventions may sometimes include water management such as protecting water storage containers to prevent mosquito breeding in the case of vector-borne diseases like dengue. Water supply interventions in NTD endemic settings do not usually relate to aspects such as dam and reservoir construction, or provision of water for extra-household productive purposes such as agriculture or industry.

JMP service ladder

The WHO/UNICEF Joint Monitoring Programmes for Water Supply, Sanitation and Hygiene uses service ladders to benchmark and compare service levels for drinking-water, sanitation and hygiene across countries. The service ladder ranges from no service to basic and safely managed services.

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Dengue and chikungunya
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Human African trypanosomiasis

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Onchocerciasis

Rabies

Scabies and other ectoparasitoses

Schistosomiasis

Soil-transmitted helminthiasis

Snakebite envenoming

Taeniasis and cysticercosis

Trachoma

Yaws

VISION

Accelerated and sustained achievement of the NTD road map targets, particularly among the poorest and most vulnerable, through better-targeted and joint WASH and NTD efforts.

STRATEGIC OBJECTIVES

1. **Increase awareness** of the co-benefits of joint action and engagement on WASH and NTDs by sharing experiences and evidence throughout the programme cycle.
2. **Use WASH data in NTD programmes and NTD data in WASH programmes** to highlight inequalities, target investment, and track progress.
3. **Strengthen evidence and establish best practice** on integrated approaches to NTDs based on robust documentation and analysis, and embed the findings in guidance and national strategies.
4. **Jointly plan, deliver and evaluate** programmes to enhance the accountability, sustainability and equity of programme impact.

1. Context and purpose of the strategy

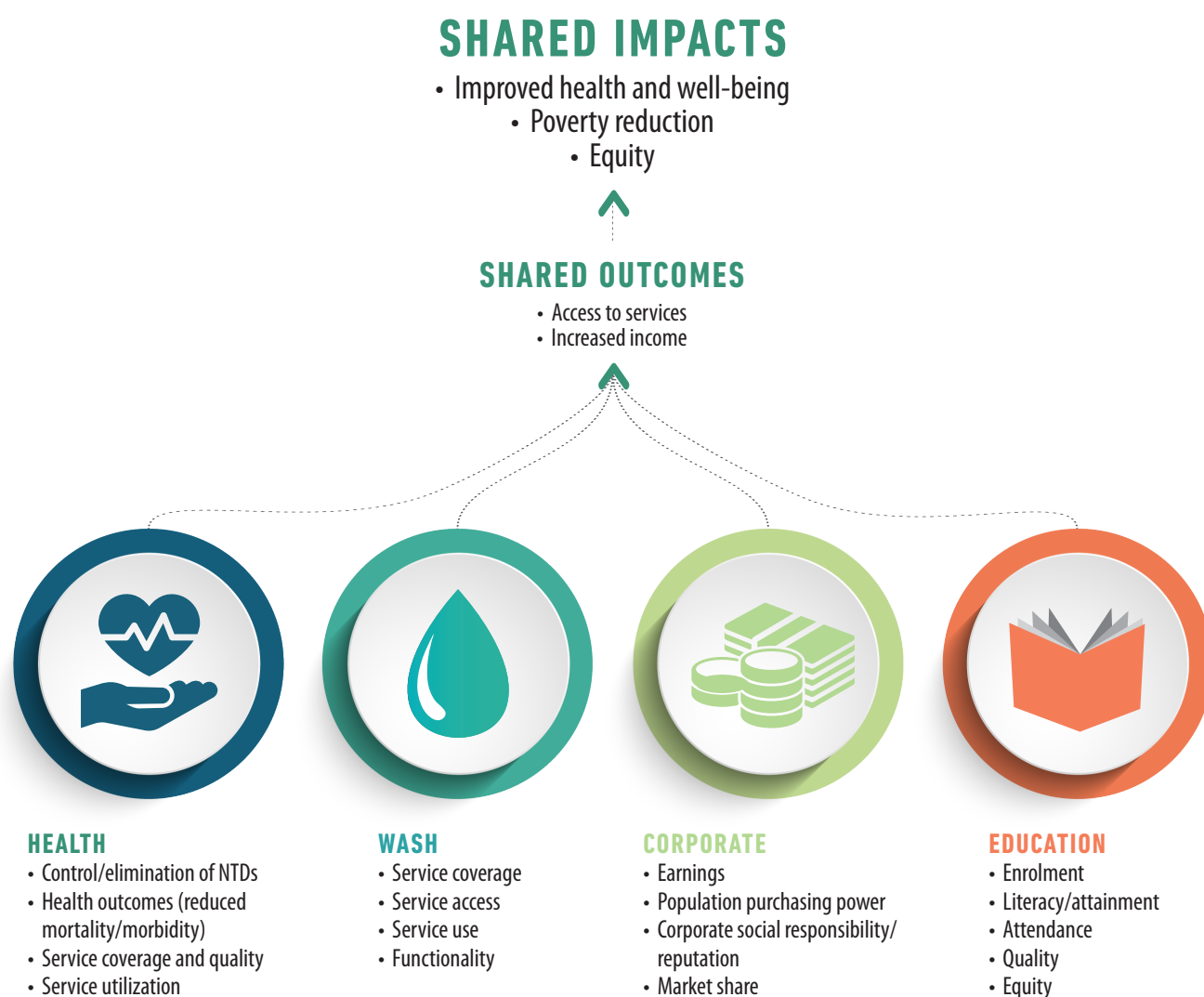
Water, sanitation and hygiene (WASH) are indisputable pillars of global public health. Well-implemented interventions that result in improved access to WASH by individuals and communities are necessary for the control, elimination and eradication of neglected tropical diseases (NTDs) – a group of diseases prioritized by WHO given their propensity to cause suffering, deepen poverty and worsen social inequality. Progress against certain NTDs can therefore serve as a proxy for equity and effective targeting of WASH programmes.

| 1.1 Looking back: achievements and lessons from the NTD road map 2012–2020

The fundamental link between WASH and NTDs gained recognition within the global public health community through inclusion of provision of safe water, sanitation and hygiene as one of the five core interventions of the NTD road map for 2012–2020 (1) and, subsequently, through the development of the global WASH-NTD strategy for 2015–2020 (2). The strategy acknowledged that the WASH component of work against NTDs had received inadequate attention and that the potential to link efforts on WASH and NTDs had been largely untapped (3,4). It also emphasized the significant mutual benefits of increased collaboration between the WASH and NTDs sectors: improved health outcomes, increased reach of WASH services, and increased ability of both sectors, alongside other development sectors, to contribute towards overall development outcomes (Fig. 1).

The adoption of the Sustainable Development Goals in 2015 represented a significant shift towards health systems strengthening to achieve universal health coverage. This prompted increased focus on country ownership and leadership, horizontal and comprehensive services including promotive, preventive, curative and palliative services, and a significant emphasis on addressing inequalities and financial restrictions to services. In terms of WASH, the Goals led to a focus on universal access to basic WASH in communities, schools and healthcare facilities by 2030, requiring a focus on the poorest and hardest to reach – the same groups most affected by NTDs.

During the five years since the publication of the 2015 strategy, momentum towards greater collaboration on WASH and NTDs has grown substantially. This progress suggests that the rationale for collaboration remains strong; nonetheless, ongoing effort is needed to sustain strong working relationships between the sectors, and continue to analyse, document and implement best practices.



Source: reference 5.

Fig. 1. Common ground for collaboration

| 1.2 Looking ahead: the new NTD road map 2021–2030

Efforts to increase collaboration between WASH and NTD stakeholders were boosted in 2020 when the Seventy-third World Health Assembly endorsed a new NTD road map for 2021–2030 (“the road map”) (6). The road map includes more ambitious targets (Fig. 2), while acknowledging the need for cross-sectoral action; one of its three pillars is to intensify cross-cutting approaches (Fig. 3). The specific cross-cutting target on WASH is to achieve “universal access to at least basic water supply, sanitation and hygiene in areas endemic for neglected tropical diseases – to achieve targets 6.1 and 6.2 of Sustainable Development Goal 6”. The road map advocates extended collaboration beyond the traditional confines of the WASH and NTD sectors in response to the challenges caused by climate change; to incorporate measures for vector control through environmental and behavioural initiatives; and to collaborate with the veterinary public health sector as part of a One Health approach to reduce the risk and impact of zoonotic and interspecies (human-animal) hybrid infections.

Overarching global targets for 2030

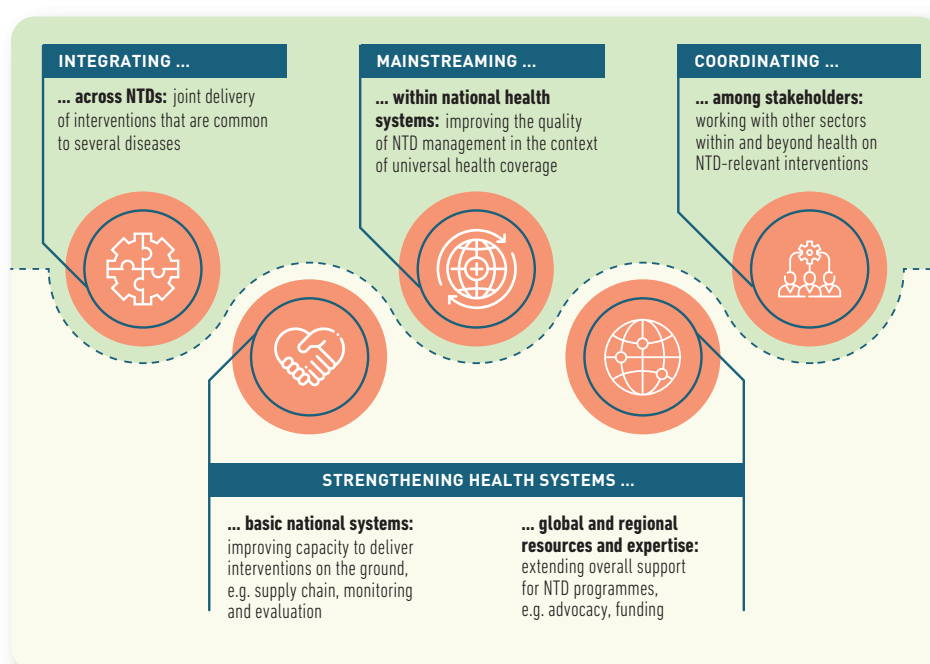
Top-line targets for NTDs, in line with the Sustainable Development Goals and WHO’s 13th General Programme of Work



Note: In certain cases, reference to “countries” should be understood to signify countries, territories and areas. The baseline year for the overall percentage reduction is 2020 except for ¹.
¹ Compared with the baseline in 2010.

Source: reference 6.

Fig. 2. Overarching road map targets for 2030



Source: reference 6.

Fig. 3. Four categories of cross-cutting themes

This renewed strategy (“the global strategy”) is one of the companion documents to support the implementation of the road map. It aims to mobilize all stakeholders to achieve the road map targets and meet the pledge of the Sustainable Development Goals to leave no one behind. It calls for joint and purposeful planning globally, regionally, nationally and subnationally to better target investments in WASH and NTDs towards areas endemic for NTDs and the worst-affected populations.

This global strategy builds on existing commitments to WASH and NTDs (7–20). It aims to complement national NTD plans and WASH plans, and to support existing efforts on health in all policies and social determinants of health. It is a contribution to ongoing work to strengthen health systems, deliver universal health coverage and eliminate poverty (Box 1).

Box 1. Policy basis

GLOBAL TARGETS AND MILESTONES

NTDs are included under target 3.3 of the Sustainable Development Goal framework: “By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases”.

Under Goal 6; ensure availability and sustainable management of water and sanitation for all, efforts to increase access to water, sanitation and hygiene are tracked through targets 6.1 and 6.2 on universal and equitable access to safe drinking-water, sanitation and hygiene by 2030.

WORLD HEALTH ASSEMBLY RESOLUTIONS AND DECISIONS

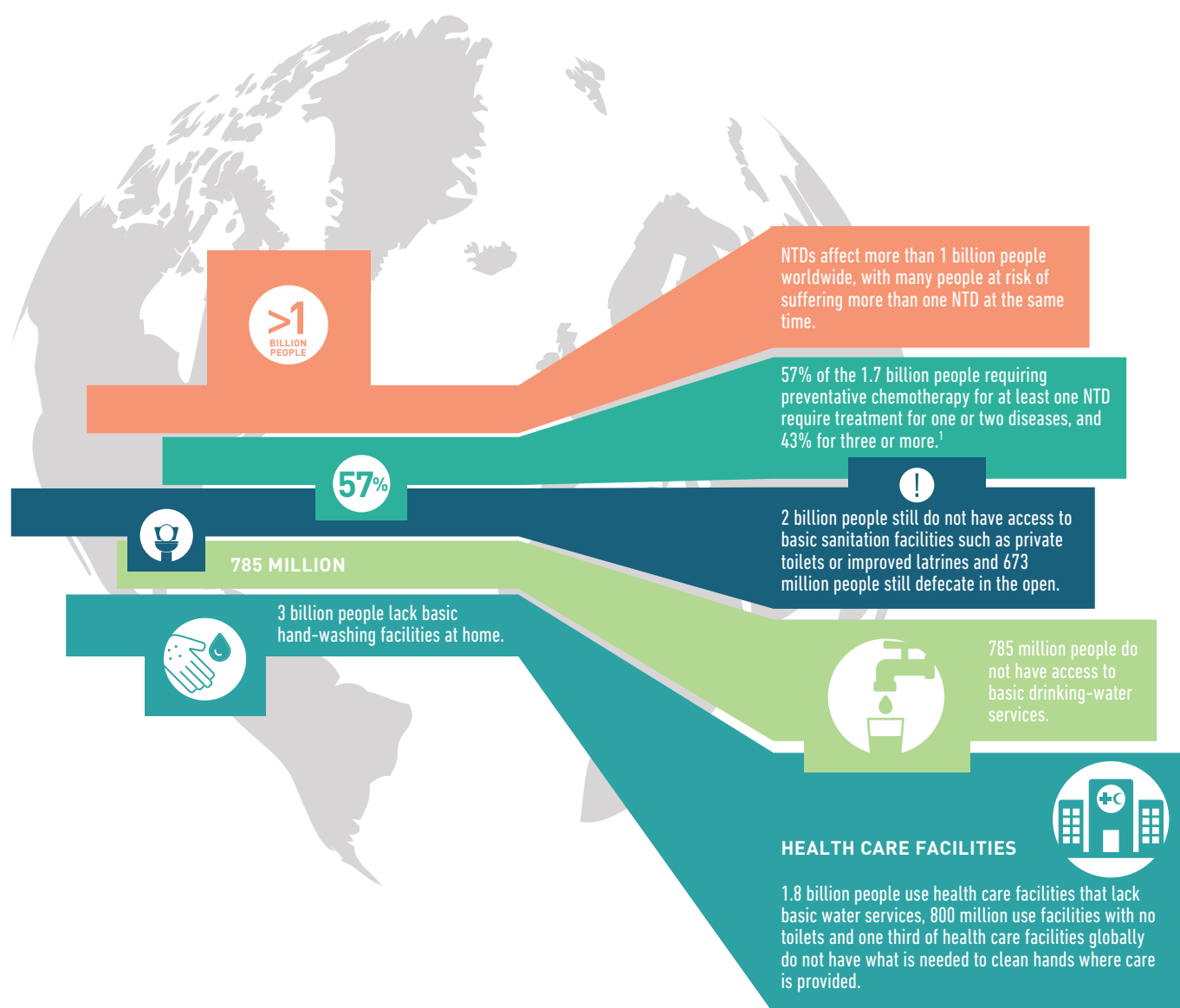
Decision WHA73(33) on neglected tropical diseases acknowledges that action is required across the full scope of the 20 NTDs. It urges Member States to “be the drivers of the strategies laid out in the road map” and “coordinate and align interventions across other sectors” including water and sanitation to reach NTD targets in alignment with the Sustainable Development Goals.

Resolution WHA72.7 on water, sanitation and hygiene in health care facilities notes that “without sufficient and safe water, sanitation and hygiene services in health care facilities, countries will not achieve the targets set out in Sustainable Development Goals 3 and 6. It calls on WHO to work with Member States in the development of national road maps and targets for safe water, sanitation and hygiene in health care facilities.

Resolution WHA64.24 on drinking-water, sanitation and health acknowledges the importance of water and sanitation for disease control and overall population health. It urges Member States to “develop and strengthen, with all stakeholders, national public health strategies, so that they highlight the importance of safe drinking-water, sanitation and hygiene as the basis for primary prevention, based on an integrated approach of sectoral planning processes, policies, programmes and projects regarding water and sanitation”.

2. The role of WASH in prevention and care of NTDs

| 2.1 WASH and NTDs: a significant global challenge



¹ <https://www.who.int/data/preventive-chemotherapy>
Source: references 6, 21–22.

| 2.2 Linkages between WASH and NTDs

NTDs are a proxy for poverty and disadvantage. They prevail among vulnerable and marginalized populations, concentrating among the poorest 40% – those same populations with the least access to sustainable, safe and affordable water supply and sanitation services (23).

NTDs and poor access to WASH contribute to a vicious cycle of poverty and disease (Fig. 4), and lead to a substantial burden on health systems. NTDs can lead to catastrophic health expenditure and reduced economic productivity (24). For example, the global economic cost of trachoma due to lost productivity is estimated at US\$ 2.9–8.0 billion annually (25); data suggest a robust association of higher disease prevalence and poor access to sanitation (26).

Adequate WASH can prevent many diseases while contributing to overall well-being and educational and economic opportunities. Every US dollar invested in water and sanitation is estimated to result in a return of over five dollars in health benefits due to reduced health care costs for individuals and society, and greater productivity (27).

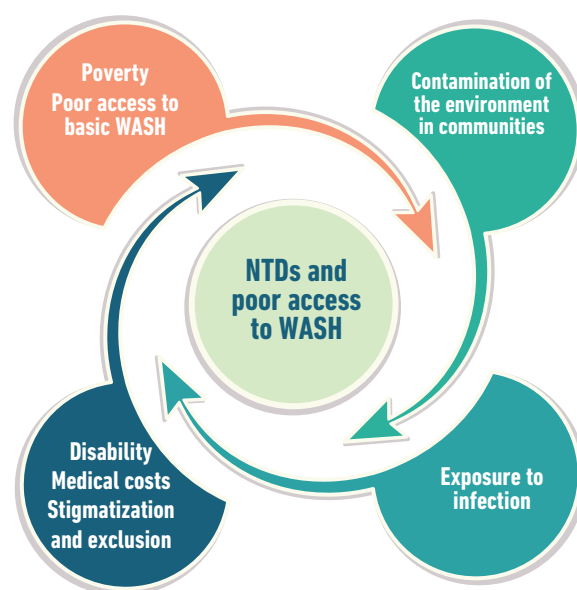


Fig. 4. NTDs and poor access to WASH: a vicious cycle of poverty and disease

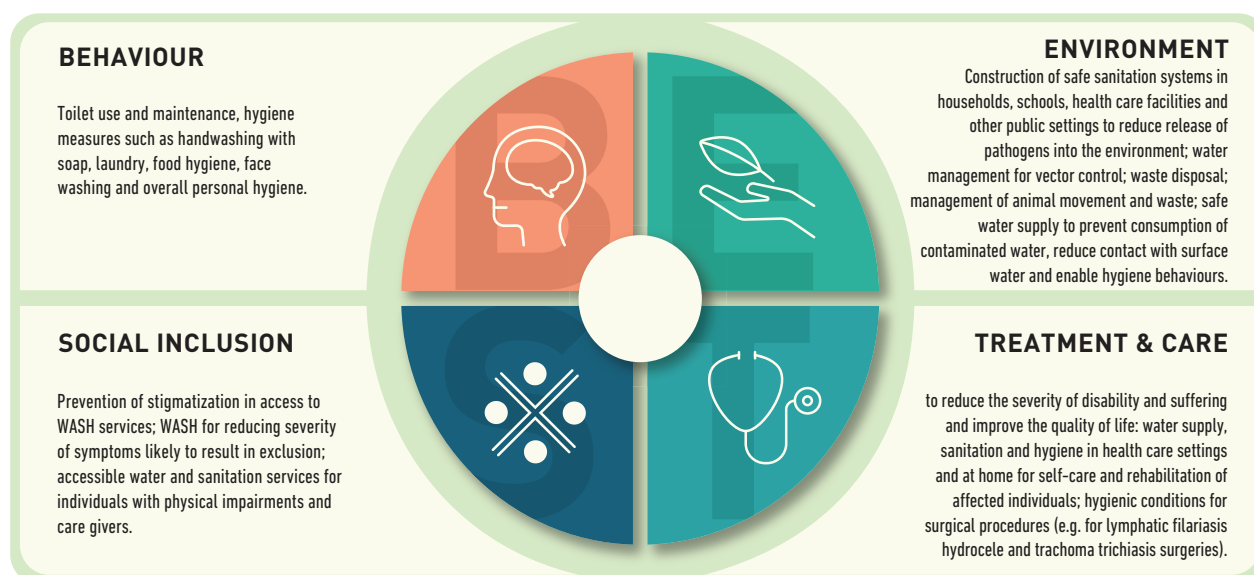
Access to safe water and sanitation are fundamental human rights (28). The right to water entitles everyone to have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use. The right to sanitation entitles everyone to have physical and affordable access to sanitation, that is safe, hygienic, secure, and socially and culturally acceptable and that provides privacy and ensures dignity.

WASH contributes in varying degrees to the prevention, treatment and care of all NTDs. While the preventive role of WASH is frequently acknowledged, the degree to which WASH can contribute to control and elimination efforts may be underestimated for certain diseases. Additionally, the role of WASH in safe and dignified treatment and care of NTD-associated morbidities as well as in aspects such as inclusion and reduction of stigmatization is underestimated.

| 2.3 The BEST framework

The BEST framework (29) (**Fig. 5**) offers a comprehensive approach to tackling NTDs, by setting out all programmatic and delivery aspects necessary to achieve control, elimination and eradication targets – Behaviour, Environment, Social inclusion and Treatment and care. The Annex provides an overview of all NTD interventions under BEST, including WASH. A summary is included in Table 1.

WASH plays a fundamental role within the BEST framework



Source: reference 29.

Fig. 5. The BEST framework

Box 2. WASH and neglected zoonotic diseases

Neglected zoonotic diseases are a subset of NTDs that are transmitted between animals and humans. Inadequate WASH contributes to many zoonoses including foodborne trematodiasis, echinococcosis, leishmaniasis, schistosomiasis and taeniasis and cysticercosis. Like all NTDs, neglected zoonotic diseases flourish in low-income rural communities who rely on animals for their livelihood and where animals and humans live in close proximity. The close interaction between humans and animals increase the risk of transmission of zoonotic pathogens through direct contact and/or via contaminated food or water, and vectors. While the WASH sector typically focuses on the safe management of human faeces, the importance of addressing animal faeces in the domestic environment is receiving increased attention (30–31). Prevention and control of zoonotic neglected diseases is best addressed through a One Health approach, which takes into account the interlinkages between animals, humans health and the environment and promote action across the health, agriculture, environment and other sectors (32). Safe management of human and animal faeces, provision of clean water sources, and improved hygiene practices are an essential part of this global strategy.

Table 1. Linkages between WASH and NTDs under the BEST framework

Disease	WASH thought to be relevant for:			
	Behaviour	Environment	Social inclusion	Treatment and care
Buruli ulcer			✓	✓
Chagas disease	✓			✓
Dengue and chikungunya		✓		✓
Dracunculiasis	✓	✓		✓
Echinococcosis	✓	✓		✓
Foodborne trematodiasis	✓	✓		
Human African trypanosomiasis		✓		✓
Leishmaniasis	✓	✓		✓
Leprosy	✓	✓	✓	✓
Lymphatic filariasis	✓	✓	✓	✓
Mycetoma, chromoblastomycosis and other deep mycoses	✓	✓		
Onchocerciasis			✓	
Rabies				✓
Scabies and other ectoparasitoses				✓
Schistosomiasis	✓	✓		
Snakebite envenoming				✓
Soil-transmitted helminthiasis	✓	✓		
Taeniasis and cysticercosis	✓	✓		✓
Trachoma	✓	✓	✓	✓
Yaws	✓	✓		✓

Note: Grey area indicates where not applicable or not known.

Box 4. WASH and vector-borne diseases

Vector-borne diseases that are closely linked to WASH include dengue, other arboviral diseases and lymphatic filariasis, which are transmitted primarily by *Aedes* and *Culex* mosquitoes; and schistosomiasis, whose life cycle involves an intermediate snail host. These diseases are influenced by many human-driven and environmental factors including rapid urbanization, alteration of land use, water management including safe water storage, farming practices, and climate variability and change (20). The global incidence of dengue has increased exponentially over the past decades; half of the world's population is now estimated to be at risk (33). Vector-borne diseases transmitted by *Aedes* mosquitoes such as *Aedes aegypti* and *Aedes albopictus* thrive in urban areas where inadequate water supplies and sanitation, and poor wastewater and solid waste management provide favourable breeding conditions. The major vector of dengue and other diseases such as Zika or chikungunya, *Aedes aegypti*, breeds primarily in artificial water containers. Thus environmental control measures consisting of: i) improved access to reliable piped water supply to reduce the need for water storage systems, ii) adequate water management practices such as covering, emptying and cleaning water storage containers at least once per week, and iii) solid waste management to eliminate small potential containers (20) will have an impact in decreasing transmission of these diseases. Consequently, their control requires a comprehensive approach to vector management that includes environmental measures such as WASH alongside a risk assessment framework and coordinated actions across multiple sectors (34).

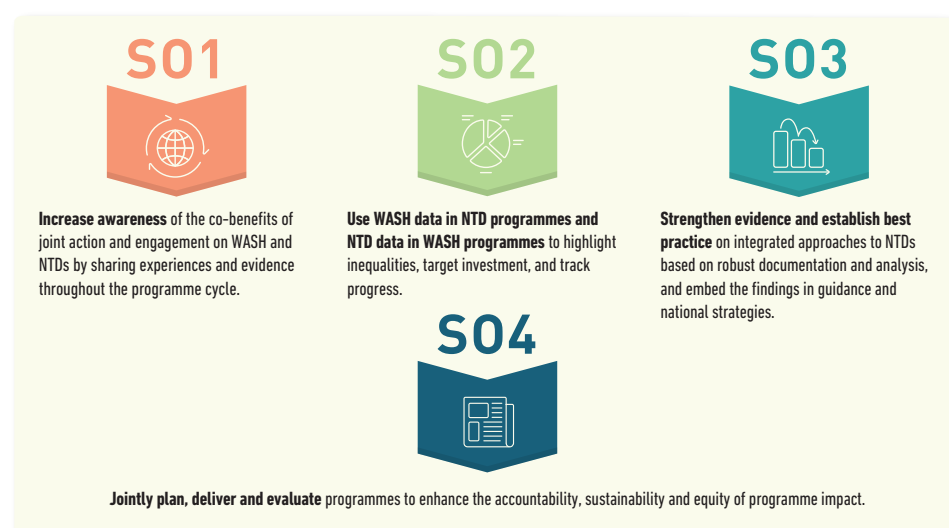
3. A global strategy for 2021–2030

VISION

Accelerated and sustained achievement of the NTD road map targets, particularly among the poorest and most vulnerable, through better-targeted and joint WASH and NTD efforts.

STRATEGIC OBJECTIVES

The strategic objectives provide a comprehensive approach to achieving the vision of the global strategy and are complemented by examples of key actions by endemic countries, WHO and development partners.



PREPARATION

The global strategy was developed by a core group within WHO, from the Department of Control of Neglected Tropical Diseases, and the Department of Environment, Climate Change and Health, in consultation with focal points for WASH and for NTDs in WHO regional and country offices and external experts from nongovernmental organizations, including from the NTD NGO Network WASH working group, funding agencies, NTD networks and academic institutions. The draft strategy document was made available online for public consultation before finalization.

AUDIENCE

The global strategy informs actions by health ministries and ministries responsible for oversight, delivery or support of WASH services and programmes, NTD and WASH programme managers, WHO and development partners addressing WASH and NTDs including development agencies, funders, civil society, and academic and private organizations.

MONITORING IMPLEMENTATION

WHO will monitor and report on progress made on the global strategy in every milestone year of the road map. Details on reporting against the achievement of the road map cross-cutting target on WASH will be covered separately in the road map companion document on monitoring and evaluation.



3.1 STRATEGIC OBJECTIVE 1

Increase awareness of the co-benefits of joint action and engagement on WASH and NTDs by sharing experiences and evidence throughout the programme cycle.

Stakeholders in WASH and NTDs tend to operate independently at all levels. This has resulted in inadequate awareness of the linkages between WASH and NTDs and under-appreciation of the benefits of greater collaboration. Efforts to increase awareness and information-sharing on the linkages between WASH and NTDs, the activities requiring joint action and effective joint approaches are essential to encourage more holistic programme structures to improve health and well-being.

Achieving this objective will require action in the following areas:

1. Improve awareness of **synergies** across sectors that contribute to the achievement of the road map targets and the broader development agenda.
 - **Countries:** Undertake political engagement to increase accountability for achievement of international and national targets through cross- sectoral action and facilitate multi-stakeholder dialogue across all relevant sectors, including education, gender, agriculture, infrastructure and others. Ensure relevant NTDs are included within health-based targets on WASH where relevant, and ensure WASH is adequately reflected in NTD plans.
 - **WHO:** Use all relevant platforms at national, regional and global levels¹ to continue engagement on cross-sector actions as essential to delivering on the road map and global WASH targets via convening and participating in WASH and NTD meetings and working groups.
 - **Non-State actors:** Create and share targeted messaging on cross-sector action, and use national and international platforms to engage existing and new stakeholders.
2. Promote uptake and use of **available tools and resources** for WASH and NTD collaboration and strengthen **platforms** in WASH and NTDs sectors for disseminating and implementing tools and increasing collaboration.
 - **Countries:** Translate existing tools into national norms, standards and enforcement actions, and hold implementers to account for adherence.
 - **WHO:** Provide technical support for national contextualisation of tools.
 - **Non-State actors:** Use, promote and improve existing tools.

¹ Country level platforms may include NTD taskforces, health and WASH joint sector reviews, or technical working groups. Regional platforms include forums such as Regional Programme Review Groups, regional programme managers meetings, and regional ministers of health meetings. Global platforms include WASH and health conferences, meetings of the NTDs NGO Network, the WHO NTD Strategic Advisory Group, and other high-level opportunities (Sanitation and Water for All meetings, Protocol on Water and Health meetings, etc).

Priority action: Use all relevant platforms to continue engagement on multisectoral action at all levels.

Case study 1. Sustaining the momentum on WASH and NTD collaboration

While the profile of WASH as a key strategy for addressing NTDs continues to gain traction, awareness of the value of WASH interventions as well as the means of achieving collaboration requires continued and deliberate efforts.

Such efforts have taken place at multiple levels.

Globally, there has been steady emphasis on both the needs for and the benefits of WASH-NTD collaboration. Presentations and workshops at NTD conferences such as the NTD NGO Network (NNN) and the annual meetings of the Coalition for Operational Research on NTDs, and WASH conferences such as World Water Week and the UNC Water and Health conference have continued to emphasize the links between inadequate WASH and NTD transmission, while also showcasing examples of joint action as a way of enhancing multisectoral collaboration on health more broadly. The toolkit on WASH and NTDs (see S03) prompted new opportunities for global engagement and was introduced through webinars and conferences. Several peer reviewed publications ^(2,3) have been released, and a third international roundtable on WASH and NTDs took place in Addis Ababa in 2018.

Regionally, workshops¹ have convened stakeholders in WASH and NTDs from several countries to engage with existing tools and resources, exchange lessons and ideas, and develop action plans for their respective countries.

Nationally, technical and coordination working groups have been established in many countries², serving as a platform for continued momentum. NTD programmes including the DFID SAFE and Queen Elizabeth Diamond Jubilee Trust, the UK Aid Ascend programme, USAID's Act to End and the Accelerate programme have also resourced and prioritized coordination of WASH and NTD activities.

In Cambodia and Lao PDR, community-led WASH-NTD integrated approach (CL-SWASH) to accelerate elimination of schistosomiasis and other NTDs and improve nutritional status of the population along the Mekong River was launched by national NTD and WASH programmes in 2016.³ It aims to build on national WASH efforts by developing water safety plans in schistosomiasis-endemic communities in both countries. The national CL-SWASH teams in both countries have finalized joint action plans and launched the national task forces. A strong partnership was built among the NTD and WASH programmes under the Ministry of Health and the Education sector at central, provincial district level for the common goal of schistosomiasis elimination. To date, nearly 100 villages have launched the CL-SWASH plan.

Key lessons:

- Continuing the momentum for awareness and embedding the necessary change in institutions and ways of working is essential.
- Global level documents need to be tailored to local needs in order to be relevant and applicable, by adding necessary country or regional data, examples, or opportunities for exchange.
- Showcasing national successes at the global level through experience sharing, blogs⁴. Conferences and presentations have been fundamental to inspiring progress across other countries and regions, by demonstrating what can be achieved.

¹ Included workshops in WHO's African, European, South-East Asian and Western Pacific regions; further workshops are planned in the Region of the Americas.

² For example, in the African Region (Ethiopia, Guinea-Bissau, Kenya, Nigeria, Senegal, United Republic of Tanzania, Zimbabwe), and in the Western Pacific Region (Cambodia and Lao People's Democratic Republic).

³ Further information can be found at: <https://www.who.int/westernpacific/news/detail/30-03-2016-working-together-to-eliminate-schistosomiasis-in-the-mekong>

⁴ One example is the blog of the NTD NGO Network: <https://www.ntd-ngonetwork.org/blog-posts/harnessing-the-power-of-wash-in-the-fight-against-ntds>; <https://www.ntd-ngonetwork.org/international-woman%E2%80%99s-day-qa-with-dr-nebe-obiageli-federal-ministry-of-health-nigeria>



3.2 STRATEGIC OBJECTIVE 2

Use WASH data in NTD programmes and NTD data in WASH programmes to highlight inequalities, target investment, and track progress.

A joint WASH and NTD monitoring framework at the national and subnational level can transform delivery of both programmes and create incentives for more effective programming. Joint monitoring, through activities such as comparative mapping of WASH coverage with NTD prevalence, tracking financial flows for WASH services to vulnerable populations, and developing common indicators assists both sectors to achieve their objectives. It helps the WASH sector achieve its goal of universal access by targeting investments to the poorest and most marginalized populations; and it provides information to the NTD sector on the status of WASH access that is needed to accelerate and sustain progress made through disease-specific investments.

Achieving this objective will require action in the following areas¹:

- | | |
|--|---|
| <p>1. Use standardized indicators and tools to collect and analyse high-quality joint WASH and NTD data</p> | <ul style="list-style-type: none"> ■ Countries: Include relevant indicators and data collection processes in national systems such as WASH, health and education management information systems and surveillance systems. ■ WHO: Provide technical guidance and tools on joint monitoring, built into monitoring and training guidance for both WASH and NTDs. ■ Non-State actors: Promote inclusion of relevant indicators in national systems and global tools, and align own programme monitoring processes with national systems and processes. |
| <p>2. Facilitate data sharing across sectors</p> | <ul style="list-style-type: none"> ■ Countries: Develop mechanisms and platforms for data sharing nationally and subnationally and mandate line ministries to share data. ■ WHO: Facilitate data sharing and use in support of global monitoring of the Sustainable Development Goals and tracking progress against milestones of the road map. ■ Non-State actors: Support and contribute to national and sub-national data-sharing mechanisms. |
| <p>3. Use data of interventions and resources for decision making and targeting, and for accountability</p> | <ul style="list-style-type: none"> ■ Countries: Use data on inequalities in burden of disease and access to services to inform planning and targeting of resources; and to report progress against health and development targets. ■ WHO: Use data across UN agencies within the global Sustainable Development Goals and the road map monitoring processes. ■ Non-State actors: Support country-led processes for data collection and use for decision making and targeting. |

¹ The actions listed in this section refer to those needed at the country level, and do not relate to global level reporting against the WASH targets included in the NTD road map. Reporting against achievement of the road map targets will use data provided by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation, and Hygiene (JMP).

Priority action: Use NTD data to improve targeting of WASH interventions to areas of high NTD burden and use WASH indicators to identify populations at risk of NTDs.

Case study 2. WASH and NTDs – the power of joint data

Joint use of existing data between ministries and sectors responsible for WASH and NTDs can help to track progress and inform decision-making on interventions and resourcing for both sectors. However, many WASH and NTD data remain separated at national and subnational level resulting in missed opportunities to inform effective and impactful decision making for NTDs and WASH.

The WASH and NTD data for decision-making process seeks to transform national and local data into knowledge by aggregating data across both sectors. It aims to identify better ways to coordinate use of WASH and NTD data to enable better coordination, planning and joint resource allocation. Data may be merged or shared into a single database for cross-sectoral planning. For example, in the United Republic of Tanzania, NTD data have been added into the national WASH database and in Ethiopia, national WASH data have been added to the NTD system. Country-level WASH modelled data have also been integrated into the WHO ESPEN (Expanded Project for Elimination of Neglected Tropical Diseases) platform^a.

Ethiopia: a data merge in focus

District-level data on WASH and NTDs have been fully merged on the national NTD DHIS2 platform. This enables data analysis within the NTD platform, such as comparing data on disease prevalence and household toilets in order to prioritize and target specific locations for WASH and NTD interventions.

Key lessons:

- Adapt the data for decision making process to the country context- specifically the data, platforms and databases.
- Demonstrate the benefits of using joint data to all partners. Ensure the case for integrating data is clear; such as the opportunity to use decision-making processes to target resources and interventions to the highest priority areas.
- The data for decision-making approach should be part of a wider process of operationalizing a common vision between WASH and NTDs, with a focus on specific joint objectives.

^a <https://espen.afro.who.int/>



3.3 STRATEGIC OBJECTIVE 3

Strengthen evidence and establish best practices on integrated approaches to NTDs based on robust documentation and analysis, and embed the findings in guidance and national strategies.

The association between WASH and the transmission of NTDs, and the benefit of safe and effective WASH for broader health and development outcomes, is well accepted. However, gaps in knowledge remain, including the need to better understand the linkages between WASH and NTDs, determine which WASH interventions are most appropriate for NTDs in different settings, and how to best implement them taking into account aspects such as effectiveness, cost-effectiveness, acceptability, sustainability, and scalability.

Achieving this objective will require action in the following areas:

- | | |
|---|--|
| <p>1. Develop research agendas to facilitate effective targeting and coordination of WASH for NTD research investments, nationally and internationally.</p> | <ul style="list-style-type: none"> ■ Countries: Develop and maintain research agendas on WASH for NTDs and contribute to related international research prioritization and coordination activities. ■ WHO: Shape and promote an international research agenda on WASH for NTDs¹, and contribute to related research agendas developed by Member States. ■ Non-State actors: Contribute to the development of a research agenda led by WHO and Member States on WASH for NTDs, and invest technical support and funding in coordinated activities aligned with published national and international research priorities. |
| <p>2. Generate high-quality evidence related to WASH programming for NTD elimination, eradication and control that addresses published national and international research priorities.</p> | <ul style="list-style-type: none"> ■ Countries: Strengthen research capacity, support operational research on WASH for NTD that is aligned to identified sub-national, national and international priorities. ■ WHO: Provide operational research technical support and guidance on WASH for NTDs, and support effective research partnerships and coordination. ■ Non-State actors: Invest technical support and funding in the strengthening of research capacity, and in operational research on WASH for NTD that is aligned to identified sub-national, national and international priorities. |
| <p>3. Facilitate the open exchange of knowledge relating to WASH and NTDs through a range of accessible platforms, forums, networks, and other mechanisms.</p> | <ul style="list-style-type: none"> ■ Countries: Promote emerging evidence, showcase examples of good research practice, and develop and maintain national and sub-national platforms, forums, networks and other mechanism that promote partnerships and facilitate open exchange of knowledge on WASH and NTDs. ■ WHO: Promote emerging evidence, showcase examples of good research practice, and develop and maintain international platforms, forums, networks and other mechanism that promote partnerships and facilitate open exchange of WASH and NTD knowledge. ■ Non-State actors: Promote emerging evidence, showcase examples of good research practice, and develop and maintain platforms, forums, networks and other mechanisms that promote partnerships and facilitate open exchange of knowledge on WASH and NTDs. |
| <p>4. Embed high-quality WASH for NTDs evidence within guidance and strategies.</p> | <ul style="list-style-type: none"> ■ Countries: Strengthen capacity, develop and promote the uptake of national and sub-national policies, plans and guidelines that embed evidence-based approaches to WASH programming for NTDs (including infrastructure and behaviour change aspects), and monitor and report outcomes, outputs and the fidelity of implementation. ■ WHO: Strengthen capacity, develop and promote the uptake of international policies, plans and guidelines that embed evidence-based approaches to WASH programming for NTDs, and synthesize and report multi-country outcomes and outputs. ■ Non-State actors: Strengthen capacity, support development of practical implementation tools, and contribute to development and uptake of international, national and sub-national policies, plans and guidelines that embed evidence-based approaches to WASH programming for NTDs. |

¹ Building on research priorities set out in the WHO Guidelines on Sanitation and Health and the Research Agenda for Water, Sanitation and Antimicrobial Resistance, an international research agenda on WASH for NTDs is under development. This research agenda will form a component of the NTD research and development blueprint that is expected to be published in 2021.

Priority action: Use evidence to inform and support achievement of strategic objectives 1, 2 and 4.

Case study 3. From rhetoric to practice

While the rationale for collaboration may be clear, practical, easy to use and accessible tools and resources are essential to enable coordination and collaboration. Such tools can help put into practice what can otherwise be an abstract concept of “improved collaboration”. Since the previous strategy was launched, there have been calls for WHO guidance, not only to respond to the need for tools but also to encourage action by relevant ministries.

In recognition of this need and building on experience in toolkit development for trachoma elimination (35), WHO and the NTD NGO Network WASH working group prepared a toolkit: “WASH and health working together – a ‘how-to’ guide for NTD programmes” (5). The toolkit was developed through in-depth consultation to identify specific gaps, document country experience and translate implementation experience into tools, and apply innovative design to create a positive user experience.

Launched in January 2019, the toolkit provides a step-by-step guide to working together accompanied by 21 tools and resources to defining a programme vision, partnership building, context analysis, joint planning, and implementation, monitoring and evaluation, with strong emphasis was placed on having the right content and an accessible design including a web-based version. Since its publication, new tools have been added in response to country demand; a new related guidance document on designing behaviour change programmes is under development.

To date, the toolkit has been used to varying degrees in more than 20 countries, while one country (Ethiopia) has also produced a subnational and context specific version (36) for use at district level.

Key lessons:

- The involvement of WHO as the norm-setting organization for global health was crucial both for the development and uptake of the toolkit.
- Basing the tools on the real-time experience and needs of programmes rather than on technical expertise increased the relevance and therefore use of the toolkit.
- The emphasis on the user experience of the toolkit is key to use and accessibility. The design and look of the tools, the possibility of providing feedback through different channels, the constant update of the tools and the emphasis on digital rather than printed materials increase engagement with the materials and provide a sense of adaptability.



3.4 STRATEGIC OBJECTIVE 4

Jointly plan, deliver and evaluate programmes to enhance the accountability, sustainability and equity of programme impact.

Joint interventions should bring together WASH and NTD actors at all levels and contribute to overall strengthening of the health system. Joint planning and delivery will only result in effective programmes if it is set up in a way that demonstrates the co-benefits of joint work and incentivises coordinated or integrated programming. Importantly, joint efforts will require full cooperation of implementing, monitoring and funding agencies to be successful.

Planning processes should ensure that the epidemiology of NTDs is considered as one of the key factors in deciding on priority locations for WASH and that interventions are tailored to interrupt transmission. WASH components should also be included in activities within NTD control programmes. This does not mean a fusion of WASH and NTD programmes but rather a mutual understanding of strategic overlap, an ongoing dialogue on planning, and synergistic implementation of activities in the field.

Achieving this objective will require action in the following areas:

- | | |
|---|---|
| <p>1. Develop and strengthen governance and institutional arrangements at global, regional, national and subnational levels that enable collaboration across NTDs within the context of the overall health system.</p> | <ul style="list-style-type: none"> ▪ Countries: Establish/strengthen coordination mechanisms at all levels, with a clear focal point for joint planning. The mechanism should consider that WASH responsibility falls within different ministries and agencies and have clear terms of reference, mandate and structure. To ensure health systems are strengthened, staffing and performance management structures that incentivize WASH and NTDs collaboration should be put in place. ▪ WHO: Support joint cross-NTDs and WASH coordination processes at all levels and across all relevant sectors and systems, and track progress through developing indicators on WASH-NTD collaboration to complement the NTD road map accountability framework. ▪ Non-State actors: Work through and support government-led coordination mechanisms. Include intersectoral activities and coordination in their plans as “best practice” and be accountable for compliance through open reporting and information sharing. |
| <p>2. Promote joint use of existing data and reports across sectors to track progress and inform decision-making on programme development and resourcing at all levels.</p> | <ul style="list-style-type: none"> ▪ Countries: Gather and analyse data on disease burden and distribution, WASH and NTD programmes, and coverage of services as a basis for joint WASH and NTDs planning. ▪ WHO: Support national authorities under the leadership of the ministry of health to incorporate NTD epidemiological profiles in the scope, planning, execution and follow-up of water and sanitation projects to maximize the health and equity impact of WASH interventions. ▪ Non-State actors: promote and support the use of NTD data for decision making and targeting of WASH services. |
| <p>3. Develop and use integrated planning tools to ensure co-benefits for relevant NTDs, other diseases and the health system.</p> | <ul style="list-style-type: none"> ▪ Countries: Utilize new and updated WHO guidance and training tools on WASH in the training of NTD programme managers and other key staff at all levels and vice-versa. ▪ WHO: Strengthen country-level planning and dialogue structures, and ensure participation of all relevant WASH and NTDs stakeholders (such as government departments, people affected by NTDs, nongovernmental organizations practitioners and private sector). ▪ Non-state actors: Support WASH stakeholders’ engagement in national NTD taskforces, and NTD stakeholders’ participation in WASH sector platforms. |
| <p>4. Create and support financial arrangements that enable collaboration across the NTDs and with WASH.</p> | <ul style="list-style-type: none"> ▪ Countries: Promote WASH and NTDs prioritization on the national health agenda to increase political will and domestic resource allocation, and embed WASH and NTD collaboration in financial management systems. ▪ WHO: Use information on WASH financing to support targeting of WASH services to vulnerable groups. ▪ Non-State actors: Allocate financial resources to support coordination and cooperation platforms, activities and staffing. |

Priority action: Support coordinating mechanisms and resources for joint planning, programming, delivery and monitoring.

Case study 4. Making joint planning a reality

Increased interest in WASH-NTD collaboration has led to increased implementation of WASH interventions. While this has been a positive development, it has highlighted the need for ensuring the quality and targeting of WASH interventions delivered as part of NTD efforts. In Ethiopia, this need led the Federal Ministry of Health to develop a unifying guidance document to define all WASH and NTD activities in the country, and provide a formal standard to be adhered to by all stakeholders delivering WASH and NTD programmes in the country.

A National Framework on WASH and NTDs (37) was developed by the Federal Ministry of Health with support by WHO and the national WASH and NTDs technical working group, and was published in 2019. The framework sets out:

- requirements in terms of alignment of all programmes to national WASH and NTDs objectives;
- criteria for selection of priority districts for investment based on the burden of NTDs and access to WASH services;
- key coordination structures, roles and responsibilities;
- expectations for integration of WASH and NTDs interventions into other programmes;
- technical programme quality standards;
- planning process and schedules; and
- processes for monitoring and evaluation.

A template based on this framework has been developed as a new resource for the toolkit on WASH and NTDs. Subsequently, further frameworks have been developed in several countries, including Uganda, Nigeria, South Sudan, the United Republic of Tanzania and Zambia.

Key lessons:

- The leadership and interest of the Federal Ministry of Health were crucial for the development of the framework and the engagement of key stakeholders, while technical support from WHO enabled the comprehensive nature and the completion of the document at no cost to the Ministry.
- The highly detailed nature of the document allowed the identification of previously unacknowledged barriers to joint planning and implementation, such as the lack of standardized reporting, agreed planning schedules, agreement on what integration of interventions into existing programmes would look like and criteria for targeting funding towards specific endemic districts.
- The existence of a technical working group hosted by the Federal Ministry of Health and engaging key WASH partners provided a platform to involve stakeholders and sustain the momentum.

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Annex

The role of WASH in prevention and care of NTDs

Note: WASH-related aspects highlighted in green

Disease ▫ Type ▫ Transmission	Behaviour	Environment	Social inclusion	Treatment and care
Buruli ulcer ▫ Bacterial ▫ Environmental (undertermined)			▫ Addressing stigmatization due to disfigurement, disability and cultural beliefs regarding causes (e.g. witchcraft, curses) ▫ Inclusive WASH services for people with disabilities	▫ Hygienic wound management ▫ Promotion of early diagnosis and treatment ▫ Antibiotic treatment ▫ Surgery ▫ Physiotherapy and rehabilitation ▫ WASH for hygiene and infection prevention and control in healthcare facilities
Chagas disease ▫ Parasitic ▫ Triatomine ('kissing') bug	▫ Food hygiene (washing hands, surfaces, utensils and raw food products with clean water and soap; thorough cooking/reheating; safe food storage) ▫ Bed net use	▫ Use of improved housing materials such as solid flooring and walls, and inorganic roofing materials ▫ Insecticide residual spraying		▫ Chemotherapy ▫ Medical screening ▫ WASH for hygiene and infection prevention and control in healthcare facilities
Dengue and chikungunya ▫ Viral ▫ Aedes aegypti/albopictus mosquito	▫ Bite prevention (clothing, nets, targeted residual spraying, repellent)	▫ Environmental management: water supply, water container management , screens, solid waste disposal to avoid water pooling ▫ Chemical control: pesticides, residual spraying, repellent ▫ Biological control: larvivorous fish/ predatory copepods to reduce larvae		▫ Symptom management (fever) ▫ Case management of severe dengue ▫ WASH for hygiene and infection prevention (preventing mosquito breeding) and control in healthcare facilities
Dracunculiasis ▫ Parasitic ▫ Water-based	▫ Promotion of safe water practices (including use of safe drinking-water and preventing infected individuals from wading into water sources)	▫ Access to safe water to reduce contact with surface water ▫ Water treatment and filtration ▫ Access to safe water for drinking, hygiene purposes at households and healthcare facilities	▫ Addressing disability cultural beliefs regarding causes (e.g. witchcraft, curses)	▫ Early case detection ▫ Transmission containment ▫ Wound management, infection prevention

Disease ▫ Type ▫ Transmission	Behaviour	Environment	Social inclusion	Treatment and care
Echinococcosis/ hydatidosis ▫ Parasitic, zoonotic ▫ Worm-egg ingestion	- Food hygiene (washing hands, surfaces, utensils and raw food products with clean water and soap; thorough cooking/reheating) - Handwashing with soap after contact with animals	- Deworming of dogs, cats and sheep - Food and slaughter inspection and hygiene; safe disposal of infected carcasses - Lamb vaccination and culling of older sheep - Removal of animal faeces from the household environment		- Drug therapy - Surgery - WASH for hygiene and infection prevention and control in healthcare facilities
Foodborne trematodiasis ▫ Parasitic, zoonotic ▫ Foodborne	- Addressing cultural food practices (raw foods) - Food hygiene (washing hands, surfaces, utensils and raw food products with clean water and soap; safe storage)	- Avoidance of use of unprocessed human/animal faeces as manure/fish feed - Improved/ basic household/ community sanitation (toilet construction and use)		- Preventive/individual anthelmintic chemotherapy - WASH for hygiene and infection prevention and control in healthcare facilities
Human African trypanosomiasis ▫ Parasitic ▫ Tsetse fly	Bite avoidance (clothing, avoidance of bushes, repellent, nets/screens)	- Water supply to reduce reliance on water fetching from fly-infested sites - Treatment of livestock (markets, farms), in rhodesiense-Human African trypanosomiasis areas - Vector control (targeted insecticide spraying, screens, traps, protective fencing, animal spraying/pour-on; use of sterile insect technique in some areas)	Address stigmatization (victim-blaming in some cultural contexts)	- Early detection - Drug therapy - WASH for hygiene and infection prevention and control in healthcare facilities
Leishmaniasis (visceral and cutaneous) ▫ Parasitic ▫ Sandfly	Hygienic self-care	- Vector control through improved housing, indoor residual spraying of houses, waste management and drainage - Reduce risks increased by major environmental changes - Reducing sandfly breeding in animal shelters and improving domestic and peri-domestic sanitary conditions (cleaning, insecticide)	Addressing stigmatization related to ulcers, disfigurement, scarring and disability (cutaneous and mucocutaneous leishmaniasis)	- Chemotherapy - Topical therapies - Wound management - WASH for hygiene and infection prevention and control in healthcare facilities
Leprosy ▫ Bacterial ▫ Personal contact	- Promotion of early diagnosis and treatment - Improved hygiene to reduce severity of disease symptoms, and exclusion due to poor cleanliness and care - Personal and household hygiene to improve overall health and reduce susceptibility to infection	- Provision of water supply for disease management - Improved sanitation and living conditions	- Addressing stigmatization due to cultural/ traditional/ religious beliefs (witchcraft, curses, immorality, uncleanness) - Prevention of stigmatization-based exclusion from services (including water points and toilets) and social/ family life by community, family, self - Inclusive water and sanitation services for people with disabilities - Patient support groups	- Multidrug therapy - Symptom/ wound management

Disease ▫ Type ▫ Transmission	Behaviour	Environment	Social inclusion	Treatment and care
Lymphatic filariasis ▫ Parasitic ▫ <i>Aedes/Anopheles/Culex/Mansonia</i> mosquito	- Hygiene to reduce acute inflammatory episodes (limb washing, skin care, exercise, limb elevation) - Wearing adequate footwear - Bite avoidance: insecticide-treated nets, indoor residual spraying, personal protection measures	- Improved sanitation, draining and water resource management to reduce mosquito breeding sites - Water supply to enable hygiene for self-care	- Addressing stigmatization due to misunderstanding of disease cause and fear of contagion - Prevention of stigmatization-based exclusion from services (including water points and toilets) and social/family life by community, family, self - Inclusive water and sanitation services for people with disabilities - Patient support groups, e.g. Hope Clubs	- Treatment of acute inflammatory episodes (antibiotics, anti-inflammatories, analgesics) - Provision of adequate footwear - Topical antibacterial, antifungal creams for skin and wound care - Hydrocele surgery - Chemotherapy treatment - Mass chemotherapy - WASH for hygiene and infection prevention and control in healthcare facilities for lymphoedema care and hydrocele surgery
Mycetoma, chromoblastomycosis and other deep mycoses ▫ Fungal ▫ Environmental (soil, plants, flowers, wood)	- Use of personal protective equipment in occupation groups prone to exposure (farmers, labourers etc) - Regular bathing with clean water and soap - Improved nutrition	Increased access to improved water supplies for hygiene	Addressing stigmatization due to disfigurement	- Early detection and surgical resection - Cryotherapy (liquid nitrogen) - Heat therapy - Laser therapy - Oral antifungal medication (not very effective) - Topical (Imiquimod cream)
Onchocerciasis ▫ Parasitic ▫ Blackfly	Bite avoidance: personal protection measures (clothing, repellents)	Judicious use of vector control measures including insecticide treatment of larval breeding sites and water flow manipulation	- Prevention of stigmatization due to severe itching, skin depigmentation and lichenification, skin nodules - Inclusive water and sanitation services for people with disabilities, including visually-impaired individuals	- Individual/ mass treatment with ivermectin - Management of visual impairments
Rabies ▫ Viral, zoonotic ▫ Animal bites	- Bite prevention through community promotion - Reduced contact with wild animals	Dog vaccination		- Immediate, thorough wound cleansing with soap and water after contact with a suspect rabid animal - Post-exposure prophylaxis - Pre-exposure immunisation
Scabies and other ectoparasitoses ▫ Parasitic ▫ Person-to-person contact	Restriction of skin-to-skin contact			- Topical scabicide - Oral ivermectin - Treatment of secondary infections - Treatment of long-term complications of secondary infections - Hygiene measures to avoid transmission in healthcare settings

Disease ▫ Type ▫ Transmission	Behaviour	Environment	Social inclusion	Treatment and care
Schistosomiasis ▫ Parasitic ▫ Water-based	- Prevention of open defecation/urination - Exclusive use, cleanliness and maintenance of toilets - Avoidance of contact with surface water - Personal hygiene	- Improved sanitation across the entire community and safe management of excreta - Protection of freshwater from bovine contact/waste - Snail control measures - Improved water supply to reduce use of surface water for domestic activities	Addressing stigmatization caused by symptom similarity between female genital schistosomiasis and sexually transmissible infections	Individual/mass chemotherapy
Snakebite envenoming ▫ Envenoming ▫ Animal bite	- Sleeping on raised bed under insecticide-treated bed net - Avoidance of firewood collection at night - Avoiding contact with potential hiding places - Careful handling of dead snakes - Extra precautions at night and after rains including shoe wearing and light use - Avoiding running over snakes with vehicles or bicycles	- Avoidance of factors attracting snakes into homes: livestock, rats (safe food storage) - Reduction of potential hiding places, clearing solid waste, shortening grass - Avoidance of branches touching houses - Keeping granaries and ponds/reservoirs away from homes		First aid: - Patient safety and immobilisation, transportation to medical facility - Avoidance of rejected/controversial first aid including arterial tourniquet, suction, cauterisation, cryotherapy, prophylactic amputation etc, and of washing/tampering with bite wound - Pain relief (avoiding aspirin and non-steroid anti-inflammatory medicines) Clinical management: - Rapid clinical assessment and resuscitation - Urgent interventions to treat shock, hypotension, cardiovascular and respiratory symptoms, anaphylaxis, bleeding, haemorrhage, renal failure and septicemia - WASH for hygiene and infection prevention and control in healthcare facilities
Soil-transmitted helminthiasis ▫ Parasitic ▫ Worm-egg ingestion, skin penetration	- Exclusive use, cleanliness and maintenance of toilets and safe disposal of child faeces - Handwashing with soap before eating - Food hygiene (washing, cooking, peeling of vegetables); exclusion of animals from kitchen - Shoe-wearing - Water treatment	- Construction and use of safe household toilets across the entire community to avoid open defecation; safe management of excreta - Increased access to improved water supplies for hygiene		Individual/ mass chemotherapy

Disease ▫ Type ▫ Transmission	Behaviour	Environment	Social inclusion	Treatment and care
Taeniasis and cysticercosis ▫ Parasitic, zoonotic ▫ Foodborne (Taeniasis); worm-egg ingestion (cysticercosis)	- Hand and food hygiene - Exclusive use, cleanliness and maintenance of toilets and safe disposal of child faeces	- Safe water supply - Improved household/ community sanitation services to avoid open defecation - Improved pig husbandry and management of pig faeces - Pig anthelmintic treatment - Pig vaccination - Improved meat inspection and processing (Taeniasis)	Stigma prevention (Neurocysticercosis may lead to epileptic seizures; some traditional beliefs on epilepsy result in victim-blaming and stigma)	- Chemotherapy - Supporting therapy with corticosteroids and/or anti-epileptic medicines (neurocysticercosis) - Identification and treatment of cases - Surgery (neurocysticercosis) - WASH for hygiene and infection prevention and control in healthcare facilities
Trachoma ▫ Bacterial ▫ Personal contact, flies	- Facial cleanliness - Overall personal hygiene (laundry, handwashing) - Exclusive use, cleanliness and maintenance of toilets and safe disposal of child faeces	- Improved household/ community sanitation services to avoid open defecation - Increased access to improved water supplies for hygiene	Inclusive water and sanitation services for people with disabilities, including visually-impaired individuals	- Mass administration of antibiotics - Trichiasis surgery - WASH for hygiene and infection prevention and control in trichiasis surgery settings
Yaws ▫ Bacterial ▫ Personal contact	Regular bathing with clean water and soap	- Construction and use of safe household toilets - Increased access to improved water supplies for hygiene	Awareness about the disease and effective treatment to reduce stigmatization and discrimination (cultural beliefs preventing care-seeking; teachers dismissing children from school)	- Antibiotic treatment - Wound management

Buruli ulcer
Chagas disease
Dengue and chikungunya
Dracunculiasis
Echinococcosis
Foodborne trematodiasis
Human African trypanosomiasis
Leishmaniasis
Leprosy
Lymphatic filariasis
*Mycetoma, chromoblastomycosis
and other deep mycoses*
Onchocerciasis
Rabies
Scabies and other ectoparasitoses
Schistosomiasis
Soil-transmitted helminthiasis
Snakebite envenoming
Taeniasis and cysticercosis
Trachoma
Yaws

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