Ending the neglect to attain the Sustainable Development Goals:

A global strategy on water, sanitation and hygiene to combat neglected tropical diseases

2021-2030

Notes for reviewers

The 2015 Global Strategy has been updated as following:

- Updated list of NTDs
- Updated text to reflect NTD road map 2021-2030
- Updated figures on WASH access and NTD burden
- Referencing NNN Best framework
- Updated evidence box
- Updated annex 1 – table on links between WASH and each NTD
- Updated resolutions and policies
- Some language changes made to the strategic objectives, but the four areas remain the same. Priority actions and action plan have been merged, updated and streamlined to improve clarity and avoid duplication.
- Inclusion of a short summary of progress on WASH-NTD collaboration in past five years
- Inclusion of four case studies to illustrate each strategic objective
- Inclusion of short sections including on one health and vector borne diseases

Aspects to consider in the review:

- Did you noticed any inaccuracies that need to be corrected?
- Are there any terms or concepts that require further clarification?
- Are there any key resources or references missing?
- Do the strategic objectives support the achievement of the goals and objectives of the WHO NTD road map 2021-2030?
- Under each Strategic objective, are key actions by WHO, endemic countries, and partners are adequate, clear and actionable to deliver the ambition of the Strategy?

Please note that the document will be copy edited so spelling mistakes, reference formatting etc. will be addressed at a later stage.

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FOREWORD

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

More than one billion people globally are affected by NTDs. Most live in low- and middle-income countries, often in poor quality housing and lack access to fundamentals services such as clean water, decent sanitation and access to health care. Today, 785 million people still lack access to even a basic water service and over 2 billion people still do not have access to even basic sanitation.

Since the first WASH and NTDs strategy, WASH and NTD partners have continued to deepen their collaboration. The inclusion of more ambitious cross-cutting targets on WASH in the second NTD road map, *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've made progress but we must now take up the challenge to do more to protect the most vulnerable 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 on 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 not only be better equipped to provide improved health outcomes for NTDs, they will be better equipped to deal with outbreaks and other health crises.

This renewed strategy is a collective call to action: Governments, International organizations, donors, 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 WASH and NTDs global strategy. 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.

Dr Maria Neira
Director
Department of Environment, Climate Change and Health

Dr Mwele Malecela
Director
Department of Control of Neglected Tropical Diseases

2021-2030

Vision: Accelerated and sustained achievement of the NTD road map milestones, 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 WASH and NTDs action and engagement at national and global levels 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.

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CONTEXT AND PURPOSE OF THE STRATEGY

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

Looking back: achievements and lessons from the Global Roadmap on NTDs 2012–2020

The fundamental link between WASH and NTDs received increased recognition within the global health community through inclusion of provision of safe water, sanitation and hygiene as one of five key interventions within the global NTD road map 2012-2020 (WHO 2012) and, subsequently, through the development of the global strategy: "*Water sanitation and hygiene for accelerating and sustaining progress on neglected tropical diseases: A global strategy 2015-2020*" (WHO 2015). The strategy acknowledged that the WASH component of NTD efforts had received inadequate attention and that the potential to link efforts on WASH and NTDs had been largely untapped (Waite 2016, Boisson 2016). The strategy 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 to contribute towards overall development outcomes (**Figure 1**).

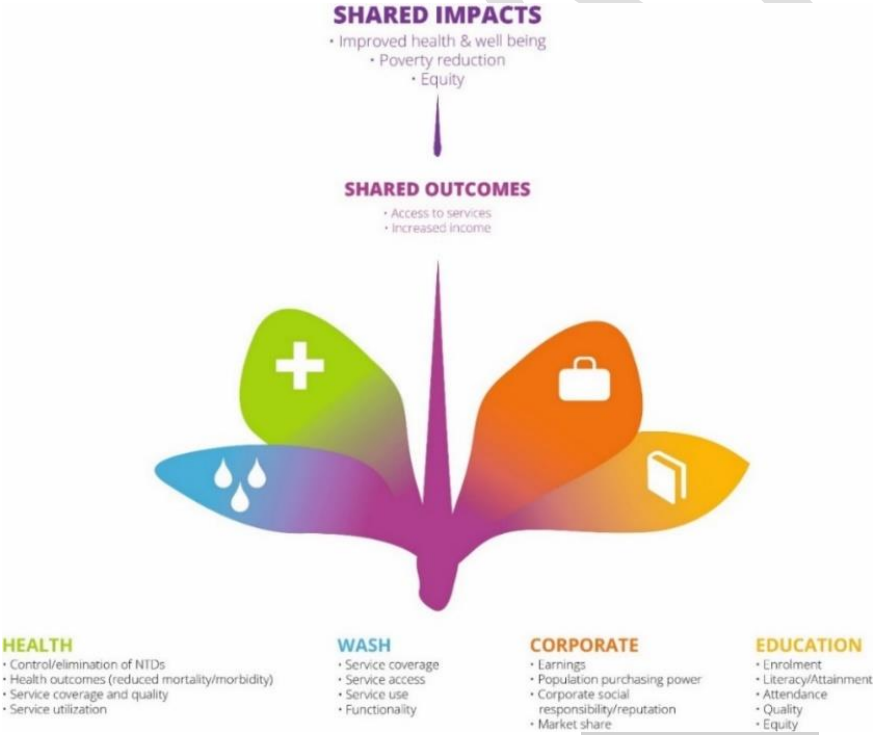
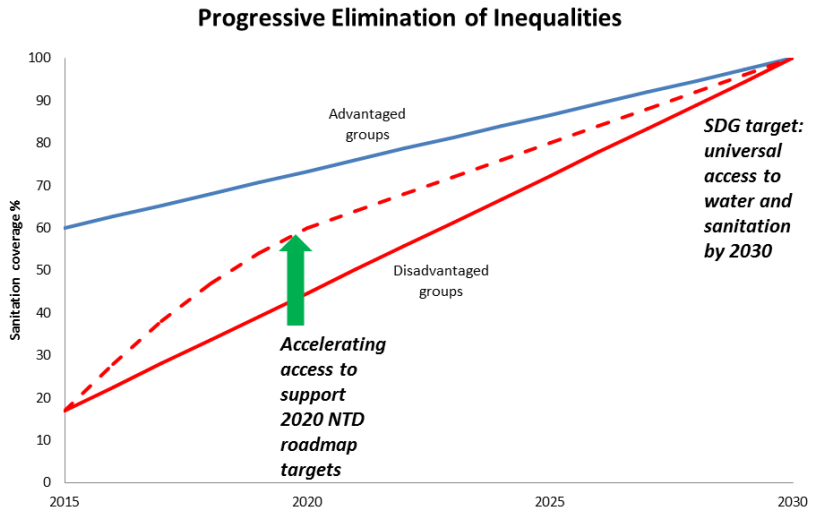


Figure 1: Common ground for collaboration (source: WHO and NNN, 2019)

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 SDGs 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 (**Figure 2**).



** Source: Adapted from* ENDING INEQUALITIES - *a cornerstone of the post-2015 development agenda, WHO/Unicef JMP, 2014*

Figure 2: Accelerating elimination of inequalities in WASH [to be updated]

Over the five years since the publication of the 2015 strategy, momentum towards greater WASH and NTDs collaboration has grown substantially (**Box 1**). 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.

Box 1. Progress on WASH and NTDs collaboration over the previous Strategy period at a glance [to be presented as infographics]

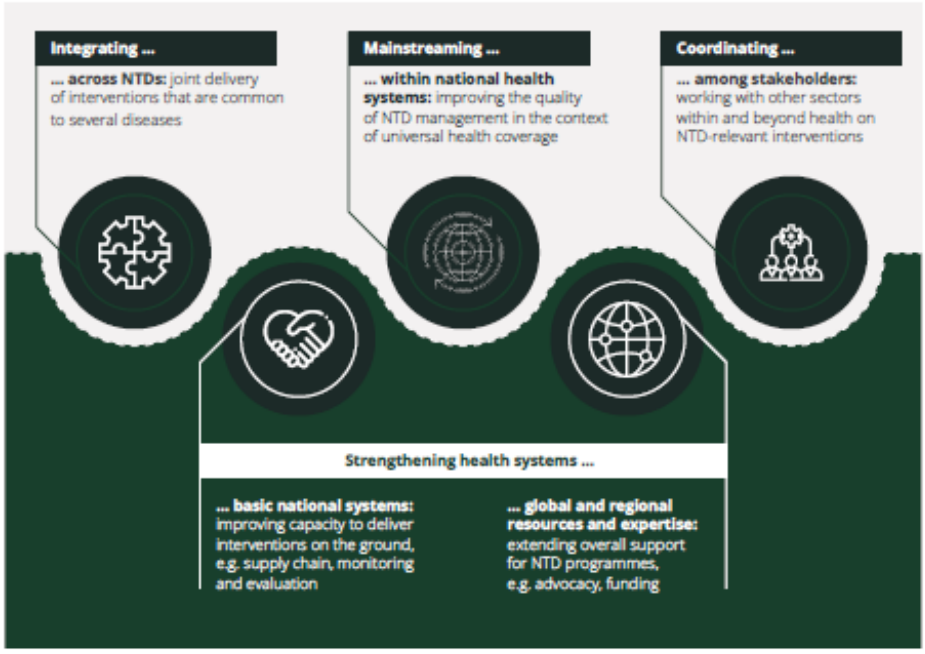
1. Awareness raising	- Mutual representation of NTDs and WASH at global events and conferences, and regional WASH and NTD events - Publications and roundtable discussions - Dedicated technical working groups and communities of practice set up in at least 7 countries
2. Use of WASH and NTD data to target investments	- Joint monitoring frameworks developed to incentivize collaboration and used > 5 countries - Strengthened WASH indicators in disease mapping initiatives such as the Global Trachoma Mapping project/Tropical Data
3. Strengthening and sharing evidence	- WASH-NTD toolkit developed and used or adapted in > 15 countries - Publication of lessons learnt from project implementation - WASH-NTD research projects and publications
4. Joint planning, delivery and evaluation of programmes	- Large scale NTD programmes resourcing WASH and NTDs coordination

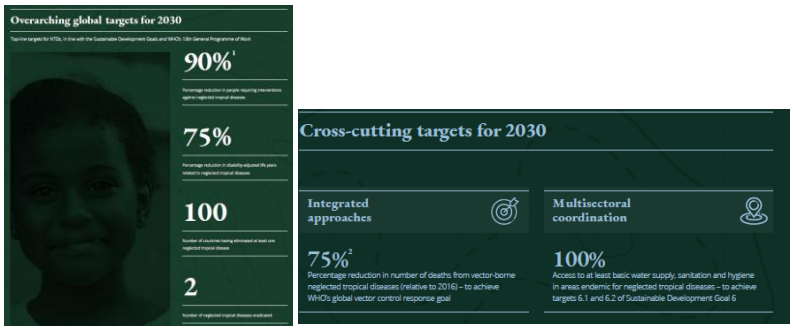
	- Countries embedding collaboration and coordination within their programmatic structure - Countries establishing a national planning and reporting framework on WASH and NTDs

Looking ahead: A new road map for NTDs 2021–2030

Efforts to increase collaboration between WASH and NTDs stakeholders were given a boost in 2020 with the endorsement by the Seventy-third World Health Assembly of a new road map to control, eliminate and eradicate NTDs (2021-2030) (WHO 2020). The new road map includes more ambitious targets, but also a clear acknowledgement of the need for cross-sectoral action by dedicating one of the three road map pillars to cross cutting action, and including specific targets on WASH, namely '*reaching universal access to at least basic water supply, sanitation and hygiene in endemic areas to achieve SDG 6.1 and 6.2*'. The new roadmap further presents an imperative to extend collaboration beyond the traditional confines of the WASH and NTDs sectors to respond to the challenges caused by climate change; incorporate measures for vector control through environmental and behavioural initiatives; and collaborate with the veterinary public health sector as part of a One Health approach to reduce the risk and impact of zoonotic and hybrid infections. This Strategy is part of a series of companion documents to support the implementation of the NTD road map.

Fig. 13. Four categories of cross-cutting themes





Focused efforts on WASH are urgently needed if the global NTD road map targets are to be met. This renewed strategy aims to mobilize all stakeholders to achieve the roadmap targets, meet the SDG ambition of leaving no one behind and ensure WASH efforts are prioritized where the highest disease burden and health risks are. It calls for joint and purposeful planning efforts at the global, regional, national and sub-national levels to improve the intentional targeting of WASH and NTDs investments towards NTD-endemic areas, and in particular towards the worst-affected populations.

Policy basis: global targets and milestones

The strategy builds on existing WASH and NTD commitments:

NTDs are included under Target 3.3 of the Sustainable Development Goal (SDG) framework: "By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases" (UN 2015).

Under SDG 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.

Fig. 2. Interactions among interventions against NTDs and the SDGs

Key WHA resolutions:

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 SDGs.

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".

This strategy aims to complement existing and new national NTD plans and NTD and WASH frameworks, and support existing efforts on health in all policies and social determinants of health. It is a contribution to on-going efforts to strengthen health systems, deliver universal health coverage and eliminate poverty (Add reference to relevant strategies).

THE ROLE OF WASH IN NTD PREVENTION AND CARE

WASH and NTDs: a significant global challenge

[To be presented as infographics]

- NTDs affect more almost 1.5 billion people across 149 countries, with many people at risk of suffering more than one NTD at the same time.
- 55% of the 1.9 billion people requiring preventive chemotherapy for at least one NTD require preventive treatment for one or two diseases, and 45% for three or more.
- 2 billion people still do not have access to basic sanitation facilities such as private toilets or improved latrines and 673 million people still defecate in the open
- 785 million do not have access to basic drinking-water services
- 1.8 billion people use health care facilities that lack basic water services, 800 million use facilities with no toilets and one third of health care facilities globally do not have what is needed to clean hands where care is provided.

Source: (WHO/UNICEF 2019, WHO 2021)

Links between WASH and NTDs

[To be presented as infographics]

- NTDs are a proxy for poverty and disadvantage. They prevail in rural, vulnerable and marginalized populations, concentrating among the poorest 40% – those same populations with the least access to sustainable, adequate and affordable water supply and sanitation services. Low-income areas often suffer the burden of multiple NTDs at any given time (WHO 2012, Nakgawa 2015).

- NTDs and poor access to WASH contribute to a vicious cycle of poverty and disease (**Figure 3**), and lead to a substantial burden on health systems**.** While rarely fatal, NTDs can lead to catastrophic health expenditure and reduced economic productivity (WHO 2015). For example, the global economic cost of trachoma due to lost productivity is estimated at US$ 2.9-8.0 billion annually (Frick 2003); data suggest robust association of higher disease prevalence and poor access to sanitation (Garn 2018). Every 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 (WHO 2007).
- WASH interventions can substantially reduce the transmission and impact of many diseases while contributing to overall wellbeing as well as educational and economic opportunities (WHO 2019).
- Water and sanitation have been recognized as human rights since 2010 (UN 2020, UN 2015). 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 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 stigma reduction is underestimated.

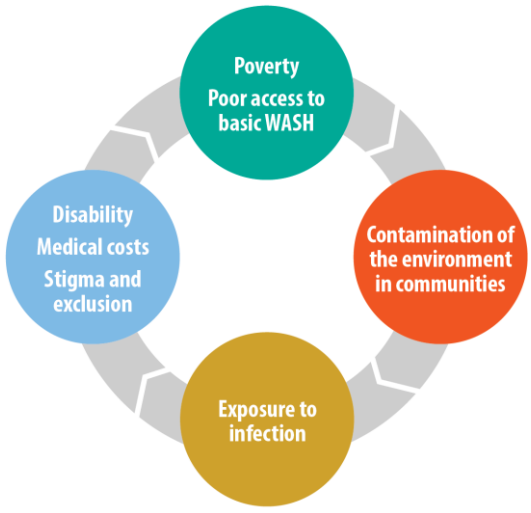


Figure 3: NTDs and poor access to WASH: A vicious cycle of poverty and disease

The BEST framework

The BEST framework (NNN 2016) (**Figure 4**) 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. Annex I provides an overview of all NTD interventions under BEST, including WASH.

Figure 4: The BEST Framework (source: NNN)

WASH plays a fundamental role within the BEST framework :

BEHAVIOUR: Toilet use and maintenance, hygiene measures such as handwashing with soap, laundry, food hygiene, face washing and overall personal hygiene.
ENVIRONMENT: Construction of safe sanitation systems in households, schools, healthcare facilities and other public settings to reduce release of pathogens into the environment; water management for vector control; waste disposal; management of animal movement and waste; safe water supply to prevent consumption of contaminated water, reduce contact with surface water and enable hygiene behaviours;
SOCIAL INCLUSION: Stigma prevention in access to WASH services; WASH for reducing severity of symptoms likely to result in exclusion; accessible water and sanitation services for individuals with physical impairments and care givers
TREATMENT & CARE to reduce the severity of disability and suffering and improve the quality of life: water supply, sanitation and hygiene in healthcare settings and at home for self-care and rehabilitation of affected individuals; hygienic conditions for surgical procedures (e.g. for lymphatic filariasis hydrocele and trachoma trichiasis surgeries);

Tables summarising the links between WASH and each NTD (with more details included in Annex 1). Feedback would be greatly appreciated on the two options suggested below:

Option 1.

	WASH thought to be relevant for:	
	Prevention of transmission	Treatment and care
Buruli ulcer		x
Chagas disease	x	x
Dengue and Chikungunya	x	x
Dracunculiasis (Guinea-worm disease)	x	x
Echinococcosis	x	x
Foodborne trematode infections	x	
Human African trypanosomiasis (sleeping sickness)	x	x
Mycetoma, chromoblastomycosis and other deep mycoses		x

Leishmaniasis		x
Leprosy		x
Lymphatic filariasis	x	x
Onchocerciasis		x
Rabies		x
Scabies and other ectoparasitoses		x
Schistosomiasis	x	
Snakebite envenoming		x
Soil-transmitted helminthiases	x	
Taeniasis and cysticercosis	x	x
Trachoma	x	x
Yaws (endemic treponematoses)	x	x

Option 2. Aligned with BEST framework

	WASH thought to be relevant for:			
	Behaviour	Environment	Social inclusion	Treatment and care
Buruli ulcer			x	x
Chagas disease	x	x		x
Dengue and Chikungunya		x		x
Dracunculiasis (Guinea-worm disease)	x	x		x
Echinococcosis	x			x
Foodborne trematode infections	X	x		
Human African trypanosomiasis (sleeping sickness)		x		x
Mycetoma, chromoblastomycosis and other deep mycoses	X	x		
Leishmaniasis	X	X		X
Leprosy	X	X	X	x
Lymphatic filariasis	X	x	X	X
Onchocerciasis			x	
Rabies				X
Scabies and other ectoparasitoses				x
Schistosomiasis	x	x		
Snakebite envenoming				x
Soil-transmitted helminthiases	X	x		
Taeniasis and cysticercosis	X	x		x
Trachoma	X	X	x	x
Yaws (endemic treponematoses)	x	x		x

*Grey area – not applicable/don't know

WASH and Neglected Zoonotic Diseases

Neglected Zoonotic Diseases (NZDs) are a subset of NTDs which are transmitted between animals and humans. Inadequate WASH contributes to many NZDs including taeniasis/cysticercosis, foodborne trematodiases, schistosomiasis, leishmaniasis. Like all NTDs, NZDs flourish in low-income rural communities who rely on animals for livelihood and where animals and human 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 (Matilla 2018, Penakalapati 2017). Prevention and control of NZDs 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 health, agriculture, environment and other sectors (WHO 2014). Safe management of human and animal faeces, provision of clean water sources, and improved hygiene practices are an essential part of this strategy.

WASH and Vector-Borne Arboviral 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 factors among which human-driven and environmental ones including rapid urbanization, alteration of land use, water management including safe water storage, farming practices, and climate variability and change (WHO 2017). The global incidence of dengue has increased exponentially over the past decades with half of the world's population now estimated to be at risk (WHO 2020). 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 disease such as zika or chikungunya, the mosquito *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 (WHO 2017) will have an impact in decreasing transmission of these diseases. Consequently, control of these diseases 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 (WHO 2019).

Key messages emerging from recent systematic reviews on WASH for NTDs

Sustained water, sanitation and hygiene (WASH) improvements are accepted as critical for neglected tropical disease (NTD) control and prevention. However, research and innovation are needed to ensure WASH programming for NTDs becomes more effective, efficient and accessible over the coming decade, and sustained in the long-term.

Available systematic reviews (Annamalai 2016, Hulland2015, Ejere 2015, Rabiu 2021, Fitzgerald 2014, Majorin 2019); that synthesise the evidence on WASH for NTDs suggest advancements in four key areas are required.

1. Innovation to improve WASH technologies, and strategies to enhance sustained community engagement in WASH related behaviours:
    - Emerging evidence points to the importance of locally customised solutions to WASH improvements, the relative effectiveness of bottom-up, participatory approaches to the identification of solutions, and synergies at the household, family, and community levels
    - These findings suggest that, in addition to continued innovation, efforts to systematise and strengthen approaches to community organising may hold potential.
2. Advance knowledge of the determinants of sustained engagement with safe WASH innovations and programs.
    - Evidence supports the role of psychosocial factors (such as social norms, perceptions of susceptibility to and severity of disease, and perceptions of the benefits and opportunities for behaviour change) in determining acceptance and adoption of WASH practices.
    - Age and gender also appear to influence opportunity to engage effectively with WASH innovations, with women, children and the elderly experiencing more restricted opportunities.
3. Advance knowledge relating to the effectiveness, efficiency and accessibility of particular intervention strategies, and their scalability and applicability in different settings:
    - Program factors that are positively associated with sustained engagement with WASH interventions include frequent personal contact with health promoters and ongoing communication and support delivered via multiple channels.
4. Effective coordination and more significant investment in high quality studies with robust experimental designs are:
    - Available systematic reviews that examine the WASH interventions for NTDs conclude that there are too few studies of sufficient quality to draw meaningful conclusions about any given approach or strategy.
    - Reported studies tend to inadequately describe interventions employed
    - The adoption of standardised definitions of key concepts and approaches to the measurement of outcomes and related determinants is needed.

A GLOBAL STRATEGY 2021–2030

Vision: Accelerated and sustained achievement of the NTD roadmap milestones, 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 strategy vision. Strategic objectives are complemented by examples of key actions by endemic countries, WHO and non-state actors. (They are detailed in the next section of this document.)

Preparation: The strategy was developed by a core group within WHO, from the Department of Control of Neglected Tropical Diseases, and Department of Environment, Climate Change and Health, in consultation with WASH and NTD focal points in WHO Regional and Country Offices and external experts from NGOs, including from the NNN WASH working group, donor agencies, NTD networks and academic institutions. The draft strategy document was then made available online for public consultation between [date] and [date], before comments were incorporated and the strategy finalized.

Audience: The strategy informs action by WHO at all levels as well as by health ministries and ministries responsible for the delivery of WASH programmes, and NTD and WASH programme

managers at all levels. It also informs the actions of development agencies addressing WASH and NTDs, including donors, NGOs and other UN agencies. Finally, the strategy is a resource for academic institutions conducting research on WASH and NTDs.

Remit: The strategy specifically addresses areas of joint interest and collaboration for WASH and NTDs programmes. It does not restate all objectives within each sector but focuses on the vision and strategic objectives for joint action, and provides direction on actions to be implemented by WHO, endemic countries and their partners, including non-governmental and community-based organisations, academic, private organisations and donor agencies.

Monitoring implementation: WHO will monitor and report on progress made on the Global Strategy in every milestone year of the NTD road map. Details on reporting against the achievement of the road map cross-cutting target on WASH will be covered under the road map companion document on monitoring and evaluation framework.

[infographics – overview of strategic objectives]

SO1. Increase awareness on the co-benefits of joint WASH and NTDs action and engagement at national and global levels by sharing experiences and evidence throughout the programme cycle	**SO2.** Use WASH data in NTD programmes and NTD data in WASH programmes to highlight inequalities, target investment, and track progress	**SO3**. Generate high quality evidence related to WASH programming for NTD elimination, eradication and control, and embed within guidance and national strategies.
SO4. Jointly plan, deliver and evaluate programmes to enhance the accountability, sustainability and equity of programme impact		

STRATEGIC OBJECTIVE 1

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

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

Achieving this objective will require action in the following areas:

Action	Actors including:
1. Improve awareness of **synergies** across sectors that contribute to the achievement of the 2030 Roadmap 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. • **WHO:** Use all relevant platforms at national, regional and global levels[1] to continue engagement on cross-sector actions at national and global levels as essential to delivering on the 2030 Roadmap and global WASH targets via convening and participating in global WASH and NTD meetings and working groups. • **Non-state actors:** Create and share targeted messaging on cross-sector action, and utilise national and international platforms to engage exiting and new stakeholders.
2. Promote uptake and use of **available tools and resources** (WHO-NNN, 2019) for joint WASH and NTDs collaboration and strengthen **platforms** in WASH and NTDs sectors for disseminating and implementing tools and increasing collaboration.	• **Countries:** Translate existing tools into national norms and standards, and hold partners to account for adherence. • **WHO:** Provide technical support for national contextualisation of tools via HQ, regional and country offices. • **Non-state actors:** Use, promote and improve existing tools.

→ **Priority road map action:** Use all relevant platforms to continue engagement on multi-sectoral action at national and global levels.

[1] At country level: NTD taskforce, health and WASH joint sector reviews; regionally it could be the RPRGs and the AFRO programme managers meetings, any regional ministers of health meetings; globally: WASH and health conferences, NNN, NTD STAG… as well as any other high-level opportunities (SWA HLM, G7, Malaria and NTD summit…)

Case study 1: Sustaining the momentum on WASH and NTDs 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.

At the global level, 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 COR-NTD annual meetings, and WASH conferences such as World Water Week and the UNC Water and Health conference have continued to emphasise 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 WASH and NTDs toolkit (see SO3) prompted new opportunities for global engagement and was introduced through webinars and conferences. Several peer reviewed publications (Boisson 2015, Waite 2015) have been released, and a 3rd international roundtable on WASH and NTDs took place in Addis Ababa in 2018.

At the regional level, workshops have taken place in East Africa, bringing together WASH and NTD stakeholders from several countries to engage with existing tools and resources, exchange lessons and ideas, and develop action plans for their respective countries. Further workshops are being planned in the Americas and other regions.

At the country level, technical and coordination working groups have been established in countries including Ethiopia, Guinea Bissau, Kenya, Nigeria, Senegal, Tanzania and Zimbabwe, 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 prioritised WASH and NTDs coordination activities.

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, blogs[2]. Conferences and presentations have been fundamental to inspiring progress across other countries and regions, by demonstrating what can be achieved.

[2] 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

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 the way both programmes are delivered 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 marginalised 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 areas[3]:

Action	Actors including:
1. Use **standardized indicators and tools** to collect and analyse high quality joint WASH and NTDs data	• **Countries:** Include relevant indicators and data collection processes in national systems such as WASH and health management information systems and surveillance systems • **WHO:** Provide technical guidance and tools on joint monitoring, built into both WASH and NTDs monitoring guidance and training. • **Non-state actors:** Support inclusion of relevant indicators in country systems and global tools, and align own programme monitoring processes with country systems and processes.
2. Use data for **decision making and targeting**, and for accountability	• **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 SDG and the 2030 NTD Roadmap monitoring processes. • **Non-state actors:** Support country-led processes for data collection and use for decision making and targeting.
3. Facilitate **data sharing across sectors**	• **Countries:** Develop mechanisms and platforms for data sharing at national and subnational level and mandate line ministries to share data. • **WHO:** Facilitate data sharing and use across the UN system in support of global SDG monitoring and tracking progress against NTD Roadmap milestones.

[3] 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 utilise data provided by the WHO/UNICEF Joint Monitoring Programme on Drinking Water and Sanitation.

	Non-state actors: Support national and sub-national data sharing mechanisms.

→ **Priority road map action:** Use data across UN agencies within global SDG and the 2021–2030 NTD road map monitoring processes 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 datasets between ministries and sectors responsible for WASH and NTDs can help to track progress and inform decision-making on interventions and resourcing on both sides. However, many WASH and NTD datasets remain separated at national level resulting in missed opportunities to best target interventions to inform effective and impactful decision making for NTDs and WASH.

The WASH and NTD data merge process seeks to transform national data into knowledge by aggregating data across the WASH and NTD sector. The process aims to identify the best way to merge WASH data into NTD platforms, or vice versa and utilise the datasets in a coordinated way to enable better coordination, planning and joint resource allocation. For example, in Tanzania, NTD data has been added into the national WASH database and in Ethiopia, national WASH data has been added to the NTD system. Country level WASH modelled data has also been integrated into the WHO ESPEN platform[4].

Ethiopia: A Data merge in focus
In Ethiopia, district-level WASH and NTD data have been fully merged on the national NTD DHIS2 platform. This enables data analysis within the NTD platform, such as comparing disease prevalence and households latrine data in order to prioritise and target specific localtions for WASH and NTD interventions.

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

[4] https://espen.afro.who.int/

STRATEGIC OBJECTIVE 3

Generate high quality evidence related to WASH programming for NTD elimination, eradication and control, and embed within 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, has been clearly established. However, knowledge gaps relating to how to maximise the efficiency and effectiveness of WASH interventions for NTD elimination, eradication and control remain.

These gaps relate predominantly to: 1) innovation to improve WASH technologies, and strategies to enhance sustained community engagement in WASH related behaviours; 2) knowledge of the determinants of sustained engagement with safe WASH innovations and programs; and 3) knowledge relating to the effectiveness, efficiency and accessibility of particular intervention strategies, and their scalability and applicability in different settings. Further investment and more effective coordination of research activities is needed, as is further efforts to translate evidence into program guidance and policy.

Achieving this objective will require action in the following areas:

Action	
1. **Develop research agendas** to facilitate effective targeting and coordination of WASH for NTD research investments, nationally and internationally.	• **Countries:** Develop and maintain research agendas on WASH for NTDs and contribute to related international research prioritisation and coordination activities. • **WHO:** Shape and promote an international research agenda on WASH for NTDs[5], and contribute to related research agendas developed by Member States • **Non-state actors:** Contribute to the development of WHO and Member State led research agenda on WASH for NTDs, and invest technical support and funding in coordinated activities aligned to published national and international research priorities.
2. Generate high quality evidence related to WASH programming for NTD elimination, eradication and control that addresses published national and international research priorities.	• **Countries:** Strengthen research capacity, support operational research on WASH for NTD that is aligned to identified sub-national, national and international priorities, and maintain efficient research approval processes. • **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.
3. **Facilitate the open exchange of knowledge**	• **Countries:** Promote emerging evidence, showcase examples of good research practice, and develop and maintain

[5] 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 Spring 2021.

relating to WASH and NTDs through a range of accessible platforms, forums networks, and other mechanisms	national and sub-national platforms, forums, networks and other mechanism that promote partnerships and facilitate open exchange of WASH and NTD knowledge. • **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 mechanism that promote partnerships and facilitate open exchange of WASH and NTD knowledge.
4. **Embed high quality WASH for NTD evidence** within guidance and strategies	• **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, 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 synthesise 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.

→ Priority rRoad map 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 Ministries of Health.

In recognition of this need and building on experience in toolkit development for trachoma elimination[i], WHO and the NNN WASH working group developed a toolkit: "WASH and health working together – a 'how-to' guide for NTD programmes" (WHO and NNN 2019) The toolkit was developed over in-depth consultation period to identify specific gaps, document country experience and translate implementation experience into tools, and apply innovative design to create a positive user experience.

The toolkit, launched in January 2019, 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. Strong emphasis was placed on having the right content and an accessible design including a web-based version. Since publication, new tools have been added based on country demand, and a new related guidance document on designing behaviour change programmes is under development.
To date, the toolkit has been used to varying degrees in Benin, Burkina Faso, Chad, Cote d'Ivoire, the Democratic Republic of the Congo, Ethiopia, Ghana, Guinea, Guinea Bissau, Kenya, Liberia, Malawi, Niger, Nigeria, Sierra Leone, South Sudan, Sudan, Tanzania, Uganda, Zambia and Zimbabwe, while Ethiopia has also produced a sub-national and context specific version[6] of the toolkit to be used at district level.

Key lessons:

- The involvement of WHO as the norm setting organisation 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.

[6] http://www.moh.gov.et/ejcc/sites/default/files/2019-09/WASH-NTD%20Coordination%20Woreda%20Toolkit_0.pdf

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 global, national and local 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 the 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:

Action	Actors including:
1. Develop and strengthen **governance and institutional arrangements** at global, regional and national levels that enable collaboration across NTDs within the context of the overall health system	• **Countries:** Establish/strengthen coordination mechanisms at all levels (with a clear focal point for joint planning). The mechanism should address WASH sector fragmentation and have clear terms of reference, mandate and structure. All partners including NGOs, WHO and funders should work through and support this mechanism. 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 regional and country level, and track progress through developing indicators on WASH-NTD collaboration to complement the NTD Roadmap accountability framework. • **Non-State actors:** Include intersectoral activities and coordination in their plans as “best practice” and be account for compliance through open reporting and information sharing.
2. Promote **joint use of existing data and reports** to track progress and inform decision-making on programme development and resourcing at all levels	• **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.

3. Develop and use **integrated planning tools** to ensure co-benefits for relevant NTDs, other diseases and the health system	• **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. • **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, NGOs, private practitioners and business). • **Non-state actors:** Support WASH stakeholders' engagement in national NTD taskforces, and NTD stakeholders' participation in WASH sector platforms.
4. Create and support **financial arrangements** that enable collaboration across the NTDs and with WASH	• **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 the most vulnerable groups. • **Non-State actors:** Allocate financial resources to support coordination and cooperation platforms, activities and staffing.

→ Priority road map action: Support coordinating mechanisms and resources for joint planning, delivery and monitoring.

Case study 4: Making joint planning a reality

The 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 NTDs 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[7] was developed by the FMoH with support by WHO and the national WASH and NTDs technical working group, and was published in 2019. The framework sets out: a) requirements in terms of alignment of all programmes to national WASH and NTDs objectives; b) criteria for selection of priority districts for investment based on the burden of NTDs and access to WASH services; c) key coordination structures, roles and responsibilities; d) expectations for integration of WASH and NTDs interventions into other programmes; e) technical programme quality standards; f) planning process and schedules; and g) processes for monitoring and evaluation. A template based on this framework has been developed as a new resource for the WASH and NTDs toolkit. Subsequently, further frameworks

[7] http://www.moh.gov.et/ejcc/sites/default/files/2019-09/WASHNTD%20National%20Frame%20work%2C.pdf

have been developed in several countries, including Uganda, Nigeria, South Sudan, Tanzania (and Zanzibar) and Zambia.

Key lessons:

- The leadership and interest of the FMoH was 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 standardised 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 FMoH and engaging key WASH partners provided a platform to involve stakeholders and sustain the momentum.

ANNEXES

Annex I. The role of WASH in prevention and care for each NTD

***WASH-related aspects highlighted in blue**

Disease • *Type* • *Transmission*	**Behaviour**	**Environment**	**Social inclusion**	**Treatment and care**
Buruli ulcer • *Bacterial* • *Environmental (undetermined)*			• Addressing stigma 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 & 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 (Guinea worm disease) • 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 & 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**
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 trematode infections • *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
Human African trypanosomiasis (Sleeping sickness) • *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-HAT areas • Vector control (targeted	• Address stigma (victim-blaming in some cultural contexts)	• Early detection • Drug therapy • **WASH for hygiene and infection prevention and control in healthcare facilities**

		insecticide spraying, screens, traps, protective fencing, animal spraying/pour-on; use of sterile insect technique in some areas)		
Leishmaniasis (Visceral/ cutaneous) • *Parasitic* • *Sandfly*	• **Hygienic self-care**	• Vector control through improved housing, indoor residual spraying of houses, **waste management & 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 stigma related to ulcers, disfigurement, scarring & disability (cutaneous/ 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 & 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 stigma due to cultural/ traditional/ religious beliefs (witchcraft, curses, immorality, uncleanliness) • Prevention of stigma-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**

Lymphatic filariasis • *Parasitic* • *Aedes/ Anopheles/ Culex/ Mansonia 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 stigma due to misunderstanding of disease cause and fear of contagion • Prevention of stigma-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 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 stigma 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 (River blindness) • *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 stigma 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**
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 stigma 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	• Avoidance of factors attracting snakes into homes: livestock, rats (safe food storage) • Reduction of potential hiding places, clearing solid waste, shortening grass		First aid: • Patient safety and immobilisation, transportation to medical facility • Avoidance of rejected/ controversial first aid including arterial tourniquet, suction, cauterisation, cryotherapy, prophylactic

	• Extra precautions at night and after rains including shoe wearing and light use • Avoiding running over snakes with vehicles or bicycles	• Avoidance of branches touching houses • Keeping granaries and ponds/reservoirs away from homes		amputation etc, and of washing/ tampering with bite wound • Pain relief (avoiding aspirin and non-steroid anti-inflammatory drugs) Clinical management: • Rapid clinical assessment and resuscitation • Urgent interventions to treat shock, hypotension, cardiovascular and respiratory symptoms, anaphylaxis, bleeding, haemorrhage, renal failure and septicaemia • **WASH for hygiene and infection prevention and control in healthcare facilities**
Soil-transmitted helminthiases • *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
Taeniasis/ Cysticercosis • *Parasitic, zoonotic* • *Foodborne (Taeniasis); Worm-egg*	• **Hand and food hygiene** • **Exclusive use, cleanliness and maintenance of toilets and safe**	• **Safe water supply** • **Improved household/ community sanitation services to avoid open defecation**	Stigma prevention (Neurocycticercosis may lead to epileptic seizures; some traditional beliefs on epilepsy result in	• Chemotherapy • Supporting therapy with corticosteroids and/or anti-epileptic drugs (neurocysticercosis)

ingestion (cycticercosis)	**disposal of child faeces**	• Improved pig husbandry and management of pig faeces • Pig anthelmintic treatment • Pig vaccination • Improved meat inspection & processing (Taeniasis)	victim-blaming and stigma)	• Identification & 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 (Endemic treponematoses) • 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 stigma and discrimination (cultural beliefs preventing care-seeking; teachers dismissing children from school)	• Antibiotic treatment • **Wound management**

Glossary

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	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 hand washing 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 helminths 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.
Sanitation	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 utilisation 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 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.

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- The WHO Schistosomiasis Strategy
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