

**Regional Action Plan  
for Neglected Tropical Diseases  
in the Western Pacific  
(2012–2016)**



**World Health  
Organization**  

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**Western Pacific Region**



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## Abbreviations

ALB	albendazole
AZI	azithromycin
DEC	diethylcarbamazine (citrate)
EPI	Expanded Programme on Immunization
FBT	food-borne trematodiasis
GNNTD	Global Network for Neglected Tropical Diseases
HMIS	health management information system
IMCI	integrated management of childhood illness
IVM	integrated vector management
JICA	Japan International Cooperation Agency
LF	lymphatic filariasis
M&E	monitoring and evaluation
MDA	mass drug administration
MEB	mebendazole
NTD	neglected tropical disease
PC	preventive chemotherapy
PZQ	praziquantel
SCH	schistosomiasis
STH	soil-transmitted helminthiasis
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WASH	water, sanitation and hygiene
WCBA	women of childbearing age
WHO	World Health Organization

# 1. Executive summary

Neglected tropical diseases (NTDs) have a significant negative impact on health and economies throughout the Western Pacific Region. Approximately 100 million people in the Region are at risk from infection with at least one of the NTDs. Although countries and areas in the Region have made remarkable progress in the control and elimination of NTDs, there is a vital need to consolidate these successes and further reduce the burden of disease. Many of NTDs—such as lymphatic filariasis (LF), blinding trachoma, leprosy, schistosomiasis, and yaws—can be eliminated from the Region in the next 10 years. Others—such as soil-transmitted helminthiasis (STH) and foodborne trematodiasis (FBT)—rely on interventions to control morbidity, while longer-term intersectoral measures to control transmission are scaled up.

## Box 1. Neglected tropical diseases in the WHO Western Pacific Region

blinding trachoma	lymphatic filariasis (LF)
Buruli ulcer	rabies <sup>b</sup>
dengue <sup>a</sup>	scabies
echinococcosis	schistosomiasis
foodborne trematodiasis (FBT)	soil-transmitted helminthiasis (STH)
leishmaniasis	taeniasis/cysticercosis
leprosy	yaws

<sup>a</sup> Included in the separate Dengue Strategic Plan for the Asia Pacific Region (2008-2015).

<sup>b</sup> Included in separate Asia Pacific Strategy for Emerging Diseases (APSED).

NTD programmes in the Region face challenges related to technical and programmatic issues, to political and economic constraints, and to the changing donor and partner landscape. The geographical and epidemiological diversity of the Region means that technical and operational strategies need to be adapted to national contexts. Integrated NTD plans of action need to be developed and political commitment and funding must be increased. Programme management capacity, including human resources, training of staff and supply chain management, needs to be strengthened. Data collection systems, monitoring and evaluation capacity, surveillance, and programme review need technical and financial support in order to improve. Finally, harmonized support from a variety of partners, programmes and sectors continues to be essential to controlling and eliminating NTDs in the Region.

Efforts are needed to further expand coverage of interventions, specifically preventive chemotherapy, case management and transmission control. Sustained support is needed to further assess the burden of infection and disease and adapt newly developed tools and guidelines to suit the various epidemiological situations and populations at risk. Countries and areas need to complete interventions to eliminate LF, blinding trachoma, leprosy, schistosomiasis and yaws and put appropriate surveillance in place to monitor for recrudescence. Finally, increased emphasis on collaboration and partnerships at all levels, using an interprogrammatic and intersectoral approach, is necessary if required outcomes are to be achieved and sustained.

The *Regional Action Plan for Neglected Tropical Diseases in the Western Pacific (2012–2016)* will be the Region's NTD road map for the next five years. It serves to link the WHO global NTD road map with national NTD plans of action. The purpose of the regional action plan is to provide a framework for national NTD plans of action, a tool for monitoring national NTD programmes, and a means to mobilize internal and external resources. The regional goal is to reduce the health and socioeconomic impact due to NTDs, especially among vulnerable groups, and eliminate specific NTDs where feasible, thus contributing to the achievement of the Millennium Development Goals. This will be accomplished through the achievement of the following five objectives:

1. Strengthen political commitment, advocacy and resource mobilization for NTDs.
2. Enhance NTD programme management and intersectoral collaboration in order to sustain and scale up NTD programmes.
3. Scale up access to quality NTD prevention and case management interventions.
4. Strengthen integrated NTD surveillance, monitoring and evaluation.
5. Strengthen research capacity on NTDs and implement research to fill programmatic knowledge gaps.

Successful implementation of programme activities is expected to result in:

1. Elimination of lymphatic filariasis in 10 additional countries and areas by 2016.
2. Elimination of schistosomiasis in Cambodia, China and the Lao People's Democratic Republic by 2016.
3. Elimination of blinding trachoma in Cambodia, China and Viet Nam by 2016.
4. Elimination of leprosy in Kiribati, the Marshall Islands and the Federated States of Micronesia, and further reduction of disease burden in other countries and areas by 2016.
5. Reduction of clinical cases of yaws to zero in high-risk areas in Vanuatu and progress towards elimination in Papua New Guinea and Solomon Islands by 2016.
6. Reduction in morbidity from soil-transmitted helminthiases through national deworming coverage of at least 75% of at-risk school-aged children in 12 countries, preschool-aged children in 10 countries, and women of childbearing age in four countries by 2016.
7. Reduction in morbidity from foodborne trematodiases through preventive chemotherapy coverage of at least 75% of the at-risk population in the Republic of Korea, the Lao People's Democratic Republic and Viet Nam by 2016.

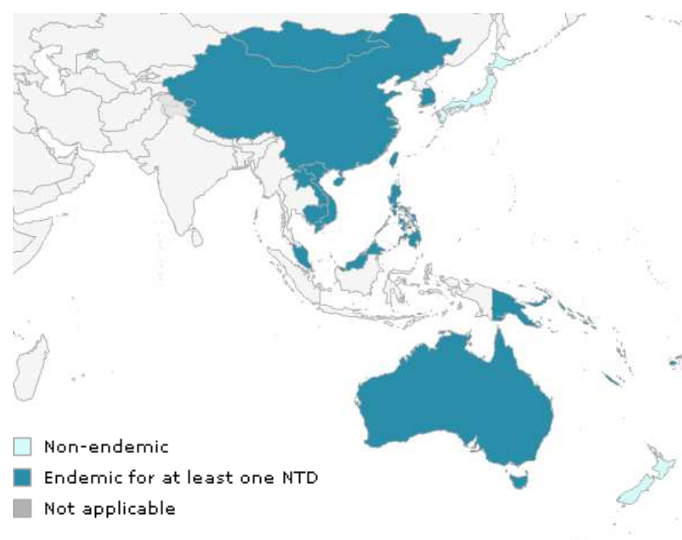
This regional action plan is the result of extensive consultations involving national programmes and multiple stakeholders. It is in line with the United Nations Millennium Development Goals, as well as World Health Assembly resolutions on lymphatic filariasis, blinding trachoma, leprosy, schistosomiasis, soil-transmitted helminthiases and leishmaniasis.

## 2. Current situation

Neglected tropical diseases (NTDs) are a public health issue in at least 28 countries and areas in the Western Pacific Region, resulting in a significant negative impact on health and economies. Priority NTDs in the Region are lymphatic filariasis (LF), schistosomiasis, blinding trachoma, leprosy, yaws, soil-transmitted helminthiases (STH) and foodborne trematodiasis (FBT). In addition, leishmaniasis, echinococcosis, taeniasis/cysticercosis, Buruli ulcer and scabies are endemic in the Region.<sup>1</sup>

Many of these diseases can be controlled or eliminated through preventive chemotherapy, or mass distribution of medicines to populations at risk. Others, such as some of the foodborne trematodiasis and leprosy, focus on individual case management. In areas with similar vectors, vector control to decrease transmission of NTDs can be integrated with vector control for diseases such as malaria. The long-term solution to many NTDs requires improvements in hygiene and sanitation practices, food safety and agricultural methods, based on socioeconomic development and sustained behaviour change. Therefore, the focus of the current regional action plan is to treat those infected with NTDs and prevent morbidity in the interim, while supporting and coordinating with longer-term efforts to control vectors, improve hygiene and food safety, and increase access to clean water and adequate sanitation, as appropriate.

**Figure 1. Countries endemic for at least one priority NTD in the Western Pacific Region**



<sup>1</sup> Rabies is not included in this plan as it is covered separately under the *Asia Pacific Strategy for Emerging Diseases* (APSED). Dengue is not included in this plan as it is covered separately under the *Dengue Strategic Plan for the Asia Pacific Region* (2008–2015).

**Table 1. Status of priority NTDs in the Western Pacific Region**

Disease	Global disease-specific goal <sup>a</sup>	Primary intervention	Number of countries where disease is a public health problem	Estimated population requiring intervention
Lymphatic filariasis	Elimination of LF by 2020	Preventive chemotherapy	22	41 700 000
Schistosomiasis	Elimination of schistosomiasis by 2025	Preventive chemotherapy	4	617 000
Blinding trachoma	Elimination of blinding trachoma by 2020	Surgery Antibiotics Facial cleanliness Environmental improvements	11	unknown
Yaws	Eradication of yaws by 2020	Preventive chemotherapy or case management	3	unknown
Leprosy	Global elimination of leprosy by 2020	Case management	3	8386 <sup>b</sup>
Soil-transmitted helminthiasis (STH)	Deworming coverage of 75% of preschool and school-aged children at risk of STH by 2020	Preventive chemotherapy	17	99 300 000 (children only)
Foodborne trematodiasis (FBT)	Preventive chemotherapy coverage of 75% of the at-risk population by 2020  Morbidity associated with FBT infections under control in 100% of endemic countries by 2020	Preventive chemotherapy or case management	7	206 000

<sup>a</sup> *Accelerating work to overcome the global impact of neglected tropical diseases: a roadmap for implementation*. Geneva, World Health Organization, 2012 (WHO/HTM/NTD/2012.1).

<sup>b</sup> *Number of leprosy prevalence cases in 2010*

## 2.1 Working towards elimination

The past 10 years in the Region have seen significant steps towards the elimination of LF, schistosomiasis and leprosy. In addition to scaling up interventions, operational research, such as the trial of azithromycin to treat yaws in Papua New Guinea, has informed global guidance.

**Lymphatic filariasis**—The 22 countries still endemic for lymphatic filariasis (LF) in the Region aim to eliminate LF<sup>2</sup> before 2020. Three countries—China, the Republic of Korea and Solomon Islands—have previously eliminated LF. American Samoa, Cambodia, Cook Islands, Marshall Islands, Niue, Tonga, Vanuatu and Viet Nam have entered the post-mass drug administration (MDA) surveillance phase. Brunei Darussalam, Fiji, French Polynesia, Kiribati, the Lao People's Democratic Republic, Malaysia, the Philippines, Samoa, Tuvalu, and Wallis and Futuna are still implementing preventive

<sup>2</sup> LF elimination is defined as the absence of LF transmission, measured by <2% antigen prevalence in *Culex/Anopheles* areas, and <1% antigen prevalence in *Aedes* areas. [*Global Programme to Eliminate Lymphatic Filariasis: Monitoring and Epidemiological Assessment of Mass Drug Administration*. Geneva, World Health Organization, 2011.]



chemotherapy in some areas. Three countries and areas in the Pacific—the Federated States of Micronesia, New Caledonia and Palau— require further assessment to determine endemicity status. Papua New Guinea needs rapid scale up in order to reach all those at risk with preventive chemotherapy. Morbidity management and disability prevention activities for those with lymphoedema or hydrocele need to be extensively scaled up to reach all those in need.

**Schistosomiasis**—Schistosomiasis is endemic in Cambodia, China, the Lao People's Democratic Republic and the Philippines. Preventive chemotherapy against schistosomiasis needs to be continued and potentially expanded in all four countries. In order to meet and sustain the global goal of elimination by 2020,<sup>3</sup> complementary measures of improved sanitation and safe water, vector control, and control of animal reservoirs are also necessary.

**Blinding trachoma**—Slated for global elimination<sup>4</sup> by 2020, blinding trachoma is known to be endemic in at least 11 countries in the Region: Australia, Cambodia, China, Fiji, Kiribati, the Lao People's Democratic Republic, Nauru, Papua New Guinea, Solomon Islands, Vanuatu and Viet Nam. In some of the above mentioned countries the exact magnitude of the problem is not yet defined. Efforts are necessary to accurately determine the complete burden of disease in the Region.

**Leprosy**—Three countries have not yet achieved leprosy elimination<sup>5</sup> in the Region: Kiribati, the Marshall Islands, and the Federated States of Micronesia. In addition, Cambodia, China, Kiribati, Malaysia, the Marshall Islands, the Federated States of Micronesia, Papua New Guinea, the Philippines and Viet Nam all reported more than 100 new cases in 2010. An *Action Framework for Leprosy Control and Elimination for the Pacific Island Countries* was prepared in 2011, with a focus on integrating leprosy services into general health services, intensifying early case detection through contract tracing and mass screening, and strengthening rehabilitation services in the three endemic countries.

**Yaws**—Yaws is endemic in three Pacific island countries: Papua New Guinea, Solomon Islands and Vanuatu, mostly in poor populations in remote areas. While mass treatment campaigns in the 1950s significantly reduced the incidence of yaws, there has been a resurgence of the disease due to incomplete initial intervention coverage; however, renewed efforts are now working towards global eradication by 2020.<sup>6</sup> Vanuatu assessed the prevalence of yaws in conjunction with a national malaria indicator

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<sup>3</sup> Elimination of schistosomiasis is defined as prevalence in humans of heavy-intensity infection <1% in all sentinel sites. [*Schistosomiasis Progress Report 2001-2011 and Strategic Plan 2012-2020*. Geneva, World Health Organization, 2012.]

<sup>4</sup> Elimination of blinding trachoma is defined as, at subdistrict level, trachoma follicular prevalence <5% in 1–9 year olds and, at district level, <1 trichiasis case unknown to the health system per 1000 population. [*Report of the Fifteenth Meeting of the WHO Alliance for the Elimination of Blinding Trachoma by 2020*. Geneva, World Health Organization, 2011.]

<sup>5</sup> Elimination of leprosy as a public-health problem is defined as <1 prevalence case per 10 000 population. [*Guide to Eliminate Leprosy as a Public Health Problem*. Geneva, World Health Organization, 2000.]

<sup>6</sup> Yaws elimination is defined as i) zero reporting of clinical cases for three consecutive years, supported by high coverage of active surveillance and information, education and communication activities and ii) continuous negative serological tests for at least three consecutive years after the last clinical case is reported in all children under 5 in the community. Eradication is defined as permanent reduction to zero infection incidence worldwide. [World Health Organization. Eradication of yaws - the Morges Strategy. *Weekly Epidemiological Record*, 2012, 87 (20): 189-194.]

survey in 2011 and has developed an action plan from those results. Papua New Guinea and Solomon Islands both need assessments of the current situation, and it is unknown whether other Pacific island countries also might be endemic.

## ***2.2 Working towards sustainable control***

Preventive chemotherapy coverage of all those at risk for soil-transmitted helminthiases and foodborne trematodiasis is steadily increasing. Pilot efforts to ensure sustainable control through improved hygiene, increased access to water and sanitation, and better food safety practices need to be scaled up.

**Soil-transmitted helminthiases**—Seventeen countries and areas in the Region require preventive chemotherapy for soil-transmitted helminthiases (STH). Cambodia, the Lao People's Democratic Republic, Tuvalu and Viet Nam have achieved the WHO global target of deworming 75% of school-aged children. The other countries and areas have to start or scale up to the 75% coverage target. Preventive chemotherapy for preschool-aged children and women of childbearing age requires significant scaling up in most countries, as well as efforts to control transmission through better hygiene and increased access to safe water and improved sanitation.

**Foodborne trematodiasis**—The full burden of foodborne trematodiasis (FBT) in the Region is unknown, with Cambodia, China, the Republic of Korea, the Lao People's Democratic Republic, Papua New Guinea, the Philippines and Viet Nam all reporting cases. The primary need is to complete the estimation of the geographic distribution and population at risk for FBT by conducting baseline assessments in all areas with a probability of transmission. This research is critical to formulating national strategies, scaling up preventive chemotherapy or case management interventions, and collaborating with other sectors to improve food safety and sanitation.

## **3. Challenges and opportunities**

Although countries and areas in the Western Pacific Region have made remarkable progress in the control and elimination of NTDs, there is a need to consolidate these successes and further reduce the burden of the diseases. The Region is well on its way to eliminating LF, but needs to ensure programmes transition successfully from preventive chemotherapy through MDA and targeted treatment to post-intervention surveillance. Schistosomiasis programmes need to move towards elimination by expanding from preventive chemotherapy interventions to include control of snails and animal reservoirs and improvements in water and sanitation. To meet and sustain leprosy elimination goals, early case finding and treatment are essential priorities. Yaws programmes need to ensure early case finding and treatment are ongoing, while piloting new interventions for preventive chemotherapy using azithromycin. STH programmes need continued support for preventive chemotherapy to reduce morbidity and the

improvement of water and sanitation to interrupt transmission. The burden and geographical spread of FBT and blinding trachoma needs to be further understood in defined countries. Access to diagnosis and treatment of other NTDs, such as leishmaniasis, Buruli ulcer, echinococcosis and taeniasis/cysticercosis, needs to be fully scaled up within the primary health care system.

NTD control and elimination efforts in the Western Pacific Region face challenges related to technical and programmatic issues, to political and economic constraints, and to the changing donor and partner landscape. At the same time, the global political profile of NTDs has risen dramatically in the past 10 years, with more funding and donated medicines available than ever before. This support, as well as recent technological breakthroughs, makes it a time of great opportunity for scaling up NTD programmes.

The key issues facing NTD control and elimination in the Region include the following:

1. Many countries and areas still lack **integrated NTD plans** of action, national policies and guidelines. In addition, NTD plans and activities need to be integrated into the country's primary health care system. Focal points need to be established at all levels of government to harmonize disease-specific programmes and improve coordination with external partners.
2. Even with more global resources available, limited **funding** for scaling up preventive chemotherapy in high-risk population groups continues to impede progress in the control and elimination of NTDs in the Region. Low political commitment for NTD control and elimination has resulted in most endemic countries and areas relying on external funds to scale up programmes.
3. Scaling up preventive chemotherapy and case management is a challenge in **vulnerable populations**, such as those living in conflict situations or in remote areas. Security situations in part of Papua New Guinea and the Philippines have hindered the implementation of activities. The geographic spread of countries and areas in the Pacific means that the logistics of implementing programmes often are a barrier to full implementation.
4. Without access to **quality-assured medicines and diagnostics**, national NTD programmes cannot scale up. Countries and areas have benefited from the donations of albendazole for LF and STH for school-aged children, mebendazole for STH for school-aged children, azithromycin for trachoma, triclabendazole for FBT and multidrug therapy for leprosy. World Vision Australia, Japan International Cooperation Agency (JICA) and the United States Agency for International Development (USAID) also have helped countries procure drugs and supplies for LF, STH and FBT activities. The upcoming donation of diethylcarbamazine citrate (DEC) for LF will assist countries implementing preventive

chemotherapy for LF by providing a quality-assured source; however, there are still outstanding needs for adequate amounts of praziquantel for schistosomiasis and FBT control. Operational research is needed to find better diagnostic tests for post-intervention surveillance for LF, STH diagnosis in remote areas, schistosomiasis diagnosis in low burden environments, and FBT diagnosis.

5. In many countries, the lack of **sustainable programme management** and **well-trained health- care staff** with sufficient knowledge and skills to detect and treat NTDs, especially those diseases which are rare as they are nearing elimination (such as leprosy and yaws), leads to patients remaining undetected for extended periods and not receiving optimal care. This not only can lead to ongoing disease transmission, but also affects the quality of life and social reintegration of patients. Through the country's primary health care system, front-line health- care staff need to receive adequate training.
6. Given the range of diseases and epidemiological situations in the Region, there is a great need to strengthen **technical assistance** available to countries. While there is a wealth of experience in controlling and eliminating NTDs in the Region, including WHO's seven NTD Collaborating Centers, improved planning is needed to make the most of this collaboration. In addition, WHO is facing a shortage of staff dedicated to NTDs and often has to rely on malaria and other programme staff to interact with and advise national NTD programmes.
7. Country **data collection systems** need strengthening, including the integrated and streamlined collection and reporting of data, as well as ensuring feedback is given to local government staff and communities. NTDs are often not captured in Health Information Systems, which leads to a lack of routine data for planning and monitoring.
8. As countries and areas move toward elimination of LF, yaws and leprosy, global strategies for elimination and **monitoring and evaluation** need to be adapted to country-specific circumstances. This is particularly true in some of the Pacific island countries, where efficient day-biting vectors and a history of LF resurgence make post-MDA surveillance critical to provide evidence that transmission truly is interrupted. Technical assistance and capacity building is needed to help countries and areas implement surveys for LF, STH, FBT, blinding trachoma and leprosy, as well as prepare dossiers for verification of elimination of LF, blinding trachoma, yaws and leprosy.
9. With the move towards integration of NTDs, there is a need to consolidate **programme review** at a regional level. Since 2001, the LF programme in the Region has benefited from the guidance of the Regional Programme Review Group, which advises WHO on country

applications for drug donations and provides technical assistance for national LF elimination programmes. As the move is being made to integration of NTDs, the Regional Programme Review Group has been expanded to cover other NTDs, requiring more resources to meet the increased workload.

10. The support of a variety of **partners** continues to be essential to help countries and areas control and eliminate NTDs in the Region. The Global Network for Neglected Tropical Diseases (GNNTD), the Government of the Republic of Korea, USAID and private sector drug donors have supported the WHO Regional Office and the country offices. The Asian Development Bank, the Government of Luxembourg and USAID all have provided financial support to countries and areas in the Region. Japan Voluntary Contribution has provided support through WHO for LF in Pacific island countries and for helminths in the Region, while JICA has supported the purchase of DEC and diagnostic tests for LF in 14 Pacific island countries. The Nippon Foundation, the Sasakawa Memorial Health Foundation, the Pacific Leprosy Foundation and the American Leprosy Mission have supported leprosy elimination efforts in the Region. The Chinese Centers for Disease Control and Prevention, Institut Louis Malardé, James Cook University, the Task Force for Global Health, and the United States Centers for Disease Control and Prevention have provided technical and research expertise. Efforts are needed to maintain these partnerships, explore new ones, ensure aid effectiveness, and ensure that all partners are well coordinated and moving in an agreed-upon strategic direction.

#### **4. The way forward**

Efforts are needed to further expand coverage of interventions—specifically preventive chemotherapy, case management and transmission control—for NTDs in the Region. Sustained support is needed to further assess the burden of disease and adapt newly developed tools and guidelines to suit the various epidemiological situations and populations at risk. The capacity of health services and communities to prevent and treat NTDs must be strengthened, with a focus on improving skills to prevent infection and disease progression. Another important regional focus is ensuring countries and areas can complete interventions to eliminate LF, blinding trachoma, leprosy, schistosomiasis and yaws, and have appropriate surveillance in place to monitor for recrudescence. Increased emphasis on collaboration and partnerships at all levels using an interprogrammatic and intersectoral approach is necessary in order to sustain required outcomes. Investments in research to fill programmatic gaps, as well as strengthened collaboration among national NTD research institutes in the Region, are also needed.

This *Regional Action Plan for Neglected Tropical Diseases in the Western Pacific (2012–2016)* is the result of extensive consultations involving national programmes and multiple stakeholders. The first draft was developed in March 2009 during an informal consultation with leading

NTD experts, and a further draft was revised in May 2011 during a four-day meeting attended by national NTD programme managers and representatives from the ministries of health from 23<sup>7</sup> of the NTD-endemic countries and areas of the Western Pacific Region. In addition, key stakeholders have been included in the development of the plan, including the Australian Agency for International Development, Centre for Neglected Tropical Diseases (Liverpool School of Tropical Medicine), Children Without Worms, Fit for School, GNNTD, James Cook University, JICA, Johnson & Johnson, the Government of the Republic of Korea, RTI International, Task Force for Global Health, USAID, the World Bank and World Vision Australia.

The action plan is in line with the United Nations Millennium Development Goals (MDGs) and will contribute towards achievement of MDGs 1, 2, 4 and 5. It also supports the achievement of the following World Health Assembly resolutions:

- WHA50.29 on the elimination of lymphatic filariasis (1997);
- WHA51.11 on the elimination of blinding trachoma (1998);
- WHA51.15 on the elimination of leprosy (1998);
- WHA54.19 on the control of schistosomiasis and soil-transmitted helminthiasis (2001); and
- WHA60.13 on the control of leishmaniasis (2009).

#### ***4.1 Goal and objectives***

The goal is to reduce the health and socioeconomic impact of neglected tropical diseases, especially among vulnerable groups, and eliminate specific NTDs where feasible, thus contributing to the achievement of the Millennium Development Goals.

##### **Objective 1: Strengthen political commitment, advocacy and resource mobilization for NTDs.**

This will be achieved through increasing support and mobilizing resources for NTD control and elimination at all levels. Commitment to NTD control and elimination will be increased at international, regional, national and subnational levels through advocacy. This will include activities to decrease prejudice, stigma and discrimination against NTD patients. Funding sources will be identified and adequate financial support secured, with an emphasis on public-private partnerships.

**Objective 2: Enhance NTD programme management and intersectoral collaboration in order to sustain and scale up NTD programmes.** This will be achieved through strengthened planning, human

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<sup>7</sup> American Samoa, Brunei Darussalam, Cambodia, Cook Islands, the Federated States of Micronesia, Fiji, French Polynesia, Kiribati, the Lao People's Democratic Republic, Malaysia, the Marshall Islands, Mongolia, Niue, Palau, Papua New Guinea, the Philippines, the Republic of Korea, Samoa, Tonga, Tuvalu, Vanuatu, Viet Nam, and Wallis and Futuna

resources and partner coordination. NTD plans of action, policies, guidelines and standard operating procedures will be developed or updated. Technical and programme management capacity will be strengthened through in-service training and supervision. Partner coordination will be improved, with an emphasis on an intersectoral approach to sustainable control. Key programmatic and technical support networks will be reinforced.

**Objective 3: Scale up access to quality NTD prevention and case management interventions.**

This will be achieved through the implementation of three key strategies: preventive chemotherapy, case management, and transmission control (*see Annex 1*). Integrating preventive chemotherapy, or mass distribution of medicines to those in endemic areas, following WHO guidelines, can maximize the resources available to scale up, where possible. Implementing social mobilization is important to encourage community compliance with preventive chemotherapy. Case management includes increasing access to diagnosis, treatment, and chronic care and rehabilitation. Transmission control focuses on skill-based health education, integrated vector management, safe water, improved sanitation, food safety and agricultural practice improvements. Transmission control activities can be integrated with other programmes, such as distribution of long-lasting insecticide-treated nets for malaria in Papua New Guinea, where the lymphatic filariasis and malaria vector is the same.

**Objective 4: Strengthen integrated NTD surveillance, monitoring and evaluation (M&E).**

This will be achieved at both national and regional levels. National NTD programme monitoring and evaluation will be improved through developing and implementing M&E plans and strengthening surveillance and information systems. A regional framework and database will be developed to harmonize data management. Innovative integrated strategies to monitor programme progress and assess impact will be explored.

**Objective 5: Strengthen research capacity on NTDs and implement research to fill programmatic knowledge gaps.** This will be achieved through identifying and implementing research priorities, and improving mechanisms for sharing and disseminating research findings. Areas of specific focus will be improved diagnostics, effectiveness of integrated programmes and feasibility of intersectoral approaches to sustainable NTD control.

**Successful implementation** of programme activities is expected to result in:

1. Elimination of lymphatic filariasis in 10 additional countries and areas by 2016.
2. Elimination of schistosomiasis in Cambodia, China and the Lao People's Democratic Republic by 2016.
3. Elimination of blinding trachoma in Cambodia, China and Viet Nam by 2016.

4. Elimination of leprosy in Kiribati, the Marshall Islands and the Federated States of Micronesia, and further reduction of the disease burden in other countries and areas by 2016.
5. Reduction of clinical cases of yaws to zero in high-risk areas in Vanuatu and progress towards elimination in Papua New Guinea and Solomon Islands by 2016.
6. Reduction in morbidity from soil-transmitted helminthiases through national deworming coverage of at least 75% of at-risk school-aged children in 12 countries, preschool-aged children in 10 countries, and women of childbearing age in four countries by 2016.
7. Reduction in morbidity from foodborne trematodiasis through preventive chemotherapy coverage of at least 75% of the at-risk population in the Republic of Korea, the Lao People's Democratic Republic and Viet Nam by 2016.

#### ***4.2 Immediate impact of the regional action plan (2011–2016) and next steps***

This *Regional Action Plan for Neglected Tropical Diseases in the Western Pacific (2012–2016)* will be the Region's NTD road map for the next five years. It serves to link the global WHO NTD road map with national NTD plans of action. The Action Plan will not only serve as a framework for countries and areas to use to develop and update national NTD plans, but also as a tool for monitoring national programmes and for mobilizing internal and external resources. It sets out the goal, objectives and main activities, together with goal- and objective-level indicators and targets. Some of the indicators in the Action Plan are adapted from the global NTD indicators that are expected to be reported to WHO annually by all NTD-endemic countries. In addition, a number of other indicators are included to provide essential region-specific information. A detailed description of each indicator will be available as an annex to the Action Plan on the WHO Western Pacific Regional Office's NTD webpage (<http://www.wpro.who.int/sites/mvp/>). As the Action Plan is an evolving document, it will be updated periodically as appropriate, with the most recent version available on the NTD webpage.

The five-year budget for the regional action plan is estimated at US\$ 101 million, with approximately US\$ 46 million already committed by donors and endemic countries and areas. This budget was estimated based on national plans of actions for LF, STH, schistosomiasis, FBT and yaws. Costs for leprosy and blinding trachoma were based upon WHO estimates, if not included in national plans. Costs for regional support were also estimated by WHO staff. The total budget excludes costs for countries that did not request external assistance. In order to achieve the objectives of this plan, an estimated US\$ 55 million is still required to be mobilized.



## 5. Regional Action Plan for Neglected Tropical Diseases in the Western Pacific (2012–2016)

Planning elements	Indicators	Data source	Assumptions and risks
<b>Regional goal:</b> To reduce the health and socioeconomic impact of NTDs, especially among vulnerable groups, and eliminate specific NTDs where feasible, thus contributing to the achievement of the Millennium Development Goals.	1. Elimination of lymphatic filariasis. <sup>8</sup> <i>Regional target: 10 additional countries and areas have been verified as eliminating lymphatic filariasis by 2016 compared to the 2011 baseline of 3/25 countries and areas.</i> 2. Elimination of schistosomiasis. <sup>9</sup> <i>Regional target: 3 countries have eliminated schistosomiasis compared to the 2011 baseline of 0/4 countries.</i> 3. Elimination of blinding trachoma. <sup>10</sup> <i>Regional target: 3 countries have been verified as eliminating blinding trachoma by 2016 compared to 2011 baseline of 0/11 countries.</i> 4. Achieving and sustaining elimination of leprosy. <sup>11</sup> <i>Regional target: 3 additional countries have eliminated leprosy by 2016. All other countries and areas maintain elimination levels.</i> 5. Elimination of yaws. <sup>12</sup> <i>Regional target: 1 country has zero clinical cases in high-risk areas, compared to 2011 baseline of 0 countries. 3 countries progress towards elimination, compared to 2011 baseline of 1 country.</i>	Strategic and Technical Advisory Group for NTDs reports on verification of lymphatic filariasis elimination  National reports on verification of yaws elimination  National reports on verification of leprosy elimination  National reports on verification of blinding trachoma elimination  WHO annual NTD programme reports	Global financial crisis does not affect funding for NTD programme during this period and in this Region.  Political commitment for NTD control and elimination is increased and sustained.  National counterpart resources are increased at all levels.  Sustained interest in partnerships by key stakeholders.  Political and security situations do not interfere with programme implementation.

<sup>8</sup> LF elimination is defined as the absence of LF transmission, measured by <2% antigen prevalence in *Culex/Anopheles* areas, and <1% antigen prevalence in *Aedes* areas. [Global Programme to Eliminate Lymphatic Filariasis: Monitoring and Epidemiological Assessment of Mass Drug Administration. Geneva, World Health Organization, 2011.]

<sup>9</sup> Elimination of schistosomiasis is defined as prevalence in humans of heavy-intensity infection <1% in all sentinel sites. [Schistosomiasis Progress Report 2001-2011 and Strategic Plan 2012-2020. Geneva, World Health Organization, 2012.]

<sup>10</sup> Elimination of blinding trachoma is defined as, at subdistrict level, trachoma follicular prevalence <5% in 1–9 year olds and, at district level, <1 trichiasis case unknown to the health system per 1000 population. [Report of the Fifteenth Meeting of the WHO Alliance for the Elimination of Blinding Trachoma by 2020. Geneva, World Health Organization, 2011.]

<sup>11</sup> Elimination of leprosy as a public-health problem is defined as <1 prevalence case per 10 000 population. [Guide to Eliminate Leprosy as a Public Health Problem. Geneva, World Health Organization, 2000.]

<sup>12</sup> Yaws elimination is defined as i) zero reporting of clinical cases for three consecutive years, supported by high coverage of active surveillance and information, education and communication activities and ii) continuous negative serological tests for at least three consecutive years after the last clinical case is reported in all children under 5 in the community. Eradication is defined as permanent reduction to zero infection incidence worldwide. [World Health Organization. Eradication of yaws - the Morges Strategy. Weekly Epidemiological Record, 2012, 87(20): 189-194.]

Planning elements	Indicators	Data source	Assumptions and risks
	<p>6.Reduction in soil-transmitted helminthiases (STH) morbidity through national deworming coverage of targeted populations at risk for STH. <i>Regional targets:</i></p> <ul style="list-style-type: none"> <li>• 12 countries and areas have achieved/maintained at least 75% national deworming coverage of <u>school-aged children</u> at risk compared to the 2011 baseline of 3/19 countries.</li> <li>• 10 countries and areas have achieved/maintained at least 75% national deworming coverage of <u>preschool-aged children</u> at risk compared to the 2011 baseline of 4/19 countries.</li> <li>• 4 countries and areas have achieved/maintained at least 75% national deworming coverage of <u>women of childbearing age</u> compared to the 2011 baseline of 0/19 countries.</li> </ul> <p>7. Reduction in food-borne trematodiases morbidity. <i>Regional target: 3 countries achieved/maintained at least 75% national preventive chemotherapy coverage of population at risk compared to the 2011 baseline of 1/7 countries.</i></p>		
<b>Objective 1:</b> Strengthen political commitment, advocacy and resource mobilization for NTDs.	<ol style="list-style-type: none"> <li>1. Up-to-date summary of national NTD information available on WHO website</li> <li>2. Annual domestic and external funding for national NTD programme (US\$)</li> <li>3. Proportion of resources available to meet national NTD programme's annual budget needs</li> </ol>	<p>WHO reports to donor agencies</p> <p>Partner annual reports</p> <p>WHO annual NTD programme reports</p>	<p>Political commitment sustained.</p> <p>Sustained interest in partnerships by key stakeholders.</p> <p>All NTD-endemic countries and areas sign on to the regional action plan.</p>
<b>Objective 2:</b> Enhance NTD programme management and intersectoral	<ol style="list-style-type: none"> <li>1. National integrated NTD plans of action are developed or revised, based on independent or joint review, at least every five years</li> </ol>	<p>National NTD Plans of Action</p> <p>WHO annual NTD</p>	<p>Policies are applied by countries and areas.</p> <p>Human resources</p>

Planning elements	Indicators	Data source	Assumptions and risks
collaboration in order to sustain and scale up NTD programmes.	<ol style="list-style-type: none"> <li>Increasing/maintaining the number of partners supporting national NTD programmes</li> <li>National NTD programme is implementing joint interprogrammatic and intersectoral activities to prevent and control NTDs</li> </ol>	programme reports	<p>can be rapidly mobilized and trained.</p> <p>Political commitment is sustained.</p> <p>Sustained interest in partnerships by key stakeholders.</p>
<b>Objective 3:</b> Scale up access to quality NTD prevention and case management interventions.	<ol style="list-style-type: none"> <li>National preventive chemotherapy coverage<sup>13</sup>, by disease</li> <li>Proportion of confirmed NTD cases treated according to national guidelines, by disease</li> <li>Proportion of targeted health facilities with available NTD interventions</li> <li>Proportion of households that use an improved sanitation facility in NTD endemic areas</li> </ol>	<p>WHO annual NTD programme reports</p> <p>HMIS reports</p> <p>Water and sanitation reports</p>	<p>Change in knowledge will lead to a positive change in behaviour.</p> <p>NTD tools continue to be effective.</p> <p>No shortage of necessary medicines.</p> <p>Political and security situations do not interfere with programme implementation.</p>
<b>Objective 4:</b> Strengthen integrated NTD surveillance, monitoring and evaluation.	<ol style="list-style-type: none"> <li>Mapping completed for key endemic NTDs</li> <li>Proportion of M&amp;E activities included in national NTD M&amp;E plans that have been implemented</li> <li>National NTD programme submits complete WHO NTD programme reports annually in a timely manner</li> </ol>	<p>National integrated NTD programme plans of action and/or NTD M&amp;E plans</p> <p>WHO annual NTD programme reports</p>	<p>Policies are applied by countries and areas.</p> <p>NTD tools continue to be effective.</p> <p>Sustained interest in partnerships by key stakeholders.</p>
<b>Objective 5:</b> Strengthen research capacity on NTDs and implement research to fill programmatic knowledge gaps.	<ol style="list-style-type: none"> <li>Number of new NTD operational research projects approved</li> </ol>	<p>Annual NTD programme reports</p> <p>Publications</p> <p>Partner annual</p>	<p>Sustained interest in partnerships by key stakeholders.</p> <p>Political and security situations do not interfere</p>

<sup>13</sup> Proportion of individuals requiring preventive chemotherapy who have ingested the appropriate drugs

<b>Planning elements</b>	<b>Indicators</b>	<b>Data source</b>	<b>Assumptions and risks</b>
		reports	with programme implementation.

## 6. Activities relating to achieving the regional action plan objectives

Activities	Responsible parties
<b>Objective 1: Strengthen political commitment, advocacy and resource mobilization for NTDs.</b>	
<p><b>1.1 Strengthen political commitment, advocacy, visibility and profile of NTD control and elimination programmes at all levels.</b></p> <p>1.1.1 Document and consolidate NTD programme experiences, best practices, successes and lessons learnt for use in advocacy and disseminate among stakeholders.</p> <p>1.1.2 Disseminate updated data via WHO websites.</p> <p>1.1.3 Promote the NTD agenda through high-level political regional forums.</p> <p>1.1.4 Ensure NTDs are given a priority in national health plans, country cooperative strategies, and country strategic framework documents.</p> <p>1.1.5 Provide regular briefings to high-level government officials and opinion leaders.</p> <p>1.1.6 Implement appropriate communication strategies targeting all partners of NTD programmes at all levels within each country.</p> <p>1.1.7 Engage communities to ensure ownership and participation in comprehensive NTD control and elimination activities.</p>	<p>1.1.1 National NTD Programme and Ministry of Health, WHO, other partners</p> <p>1.1.2 National NTD Programme, WHO</p> <p>1.1.3 WHO</p> <p>1.1.4 National NTD Programme and Ministry of Health, WHO, other partners</p> <p>1.1.5 National NTD Programme and Ministry of Health, other partners</p> <p>1.1.6 National NTD Programme and Ministry of Health, other government sectors</p> <p>1.1.7 National NTD Programme, non-governmental organizations, government at all levels</p>
<p><b>1.2 Intensify resource mobilization for NTDs at regional, national and subnational levels.</b></p> <p>1.2.1 Cost national NTD Plans of Action and identify funding gaps.</p> <p>1.2.2 Secure flexible, consistent and adequate funding from internal and external sources to ensure sustainability of programmatic efforts.</p> <p>1.2.3 Support key countries to secure adequate funding, e.g., through technical support for proposal writing and capacity development of fundraising skills.</p> <p>1.2.4 Establish a regional financing mechanism for NTD control and elimination.</p>	<p>1.2.1 National NTD Programme and Ministry of Health, WHO, non-governmental organizations</p> <p>1.2.2 National NTD Programme and Ministry of Health, other relevant government and non-government sectors</p> <p>1.2.3 WHO, other partners</p> <p>1.2.4 Asian Development Bank, WHO, GNNTD, World Bank, other partners</p>
<p><b>1.3 Strengthen the integration and linkages of NTD programmes and financial plans into sector-wide and other financing mechanisms.</b></p> <p>1.3.1 Incorporate NTDs as a key agenda item in other development initiatives.</p> <p>1.3.2 Work with development banks to determine how NTD activities can be added on to intersectoral projects.</p>	<p>1.3.1 National NTD Programme and Ministry of Health, other relevant government and nongovernment sectors</p> <p>1.3.2 WHO, Asian Development Bank, National NTD Programme and Ministry of Health, other partners</p>

Activities	Responsible parties
<b>Objective 2: Enhance NTD programme management in order to sustain and scale up NTD programmes.</b>	
<b>2.1 Develop, review and revise regional and national plans of action, policies, strategies, guidelines and standard operating procedures.</b>  2.1.1 Develop and revise national integrated NTD plans of action at least every five years. 2.1.2 Designate a focal point for NTD activities within the government. 2.1.3 Strengthen a rational approach for integrating NTD programme activities into relevant health programmes at various levels of the health system. 2.1.4 Finalize regional guidance for integrated approaches to preventive chemotherapy, case management, and monitoring and evaluation.	2.1.1 National NTD Programme and Ministry of Health 2.1.2 Ministry of Health, National NTD Programme, other relevant programmes 2.1.3 Ministry of Health, National NTD Programme, other relevant programmes 2.1.4 WHO, Collaborating Centres, other partners
<b>2.2 Strengthen technical and administrative management capacity for NTDs.</b>  2.2.1 Strengthen Ministry of Health human resources through professional development, training, supervision, and other methods to improve staff capacity. 2.2.2 Strengthen technical capacity of Ministry of Education staff, e.g. principals and teachers, to implement and monitor school-based NTD control activities. 2.2.3 Ensure adequate infrastructure and strengthen logistics capacity to support NTD programme operations. 2.2.4 Strengthen financial management.	2.2.1 Ministry of Health and National NTD Programme, public service departments and human resource specialists in the health sector 2.2.2 Ministry of Health and National NTD Programme, Ministry of Education, non-governmental organizations 2.2.3 National NTD Programme, Ministry of Health, central medical stores, partners 2.2.4 National NTD Programme, Ministry of Health, Ministry of Finance
<b>2.3 Strengthen NTD programmes and/or NTD service delivery within the overall health system</b>  2.3.1 Improve supply chain management of quality medicines and diagnostics, including timely procurement, forecasting, storage, stock management and distribution, at all levels. 2.3.2 Monitor drug resistance. 2.3.3 Conduct regular and refresher training at all levels for integrated NTD control and elimination, preventive chemotherapy, case management and integrated vector management.	2.3.1 Ministry of Health, National NTD Programme, Food and Drug Administration, central medical stores, WHO, other partners 2.3.2 Ministry of Health, National NTD Programme, WHO 2.3.3 National NTD Programme, Ministry of Health, other relevant governmental programmes, non-governmental organizations

Activities	Responsible parties
<b>Objective 2: Enhance NTD programme management in order to sustain and scale up NTD programmes.</b>	
<p><b>2.4 Strengthen coordination mechanisms for NTD programmes at national, subnational and regional levels.</b></p> <p>2.4.1 Strengthen national and subnational coordination of NTD programme activities with other public health programmes and intersectorally, maximizing synergies where possible.</p> <p>2.4.2 Support annual regional NTD programme manager meetings and Regional Programme Review Group meetings.</p> <p>2.4.3 Strengthen coordination of technical assistance to NTD programmes.</p>	<p>2.4.1 National NTD Programme, Ministry of Health, other relevant governmental programmes</p> <p>2.4.2 WHO, other partners</p> <p>2.4.3 WHO, WHO Collaborating Centres, academic partners</p>
<p><b>2.5 Strengthen and expand partnerships and networking for the control and elimination of targeted NTDs using an intersectoral approach at regional, national and subnational levels.</b></p> <p>2.5.1 Promote and facilitate regional and sub-regional coordination of NTD programmes.</p> <p>2.5.2 Collaborate with existing and emerging international, regional and sub-regional NTD networks.</p> <p>2.5.3 Promote linkages with the private health sector to ensure access to NTD interventions.</p> <p>2.5.4 Promote linkages with existing initiatives such as Health Promoting Schools, Healthy Settings, Healthy Islands, Healthy Markets.</p> <p>2.5.5 Promote linkages with other programmes, such as school health, and other sectors, such as education, environment and agriculture, to sustain NTD control.</p> <p>2.5.6 Develop annual workplans and sustainable financing mechanisms for implementation of designated activities at WHO Collaborating Centres.</p>	<p>2.5.1 WHO</p> <p>2.5.2 WHO, UNICEF, Asian Development Bank, GNNTD, other partners</p> <p>2.5.3 Ministry of Health, private health sector</p> <p>2.5.4 WHO, non-governmental organizations, other partners</p> <p>2.5.5 Ministry of Health, Ministry of Education, Ministry of Agriculture, Ministry of Environment, other relevant ministries, WHO, non-governmental organizations, other partners</p> <p>2.5.6 WHO, WHO Collaborating Centres</p>

Activities	Responsible parties
<b>Objective 3: Scale up access to quality NTD prevention and disease management interventions.</b>	
<p><b>3.1 Scale-up preventive chemotherapy in areas where the prevalence for specific NTDs reaches the WHO-recommended threshold, in an integrated approach where feasible.</b></p> <p>3.1.1 Conduct preventive chemotherapy for <b>lymphatic filariasis (LF)</b> in areas where LF antigenaemia or microfilaraemia prevalence is <math>\geq 1\%</math>.</p> <p>3.1.2 Conduct preventive chemotherapy for <b>soil-transmitted helminthiasis (STH)</b> in areas where STH stool egg prevalence is <math>\geq 20\%</math>.</p> <p>3.1.3 Conduct preventive chemotherapy for <b>schistosomiasis</b> every year in areas where schistosomiasis stool egg prevalence is <math>\geq 50\%</math>, every two years in areas <math>\geq 10\%</math> but <math>&lt; 50\%</math>, and every four years in areas <math>&lt; 10\%</math>.</p> <p>3.1.4 Conduct preventive chemotherapy for the <b>food-borne trematodiasis: clonorchiasis and opisthorchiasis</b> annually in areas where stool egg prevalence is <math>\geq 20\%</math>; biennially in areas with prevalence <math>&lt; 20\%</math>. Conduct preventive chemotherapy for the <b>food-borne trematodiasis: fascioliasis and paragonimiasis</b> annually where clusters of cases occur.</p> <p>3.1.5 Conduct preventive chemotherapy for <b>blinding trachoma</b> in areas where district prevalence of active trachoma is <math>\geq 10\%</math> or subdistrict prevalence is <math>\geq 5\%</math>.</p> <p>3.1.6 Conduct preventive chemotherapy for <b>yaws</b> in areas where yaws prevalence of active cases is <math>&gt; 5\%</math>.</p> <p>3.1.7 Pilot preventive chemotherapy for <b>leprosy</b> in selected countries and areas.</p> <p>3.1.8 Harmonize preventive chemotherapy schedules.</p>	<p>3.1 National NTD Programme, Ministry of Health, other relevant government sectors, non-governmental organizations, partners</p>
<p><b>3.2 Strengthen and scale up integrated case management and disability prevention for NTDs as part of primary health care and hospital services.</b></p> <p>3.2.1 Conduct <b>active case finding</b> for lymphatic filariasis, schistosomiasis, blinding trachoma, yaws, leprosy, leishmaniasis and Buruli ulcer clinical cases, where appropriate.</p> <p>3.2.2 Conduct <b>active contact tracing</b> for leprosy and yaws, where appropriate.</p> <p>3.2.3 Increase access to <b>diagnosis and treatment</b> for all NTDs, including to: chronic care, rehabilitation and treatment for lymphoedema due to lymphatic filariasis, leprosy, yaws, and Buruli ulcer; and to surgical services for hydrocele due to lymphatic filariasis, trichiasis due to blinding trachoma, leprosy, schistosomiasis, echinococcosis, and Buruli ulcer.</p>	<p>3.3 National NTD Programme, Ministry of Health, other relevant health programmes and government sectors, non-governmental organizations, WHO, other partners</p>



Activities	Responsible parties
<b>Objective 3: Scale up access to quality NTD prevention and disease management interventions.</b>	
<p><b>3.3 Scale up access to transmission control measures.</b></p> <p>3.3.1 Implement comprehensive strategies for skill-based health education and behaviour change communication, including improving hygiene and eating habits.</p> <p>3.3.2 Collaborate with initiatives to improve access to safe water and adequate sanitation.</p> <p>3.3.3 Collaborate with initiatives to improve food safety.</p> <p>3.3.4 Promote linkages with Healthy Settings, Healthy Islands, and Healthy Village initiatives.</p> <p>3.3.5 Institutionalize healthy habits and health education interventions in a school context.</p> <p>3.3.6 Conduct vector control needs assessments for NTDs.</p> <p>3.3.7 Integrate NTDs into national integrated vector management strategic plans, e.g. in areas where lymphatic filariasis and malaria have the same vector.</p> <p>3.3.8 Increase access to vector control interventions to reduce NTD transmission, where applicable, and monitor impact.</p>	<p>3.3 National NTD Programme, Ministry of Health, Ministry of Education, Ministry of Agriculture, Ministry of Environment, other relevant government sectors, WHO, nongovernmental organizations, other partners</p>

Activities	Responsible parties
<b>Objective 4: Strengthen integrated NTD surveillance, monitoring and evaluation.</b>	
<p><b>4.1 Improve surveillance of national NTD programmes.</b></p> <p>4.1.1 Complete mapping for NTDs in high-risk areas.</p> <p>4.1.2 Implement periodic prevalence studies for NTD infections and cases.</p> <p>4.1.3 Update population estimates of disease burden.</p> <p>4.1.4 Stratify risk for NTDs, based on prevalence and ecological factors, by disease.</p> <p>4.1.5 Integrate maps of each NTD disease burden and risk stratification information.</p> <p>4.1.6 Strengthen national NTD surveillance as part of national health information systems.</p>	<p>4.1 National NTD Programme and Ministry of Health, other relevant government sectors, with support from WHO and other partners</p>
<p><b>4.2 Improve monitoring and evaluation of national NTD programmes</b></p> <p>4.2.1 Develop national NTD monitoring and evaluation plans.</p> <p>4.2.2 Implement national NTD monitoring and evaluation plans, including periodic sentinel site monitoring, assessment to determine whether to stop interventions, and post-intervention surveillance capable of quickly detecting recrudescence of disease.</p> <p>4.2.3 Strengthen the reporting and investigation of severe adverse events following administration of NTD medicines.</p> <p>4.2.4 Prepare annual reports for the NTD programme and submit to key stakeholders, including WHO.</p>	<p>4.2 National NTD Programme and Ministry of Health, other relevant government sectors, WHO, other partners</p>
<p><b>4.3 Establish integrated regional and national NTD surveillance, monitoring and evaluation frameworks and databases.</b></p> <p>4.3.1 Develop integrated regional and national NTD surveillance, monitoring and evaluation frameworks.</p> <p>4.3.2 Develop integrated regional and national NTD databases, as part of the global NTD data management system plan.</p>	<p>4.3 National NTD Programme and Ministry of Health, WHO</p>

Activities	Responsible parties
<b>Objective 5: Strengthen research capacity on NTDs and implement research to fill programmatic knowledge gaps.</b>	
<b>5.1 Identify research gaps and priority needs.</b> 5.1.1 Periodically identify regional, sub-regional and national research priorities. 5.1.2 Support regular technical reviews of regional and/or national research findings and update plans, policies and research priorities accordingly. 5.1.3 Integrate NTD research into research agendas at all levels.	5.1.1 WHO and partners (regional), National NTD Programme, Ministry of Health and partners (national) 5.1.2 National NTD Programme, Ministry of Health and partners 5.1.3 National NTD Programme, Ministry of Health, other government sectors, WHO Collaborating Centres, academia, other partners
<b>5.2 Support implementation of priority research.</b> 5.2.1 Promote the conduction of joint operational research between NTD programmes and academia to fill programmatic gaps.	5.2.1 WHO, National NTD Programme, Ministry of Health, WHO Collaborating Centres, other partners
<b>5.3 Improve mechanism for sharing and dissemination of research findings</b> 5.3.1 Support the publication and dissemination of research findings.	5.3.1 Ministry of Health, WHO, other partners
<b>5.4 Support research networks, e.g. Regional Network for Asian Schistosomiasis and other Zoonotic Helminths.</b> 5.4.1 Collaborate with international and regional research networks to prioritize research and share findings. 5.4.2 Strengthen regional leprosy network on route of infection, relapse mechanisms, and vaccine development.	5.4 Ministry of Health, WHO, other partners



## Annex: Scaling Up NTD Prevention and Case Management Interventions

Based on the WHO manual *Preventive Chemotherapy* and disease-specific case management guidelines, the following three packages of interventions to prevent and treat NTDs are recommended by WHO:

- Preventive chemotherapy
- Case management
- Transmission control (which includes vector and reservoir control as well as improvements in sanitation and water quality and supply).

### **Preventive chemotherapy**

Preventive chemotherapy includes mass distribution of medicines to target populations. Depending on the type of diseases targeted and their overlap, there will be variations in types and numbers of medicine combinations distributed in particular areas and at particular times (see Table).

Preventive chemotherapy supportive activities include: training of health personnel; training of drug distributors, principals and teachers; social mobilization; logistics for drug distribution and management; and supervision. These activities, as well as drug distribution, can be integrated with other disease control interventions such as the Expanded Programme on Immunization (EPI) campaigns, Integrated Management of Childhood Illness (IMCI) activities, and school health programmes through Ministries of Education.

**Table 1. Examples of integrated preventive chemotherapy**

Cross-cutting PC types	NTDs targeted	Age range	Delivery channels	Timing of treatment
<u>STH low:</u> One annual round of MDA with ALB/MEB  <u>STH high:</u> Additional round of MDA with ALB/MEB	STH	1–5 years 6–14 years Women of childbearing age (WCBA)	Child health campaigns School-based campaigns Antenatal care	Month 1       Month 6
<u>STH low:</u> One annual round of MDA with DEC+ALB  <u>STH high:</u>	STH, LF	Entire community >2 years (LF) 1–5 years (STH) 6–14 years (STH) WCBA (STH)	Community-based campaigns    Community-based campaigns and child health	Month 1       Month 6

Cross-cutting PC types	NTDs targeted	Age range	Delivery channels	Timing of treatment
Additional round of MDA with ALB/MEB only			campaigns, school-based campaigns, antenatal care	
<u>STH low:</u> One annual round of MDA with DEC+ALB, with PZQ one week later <u>STH high:</u> One annual round of MDA with DEC+ALB Additional round of MDA with ALB/MEB+PZQ	STH, LF, SCH	Entire community >2 years (LF) 6–14 years <i>or</i> entire community > 4 years (SCH) 1–5 years (STH) 6–14 years (STH) WCBA (STH)	Community-based campaigns  Community-based campaigns and child health campaigns, school-based campaigns, antenatal care	Month 1, Month 2  Month 1 and Month 6
<u>STH low:</u> One annual round of MDA with ALB/MEB+PZQ <u>STH high:</u> Additional round of MDA with ALB/MEB	STH, SCH	6–14 years <i>or</i> entire community > 4 years (SCH) 1–5 years (STH) 6–14 years (STH) WCBA (STH)	Community-based campaigns  Community-based campaigns and child health campaigns, school-based campaigns, antenatal care	Month 1  Month 6
<u>STH low:</u> One annual round of MDA with ALB/MEB+PZQ <u>STH high:</u> Additional round of MDA with ALB/MEB	STH, FBT	Entire community > 4 years <i>or</i> selected treatment of those that consume raw fish (FBT) 1–5 years (STH) 6–14 years (STH) WCBA (STH)	Community-based campaigns  Community-based campaigns and child health campaigns, school-based campaigns, antenatal care	Month 1  Month 6
<u>STH low:</u> One annual round of MDA with ALB/MEB, AZI at least one week later <u>STH high:</u> Additional round of MDA with ALB/MEB	STH, Blinding trachoma	Entire community (Blinding trachoma) 1–5 years (STH) 6–14 years (STH) WCBA (STH)	Community-based campaigns  Community-based campaigns and child health campaigns, school-based campaigns, antenatal care	Month 1  Month 6

## **Integrated case management**

The case management package of activities includes identification and management of patients.

<b>Cross-cutting interventions</b>	<b>NTDs targeted</b>	<b>Needs</b>	<b>Other non-NTD opportunities for integration</b>
Active case finding <sup>14</sup>	Lymphoedema and hydrocele (LF) Schistosomiasis Trichiasis (blinding trachoma) Yaws Leprosy Leishmaniasis Buruli ulcer	- Training of health staff - Training of community volunteers - Follow up and supervision	Malaria indicator and other population-based surveys
Active contact tracing <sup>15</sup>	Leprosy Yaws	- Training of health staff - Training of community volunteers - Follow up and supervision	
Diagnosis and treatment	All	- Training of doctors and nurses - Logistics management for diagnostic tests and medicines - Follow up and supervision - Monitoring of drug resistance	Capacity-building for primary health care staff Medical and nursing school curricula Supply chains for HIV/AIDS, malaria, tuberculosis
Chronic care, rehabilitation and treatment	Lymphoedema (LF) Leprosy Buruli ulcer	- Training of doctors and nurses - Training of patients and families - Home-based care kits - Follow up of patients - Referrals for severe cases	Capacity-building for primary health care staff Home-based care for HIV/AIDS, diabetes Community associations and women's groups
Surgery	Hydrocele (LF) Trichiasis (blinding trachoma) Echinococcosis Buruli ulcer Leprosy Schistosomiasis	- Training of doctors and nurses - Surgical kits - Hospital or basic surgical facilities - Follow up and supervision	Capacity-building for basic surgery skills at district level

<sup>14</sup> Active case finding is defined as looking systematically for cases of a specific NTD in groups of people thought to be at risk for the disease. For leprosy, this can include looking for relapsed cases as well.

<sup>15</sup> Active contact tracing is defined as searching systematically for contacts of a case, such as household members, neighbours and social contacts, who might have been exposed to infection, and testing and/or treating them for infection.

## **Transmission control**

NTD transmission control activities are cross-cutting for both vectorborne diseases and other diseases. Transmission control interventions are complementary to preventive chemotherapy and disease management and, as such, they need to be conducted in all NTD-endemic areas. These activities include health promotion, collaboration for water supply and sanitation improvement, and vector control.

<b>Cross-cutting interventions</b>	<b>NTDs targeted</b>	<b>Needs</b>	<b>Other non-NTD opportunities for integration</b>
Mosquito and sand fly control: -Insecticide-treated nets; indoor residual spraying; environmental management	LF Leishmaniasis	Insecticide-treated nets Pyrethroids or non-pyrethroids for spraying Source reduction	Integrated Vector Management: Malaria vector control Dengue vector control
Snail control (intermediate host control)	Schistosomiasis	Molluscicides	Environmental and health impact assessments for infrastructure projects Irrigation projects
Water and sanitation improvement	LF STH Schistosomiasis Blinding trachoma Echinococcosis Leishmaniasis Scabies	Provision of safe water Provision of adequate sanitation	Projects to improve - water supply - water drainage - use of latrines - waste disposal  Community-led total sanitation  School health programmes  Healthy Settings Healthy Islands WASH
Health education to improve hygiene and/or eating practices	STH Schistosomiasis FBT Taeniasis/Cysticercosis Blinding trachoma Echinococcosis Leishmaniasis Scabies	Information, education and communication materials Health education campaigns Skills-based health education, institutionalisation of healthy habits as daily activities in schools	UNICEF Child health projects School health programmes Incorporation into school curricula Healthy Markets Healthy Settings Healthy Islands Cooking classes to provide alternative recipes for raw fish



<b>Cross-cutting interventions</b>	<b>NTDs targeted</b>	<b>Needs</b>	<b>Other non-NTD opportunities for integration</b>
			dishes
Food safety improvements	STH FBT Taeniasis/Cysticercosis Echinococcosis	Improvement of food hygiene Vaccination of pigs Meat inspection	Projects to improve food inspection and control (aquatic products, meat, vegetables)  Cooking classes  Kitchen improvements as part of community development and housing improvement  Veterinary sector
Agriculture improvements	STH Schistosomiasis FBT Taeniasis/cysticercosis Echinococcosis	Deworming infected animals Education of farmers on proper management of livestock and fisheries	Agriculture sector Veterinary sector