

Water Sanitation & Hygiene

**for accelerating and
sustaining progress on
Neglected Tropical Diseases**

**A GLOBAL STRATEGY
2015–2020**



World Health
Organization

NEGLECTED TROPICAL DISEASES

Buruli ulcer
Chagas disease
Cutaneous leishmaniasis
Dengue
Dracunculiasis (Guinea worm disease)
Endemic treponematoses (Yaws)
Foodborne trematode infections
Human African trypanosomiasis (Sleeping sickness)
Leprosy
Lymphatic filariasis (Elephantiasis)
Onchocerciasis (River blindness)
Rabies
Schistosomiasis
Soil-transmitted helminthiasis (Intestinal worms)
Taeniasis/cysticercosis and echinococcosis/hydatidosis
Trachoma
Visceral leishmaniasis

FOREWORD

Neglected tropical diseases affect over 1 billion people, causing chronic disability and death, primarily among the poorest of the world – the same people who often lack access to even the most basic water and sanitation services. Provision of safe water, sanitation and hygiene is critical for the prevention and care for many NTDs, but has often received little attention in NTD control programmes.

The release of the WHO NTD roadmap has given renewed impetus for collaboration between WASH and NTD actors. International organisations, academics, donors, practitioners, and countries have started mobilising efforts to work together. It is time to build on the momentum in the health and development community to reinforce joint WASH and NTD actions to accelerate progress towards control, elimination and eradication of NTDs.

The principle of leaving no one behind is central to the Sustainable Development Goals' agenda, including for sanitation and water. WASH providers must prioritize reduction of inequalities to align with this agenda. This means prioritising service delivery to poor communities who suffer from or are at risk of NTDs. With just five years remaining to meet the roadmap targets, the need for action is urgent.

While acknowledging successes in the fight against NTDs, we must also recognize the changing global health context, characterized by increased fragility and conflict, inequality, and vulnerability to a changing environment affected by climate change and natural disasters.

All these factors mean that we must ensure that the successes achieved are sustained. We urgently need a renewed commitment to collaboration that reaches the most vulnerable – those most affected by NTDs, and those without access to basic water and sanitation services and good quality affordable healthcare.

This strategy builds on existing progress to tackle NTDs, such as the billions of anti-parasitic treatments delivered since 2006, and continued efforts to treat and care for those suffering the chronic effects of these diseases. The joint five-year agenda presented here calls for more effective delivery of WASH alongside other NTD interventions and paves the way for sustainable development and shared prosperity.

NTDs thrive under conditions of poverty and filth. They tend to cluster together in places where housing is substandard, drinking water is unsafe, sanitation is poor, access to health care is limited or non-existent, and insect vectors are constant household and agricultural companions... This opens opportunities for integrated approaches, for simplification, cost-effectiveness, and streamlined efficiency.

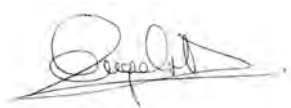
Margaret Chan, WHO Director General



Dr Maria Neira

Director

Department of Public Health, Environmental
and Social determinants of Health



Dr Dirk Engels

Director

Department of Control of Neglected
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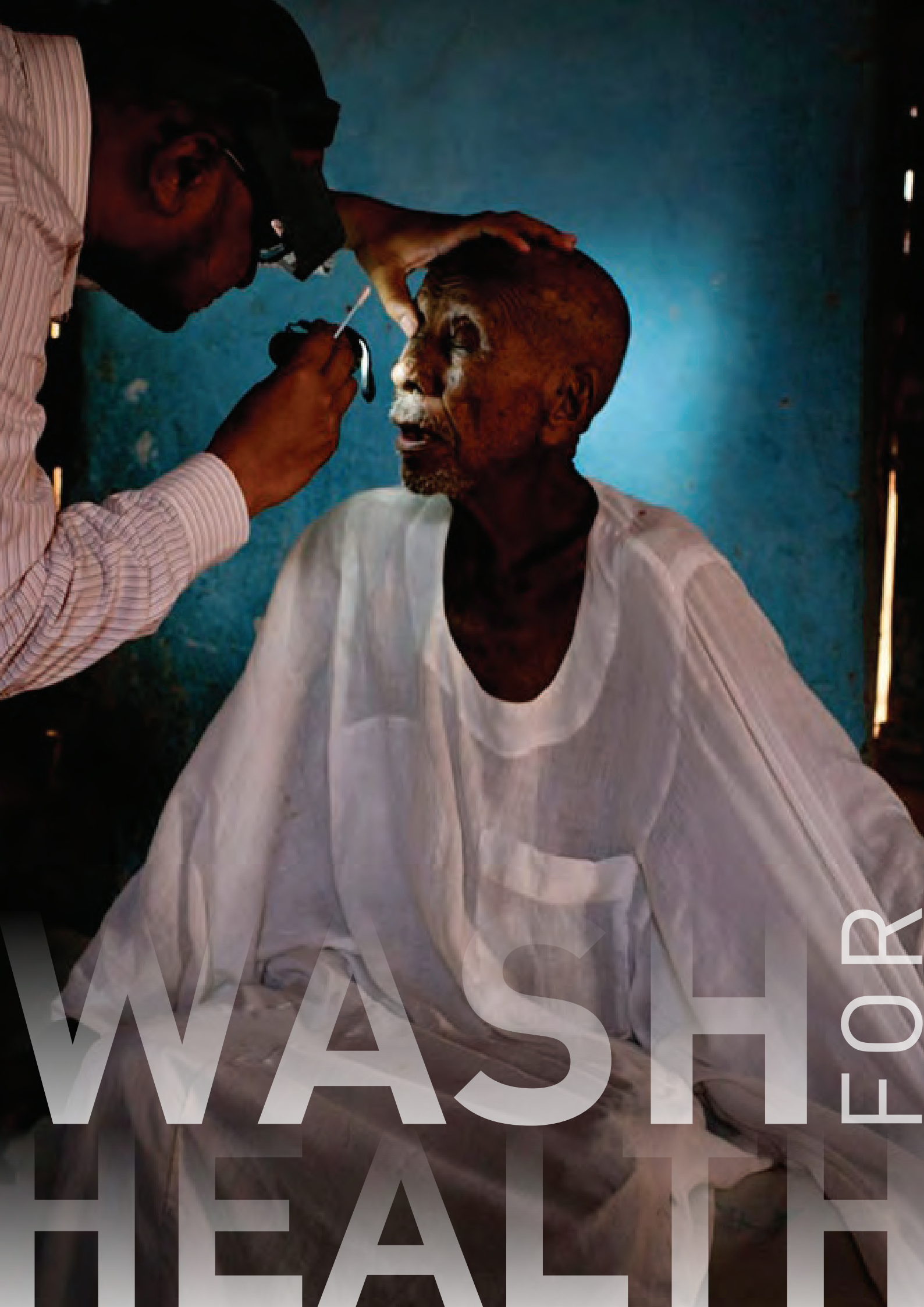
2015–2020

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

1. **Increase awareness about the cobenefits of joint WASH and NTD action** by sharing experiences and evidence from improved delivery
2. Use WASH and NTD **monitoring to highlight inequalities, target investment, and track progress**
3. **Strengthen evidence on how to deliver effective WASH interventions for NTDs** and embed the findings in guidance and practice
4. **Plan, deliver and evaluate programmes** with mutual inputs from WASH, health and NTD stakeholders at all levels



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INTRODUCTION

Why is a new strategy needed?

Water, sanitation and hygiene (WASH) are critical in the prevention and care for all of the neglected tropical diseases (NTDs) scheduled for intensified control or elimination by 2020.

Provision of safe water, sanitation and hygiene is one of the five key interventions within the global NTD roadmap. Yet to date, the WASH component of the strategy has received little attention and the potential to link efforts on WASH and NTDs has been largely untapped (1).

Focused efforts on WASH are urgently needed if the global NTD roadmap targets are to be met. This is especially needed for NTDs where transmission is most closely linked to poor WASH conditions such as soil-transmitted helminthiasis, schistosomiasis, trachoma and lymphatic filariasis.

This strategy aims to mobilize WASH and NTD actors to work together towards the roadmap targets. It calls on WASH funders and implementers to target NTD endemic areas and deliver programmes that maximize the effectiveness of WASH interventions for NTD control and elimination.

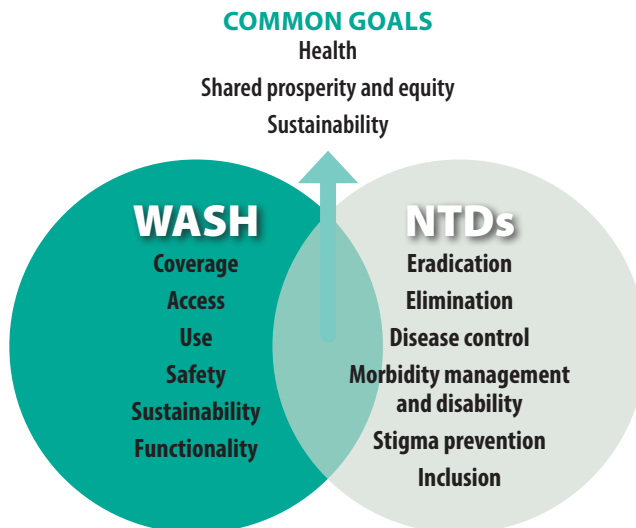
A joint approach that addresses the causes of NTDs is likely to be more cost effective over the long term and more sustainable. It will also ensure that investments in WASH reach those most in need. Beyond the objectives of each sector, collaboration can also serve to achieve common goals such as health and well-being, equity and shared prosperity, and sustainability (Figure 1).

The rationale for collaboration is clear. The challenge now is to foster a strong working relationship between the sectors that benefits from WASH actors' in-depth knowledge of what works in practice and to refine that knowledge for better use in NTD control and elimination.

Although integration is referenced in existing NTD plans and strategies, these rarely offer specific guidance on the way in which collaboration between WASH and NTD stakeholders can be strengthened and there are no monitoring mechanisms that tracks and incentivizes collaboration. WHO works closely with both sectors and is well placed to convene WASH and NTD actors and provide evidence-based guidance on effective collaborative measures.

This strategy comes at an opportune moment, as the global community shifts its outlook towards an agenda of international Sustainable Development Goals (SDGs) of shared prosperity and equity.

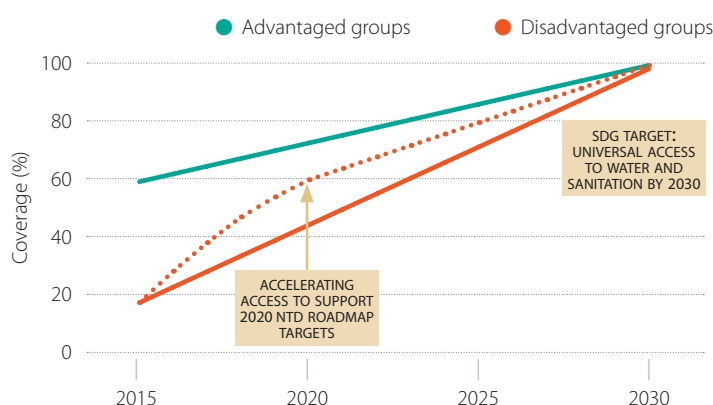
Figure 1. Common ground for WASH and NTDs collaboration



The WASH sector is focused on the SDG target of universal access to basic WASH in communities, schools and healthcare facilities by 2030. Achieving universal access requires a focus on the poorest and hardest to reach. These are often the same groups most affected by NTDs. Yet the target date for the NTD roadmap is 2020, ten years sooner than WASH, adding impetus to the need for WASH progress for the most vulnerable (Figure 2). Progress or lack of progress on certain NTDs can therefore serve as a proxy for equity and effective targeting of WASH programmes.

The strategy also contributes to global efforts to strengthen health systems, achieve universal health coverage, address the social determinants of health and ensure equitable access to resources and services that underpin human development.

Figure 2. Accelerating elimination of inequalities in WASH



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

The post-2015 development goals are a chance for us to get this right. We must put the elimination of inequalities at the heart of our debate and we must sign up to measuring progress.

*Catarina de Albuquerque (2014)
UN Special Rapporteur on the human right to
safe drinking water and sanitation*

What does Integration mean for WASH and NTDs?

The term **integration** varies in meaning across different sectors and communities. In the context of NTD programmes, it often refers to coordination of drug distribution programmes to address multiple diseases, or the integration of NTD aspects within the primary healthcare system. In this strategy, integration refers to **joint planning, implementation, and evaluation of activities across sectors and programmes** to achieve common goals.

Various degrees of integration are possible (2) depending on the context and nature of the diseases addressed, and it is possible to integrate selected programme components. For example, the facial cleanliness and environmental improvement components of the SAFE strategy for trachoma are likely to require complete integration with WASH programmes. By contrast, the antibiotics component may only need limited coordination.

Where only limited integration is possible, areas of collaboration and coordination can be identified to optimize resources (human, financial, technical, technological, and logistical) and to improve the efficiency of programmes without impinging on areas that are already performing well.

The role of WASH in NTD prevention and care

WASH interventions have broad public health benefits that reduce multiple diseases and contribute to non-disease outcomes such as school attendance. Linking WASH and NTDs therefore has potential to impact on multiple NTDs through a single area of intervention.

WASH contributes in varying degrees to NTD prevention and to treatment and care. Annex II provides an overview of the role WASH plays in prevention and care for each NTD.

WASH and NTDs are both significant challenges to global development. NTDs affect more than a billion people across 149 countries (3), with many people at risk of suffering more than one NTD at the same time. WHO estimates that 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 (4). About one third of the world's population (2.4 billion) lacks access to adequate sanitation, while 1 billion people practice open defecation and 663 million do not have access to improved sources of drinking water (5).

Prevention includes:

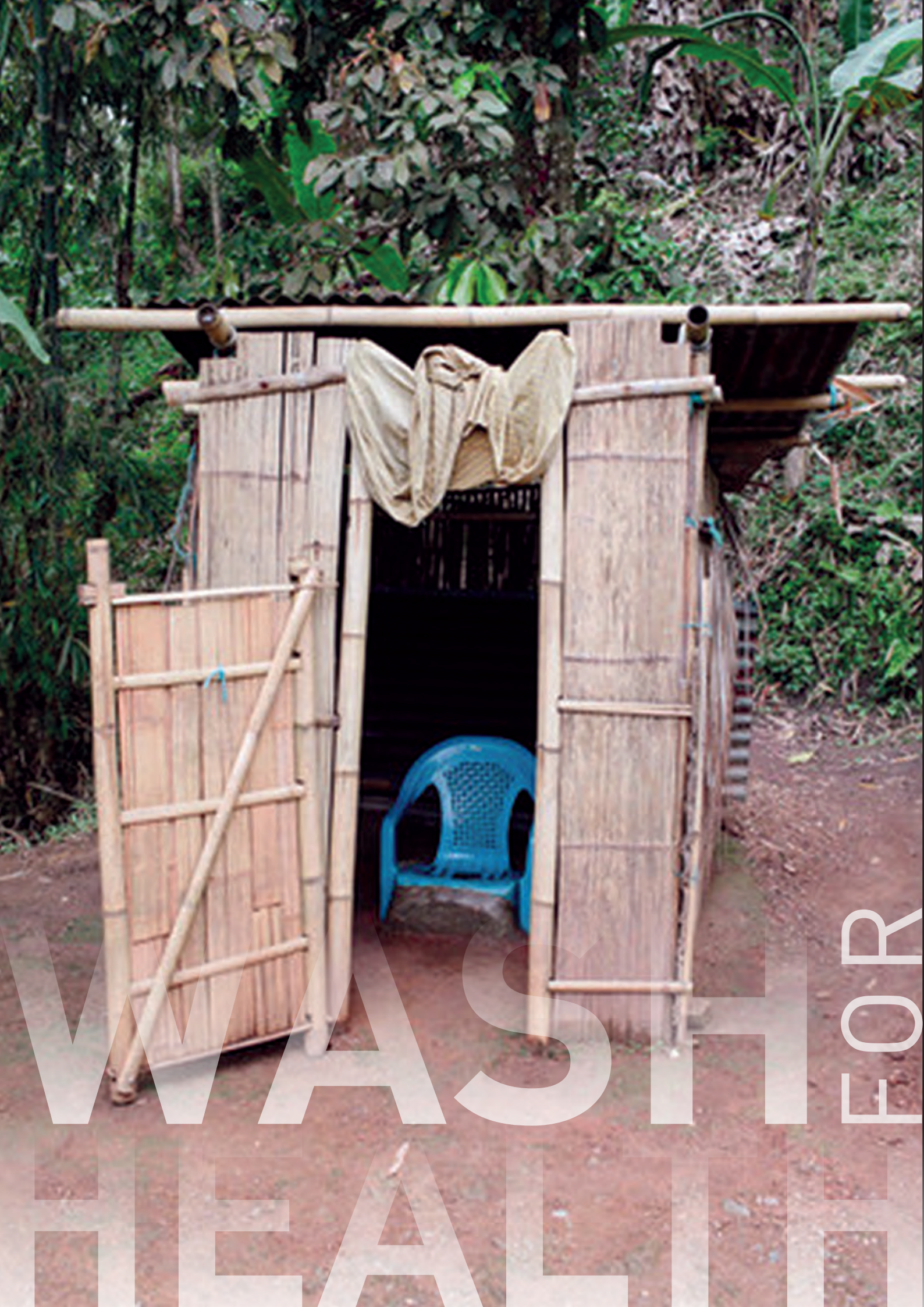
- access to and use of sanitation facilities in household and other settings (e.g. schools and health facilities) and safe management of faecal waste to reduce human excreta in the environment;
- safe water supply to prevent consumption of contaminated water, reduce contact with surface water, and enable personal hygiene practices;
- water resource, wastewater and solid waste management for vector control and contact prevention; and
- hygiene measures such as handwashing with soap, laundry, food hygiene, face washing and overall personal hygiene.

Treatment and care to reduce the severity of disability and suffering and improve the quality of life:

- availability of water for facility-based care and self-care (especially leprosy and lymphatic filariasis);
- hygienic conditions for surgical procedures (e.g. for lymphatic filariasis hydrocele and trachoma trichiasis surgeries);
- accessible water and sanitation services for individuals with physical impairments and care givers; and
- measures to prevent stigma-based exclusion from water and sanitation services, including measures to enable personal hygiene and dignity.

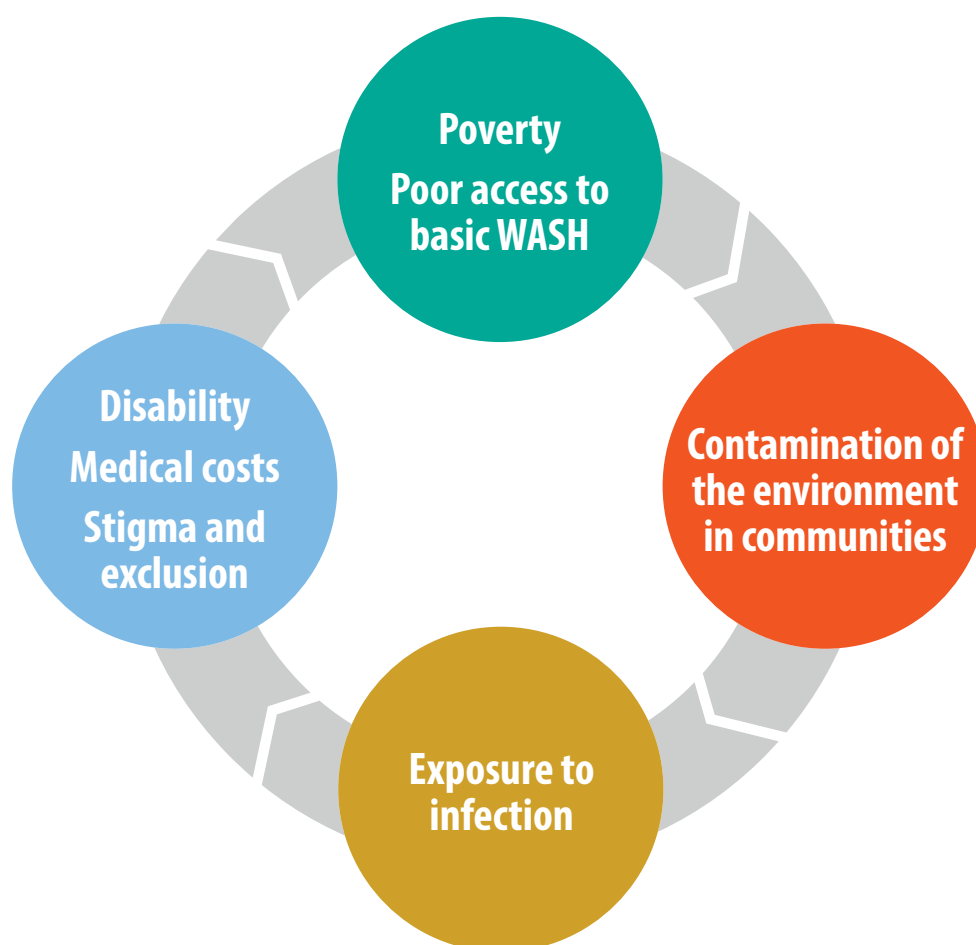
NTDs are “a proxy for poverty and disadvantage” (6). They are more prevalent in rural, vulnerable and marginalized populations, and their burden is highly concentrated among the poorest 40% – those same populations who have the least access to sustainable, adequate and affordable water supply and sanitation services and are therefore highly exposed to disease. This means that poor areas often suffer the burden of multiple NTDs at any given time (7).

NTDs and poor access to WASH contribute to **a vicious cycle of poverty and disease** (Figure 3), as well as adding a substantial burden on already stretched health systems. Although many NTDs are not fatal, affected individuals and their families can incur catastrophic health expenditure, indebtedness (8) and become less economically productive. For example, the global economic cost of trachoma due to lost productivity was estimated in 2003 to be US\$ 5.3 billion annually (9). Conversely, every dollar invested in water and sanitation is estimated to result in a return of over five dollars in health benefits (10).



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



The impact of WASH on NTDs: increasing evidence

There is consensus that WASH plays an important role in NTD transmission. However, the difficulty of conducting robust trials on WASH interventions has resulted in a limited evidence base on the specific WASH interventions needed for transmission control and care for specific NTDs. Several systematic reviews summarising evidence and knowledge gaps have been published in response to the growing interest in WASH interventions for NTDs.

- **A systematic review and meta-analysis on the relationship between water, sanitation and schistosomiasis** ⁽¹¹⁾ found that safe water was associated with significantly reduced odds of *Schistosoma* infection, and that access to adequate sanitation was associated with significantly lower odds of infection with both *S. mansoni* and *S. haematobium*.
- **A systematic review and meta-analysis on the associations between trachoma and water, sanitation, and hygiene** ⁽¹²⁾ found that better hygiene in children was associated with lower odds of trachoma. Access to sanitation was associated with 15% lower odds of active trachoma and 33% lower odds of *C. trachomatis* infection of the eyes.
- **A systematic review and meta-analysis on water, sanitation, hygiene, and soil-transmitted helminth infection** ⁽¹³⁾ found WASH access and practices were associated with 33–70% lower odds of STH infection. For example, people who washed their hands after defecating were less than half as likely to be infected as those who did not.



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POLICY BASIS

The strategy builds on existing WASH and NTD commitments.

Global targets and milestones:

WHO has set ambitious milestones for eradication, elimination and intensified control of NTDs in the document ***Accelerating work to overcome the global impact of neglected tropical diseases: A global roadmap for implementation*** (14). The roadmap guide implementation of policies and strategies on NTDs and the WHO programme of work. Targets include:

- eradication of dracunculiasis (Guinea worm) by 2015 and of yaws by 2020
- elimination of trachoma and lymphatic filariasis as public health problems by 2020
- intensified control of dengue, schistosomiasis and soil-transmitted helminthiasis

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” (15).

During the Millennium Development Goal (MDG) period, efforts to increase access to water and sanitation were tracked through target 7.c, to “Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation” (16). Goal 6 under the SDGs framework seeks to “Ensure availability and sustainable management of water and sanitation for all”, including targets 6.1 and 6.2 on universal and equitable access to safe drinking-water and sanitation by 2030.

World Health Assembly resolutions on WASH and on NTDs:

Resolution WHA66.12 on neglected tropical diseases, builds on previous resolutions (17), and calls on WHO “to support the development and updating of evidence-based norms, standards, policies, guidelines and strategies and research for prevention, control and elimination of neglected tropical diseases”.

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 “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 also draws on and complements the following WHO strategies and plans:

- Global Disability Action Plan
- Global Strategy for Dengue Prevention and Control
- Universal Eye Health Global Action Plan
- Enhanced Global Strategy for Further Reducing the Burden due to Leprosy and Operational Guidelines
- Yaws Eradication Strategy
- The Global Programme to Eliminate Lymphatic Filariasis and Elimination Strategy
- The WHO Schistosomiasis Strategy
- The WHO SAFE Strategy for Trachoma
- The WHO Intestinal Worms Strategy

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



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A GLOBAL STRATEGY 2015–2020

Vision: Within the five-year strategy period to 2020 – 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. Actions on the themes are presented in the Strategic Action Plan in Annex I.

Preparation: The strategy was developed by a core group within WHO, from the Department of Control of Neglected Tropical Diseases, and Department of Public Health, Environmental and Social Determinants of Health in consultation with WASH and NTD focal points in WHO Regional and Country Offices and external experts from NGOs, donor agencies, NTDs networks and academic institutions.

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 programmes, 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.

WHO roles and responsibilities for strategy implementation:

At global level:

- Provide technical backstopping to regional offices for strategy implementation
- Promote application of best practices in support of regional and country technical cooperation and facilitate inter-regional exchange of experience and lessons learnt
- Shape and promote the global research agenda for WASH and NTDs
- Lead in the formulation of technical norms, methodologies, guidelines and tools
- Generate and disseminate body of knowledge on best practices
- Convene and participate in global WASH and NTD meetings and working groups
- Monitor implementation of the strategy at global level in coordination with regional offices.

At regional office level:

- Adapt the global strategy to regional contexts
- Analyse the state of WASH and NTDs and frame the collaborative programme at regional and country levels.
- Develop joint regional initiatives on WASH and NTDs
- Foster collaboration between WASH and NTDs focal points in countries
- Convene and participate in regional WASH and NTD forums
- Facilitate the sharing of lessons learnt between countries within the region
- Monitor the implementation of the strategy and ensure regional coherence

At country office level:

- Convey to national authorities the rationale and the importance of a collaboration between WASH and NTDs
- Facilitate collaboration between the national institutions responsible for WASH and NTD at country level; to ensure that NTD are part of the decision-making process for implementation of WASH and vice-versa
- Sensitize the partners at country level on the need to support the national authorities in their efforts on WASH and NTDs collaboration
- Advocate for domestic funding (public, private) to be made available to support implementation of joint activities
- Facilitate monitoring, evaluation and reporting against strategy implementation

STRATEGIC OBJECTIVE 1

Increase awareness about the cobenefits of joint WASH and NTD action by sharing experiences and evidence from improved delivery

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:

Identifying synergies across NTDs, and between NTDs and WASH

This can take place at institutional and programme level.



In Ethiopia, a Memorandum of Understanding was signed between the education, water, health and finance ministries.

At a programming level, this could mean identifying specific areas that require joint action, such as WASH interventions that fulfil disease-control requirements for more than one disease.



Promoting sanitation at the community level can contribute to efforts to control trachoma, soil-transmitted helminthiasis and schistosomiasis.

Strengthening platforms for sharing knowledge and increasing collaboration

Such as setting up or enhancing accessible web-based information-sharing and discussion forums, and including discussion on integrated practice in existing WASH and NTD meetings, networks and technical bodies.

Improve awareness about NTDs and opportunities provided by joint interventions among professional communities within and beyond WASH and NTDs



Engage organisations working at community level such as Missions and community-based rehabilitation organisations, and relevant local government departments.

WHO priority action

- Disseminate the strategy within WHO to partners through key events;
- Document and share lessons from improved practice across WASH and NTDs forums, emphasizing issues of governance and behaviour change promotion

STRATEGIC OBJECTIVE 2

Use WASH and NTD monitoring to highlight inequalities, target investment, and track progress

A WASH and NTD monitoring framework can transform the way both programmes are delivered and create incentives for more effective programming. Joint monitoring, through activities such as 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 areas:

Formulating cross-cutting **programme monitoring and evaluation systems including standardized and comparable success indicators** at global, national and subnational levels (including process indicators to monitor the development and implementation of policy and governance frameworks to enable coordination)

EXAMPLE

This includes agreeing joint WASH and NTD process, output and outcome indicators to show if interventions are being delivered, their impact, and the effectiveness of operational mechanisms. Monitoring should be embedded in existing WASH and Health Management Information Systems at national and subnational level.

The GLAAS and TrackFin initiatives monitor enablers and barriers to WASH implementation and allocation of funds (including to vulnerable groups) by external support agencies and governments.

Collecting **higher quality and more disaggregated data**, and developing monitoring capacity

EXAMPLE

Where possible and relevant, data should reflect measures of equity (e.g. gender, wealth quintile), use of safe water and sanitation, and hygiene practices at home, in schools and health care facilities, prevalence of NTDs and NTD-related morbidities, and uptake and sustainability of NTD programmes. This may mean choosing between further disaggregation of general surveys that include data on WASH and health or targeted surveys of groups who are particularly vulnerable to NTDs.

In Chiapas, Mexico, an integrated baseline study was conducted by the government to collect information on disease prevalence (trachoma, chagas, leishmaniasis, onchocerciasis, rabies) and related factors such as vectors, education and behaviours (e.g. face washing for trachoma prevention). Data collection was integrated with other activities (drug distribution, health and hygiene promotion) (18).

WHO priority action

Provide technical and normative guidance on developing WASH and NTD monitoring systems and indicators

STRATEGIC OBJECTIVE 3

Strengthen evidence on how to deliver effective WASH interventions for NTDs and embed the findings in guidance and practice

The association between WASH and NTDs, and the benefit of WASH for broader health and development outcomes, has been clearly established. However, knowledge gaps remain regarding how WASH interventions should be tailored to support NTD programmes to maximize efficiency and reduce the risk of disease. Experiences of effective implementation (including cost-effectiveness) emerging from -partially- or fully-integrated programmes should be evaluated -and documented, and embedded in programmatic guidance.

Achieving this objective will require action in the following areas:

Defining an **agenda for applied, practical operational research** on effective implementation in practice for research institutions and implementers

In particular, issues of effective hygiene and behaviour change promotion, and access to and use of water and sanitation for NTD control and care, should be investigated, to generate practical recommendations for programme optimisation. This should include formative research, and context-specific knowledge such as marketing and advertising intelligence collected and used by local businesses.

Embedding guidance on joint implementation for NTD control in **WASH standards and guidelines**, and dissemination and uptake of standards and guidelines into policy and practice

EXAMPLE

Research findings and programme learning should be incorporated into WASH guidance as actionable measures.

Examples include *Essential Environmental Health Standards in Health Care, Sanitation Safety Planning and the forthcoming Sanitation and Health Guidelines*.

The publication “WASH and the Neglected Tropical Diseases: A Manual for WASH Implementers” (19) provides basic measures that can be easily incorporated at programme level.

Embedding guidance on collaboration with WASH programmes in **NTD standards and guidelines**

Research findings and learning from programme implementation (including from unpublished literature) should be translated into clear measures for incorporation into NTD programme standard operating procedures, national planning guidelines (such as for development of national NTD master plans) and training manuals.

EXAMPLE

The recent PAHO “Operational guidelines for the implementation of integrated deworming activities” (20) include specific recommended actions on WASH and overall intersectoral collaboration.

WHO priority action

Contribute to the development of a WASH and NTD operational research agenda

STRATEGIC OBJECTIVE 4

Plan, deliver and evaluate programmes with mutual inputs from WASH, health and NTD stakeholders at all levels

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 cobenefits of joint work and incentivizes 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 investments and that interventions are tailored to interrupt transmission. WASH components should also be included in activities within the NTD control programme. 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:

Supporting the development and strengthening of **governance and institutional arrangements** at global, regional and national level that enable collaboration across NTDs within the context of the overall health system and with WASH for improved decision-making, coordination and planning

EXAMPLE

This can be done through establishing coordination mechanisms such as national or sub national NTD taskforces, to share information on service delivery, review levels of access to WASH together with disease data, identify priority areas and formulate plans.

In Ghana, a joint cholera, Guinea worm and trachoma control programme was used to identify and address water supply and sanitation service delivery gaps as well as health promotion needs, with activities coordinated through a multi-stakeholder National Trachoma Taskforce (21). In Mozambique, a formal non-financial memorandum of understanding was developed between the leading NGOs for WASH and NTD support to solidify commitments towards bridging the gap between NTD control and WASH activities, and to establish a formal agreement for collaboration during work planning meetings. In Nepal, establishment of committees including ministries, local government, teachers and community representatives led to the success of a school programme combining water and sanitation, health education, deworming and iron supplementation" (22).

Joint use of existing datasets and reports between stakeholders and across sectors to track progress and inform decision-making on programme development and resourcing – at sub national, national and global levels

EXAMPLE

Information on disease prevalence can help target resources for WASH provision.

The Global Trachoma Mapping Project gathered information on household-level access to water and sanitation in endemic districts, which can be used to inform targeting of WASH service delivery.

Data collected routinely on disease indicators and WASH access through surveys and management information systems can be shared for planning on an on-going basis. For example, school-level WASH indicators can be collected during schistosomiasis and STH prevalence mapping surveys across districts or sub-regions. Programme delivery data may also be captured by national agencies that regulate the work of NGOs and charities

Development and use of new and existing **integrated planning tools** that set out principles and specific steps and ensure cobenefits for relevant NTDs, other diseases and the health system

Tools such as planning matrices, situational analysis and baseline protocols, resource mapping, target-setting and budgeting templates can inform more effective planning.

EXAMPLE

An example of this is the “Planning tool for Facial Cleanliness and Environmental Improvement for Trachoma Elimination” developed by the International Coalition for Trachoma Control (ICTC) for the Queen Elizabeth Diamond Jubilee Trust and UK Department for International Development funded programmes in Chad, Ethiopia, Kenya, Malawi, Tanzania, Uganda and Zambia.

Creating and supporting **financial arrangements** that enable collaboration across the NTDs and with WASH

Effective financing may mean pooling resources, coordinated funding streams, or both.

EXAMPLE

In Recife, Brazil, the NTD programme was co-funded by the Latin America and the Caribbean (LAC) regional NTDs initiative and municipal governments. UK Department for International Development and the Queen Elizabeth Diamond Jubilee Trust funding for trachoma elimination supports SAFE (Surgery, Antibiotics, Facial cleanliness, Environmental improvement) strategy implementation but not all necessary WASH interventions; the planning modality therefore allows coordinated planning with WASH stakeholders to secure interventions not covered by these grants.

Establishing a framework for planning personal hygiene **behaviour change aspects** for both control and disability aspects of NTD programmes

Measures to tackle barriers to behaviour change are often neglected in planning processes, and should be incorporated into planning and based on formative research and consultation.

EXAMPLE

The ICTC “Planning tool for Facial Cleanliness and Environmental Improvement for Trachoma Elimination” offers information on key steps for planning a behaviour change strategy.

WHO priority action

Develop operational and normative guidance on integrated WASH and NTD implementation

Support joint cross-NTDs and WASH coordination processes at regional and country levels



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ANNEXES

ANNEX I. ACTION PLAN

SO 1. Increase awareness about the cobenefits of joint WASH and NTDs action by sharing experiences and evidence from improved delivery

- 1.1 Identify **synergies** across NTDs and between NTDs and WASH
- 1.2 **Strengthen platforms** for sharing knowledge and increasing collaboration
- 1.3 **Improve awareness** about NTDs and opportunities provided by joint interventions among professional communities within and beyond WASH and NTDs

Actions by WHO	Actions by endemic countries and partners
Priority actions • Disseminate strategy within WHO and with partners through key events, such as NTDs nongovernmental development organizations Network (NNN) meetings, World Health Assembly, Regional Committee meetings and WASH events (such as World Water Week, SACOSAN, LatinoSan, AfricaSan). Document and share lessons from improved practice across WASH and NTDs forums, emphasizing issues of governance and behaviour change promotion. • Embed NTD aspects in global and regional WASH forums including regional technical working groups on water and sanitation, Stockholm World Water Week, World Water Forum, Sanitation and Water for All. • Include WASH stakeholders in WHO NTDs technical groups and alliances, such as the NTD Strategic Advisory Group (STAG), WHO Alliance for GET2020, regional NTD programme reviews. • Support virtual platforms for sharing information on WASH and NTDs.	• Share and implement the global WASH and NTDs strategy at the national level, through an annual joint review workshop of WASH and NTD committees (such as national NTDs taskforces, health sector working groups, WASH working groups). • Support engagement in collaboration platforms at all levels. • Ensure WASH is an item on the agenda and that relevant experiences and evidence are shared in annual meetings like those of NNN, Uniting to Combat NTDs, and disease coalitions. • Present information on NTD endemic areas and WASH intervention needs, including disease-specific behaviour change, at national, regional and global WASH forums. • Include WASH stakeholders, NNN groups and disease-specific coordination groups in NTD forums. • Develop accessible web-based platforms for information sharing on WASH and NTDs. • Document and share practices through published literature, case studies and forums.

SO 2. Use WASH and NTD monitoring to highlight inequalities, target investment and track progress

- 2.1 Formulate cross-cutting **programme monitoring and evaluation systems including standardized and comparable success indicators** at global, national and subnational levels
- 2.2 Collect **higher quality and more disaggregated data**, and develop monitoring capacity

Actions by WHO	Actions by endemic countries and partners
Priority actions • Provide technical and normative guidance on developing WASH and NTD monitoring systems and indicators, including on measuring behavioural aspects of disease prevention. • Define joint WASH and NTD programme indicators in coordination with the NNN. • Include NTDs information in key WASH monitoring reports, such as the WHO/UNICEF Joint Monitoring Programme (JMP) for Drinking Water and Sanitation, Global Assessment and Analysis on Drinking Water and Sanitation (GLAAS). • Include WASH information in key NTDs reports, such as WHO NTDs report and formal country reporting on trachoma, soil transmitted helminths, schistosomiasis, lymphatic filariasis and onchocerciasis. • Develop WASH and NTDs policy briefs to highlight progress, draw the relationship between access to WASH and endemicity and point out investments and policy gaps. • Include WASH indicators in regional and national action plans on NTDs. • Provide technical support to joint monitoring and analysis to support programme delivery at the national level.	• Identify ‘basic outcome indicators’ for access to safe water, and access to and use of sanitation, as well as ‘disease-specific outcome indicators’. • Incorporate relevant indicators into national strategic plans for WASH, NTDs, health, education and climate change adaptation as appropriate. • Include, where possible, WASH indicators to contribute to success on NTD targets, and NTD indicators to contribute to success on WASH targets within the national frameworks for reporting progress against SDGs. • Strengthen, use and link NTDs databases (such as the Global Atlas of Helminth Infection, Global Atlas of Trachoma, Preventive Chemotherapy and Transmission Control databank), to complement WASH data (such as national and district inventories, JMP and GLAAS) to inform decision-making and planning. • Include WASH access and investment indicators in relevant NTDs reporting mechanisms, such as Uniting to Combat NTDs report and the London Declaration scorecard. • Include joint WASH and NTD indicators in organizational work plans, log-frames and routine M&E frameworks and surveys.

SO 3. Strengthen evidence on how to deliver effective WASH interventions for NTDs and embed the findings in guidance and practice

- 3.1 Define an **agenda for applied, practical operational research** on effective implementation in practice for research institutions and implementers
- 3.2 Embed guidance on joint implementation for NTD control in **WASH standards and guidelines**, and disseminate and ensure uptake of standards and guidelines into policy and practice
- 3.3 Embed guidance on collaboration with WASH programmes in **NTD standards and guidelines**

Actions by WHO	Actions by endemic countries and partners
Priority actions • Contribute to the development of a WASH and NTDs operational research agenda. • Provide guidance to regional and country offices, Member States and partners on operational research for WASH and NTDs. • Identify formative research sources for behaviour change across sectors at local levels. • Incorporate WASH guidance, tools and training materials in new and revised WHO NTD publications and vice versa; such as <i>WHO Sanitation and health guidelines</i>, <i>Manual on helminth control in school age children</i>, <i>Manual on preventive chemotherapy in human helminthiasis</i>, WHO-AFRO Guide for preparing a master plan for national neglected tropical diseases programmes. • Define guidance for countries and partners by drawing on existing tools. • Identify and present evidence of other platforms where WASH and NTDs are relevant (such as climate change, urbanization, disasters).	• Share experiences on WASH best practices that have been successfully adopted by communities and established in health systems. • Conduct operational research at national and subnational levels. • Share examples and analysis of interventions that have been very successful as well as unsuccessful in forums and published literature. • Contribute to WASH and NTDs research agenda through cross-sector discussions and forums.

SO 4. Plan, deliver and evaluate programmes with mutual inputs from WASH, health and NTDs stakeholders at all levels

- 4.1 Support the development and strengthening of **governance and institutional arrangements** at global, regional and national levels that enable collaboration across NTDs within the context of the overall health system
- 4.2 Promote **joint use of existing datasets and reports** between stakeholders and across sectors to track progress and inform decision-making on programme development and resourcing – at subnational, national and global levels
- 4.3 Develop and use new and existing **integrated planning tools** that set out principles and specific steps and ensure cobenefits for relevant NTDs, other diseases and the health system
- 4.4 Create and support **financial arrangements** that enable collaboration across the NTDs and with WASH
- 4.5 Establish a framework for planning personal hygiene **behaviour change aspects** for both control and disability aspects of NTDs programmes

Actions by WHO	Actions by endemic countries and partners
Priority actions • Develop operational and normative guidance on integrated WASH and NTDs implementation. • Support joint cross-NTDs and WASH coordination processes at regional and country levels. • 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). • Support national authorities under the leadership of the health ministry to incorporate epidemiological profiles in the scope of water and sanitation projects, as well as in the planning, execution and follow-up to maximize the impact of WASH interventions. • Develop joint programmatic WASH and NTDs efforts focused on eradicating and controlling NTDs relevant to each country and region. • Include WASH in country and regional NTD training modules on M&E, database and data quality assessment. • Continue and broaden funding gap analysis work being carried out on trachoma, and apply to other NTD and WASH programmes. • Link with WHO work on monitoring WASH financing.	• Strengthen health systems by putting in place staffing and performance management structures that incentivize WASH and NTDs collaboration. • Gather and analyse data on disease burden and distribution, WASH and NTD programmes, and coverage as a basis for joint WASH and NTDs planning. • Utilize new and updated WHO guidance and training tools on WASH in the training of NTD programme managers. • Strengthen national- and district-coordinating structures to convene WASH and NTDs stakeholders including people affected by NTDs. • Support WASH stakeholders' engagement in national NTD taskforces, and NTD stakeholders' participation in WASH sector platforms. • Jointly identify capacity gaps to address at national and subnational levels (including competencies in behaviour change approaches, WASH, joint planning and monitoring), and formulate a plan to address capacity constraints. • Participate in joint planning processes involving relevant government departments at national level under health ministry leadership. • Encourage pharmaceutical companies, where relevant, to donate treatments to build expectations for WASH and NTDs links into the application process for donated drugs. • Improve internal coordination on WASH and NTDs strategies in agencies that have both WASH and NTD programmes. • Promote WASH and NTDs prioritization on the national health agenda to increase political will and resources. • Develop core costing for disease control programmes to demonstrate the effectiveness and added value of integrated action.

ANNEX II. THE ROLE OF WASH IN PREVENTION AND CARE

		Role of WASH	
Disease	NTD roadmap milestones	Infection prevention	Care and disability
Eradication			
Dracunculiasis (Guinea worm disease)	Eradication by 2015	As infection is caused by consumption of water containing disease-carrying fleas, improved access to safe drinking water is a key prevention strategy, through building improved drinking-water sources water source protection, water filtration, and water treatment with temephos. Promotion of safe drinking water behaviour is also needed.	Wound management is needed to speed up wound healing d reduce the risk of septicaemia and disability. Clean water and hygiene are essential for good wound management, at health facility level and at home.
Endemic treponematoses (yaws)	Eradication by 2020	Overcrowding, poor personal hygiene and poor sanitation facilitate spread of the disease, a bacterial infection caused by treponemes and transmitted through skin contact. Health promotion and improvement in personal hygiene are essential and require access to water.	Clean water and hygiene at health facilities and homes for wound management.
Elimination			
Trachoma	Global elimination as a public health problem by 2020	Facial cleanliness (“F”) and environmental improvement (“E”) are primary prevention components of the SAFE strategy for trachoma elimination. Face washing removes eye discharges and should therefore reduce transmission by eye-seeking <i>Musca sorbens</i> flies, fingers and fomites. This requires access to water. Environmental improvement includes proper sanitation for disposal of excreta to reduce fly populations.	Trachomatous trichiasis is the severe form of the disease, for which surgery is needed. Trichiasis surgery requires clean water and hygienic conditions; visually-impaired individuals require access to inclusive water and sanitation infrastructure.
Schistosomiasis	Elimination in the Eastern Mediterranean Region, Caribbean, Indonesia and the Mekong River Basin by 2015; Elimination in the Region of the Americas and Western Pacific Region, and in selected countries in Africa by 2020	Improved sanitation across the entire community to prevent contaminated faeces and urine from reaching surface water can reduce or eliminate transmission, by stopping worm eggs in faeces and urine from entering water. Some schistosome species can be transmitted through animal (cow, buffalo) urine or faeces, necessitating protection of freshwater from animals/animal waste.	
Chagas disease	Transmission through blood transfusion interrupted (2015); Intra-domiciliary transmission interrupted in the Region of the Americas (2020)	The vector, the triatomine (‘kissing’) bug, is associated with poorly-constructed housing. Although vector control is the key preventive method, good hygiene practices in food preparation, transportation, storage and consumption are also recommended to reduce risk of parasite infection.	
Onchocerciasis (River Blindness)	Elimination in Latin America and Yemen by 2015; elimination in selected African countries by 2020	The blackfly vector, which transmits filarial worms, breeds in fast-flowing rivers and streams. The main control measure is insecticide treatment of larval breeding sites. Water-flow manipulation has been practised in some countries for vector control purposes. Ecological implications of these measures must be considered to inform the desired control strategy.	Visually-impaired individuals require access to inclusive water and sanitation infrastructure.

Role of WASH			
Disease	NTD roadmap milestones	Infection prevention	Care and disability
Lymphatic filariasis (Elephantiasis)	Global elimination as a public health problem by 2020	Improved sanitation and water management can reduce breeding sites of vectors which transmit the microscopic disease-causing worms.	Severe forms of the disease include swelling of the limbs and, in men, of the scrotum, as well as thickening of the skin leading to disfigurement (Elephantiasis). All can lead to permanent disability. People with chronic LF disabilities need to maintain rigorous personal hygiene using water and soap to prevent secondary infection. People with LF are often subject to stigma, leading to poverty and exclusion, and further challenges to accessing WASH.
Leprosy	Global elimination by 2020	Although the cause of leprosy, a slow-growing bacillus (<i>Mycobacterium leprae</i>) is known, the mode of transmission has not been established; therefore there is no established WASH-related primary prevention strategy. As WASH contributes to more hygienic conditions and better health, and therefore a better immune status, improved WASH conditions may make communities and individuals less susceptible to leprosy.	Leprosy can lead to permanent damage to skin, nerves, limbs and eyes. Resulting disabilities make tasks such as carrying water over distance difficult. Wound management through self-care using clean water is needed to speed up wound healing and reduce disability. People with leprosy are subject to stigma and exclusion by the community, and can be excluded from water and sanitation facilities. Limited access to water and sanitation can lead to poor cleanliness and care, contributing to isolation and exclusion.
Human African Trypanosomiasis (Sleeping Sickness)	Country elimination in 80% of foci (2015); Global Elimination by 2020	WASH does not play a significant role in control of infection. However, common risk areas for tsetse fly bites that transmit the parasite include water collection points in forests, and vegetation close to bathing and water collection sites along river banks.	Advanced disease makes water accessibility extremely difficult as affected individuals rely on assistance from others (often children who are prevented from going to school by taking care of their disabled relatives).
Visceral leishmaniasis	Regional elimination by 2020 in the Indian subcontinent	Poor housing and sanitation conditions such as poor waste management and open sewerage may increase breeding and resting sites of sand flies, the vector that transmits the disease-causing protozoan parasite. Environmental management plays a part in vector control.	
Rabies	Regional elimination in Latin America (2015) and South-East Asia and Western Pacific regions (2020)	WASH plays a key role in care of animal bites: wound first aid can be lifesaving. Bites should be immediately washed with soap and water or water alone if soap is not available, then flushed for 15 minutes. This is ideally followed by disinfection with detergent, ethanol or iodine or other substance with virucidal activity.	
Intensified control			
Soil-transmitted helminthiases (intestinal worms)	2015: 50% of preschool and school-aged children in need of treatment are regularly treated; 100% of countries have a plan of action 2020: 75% of preschool and school-aged children in need of treatment are regularly treated; 75% coverage achieved in preschool and school-aged children in 100% of countries	Prevention of open defecation, and adequate sanitation facilities and faeces management, are crucial for preventing worm eggs passed in the faeces of infected persons from reaching soil, food or hands. Improved hygiene practices such as hand washing with soap reduce transmission through contaminated hands. Such measures are needed beyond the household level, particularly in schools.	

		Role of WASH	
Disease	NTD roadmap milestones	Infection prevention	Care and disability
Dengue	2015: Sustainable dengue vector control interventions established in 10 endemic priority countries 2020: Dengue control and surveillance systems established in all regions; Number of cases reduced by more than 25% (2009–2010 as base line) and deaths by 50%	The dengue virus-transmitting <i>Aedes aegypti</i> mosquitoes breed in water containers or in other receptacles in which water has been accumulated (e.g. solid waste, tires etc). Vector control measures may therefore include covering, emptying, and frequent cleaning of domestic water storage containers, and applying insecticides to outdoor water storage containers as one component of integrated vector management.	Severe cases need to be detected early and care requires provision of clean water at home and in healthcare facilities.
Foodborne trematode infections	2015: Foodborne trematode infections included in mainstream preventive chemotherapy strategy; Morbidity due to foodborne trematode infections controlled where feasible 2020: 75% of population at risk reached by preventive chemotherapy; Morbidity due to foodborne trematode infections controlled in all endemic countries	Transmission occurs when infected animals or people defecate in open water sources, and contaminated water or food is subsequently consumed. Important foods include watercress or salad (<i>Fasciola</i>), and raw, undercooked or poorly processed fish or crustaceans (<i>Clonorchis</i>, <i>Opisthorchis</i>, <i>Paragonimus</i>).	Surgery and facility-based care requires clean water and safe sanitary and hygiene conditions at health facilities.
Taeniasis/ cysticercosis and echinococcosis/ hydatidosis	2015: Validated strategy for control and elimination of <i>T. solium</i> taeniasis/cysticercosis available; Pilot projects to validate effective echinococcosis /hydatidosis control strategies implemented in selected countries as a public-health problem 2020: Interventions scaled up in selected countries for <i>T. solium</i> taeniasis/cysticercosis control and elimination; Validated strategy available for echinococcosis/ hydatidosis and interventions scaled up in selected countries for their control and elimination	In the case of taeniasis, acquisition of disease-causing tapeworm larval cysts occurs through ingestion of eggs in faeces of a person who has an intestinal tapeworm. Ingestion of eggs by pigs contributes to maintenance of the life cycle. For echinococcosis, eggs are passed in the faeces of animals such as domestic dogs, foxes, coyotes and other canids and infection takes place via food, water and dirty hands from environmental and direct animal handling. Prevention of these diseases therefore requires sanitation, safe drinking water, and hand washing with soap.	Surgery and facility-based care requires clean water and safe sanitary and hygiene conditions at health facilities.
Cutaneous leishmaniasis	70% of all cases detected and at least 90% of all detected cases treated in the Eastern Mediterranean Region	Poor housing and sanitation conditions such as poor waste management and open sewerage may increase breeding and resting sites of sand flies, the vector that transmits the disease-causing protozoan parasite. Environmental management plays a part in vector control.	Limited access to water and sanitation can lead to poor cleanliness and care, which can contribute to the isolation and exclusion of affected persons. Clean water and good hygiene in healthcare facilities and at home are needed for wound management
Buruli ulcer	2015: Study completed and oral antibiotic therapy incorporated into control and treatment 2020: 70% of all cases detected early and cured with antibiotics in all endemic countries	Although it is known that the disease is associated with exposure to the environment, particularly to slow-moving or stagnant bodies of water, the mode of transmission has not been established, and therefore there is no established primary prevention strategy.	Wound management, which requires clean water and good hygiene at home and in healthcare facilities, is needed to speed up wound healing, in order to reduce disability. Limited access to water and sanitation can lead to poor cleanliness and care, which can contribute to the isolation and exclusion of affected persons. Exposure to dirty water can lead to wound infection and further complications.

Sources:

WHO, March 2014: Trachoma factsheet. www.who.int/mediacentre/factsheets/fs382/en/
WHO, February 2014: Yaws factsheet. www.who.int/mediacentre/factsheets/fs316/en/
WHO, January 2014: Leprosy factsheet. www.who.int/mediacentre/factsheets/fs101/en/
WHO, March 2014: Chagas disease (American trypanosomiasis) factsheet. www.who.int/mediacentre/factsheets/fs340/en/
WHO, March 2014: Trypanosomiasis, human African (sleeping sickness) factsheet. www.who.int/mediacentre/factsheets/fs259/en/
WHO, January 2014: Leishmaniasis factsheet. www.who.int/mediacentre/factsheets/fs375/en/
WHO, March 2014: Dracunculiasis (Guinea worm disease) factsheet. www.who.int/mediacentre/factsheets/fs359/en/
WHO, March 2014: Lymphatic filariasis factsheet. www.who.int/mediacentre/factsheets/fs102/en/
WHO, March 2014: Onchocerciasis factsheet. www.who.int/mediacentre/factsheets/fs374/en/
WHO, February 2014: Schistosomiasis factsheet. www.who.int/mediacentre/factsheets/fs115/en/
WHO, March 2014: Dengue and severe dengue factsheet. www.who.int/mediacentre/factsheets/fs117/en/
WHO, July 2014: Buruli ulcer factsheet. www.who.int/mediacentre/factsheets/fs199/en/
WHO, May 2014: Taeniasis/cysticercosis factsheet. www.who.int/mediacentre/factsheets/fs376/en/
WHO, March 2014: Echinococcosis factsheet. www.who.int/mediacentre/factsheets/fs377/en/
WHO, April 2014: Foodborne trematodiasis factsheet. www.who.int/mediacentre/factsheets/fs368/en/
WHO, April 2014: Soil-transmitted helminth infections factsheet. www.who.int/mediacentre/factsheets/fs366/en/

GLOSSARY

Equity

The absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically. Health inequities involve access to the resources needed to improve and maintain health or health outcomes and entail a failure to avoid or overcome inequalities that infringe on fairness and human rights norms.

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

Conditions and practices that help to maintain health and prevent the spread of diseases, including hand washing with soap or other agents, food hygiene, overall personal hygiene including laundry, and environmental cleaning. In healthcare settings, hygiene measures also include sterilization of equipment, safe disposal of medical waste and surface cleaning.

Integration

Joint planning, implementation, and evaluation of activities across sectors and programmes.

NTD National Master 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

Preventive Chemotherapy consists of the regular, large-scale administration of drugs – either alone or in combination, to population groups, with the aim of reducing transmission and associated morbidity; PC is the public health strategy recommended by WHO against lymphatic filariasis, onchocerciasis, schistosomiasis and soil transmitted helminthiasis and trachoma.

Sanitation

The provision of facilities and services for the safe disposal of human excreta. It refers to the safe management of excreta from collection, emptying, transport, treatment and disposal or reuse.

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.

Water Supply

The provision of water by public utilities, commercial organisations, community endeavours or by individuals, usually via a system of pumps and pipes.

RESOURCES

Chitty A and Waite R (2014) Briefing note: European WASH and NTDs roundtable. SHARE Research Consortium. (http://www.shareresearch.org/LocalResources/Briefing_Note___European_Roundtable.pdf, accessed 18 June 2015)

Gabrielli AF, Montresor A, Chitsulo L, Engels D, Savioli L. (2011) Preventive chemotherapy in human helminthiasis: theoretical and operational aspects. *Trans R Soc Trop Med Hyg.* 105(12):683-93.

Inter-American Development Bank, Sabin Vaccine Institute and Pan America Health Organization (2014) It Can Be Done: An Integrated Approach for Controlling and Eliminating Neglected Tropical Diseases. (http://publications.iadb.org/handle/11319/6644?scope=123456789/1&thumbnail=false&order=desc&rpp=5&sort_by=score&page=0&query=it+can+be+done&group_by=none&etal=0, accessed 18 June 2015)

Savage G, Velleman Y, and Wicken J. (2012) WASH: The Silent Weapon Against NTDs: Working to Achieve Prevention, Control, and Elimination. WaterAid and Neglected Tropical Disease Non-Government Development Organisation Network (NNN). (<http://www.wateraid.org/mg/what-we-do/our-approach/publications/view-publication?id=2f3cb669-d9ea-4092-bd1f-b03545e8c1d5>, accessed 18 June 2015)

Uniting to Combat NTDs (2014) Delivering on Promises and Driving Progress – second progress report on the London Declaration on Neglected Tropical Diseases. (http://unitingtocombatntds.org/sites/default/files/document/NTD_report_04102014_v4_singles.pdf, accessed 18 June 2015)

WHO (2012) Yaws Eradication Strategy. (<http://www.who.int/yaws/strategy/en/>)

WHO (1997) Global Programme to Eliminate Lymphatic Filariasis and Elimination Strategy. (www.who.int/lymphatic_filariasis/policy/en/)

WHO (2012) Schistosomiasis strategy. (www.who.int/schistosomiasis/strategy/en/)

WHO (2012) Intestinal Worms Strategy. (www.who.int/intestinal_worms/strategy/en/)

WHO (2001) Preventing trachoma: A guide for environmental sanitation and improved hygiene. World Health Organization Geneva. (www.who.int/blindness/SAFE_en.pdf, accessed 18 June 2015)

WHO (2012a) Accelerating work to overcome the global impact of Neglected Tropical Diseases: A roadmap for implementation. (www.who.int/neglected_diseases/NTD_RoadMap_2012_Fullversion.pdf, accessed 18 June 2015)

WHO (2012b) Global Strategy for Dengue Prevention and Control 2012-2020. World Health Organization, Geneva. (www.who.int/denguecontrol/9789241504034/en/, accessed 18 June 2015)

WHO (2013) Universal eye health: A global action plan 2014-2019. World Health Organization, Geneva. (www.who.int/blindness/AP2014_19_English.pdf?ua=1, accessed 18 June 2015)

WHO (2014). WHO global disability action plan 2014–2021: Better health for all people with disability. (www.who.int/disabilities/actionplan/en/, accessed 18 June 2015)

WHO SEARO (2009) Enhanced global strategy for further reducing the disease burden due to leprosy (Plan period: 2011-2015). World Health Organization, New Delhi. (www.searo.who.int/entity/leprosy/documents/SEA_GLP_2009_3/en/, accessed 18 June 2015)

WHO SEARO (2009) Enhanced global strategy for further reducing the disease burden due to leprosy (2011-2015) – Operational Guidelines (updated). (www.searo.who.int/entity/global_leprosy_programme/documents/enhanced_global_strategy_2011_2015_operational_guidelines.pdf)

WHO AFRO (2012). Guide for preparing a Master Plan for National Neglected Tropical Diseases Programmes in the Africa Region. Available at (www.afro.who.int/en/clusters-a-programmes/dpc/neglected-tropical-diseases/ntd-publications.html, accessed 18 June 2015)

WHO/ UN Water. (2014) UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) 2014 Report. Investing in Water and Sanitation: Increasing Access, Reducing Inequalities. World Health Organization, Geneva. (www.who.int/water_sanitation_health/publications/glaas_report_2014/en/, accessed 18 June 2015)

REFERENCES

1. Freeman MC, Ogden S, Jacobson J, Abbott D, Addiss DG, Amnie AG, Beckwith C, Cairncross S, Callejas R, Colford JM Jr, Emerson PM, Fenwick A, Fishman R, Gallo K, Grimes J, Karapetyan G, Keene B, Lammie PJ, Macarthur C, Lochery P, Petach H, Platt J, Prabasi S, Rosenboom JW, Roy S, Saywell D, Schechtman L, Tantri A, Velleman Y, Utzinger J. (2013) Integration of water, sanitation, and hygiene for the prevention and control of neglected tropical diseases: a rationale for inter-sectoral collaboration. *PLoS Negl Trop Dis*. 7(9):e2439.
2. Shigayeva A, Atun R, McKee M, Coker R. (2010) Health systems, communicable diseases and integration. *Health Policy Plan*. 25 Suppl 1:i4-20.
3. WHO (2015) Third WHO report on neglected tropical diseases: "Investing to overcome the global impact of neglected tropical diseases". Geneva: World Health Organization. (http://www.who.int/neglected_diseases/9789241564861/en/, accessed 18 June 2015)
4. WHO (2013) Sustaining the drive to overcome the global impact of neglected tropical diseases: Second WHO report on neglected tropical diseases. Geneva: World Health Organization. (www.who.int/neglected_diseases/9789241564540/en/, accessed 18 June 2015)
5. WHO/UNICEF (2015) Progress on Drinking Water and Sanitation: 2015 update and MDG assessment. Geneva: World Health Organization. (<http://www.wssinfo.org/>, accessed 18 June 2015)
6. WHO (2012) Global report for research on infectious diseases of poverty. Geneva: World Health organization on behalf of the Special programme for research and training in tropical diseases. (www.who.int/tdr/publications/global_report/en/, accessed 18 June 2015)
7. Nakagawa J, Ehrenberg JP, Nealon J, Fürstb T, Aratchige P, Gonzales G, Chanthavisouk C, Hernandez LM, Fengthong T, Utzinger J, Steinmann P. (2015) Towards effective prevention and control of helminth neglected tropical diseases in the Western Pacific Region through multi-disease and multi-sectoral interventions. *Acta Tropica*, Vol. 141B.
8. WHO (2015) Third WHO report on neglected tropical diseases: "Investing to overcome the global impact of neglected tropical diseases". Geneva: World Health Organization. (http://www.who.int/neglected_diseases/9789241564861/en/, accessed 18 June 2015)
9. Frick KD, Hanson CL, Jacobson GA. (2003) Global burden of trachoma and economics of the disease. *Am J Trop Med Hyg*. 69(5 Suppl):1–10.
10. Hutton G (2013). Global costs and benefits of reaching universal coverage of sanitation and drinking-water supply. *Journal of Water and Health*. 11(1):1-12.
11. Grimes JET, Croll D, Harrison WE, Utzinger J, Freeman MC, et al. (2014) The Relationship between Water, Sanitation and Schistosomiasis: A Systematic Review and Meta-analysis. *PLoS Negl Trop Dis* 8(12): e3296.
12. Stocks ME, Ogden S, Haddad D, Addiss DG, McGuire C, et al. (2014) Effect of Water, Sanitation, and Hygiene on the Prevention of Trachoma: A Systematic Review and Meta-Analysis. *PLoS Med* 11(2): e1001605.
13. Strunz EC, Addiss DG, Stocks ME, Ogden S, Utzinger J, et al. (2014) Water, Sanitation, Hygiene, and Soil-Transmitted Helminth Infection: A Systematic Review and Meta-Analysis. *PLoS Med* 11(3): e1001620.
14. WHO (2012) Accelerating work to overcome the global impact of Neglected Tropical Diseases: A roadmap for implementation. Geneva: World Health Organization. (http://www.who.int/neglected_diseases/NTD_RoadMap_2012_Fullversion.pdf, accessed 18 June 2015)
15. United Nations Open Working Group of the General Assembly on Sustainable Development Goals. (2015) Open Working Group proposal for Sustainable Development Goals. (<https://sustainabledevelopment.un.org/content/documents/1579SDGs%20Proposal.pdf>, accessed 18 June 2015)

16. United Nations. (2002). The Millennium Development Goals – The Environment. (www.un.org/millenniumgoals/enviro.html, accessed 18 June 2015)
17. WHO (2015) Third WHO report on neglected tropical diseases: “Investing to overcome the global impact of neglected tropical diseases”. Geneva: World Health Organization. (www.who.int/neglected_diseases/9789241564861/en/, accessed 18 June 2015)
18. Inter-American Development Bank, Sabin Vaccine Institute and Pan America Health Organization. (2014) It Can Be Done: An Integrated Approach for Controlling and Eliminating Neglected Tropical Diseases. (http://publications.iadb.org/handle/11319/6644?scope=123456789/1&thumbnail=false&order=desc&rpp=5&sort_by=score&page=0&query=it+can+be+done&group_by=none&etal=0, accessed 18 June 2015)
19. Sightsavers, the UK Department for International Development, The International Trachoma Initiative, Children Without Worms, WaterAid, WASH Advocates, Center for Global Safe Water - Emory University, and CARE USA. (2013). WASH and the Neglected Tropical Diseases: A Manual for WASH Implementers. (www.washtnds.org, accessed 18 June 2015)
20. PAHO (2015) Operational Guidelines for the Implementation of Deworming Activities: A Contribution to the Control of Soil-Transmitted Helminth Infections in Latin America and the Caribbean. Washington, DC: PAHO, 2015. (http://www.paho.org/Hq/index.php?option=com_docman&task=doc_download&Itemid=&gid=29806&lang=en, accessed 18 June 2015)
21. Sightsavers and WaterAid (2013) WASHing away blinding trachoma. (www.sightsavers.net/blogs/insights/helen_hamilton/19621_J0552_Trachoma%20Policy%20Brief%20v%205.pdf, accessed 18 June 2015)
22. Rai, Chandra, Seunghee F. Lee, Hari Bahadur Rana, and Bharat Kumar Shrestha. (2010) “Improving Children’s Health and Education by Working Together on School Health and Nutrition (SHN) Programming in Nepal.” Field Actions Science Reports. The Journal of Field Actions, no. Vol. 3 (September) (<http://factsreports.revues.org/306>, accessed 18 June 2015)

FIVE KEY STRATEGIES TO COMBAT NTDs BY 2020

- ↪ **preventive chemotherapy**
- ↪ **innovative and intensified disease management**
- ↪ **vector control and pesticide management**
- ↪ **safe drinking-water, basic sanitation and hygiene services**
- ↪ **zoonotic disease management**

