



STUDY INTEGRATED IMPLEMENTATION IN COMBATING NEGLECTED TROPICAL DISEASES – THE POTENTIAL OF GERMANY

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German Network against Neglected Tropical Diseases (DNTDs)



The German Network against Neglected Tropical Diseases (DNTDs) e. V.

is a national platform that cooperates with international partners to fight more strongly against poverty-related and neglected infectious diseases (NTDs, Neglected Tropical Diseases). The German network is committed to the London Declaration on NTDs, and aims to support the World Health Organisation (WHO) as well as programmes in the affected countries in controlling, eliminating or eradicating at least ten of the altogether 20 NTDs by the end of the decade.

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Neglected Tropical Diseases in the SDG Agenda



FOREWORD

Neglected tropical diseases (NTDs) are still for the most part unknown in Germany – an astonishing fact given the global significance of these diseases. The group of infectious diseases known as NTDs is defined by the World Health Organization (WHO). NTDs occur predominantly or exclusively in tropical countries. They are widespread: approximately one and a half billion people in more than 100 countries currently suffer from one or more NTDs; another two billion are threatened by them. These diseases often render the affected person unable to work. They can result in blindness, disfigurement, disability, stigmatisation and premature death. Typically, these diseases disproportionately affect poorer segments of the population, which is why, in development cooperation, NTDs are often considered as an indicator of neglect, malnutrition and poor living conditions.

Whenever NTDs are being discussed in Germany, it is predominantly in the context of the research and development of new treatments. In fact, many public research organisations are working on neglected tropical diseases, and various pharmaceutical companies are also engaged in NTD-related research and are developing new drugs against NTDs, often working in cooperation with product development partnerships (PDPs).

The Bernhard-Nocht-Institute for Tropical Medicine (BNI), working on behalf of the Federal Ministry of Education and Research (BMBF), is currently finishing a study that provides an overview of NTD research and

development projects currently underway in German academic institutions and pharmaceutical companies. It also discusses what further research and development (R&D) activities are required for each disease. R&D, especially for new diagnostics and better medicines or vaccines are important, however, it is only one dimension in the fight against NTDs. While unfortunately no vaccines exist for many neglected tropical diseases, some drugs are available. These drugs are mostly being provided by pharmaceutical companies carrying out research, which donate them in large quantities and on a long-term basis. However, these drugs must also reach patients, which is a major challenge in many countries. We should celebrate the fact that, despite many difficulties, local partnerships consisting of the governments of endemic countries, NGOs and industry now reach more than one billion people each year.

How is German development cooperation involved in these programmes? What role does Germany play in combatting NTDs in the light of our country's growing presence in global health, especially in sub-Saharan Africa? How can Germany make an even better contribution? Kickbusch Health Consult and CPC Analytics have sought to address these basic questions in the present study, which has been carried out on behalf of the German Network against Neglected Tropical Diseases (DNTDs). This study and the BNI study are being published in close sequence. The two studies shed light on Germany's role in fighting neglected tropical diseases from different perspectives.

They both show the potential and rational basis for combatting NTDs in the context of the sustainable development goals and thereby make important contributions to the necessary strategic reorientation of health-related development cooperation in Germany.

Berlin, November 2017

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ABOUT THIS REPORT AND SUMMARY

The present study analyses the potential of Germany's contribution to combatting neglected tropical diseases. It has been developed on behalf of the German Network against Tropical Diseases (DNTDs). The central questions of the study are: What contribution can Germany make? What are the strategic options for its future engagement? This study has been developed in a two-stage process. Firstly, in addition to a comprehensive review of the relevant literature, numerous background conversations were held with German and international global health experts. This research resulted in a discussion draft that was presented in May 2017 during a parliamentary breakfast meeting. The draft was discussed by members of the Bundestag and by representatives of various ministries, implementing organisations, non-governmental organisations and science representatives. The feedback gathered from this event and findings from additional discussions were sub-

sequently incorporated into the report.

The present study focuses on Germany's potential from a policy perspective. However, it also complements the analysis of German involvement in research on neglected tropical diseases. The study takes into account various discussions that have taken place in public events during recent months (e.g. the G20 Summit, the Third International German Forum, the second Round Table on NTDs, the second NTD Summit of the World Health Organization) and lays the foundation for further debate in Germany after the 2017 general election and the upcoming revision of the German Global Health Strategy.

In recent years, German international health policy has focused on strengthening health systems. The fight against neglected tropical diseases (NTDs) has played a minor role, which is likely due to the fact that

one of the key measures necessary in combatting NTDs – preventive mass drug administration (MDA) (often referred to as preventive chemotherapy, PCT) – is a “vertical” health program. Health programmes today are usually no longer thought of as isolated: all vertical health programmes must also pursue the goal of making basic healthcare accessible and affordable for all (universal health coverage – UHC). At the same time, the principle of “leave no one behind”, which is inherent in the catalogue of objectives, demands that special attention be paid to ensuring equal access to the health system for all members of society. This paradigm shift also encompasses strategies to combat NTDs, as these diseases most often affect those populations that are poorest and most difficult to reach. NTDs are particularly prevalent where people only have access to insufficiently clean drinking water and poor sanitation, or where they live in inadequate dwellings or in confined spac-

es with their animals. A health system that does not attend to these factors will not achieve a sustainable solution and will fall short of the basic principles of the Sustainable Development Goals (SDGs).

The international NTD community is currently advancing this new orientation of global health strategies by integrating the fight against NTDs into the goal of attaining UHC. The current situation requires a strengthened effort to engage in cross-sectoral coordination and cooperation. Strong partners are nevertheless needed to help the WHO and other organisations implement this new orientation.

This is the area in which Germany's potential lies. This potential is based on the combination of three characteristics of German development and health policy. Firstly, very few other countries have a similarly long experience in strengthening health systems and social security systems. Second-

ly, key areas that Germany's development policy currently focuses on are also those affected by NTDs. And thirdly, because of its increasingly important role in international health policy, Germany has the opportunity to pioneer the integration of the fight against NTDs into the health system agenda. The WHO, the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and Gavi the Vaccine Alliance have already done work on this integration.

A German development cooperation, in the context of the SDGs, that interprets NTDs as a crosscutting issue in the fight against poverty and famine, and for drinking water, sanitation and equal access to healthcare, will not only better achieve its goals, but will also successfully support health systems that will leave nobody behind.

GLOBAL HEALTH IN TRANSITION

1.1 The three drivers of global health changes

Global health policy is facing dramatic shifts that are fundamentally changing the policy field itself, and the relevant actors' behaviour and makeup. For the purposes of simplification, we can identify three central drivers for this development.

First, the adoption of the Sustainable Development Goals (SDGs) in 2015 as a reformulation of the Millennium Development Goals (MDGs) marked a paradigm shift in global health. Health programmes are no longer thought of as isolated: all vertical health programmes must also pursue the goal of making basic healthcare accessible and affordable for all (UHC, goal 3.8). At the same time, the principle of "leave no one behind," which is inherent in the catalogue of objectives, demands that special attention be paid to ensuring equal access to healthcare of all members of society. This goes hand-in-hand with the need to better integrate so-called vertical health programmes that address individual diseases into national health systems. At the same time, the SDGs highlight the importance of the synergies between sectors. The fight against global challenges such as hunger and poverty will not be sustainable without improving health systems in their respective countries.

The second driver is that health is becoming increasingly important as a global policy. On the one hand, cat-

astrophic outbreaks of infectious diseases in recent years have shown how closely linked health is with other areas, whether the health of one's own population (Ebola), armed conflicts (cholera)¹ or climate change (Zika).² On the other hand, global health has also become an important field of foreign policy and has been receiving greater attention at both the G7 and G20 summits. At the heart of these efforts is the conviction that health is also a global public good that can only be achieved through international cooperation.

The third driver is the shift in geopolitical balances as a result of some emerging economies successfully catching up in economic terms in recent decades and of the (possible) withdrawal of some hitherto established actors in health and development policy. The question hence arises of how new initiatives, e.g. China's 'Silk Road Initiative', will change the discourse about development in countries in Asia, Europe and Africa. At the same time, emerging economies with growing wealth are having to mobilise domestic resources to finance their health systems in order to make up for funding that was previously provided in part by international donor countries.

All three drivers are closely linked to one another and suggest a dynamic development that has to be

tackled on the international level. The achievements of past decades are in many ways fragile and require the continuation and intensification of global efforts.³ Multilateral actors – above all the WHO – will play an important role here. The new Director-General of the WHO, Tedros Adhanom Ghebreyesus, has pointed out that progress in healthcare for countries is less an economic issue than a political decision. "[UHC] is more of a political challenge, (...), than an economic one."⁴

1.2 Germany's growing importance in global health

Germany has become a more visible player in the changing landscape of international health policy. Although Germany entered the debate about global health later than other G7 countries, it has considerably expanded its financial and political commitment to global health over the last decade.⁵ Political leadership within the federal government has promoted this development and over the same period has implemented complimentary changes in German foreign policy. The recognition of the great contribution that Germany made to health security during the Ebola epidemic has also contributed to this positive development.

Germany's global health agenda is congruent with the health-related goals for sustainable development. The German approach is rooted in human rights, multilateralism, the Bismarckian model of social protection and the recognition that development is closely linked to economic cooperation (an insight that dates back to the history of its own development after World War II).⁶

Given the changes in the global landscape, it is clear that current German global health policy can potentially play an important role. It seems entirely possible that traditionally very active players in global health, such as the United States and the United Kingdom, which are under pressure to invest in their own countries, might restrict their political and financial commitments. At the same time, the paradigm shift sparked by the introduction of the SDGs, with an increased focus on health systems

and social protection, has enabled Germany to bring more expertise and experience to these areas. In addition, the cross-sectoral approach of the SDGs matches Germany's development approach.

At the same time, Germany has the opportunity to implement key national agenda priorities via its involvement in global health. The focus on development in African countries, exemplified by Germany's Africa Strategy and the so-called 'Marshall Plan with Africa', is complementary to its international development agenda. In addition, the establishment of high-performance and resilient health systems is one way to improve the lives of people in these countries structurally, thereby reducing the likelihood of flight and migration.

The realisation of Germany's strategic opportunity in global health policy will require cooperation with other partners (bilaterally or multilaterally via the WHO). This approach is already apparent in many initiatives, such as the Healthy Systems – Healthy Lives initiative to strengthen efforts to achieve UHC, and in Germany's support for the vaccine research initiative Coalition for Epidemic Preparedness Innovations (CEPI) and for the Global Antibiotic Research and Development Partnership (GARDP).

Germany's financial involvement in global health has increased in recent years. Since 2005, German spending on health-related development assistance has increased by 94

per cent, from 578 million US dollars to 1.1 billion US dollars. The United Kingdom has increased its assistance by 136 per cent from 1.2 US billion dollars to 2.8 billion US dollars, the United States by 136 per cent, from 4.4 billion to 8.6 billion US dollars. In the other G7 countries, the increase has been much smaller, and Italy has even reduced its contribution.*

However, these developments in recent years should not obscure the fact that Germany can only claim an important leadership role if it continues to increase its financial obligations and achieves the 0.1 per cent target for health-related official development assistance.

* The data on which the calculations are based originate from the DAC and CRE database of the OECD (As per: 18 February 2017) and are shown in prices from 2014. The bilateral ODA payments for sectors 120 and 130 were first exported and then added to the contributions to multilateral organisations estimated to be relevant to health by the OECD.

1.3 Sustainable development goals as an opportunity and a challenge in combatting neglected tropical diseases

Neglected tropical diseases affect more than a billion people worldwide.⁷ Although infectious diseases often differ in terms of their causes, transmission, diagnosis and treatment, four characteristics can be identified that pertain to all NTDs.

1 Geographic focus: The diseases mainly occur in tropical and subtropical areas in Africa, Asia and South America.

2 People affected: The diseases usually affect the poorest in the respective countries, especially when drinking water, hygiene and living conditions

are inadequate or where people live in confined spaces with their animals.

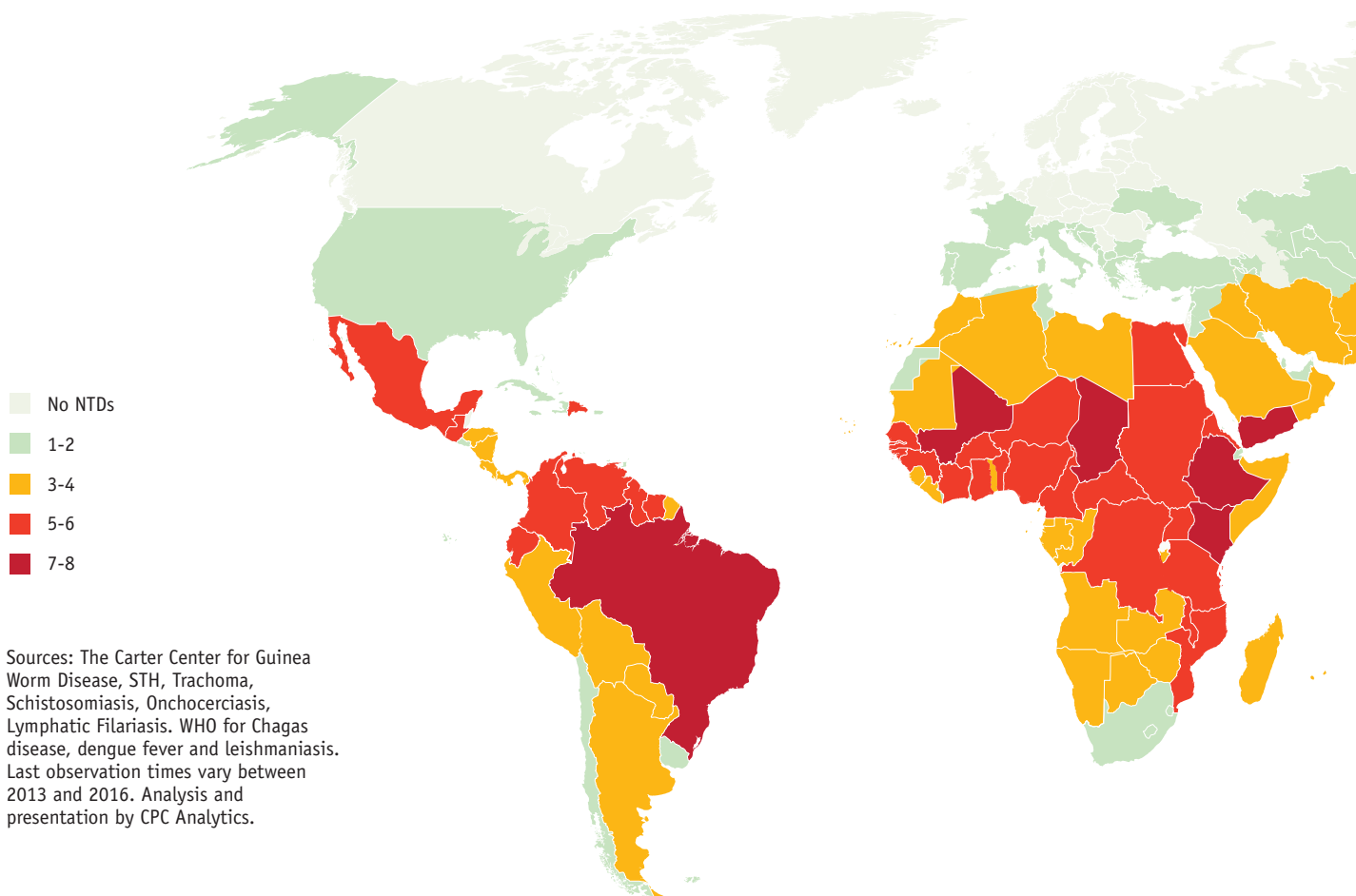
3 Poverty cycle: Diseases protract growth and cause chronic discomfort and disability. They therefore make it difficult or impossible for the person affected to contribute to the welfare of the household and often lead to stigmatisation.

4 Financially unattractive: In most cases, those affected cannot pay for preventive measures or for treatment. Consequently, the development of drugs and diagnostic methods is currently neglected.

Not only 'poor countries' are affected by tropical diseases. In fact, analysis shows that the G20 countries plus Nigeria shoulder half of the total burden of NTD diseases.⁸ NTDs are a global challenge that also affects emerging economies such as Brazil, Indonesia, China and India.

The fight against NTDs cannot be won by one single approach. Rather, the WHO has defined five approaches that, in synergy, can cover all NTDs and without which disease control would be impossible: (1) preventive mass drug administration, (2) selective intensified treatment, including surgery and

Figure 1: Presence of neglected tropical diseases



medication, (3) control of vectors, (4) improvement of water supply and sanitation, and (5) veterinary measures, including the vaccination of animals (see the box on page 12 for more information on the measures recommended by the WHO).

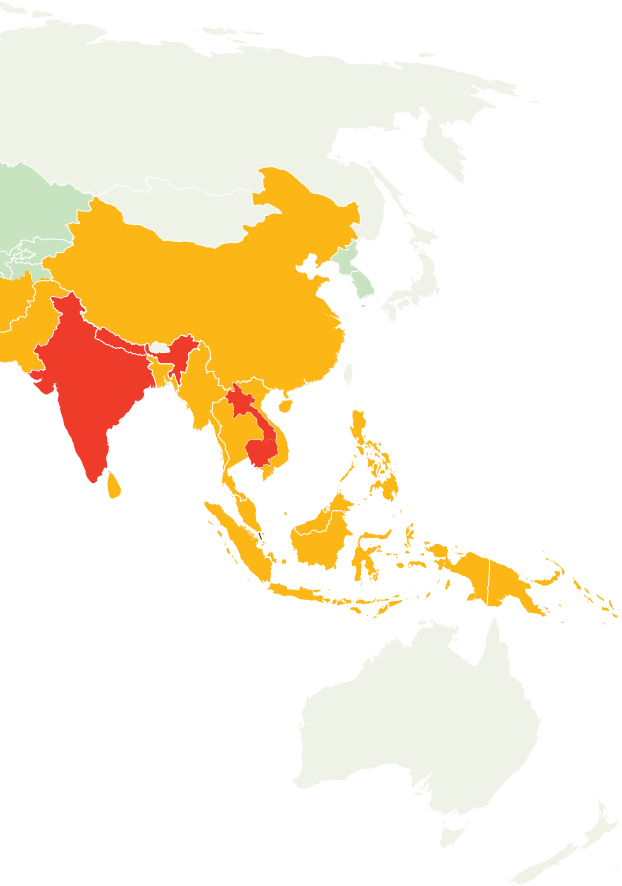
Although these approaches are comprehensive, the most visible measure employed by NTD programmes remains preventive mass drug administration. Especially where safe (so-called “tool-ready”) drugs are already available for particular diseases, far-reaching and fast-acting interventions are possible (for example, worming programmes in schools). Some actors have also put the eradication of individual diseases at the centre of their efforts (such as the Carter Center’s eradication campaign against guinea worm disease/dracunculiasis).

The most visible NTD programmes have therefore mostly been vertical health programmes. The paradigm shift in global health to UHC described above and the need for cross-sectoral cooperation is fundamentally changing this situation. This raises difficult questions in terms of strategic orientation and implementation: How can poverty be combated in the long term if, at the same time, people are suffering from chronic illnesses, the treatment of which would cause them financial ruin?^{9,10} How can agriculture be sustainably improved and expanded if irrigation facilities simultaneously create space for disease-spreading mosquitoes?¹¹ The SDGs call for an engagement with these and many other questions, and NTDs are at the heart of many of these cross-cutting issues.

The above-mentioned characteristics of NTDs (in particular the fact that

they affect the poorest members of society), combined with the fact that WHO interdisciplinary cooperation on NTDs and a network of actors already exists, mean that NTD control plays a key role in realising the SDGs.

A central requirement here is the ability to mutually integrate key elements. Can further key elements of other sectors relevant to the SDGs be included in NTD strategies? Conversely, can NTDs be combated using strategies from other sectors? Although the state of research on other approaches is still limited, these questions can already be answered indicatively (see Chapter 4). The fact that actors in the NTD sector already have experience in integrating disease management with different actors and sectors will be clarified in the next section.



Overview of neglected tropical diseases by cause

Worm infections

- Soil-transmitted helminthiasis (STH, worm diseases)
- Lymphatic filariasis
- Onchocerciasis (river blindness)
- Schistosomiasis
- Guineaworm disease/Dracunculiasis
- Cysticercosis
- Echinococcosis
- Foodborne trematodiasis

Viral infections

- Dengue fever
- Rabies

Parasitic Protozoa

- Leishmaniasis
- African sleeping sickness (HAT)
- Chagas disease

Bacterial/fungal diseases

- Leprosy
- Trachoma
- Buruli ulcers
- Endemic treponematoses
- Eumycetoma

Overview of the NTD interventions recommended by WHO

To cope with the diversity of the diseases in the group of NTDs, in its first report on neglected tropical diseases the WHO integrated five interventions into one bundle of measures. The table below provides an overview of what diseases are combated using the respective measures.¹²

Table 1: Five WHO interventions to combat neglected tropical diseases

Measure	Description	Disease addressed (selection)
Preventive mass drug administration (preventive chemotherapy)	Comprehensive preventive treatment using antimicrobial or deworming drugs	Lymphatic filariasis, yaws, onchocerciasis (river blindness), schistosomiasis, trachoma, soil-borne helminths (worm diseases),
Intensive disease management (IDM)	Various measures for the identification and treatment of NTDs without medication for preventive treatment (e. g. 'multi-drug therapy' against leprosy, operations for African sleeping sickness, vector control)	Chagas disease, leishmaniasis, African sleeping sickness (HAT), Buruli ulcer, leprosy, yaws, mycetoma
Vector control	Capacity-building for the identification, emptying and removal of breeding sites for vectors; spraying of insecticides indoors, mosquito nets; reliable water pipes.	Dengue fever, lymphatic filariasis, onchocerciasis (river blindness), leishmaniasis, African sleeping sickness (HAT)
WASH	Clean sanitary facilities, hygiene and cleanliness awareness, drinking water and wastewater management to prevent contamination, and to interrupt the transmission chain	Schistosomiasis, lymphatic filariasis, soil-transmitted helminths (STH), trachoma
Veterinary measures	Improvement of domestic animal husbandry; medical care of animals (deworming, vaccination) and humans after contact with infected animals; early warning systems for the identification of emerging diseases.	Rabies, echinococcosis, cysticercosis, food-borne trematodiasis

Of these five measures, the preventive mass drug administration is probably most strongly linked with combating NTDs. One reason for this is certainly the unprecedented volume of donations from pharmaceutical companies. In 2015, approximately 2.4 billion tablets were made available, sufficient for 1.5 billion treatments.¹³

Subdividing the diseases according to the respective measures has been criticised time and again in the recent past because it creates a seemingly clear distinction between diseases that do not correspond to the actually necessary control strategy.¹⁴ One example of an integrated perspective is the WHO's SAFE strategy for combating trachoma, which has been in place for many years. A combination of four elements is used: operations on the eyelid (surgery), preventive antibiotic treatment of the community or individual persons (antibiotics), education

on better hygiene (face washing) and environmental measures to reduce the risk of spreading trachoma (environmental change).¹⁵

The fact that preventive mass drug administration is largely based on drug donations has also been a topic of controversial debate for years for various reasons. As early as 2004, a study pointed out that the positive health effects of deworming programs are not sustainable, since people would leave the programmes if they had to pay only a low proportion of own costs. As such, this means there is a risk that a sustainable effect could only be maintained if free distribution were available.¹⁶

Nonetheless, the preventive deworming programmes remain one of the most popular health interventions for donors (see annexes on USAID and DFID). This is partly due to the fact that their effectiveness is well-proven and, at the same time, they are cost-effective. For example, the internet platform for direct donations to charity programmes such as GiveWell identifies the worming programme of Sightsavers, the END Fund, the Schistosomiasis Control Initiative and Evidence Action as 4 of the 7 top charities.¹⁷

With the second partner meeting in Geneva in April 2017, and against the backdrop of a changing global health landscape, the WHO (and many other stakeholders) called for greater integration of NTD programmes and into programmes from other sectors.

Terminology

The terms used in the London Declaration – eradication, elimination and control – have often caused confusion. For example, the 2015 G7 Final Communiqué talks about the eradication of NTDs. And even experts do not always use these terms consistently.

In April 2016, the *WHO Strategic and Technical Advisory Group on Neglected Tropical Diseases* proposed the following definitions for these terms.¹⁸

Eradication refers to the case when the incidence of a particular pathogen has been reduced to zero as a result of deliberate efforts and when there is no risk of the pathogen being reintroduced (e.g., the target for guinea worm disease/dracunculiasis).

Elimination of transmission (also, interruption of transmission) refers to the case when the incidence of infection with a specific pathogen in a defined geographical area has been reduced to zero as a result of deliberate efforts and when the risk of a recurring infection is low. In this case, continuous measures may be needed to prevent such a recurrence. (e.g., Lymphatic filariasis, onchocerciasis in Latin America, particular points of focus in Africa and schistosomiasis in selected regions).

Elimination as public health problem refers to infection by a pathogen and the disease that it causes. Elimination as a public health problem is achieved when a global elimination target set by the WHO is achieved for a specific disease. After the disease is eliminated as a public health problem, continuous action is needed to sustain that situation and/or – if possible – to seek elimination of transmission. (e.g., targets for trachoma by 2020 and schistosomiasis by 2025 worldwide).

Control refers to the case when the incidence (the number of new cases that occur in a given period in relation to a population), the prevalence (the incidence of a disease in a population at a given time), the morbidity and/or the mortality caused by disease is reduced to a locally acceptable level through conscious efforts and when continuous action is needed to maintain this level. The desired level of control may or may not be related to a global goal set by the WHO. (e.g., schistosomiasis and soil-transmitted worm diseases by 2020 in endemic areas with preventive chemotherapy as part of drug mass treatment).

THE FIGHT AGAINST NEGLECTED TROPICAL DISEASES IN TRANSITION

The following section examines three aspects in more detail. Firstly, it is demonstrated how different phases of integration have advanced NTD control. Secondly, progress in NTD control is analysed. And thirdly, the actor landscape, which is also changing, is examined.

2.1 Integration as a guiding principle for combatting neglected tropical diseases

In retrospect, it is straightforward to see how NTD control has gradually evolved from isolated programmes to integrated health programmes. Operational necessity and strategic leadership have been equally important. Currently, response strategies are emerging that are breaking down the strict boundaries between vertical and horizontal health programmes and are increasingly integrating these programmes into

national health systems. There is also pressure to break down sectoral boundaries and to combine NTD control with water and sanitation programmes, and programmes for gender equality, education, combating famine and poverty.

Figure 2 illustrates the evolution of measures to combat NTDs with selected initiatives and decisions since the creation of the first Mectizan Donation Programme in 1987.*

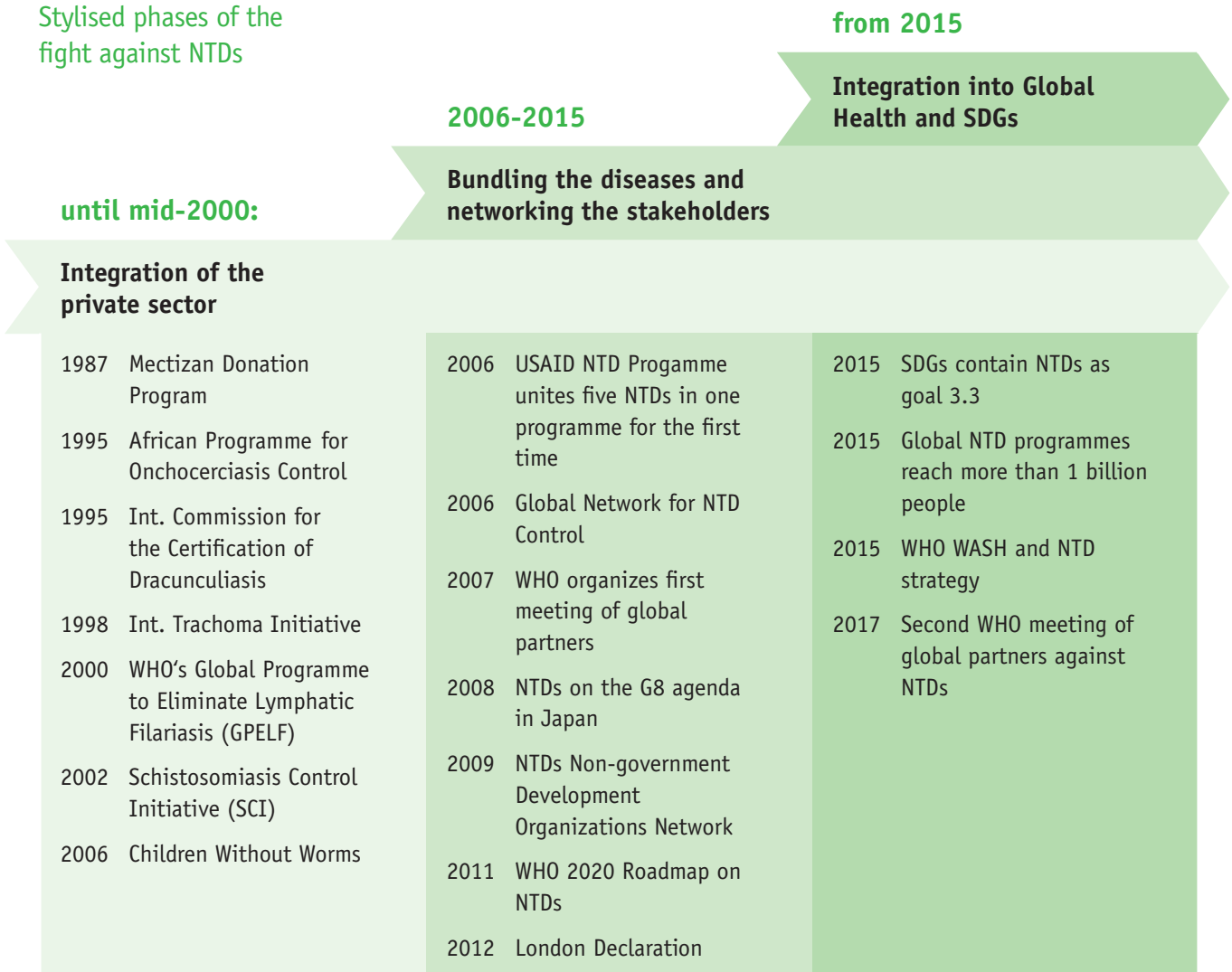
Until the beginning of 2000: Integration of the private sector in the fight against NTDs

Measures to combat the diseases that are now grouped together as 'neglected tropical diseases' began as early as 1952 when UNICEF and the WHO jointly launched a programme against

yaws, followed by the programme against onchocerciasis (1972).¹⁹ In the early years of the first decade of the new millennium, more and more drug companies started participating in drug control programmes to combat worm diseases. Initially, the focus was on the diseases onchocerciasis and lymphatic filariasis (both in the Mectizan Donation Programme), trachoma (International Trachoma Initiative), schistosomiasis (Schistosomiasis Control Initiative), and, later on, soil-transmitted worm diseases (Children Without Worms). A key player was (and still is) the Global Health Task Force, founded by the former head of the US Center for Disease Control and Prevention (CDC), Bill Foege. This organisation, which initially had the mission of increasing vaccination coverage in African countries, not only acted as a platform for the actors,

* This classification is a stylised and simplified representation. As outlined in the WHO's first NTD report, the first programmes to promote veterinary and WASH components began in the early years of the WHO and the onchocerciasis control programme in West Africa began in 1974. With the Carter Center's involvement in the eradication efforts for guineaworm disease/dracunculiasis since 1982, the first step towards networking the actors was also taken.

Figure 2:
Stylised phases of the
fight against NTDs



but later also took over the technical and strategic coordination of the initiatives (except in the cases of schistosomiasis and guineaworm disease/dracunculiasis).²⁰

Mid-2000 – 14: Bundling of disease programmes and networking of the actors

The second level of integration involved the grouping of various diseases that previously had been only considered in isolation under the umbrella term ‘neglected tropical diseases’ (NTDs). The term probably originated

in joint workshops with the then Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, the WHO and German ministries in Berlin in 2003 to 2005.²¹ Yet it was, in particular, the establishment of the USAID NTD programme and the founding of the Global Network for Neglected Tropical Diseases (GNNTD), supported by the Bill and Melinda Gates Foundation (BMGF), in 2006 that marked the beginning of this phase.

The USAID NTD programme was the first publicly funded healthcare programme that united efforts to combat five neglected diseases. Only so-called “tool-

ready” diseases were selected, i.e. diseases for which safe, affordable and proven medications were available.²² The Global Network for Neglected Tropical Diseases Control was also founded in 2006. It is a platform that aims to better orchestrate the various donation and disease control programmes and to strengthen our understanding of NTDs as a group of diseases.²³ An important manifestation of this bundling of individual control programmes was the meeting of global partners in Geneva, organised by the WHO in February 2007.²⁴

Beyond this, a better international networking evolved between the actors in a disease-specific manner. This has largely been driven by the World Health Organisation (Roadmap 2020) and the Bill and Melinda Gates Foundation, which support numerous collaborative platforms.²⁵ Non-governmental organizations (NGOs), which first formed disease-specific networks (e.g. the International Trachoma Control Initiative) and then in 2009 organised themselves under the umbrella organisation Neglected Tropical Disease NGO Network (NNN), have played an important role in international networking with the aim of exchanging knowledge and strengthening experience.²⁶

Approaches to tackle NTDs have also changed on a multilateral level: in 2007 the WHO published its first comprehensive plan to combat NTDs, with targets to be reached by 2015. The Special Program for Research and Training in Tropical Diseases (TDR) also supported this development with a new strategy published in 2007 to improve implementation research conducted in partner countries in the area of NTDs.²⁷ Within the G8 group, Japan was the first country to include neglected tropical diseases on the summit's agenda in 2008, and the issue was reiterated in the final declaration a year later at the G8 summit in L'Aquila, Italy.²⁸

In the first half of the 2010s, the signing of the London Declaration in 2012 led to unprecedented drug donations from pharmaceutical companies and a greater engagement to develop existing drugs further or to prepare them for the market. Clear goals were set for the control, elimination and eradication of ten NTDs. In addition to the German companies Bayer und Merck, a total of 13 research-active pharmaceutical companies signed the London Declaration. No representative from

the German federal government was present at the signing of the London Declaration.

From mid – 2015: Integrated implementation of measures to combat NTDs according to SDGs

With the adoption of the SDGs of the Agenda 2030 agreement, the priorities of global health policy have shifted once again (see Chapter 1). International efforts to achieve UHC by 2030 and the pressure to extend essential health services even to the most marginalised population groups challenge the status quo of how NTD programmes are designed. Those programmes – which in 2016 reached more than one billion people – are confronted with the question of how they can go beyond this contribution to global health and make a sustainable contribution to the creation and expansion of health systems at the same time.

At the same time, the challenge remains not only to maintain efforts to combat NTDs, but also to extend these efforts. According to the World Health Organization, around 1.6 billion people²⁹ still require mass preventive drug administration against at least one of the five relevant diseases – every year.* Despite the efforts of previous years, only 63 per cent of people in need of treatment for one of the five diseases received it.³⁰

These two developments are gradually leading to a greater integration of anti-NTD strategies into global health and development politics.

Firstly, increasing attention is being given to interconnections between neglected tropical diseases and other health problems. NTDs are now recognised to represent a threat to mother-and-child health (e.g. hook-

worm in pregnant women),³¹ to lead to an increased risk of HIV transmission during sexual intercourse (genital schistosomiasis)³² and frequently to cause social stigmas that place a strain upon mental health (a result of at least 10 NTDs).^{33,34} These direct threats to health or co-factors necessitate a common strategy against different diseases within an integrated programme. To date, international programmes have made little use of this knowledge. NTDs were neither considered a priority by the President's Emergency Program for AIDS Relief (PEPFAR) nor by the Global Fund against AIDS, Tuberculosis and Malaria (GFATM).³⁵

* Lymphatic filariasis, trachoma, onchocerciasis, soil-borne worm infections and schistosomiasis

Secondly, the significance of specific characteristics of neglected tropical diseases for global health is now better understood. The presence (or absence) of NTDs, which primarily affect the most neglected people, can be understood as a proxy for poverty and the success of counter-poverty programmes.³⁶ Furthermore, a low level of coverage for NTD treatments in endemic regions can take on a “tracer” function, revealing unequal participation within the health system.³⁷ When coverage of preventive drug treatment remains low, in spite of its necessity, the UHC Reform has failed to meet its goal of prioritising cost-effective interventions. The provision of adequate water and hy-

giene facilities represents a similar case. Little progress in this area means a greater likelihood of infection with certain NTDs for people in endemic regions.

As in the early 2000s, a conference organised by the WHO – the second meeting of the global partners – might have marked the turning point. The fourth progress report on the fight against NTDs gave NTD programmes the task of attaining sustainable development goals. This is a matter not only of integrating NTDs into the wider global health agenda, but also into development collaboration in general.³⁸ A concrete example of such cross-sectoral approaches is

the WHO’s global WASH NTD Strategy for 2015-2020, which establishes goals and measures for the common planning, implementation and evaluation of programmes in both sectors.³⁹

2.2 Progress and adaptation requirements in combatting neglected tropical diseases

As set out in the previous section, the strategy of the NTD community has continuously developed and progress is visible. However, the global challenges remain immense. The following section will briefly describe both aspects.

The disease burden of neglected tropical diseases

According to estimates, there were more than two billion prevalent neglected tropical diseases (NTDs) infections globally. Of these, approximately 1.75 billion were intestinal worm infections (helminths)** – roughly 75 per cent of all prevalent NTD infections.⁴⁰ Further widespread NTDs are schistosomiasis, trematodes, dengue fever, lymphatic filariasis (elephantiasis), onchocerciasis (river blindness) and Chagas disease.

The disease burden of neglected tropical diseases*** for the global population is enormous. This is expressed in the concept of so-called disability-adjusted life-years (DALYs), which measure the effect of a disease in both mortality and the impairment of normal, symptom-free life. The disease burden of neglected tropical diseases is estimated at 25.2 million DALYs and hence represents the fourth largest disease burden of all infectious diseases, after malaria, HIV/AIDS and tuberculosis.⁴¹

Since a large number of NTDs cause chronic symptoms and disabilities, the majority of the disease burden of NTDs is not the result of early death, but rather the number of years that those affected must live with particular impairments.⁴² This aspect is illustrated in Figure 3 through the use of different shades. Moreover, the figure makes it clear that sub-Saharan

countries are the most affected by neglected tropical diseases, followed by South Asia, Southeast Asia, Latin America, North Africa and the Middle East. Central Europe and higher-income countries are relatively unaffected. A detailed breakdown of important NTDs according to region can be found in the annex (see figure 8 on page 44).

** Ascariasis, trichuriasis, hookworms (*Ancylostoma*, *Necator*).

*** At that time still a group of 13 diseases.

Table 2: Prevalence of NTDs and progress since the beginning of the 1990s

Disease	Prevalent cases (millions), 2013	Change since 1990 (in %)
Ascariasis	804.4	-25.50%
Trichuriasis	477.4	-11.60%
Hookworm	471.8	-5.10%
Schistosomiasis	290.6	30.90%
Trematodes	80.2	51.10%
Dengue*	58.4	610.90%
Lymphatic filariasis	43.9	-32.10%
Onchocerciasis	17	-31.20%
Chagas disease	9.4	22.40%
Other NTDs	68.74	

* Incidence cases in 2013 represented as prevalence cases. Exclusively symptomatic cases.

Note: A person could be affected by one or more diseases.

Source: Herricks, J. R., Hotez, P. J. et al (2017). The global burden of disease study 2013: What does it mean for the NTDs? PLOS Neglected Tropical Diseases, 11(8), e0005424. Original data: Global Burden of Disease Study.

Progress in combatting individual diseases

Over recent years, efforts to combat particular neglected tropical diseases have been significantly increased. That these efforts in many cases have led to great success is not subject to question – for example, the reduction of guinea worm disease/dracunculiasis from 3.5 million cases in 1980 to 25 cases in 2016. However, progress has not been uniform. The table below offers an overview of the status quo in combatting diseases. It reflects the research of Hotez and Aksoy.⁴³ An alternative source is the “Scorecards” regularly published by Uniting to Combat (UTC), which keep track of progress in regard to the goals of the London Declaration.⁴⁴

The first group contains five diseases that the 2012 London Declaration targeted for elimination (for guinea worm disease/dracunculiasis the goal is eradication). In the case of African sleeping sickness (HAT), progress has

been made over the last ten years particularly through vector control (tsetse flies).⁴⁵ In the case of lymphatic filariasis and trachoma, global prevalence has been halved, which can be traced to the mass drug administration (MDA) coordinated by the WHO in endemic regions as well as a combination of measures (WHO SAFE strategy).⁴⁶ Nonetheless, the possibility of eliminating the diseases by 2020 depends on the continued funding of programmes for mass preventive drug administration.

Significant progress has been made over the last ten years in the case of rabies (40-50 per cent fewer lethal cases), leprosy, onchocerciasis (30-50 per cent reduction of prevalence), ascariasis (20-25 per cent reduction of prevalence), schistosomiasis and cysticercosis. The last two nonetheless present significant hurdles to overcome: in its fourth progress report, the WHO indicated that the combatting of schistosomiasis via preventive chemotherapy must be continued and extended, but that elimination by 2025

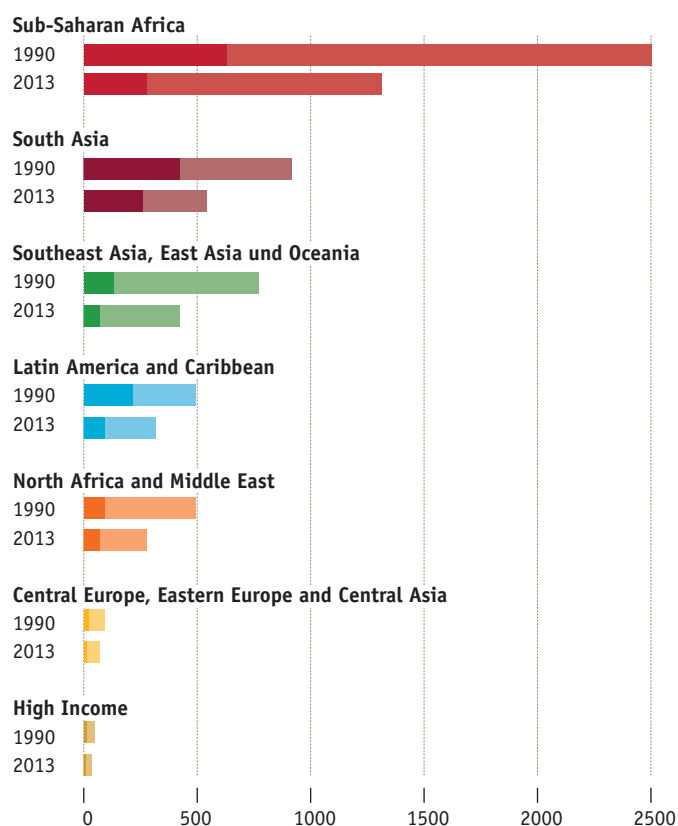
will only be possible if, amongst other things, WASH measures are strengthened, the integration of the programme into health systems is functional, vector control is strengthened and new diagnostics allow more rapid diagnosis in regions with lower infection rates.⁴⁷ The case of cysticercosis is similar, where, considering transmission paths via animals and pork meat, a stronger “OneHealth” approach is required, including both the vaccination of animals and changes in animal husbandry.⁴⁸

The limited status of improvements regarding four other worm-related diseases can essentially be traced to two factors. Firstly, drugs that have shown a significant effect against other worm-related diseases might be significantly less effective here (Albendazol/Mebendazol against trichuriasis and hookworm). It will be essential to develop further strategies and technologies to make further progress. Furthermore, in addition to children, adults must also be addressed who were not

involved in previous (often school-based) programmes. Secondly, there are simply no (adequately financed) programmes for the containment of these diseases, as in the case of trematodes and echinococcosis. Further alliances and initiatives are necessary in order to coordinate these efforts.

There is an alarming situation regarding some NTDs whose prevalence has risen sharply recently (e.g. dengue fever, chikungunya and Zika) or which have flared up again in endemic regions owing to conflicts (leishmaniasis), the unavailability of control strategies or their decreasing effectiveness (Chagas disease). Both in the case of diseases transmitted by vectors and Chagas disease, the WHO is promoting greater disease-monitoring systems and improved diagnostics and vector-control measures.⁴⁹ Finally, in the case of the above-mentioned diseases dengue fever, chikungunya and Zika, environmental changes such as climate change, deforestation and rapid urbanisation, as well as increasing rates of travel abroad, play a significant role.⁵⁰

Figure 3: Proportional illustration of DALYs (per 100,000 people) for all NTDs, 1990-2013



Source: Hotez, P. J., Damania, A., & Naghavi, M. (2016). Blue Marble Health and the Global Burden of Disease Study 2013. PLOS Neglected Tropical Diseases, 10(10), e0004744.

Table 3: Progress in combatting NTDs

On the way to elimination	Significant progress	Small improvements	Alarming situation
<ul style="list-style-type: none"> ■ Guinea-worm disease/ Dracunculiasis ■ African Sleeping sickness (HAT) ■ Lymphatic filariasis ■ Trachoma ■ Yaws 	<ul style="list-style-type: none"> ■ Rabies ■ Leprosy ■ Onchocerciasis ■ Ascariasis ■ Cysticercosis ■ Schistosomiasis 	<ul style="list-style-type: none"> ■ Trichuriasis ■ Hookworm ■ Trematodes ■ Echinococcosis 	<ul style="list-style-type: none"> ■ Dengue fever* ■ Leishmaniasis ■ Chagas disease

*And other viruses transmitted by mosquitoes and flies.
Source: Translated and adapted from Hotez, P., & Aksoy, S. (2017).

2.3 Momentum and gaps within the landscape of stakeholders

The progress in combatting neglected tropical diseases described above is also the result of increased engagement on different levels:

- **Financial engagement:** The programmes of the US, UK and the Bill and Melinda Gates Foundation (BMGF) have given major impulses to measures to combat NTDs.

- **Engagement via drug donation:** Between 2009 and 2015 the number of treatments via donated drugs increased from around 700 million to 1.5 billion per year.

- **Increased engagement from partner countries:** National plans to combat NTDs increasingly anchor efforts within national institutions.

Financial engagement:

Momentum: In 2006 the US launched the USAID NTD programme, the first health programme that combined the combat against five neglected tropical diseases. So-called “tool-ready” diseases were selected – that is, those for which safe, cost-effective and tested drugs were available.⁵¹ The programme was supported by both Presidents George W. Bush and Barack Obama and, by 2015, the annual programme budget had risen from 15 million US dollars to 100 million dollars.⁵² A similar initiative was launched in 2008 by the British government with funds of 59 million pounds.⁵³ Support from the British government was increased between 2013 and 2017 such that between 2017-22 roughly 60 million pounds will be contributed to combatting NTDs (see page 47 for a detailed overview of the programme).

Alongside these state actors, the Bill and Melinda Gates Foundation plays a central role. In 2008 the foundation combined several individual infectious disease programmes into one, addressing “Neglected and Other Infectious Diseases.”⁵⁴ According to the foundation’s own database, roughly 1.35 billion US dollars have been invested into projects related to neglected tropical diseases.* Of these, 540 million US dollars were provided between 2010 and today. This corresponds to roughly 67.5 Million US dollars per year. Although NTDs are not a major priority of the foundation, the BMGF is nonetheless one of the largest financial donors within the field of neglected tropical diseases.

Gaps: In its third progress report on NTDs, the WHO estimated the financial requirements for reaching the 2020 goals as 750 Million US dollars between 2015 and 2020 – more than double the commitments for the year 2014.⁵⁵ Increased financial engagement from partner and donor countries were required. If development partners could not meet these needs, not only would attaining the 2020 goals be in question, but successes of previous years might also be negated.⁵⁶

Engagement via drug donation:

Momentum: The signing of the London Declaration in 2012 triggered an unprecedented quantity of drug donations. In 2015 the number of donations increased to 2.4 billion pills worth more than 1.5 billion euros.⁵⁷ In total ten pharmaceutical companies have drug donation programmes

via which nine neglected tropical diseases can be treated. The two companies headquartered in Germany donate drugs against schistosomiasis (Merck), African sleeping sickness and Chagas disease (both Bayer AG).

* The analysis draws on two sets of data from the BMGF database “Awarded Grants”, see: The categories “Neglected Tropical Diseases” and “Neglected and Infectious Diseases” were selected and randomly checked to see whether the purpose of the funding is actually related to neglected diseases. Two major Global Policy and Advocacy projects were excluded as well as a WHO funding project, since NTDs played a subordinate role in this context. Bill and Melinda Gates Foundation. (2017). Awarded grants database. Retrieved Apr 03, 2017 from

<https://www.gatesfoundation.org/How-We-Work/Quick-Links/Grants-Database>.

<https://www.gatesfoundation.org/How-We-Work/Quick-Links/Grants-Database>.

Gaps: Not all donated drugs reach those people threatened by diseases.⁵⁸ Problems can arise regarding the required volumes of drugs (too little lead time), delivery at ports of destination (problems with customs) and also in the distribution within target countries (e.g. a lack of coordination/resources).⁵⁹ Moreover, there are strategic challenges to overcome: although donation programmes are seen as necessary for progress in combatting NTDs, in their present form businesses often do not see them as sustainable.⁶⁰ Questions of resistance development must be taken into account alongside parallel measures such as vector control and healthcare infrastructure.

Engagement of partner countries:

Momentum: Over the past ten years, numerous countries have adopted national NTD strategies.⁶¹ “Ownership” on the part of partner countries is one of the central prerequisites for successful implementation. This situation becomes even more complex when NTD programmes combine several diseases.⁶² An important step in this direction was made by the Expanded Special Project for Elimina-

tion of Neglected Tropical Diseases (ESPEN). The programme will place the African Programme for Onchocerciasis Control (APOC), which expired in May 2016, on a broader base, and was created by the African regional office of the WHO. The project aims to coordinate all efforts against diseases that can be treated via preventive chemotherapy.⁶³ In contrast to APOC, ESPEN will not implement measures itself, but will exclusively support national programmes of partner countries.

Gaps: Exactly to what extent governments in partner countries continue to invest in combatting NTDs after receiving significant funding⁶⁴ from external programmes has hardly been investigated and the studies that do exist come to mixed conclusions. In addition, regional cooperation is still at an initial stage. Work meetings of WHO AFRO show a significant need for the coordination of activities within countries themselves and on a regional level.⁶⁵ In view of the scale of the task, partner countries are nonetheless still dependent on external funding. The experiences of the African Programme for Onchocerciasis Control show that flexible financing mechanisms are necessary. These

include, alongside contributions to organisations such as ESPEN, bilaterally financed programmes, in particular with countries that tend to be neglected.⁶⁶

GERMANY'S ENGAGEMENT IN COMBATTING NEGLECTED TROPICAL DISEASES

The previous two sections offered a glimpse of the changing global health landscape and described momentum and gaps in measures to combat NTDs to date. The following section will analyse Germany's engagement in the combatting of neglected tropical diseases with respect to strategy, implementation and research. Alongside this analysis, which focuses on state actors, the box on page 24 shows the diverse landscape of non-state actors that have arisen in Germany to implement measures to combat NTDs.

First, for clarification, the visible commitment of the federal German government in combatting infectious diseases in general has increased over the recent years. Nonetheless, neglected tropical diseases have played a subordinate role. Alongside the eradication of polio, the "big three" – AIDS, malaria and tuberculosis – occupied the central position, beginning with support for the Global

Fund against AIDS, Tuberculosis and Malaria (GFATM), which received 233 million US dollars in 2015 alone. This represents roughly a quarter of the total global health budget for development cooperation (Official Development Assistance for Health, ODAH). Gavi, the Vaccine Alliance received more than 44 million US dollars in the same year.⁶⁷ Also within the framework of bilateral cooperation greater

importance is given to the combatting of infectious diseases. Programmes with a clear focus on malaria, sexually transmitted diseases (including HIV/AIDS), tuberculosis and other infectious diseases accounted on average for one-third of bilateral global health contributions between 2007 and 2015.⁶⁸

3.1 Strategic engagement

The first meeting of the G20 health ministers at the summit in Hamburg saw a clear commitment from the German federal government to its engagement in global health. On the one hand, neglected tropical dis-

eases were placed in the context of strengthening health systems and, on the other, they were named a research and development priority alongside other infectious diseases and antibiotic resistance.⁶⁹

Nonetheless, in recent years German ministries have refrained from concrete strategies or action plans to combat neglected tropical diseases. Only the Federal Ministry for Education and Research (BMBF) has pro-

posed strategies in recent years that aim at the global health challenge of NTDs (see section 3.3).

This does not, however, mean that the subject has remained unknown. The Federal Ministry for Economic Cooperation and Development (BMZ) mentioned neglected tropical diseases in its health strategy from 2009 as one of the “essential health problems” facing developing and emerging countries.⁷⁰ Nonetheless, it was also stated that the “combatting of such diseases [...] should first of all be supported by strengthening health systems and cross-sectoral cooperation.” An exact formulation of this proposal was not provided. The BMZ strategic document “The New Africa Policy” from 2014, for example, mentioned in relation to health the eradication of polio, the strengthening of

health systems and the combatting of HIV/AIDS, as well as the expansion of training centres.⁷¹ The analysis of other central initiatives is very similar, which at best only implicitly mention combatting NTDs (e.g. the so-called Marshall Plan with Africa, ONE World without Hunger, Africa Policy : New Challenges and Accents).⁷²

This attitude is also visible in an answer from the BMZ to a parliamentary question in 2017: “The combatting of neglected tropical diseases is primarily approached by the federal government through measures to strengthen health systems [...] and through the promotion of research and development relating to neglected diseases associated with poverty, as set out in the development plan of the Federal Ministry for Education and Research (BMBF).”

In view of this situation, it is not surprising that the plan “Shaping Global Health Politics – Acting Together – Showing Responsibility”, published by the Federal Ministry of Health (BMG) in 2013, only mentions neglected tropical diseases within the context of research funding.⁷³ Neglected tropical diseases also play no explicit role in the federal government’s sustainability strategy (new edition 2016).⁷⁴

3.2 Implementation projects

Germany only provides extremely limited financial support to implementation projects relating to neglected tropical diseases. The project database prepared by the BMZ⁷⁵ and the databases of the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) and the KfW Development Bank only list a few supported projects related to the containment/control of infectious diseases that are not also associated with the “big three” (HIV/AIDS, malaria and tuberculosis). Two regional programmes have a focus on NTDs:

- The programmes “Combatting Neglected Tropical Diseases I & II in the CEMAC Region”⁷⁶ ought to integrate the combatting of NTDs (treatment and control) into programmes aiming to strengthen health systems in Central Africa (Cameroon, Republic

of Congo, Gabon, Equatorial Guinea, Central African Republic and Chad). 6 million euros have been planned for investment in these programmes via the KfW Development Bank, 2.5 million euros for education and training, and 2.5 million euros for logistics.⁷⁷ The funding will be applied for by the respective national ministries via the regional network of the Economic Community of Central African States (CEMAC) and its implementation organisations (OCEAC). A central element is also the promotion of implementation research.⁷⁸ Recently, programme funding increased from 11 million euros to 15 million euros.

- Since 2011 the GIZ programme “Fit for School” has been in place with Indonesia, Cambodia, Laos and the Philippines, which, together with

the “Regional Center for Educational Innovation and Technology”, has sought to implement fundamental preventive measures (washing hands with soap, etc.) in public primary schools.^{79,80} The total budget is 6 million euros and also partially includes biannual drug treatment of worm-related diseases.⁸¹

Certain other regional programmes provide elements for combatting neglected tropical diseases, even if the focus of these programmes is on HIV/AIDS, malaria, tuberculosis and polio. Within the context of the hospital-twinning projects of the ESTHER Alliance (Ensemble pour une Solidarité Thérapeutique Hospitalière En Réseau) worm-related illnesses (STH and cysticercosis) are being researched in Rwanda.⁸²

In addition, there are several smaller projects, for instance in the Democratic Republic of Congo. There, the implementation foundation "Afrikas Renaissance und Wiederaufbau e.V." is

supported with 386,000 euros in its efforts to prevent tropical infectious diseases and to strengthen healthcare infrastructure. The response to a small enquiry in the Bundestag named sev-

eral more projects, however, these appeared to be of insubstantial size or to provide no public information.⁸³

Examples: Non-state actors in the implementation of counter-NTD measures



- CBM combats NTDs with projects in 17 countries in South Asia and sub-Saharan Africa.
- Cooperation with MSD Sharp & Dohme in combatting River blindness (onchocerciasis) in African countries with the Mectizan Programme.
- Measures to eliminate trachoma in Ethiopia, Nigeria and Uganda, amongst others: in 2015 over 34,000 Trichiasis operations were carried out. 430,000 people were treated with azithromycin, 68 surgeons were trained in treating Trachoma and more than 200 healthcare assistants were trained.



- The DAHW is carrying out projects against NTDs in a total of twelve countries in Latin America, Africa and South Asia.
- Integrated containment measures against Schistosomiasis, improvement of water and sanitation infrastructure and monitoring in Malawi.
- Leprosy and Buruli ulcer diagnosis and treatment and creation of a laboratory to improve diagnosis in Togo (together with partners).



- Support of the national Leprosy programme in Chad via awareness-raising actions, treatment and self-help groups.
- Treatment of Podoconiosis and training of healthcare assistants for the treatment of the disease in Ethiopia.



- Treatment and prevention of WASH-related NTDs (trachoma, ground-transmitted helminths) in the Democratic Republic of Congo.
- Protection measures, mapping and training of personnel regarding Zika and other vector-transmitted diseases in Columbia.
- Avoidance mechanisms for vector-transmitted diseases in the context of flood relief in South India.



- In 2016 doctors from MSF treated a total of 6,000 cases of West-African sleeping sickness, Visceral leishmaniasis and Chagas disease.
- MSF was co-founder of the non-profit organisation DNDi and is represented on its board.
- MSF engages in political work to promote the research and greater availability of drugs against neglected tropical diseases.



- Supports India's measures towards the elimination of Lymphatic filariasis (awareness-raising campaigns on vector control and self-protection).
- Support of yearly preventive mass treatments to stop disease transmission of Lymphatic filariasis.
- Treatment of patients with chronic disease.



- Combatting Rabies in Kenya through animal vaccinations: in 2015-16 12,000 dogs were vaccinated.
- In Sudan Veterinarians without Borders vaccinated around 600,000 animals along with its partners, treated 264,000 animals and trained animal healthcare assistants to guarantee the reporting of infectious diseases.



- From 2014-19 up to 320,000 pills will be available every year for the treatment of African sleeping sickness (HAT).
- From 2012-21 7.75 million pills against Chagas disease are being donated for a period of five years.
- By 2020 up to 10,000 vials of the drug 'Suramin' against African sleeping sickness (HAT) will be provided.



- Since 2007 Merck has provided up to 200 million praziquantel pills each year to combat Schistosomiasis in school children (in particular in Africa).
- Since 2017 praziquantel donations were increased to 250 million pills per year. The donations will only end when Schistosomiasis has been eradicated.
- A paediatric formula is being developed for children under six years old.



- Since 1987 Merck Sharp & Dohme (MSD) has donated the drug ivermectin to combat Onchocerciasis and Lymphatic filariasis (Mectizan Donation Program).
- MSD has agreed to provide unlimited quantities of the drug until the diseases are eliminated in Yemen and the African countries in which they are endemic.
- So far, the donation programme has provided 7.8 billion pills.



- Since 2001 Sanofi has partnered with the WHO in combatting African sleeping sickness (HAT), Buruli ulcers, Chagas disease, Leishmaniasis and Yaws. By 2016, 75 million dollars' worth of drugs and services was donated.
- By 2020 an unlimited number of drugs for the treatment of African sleeping sickness will be made available.
- Sanofi released the first vaccine against dengue fever in 2015.

3.3 Research and development

In recent years, Germany has made great efforts in terms of funding research in neglected tropical diseases. In 2010 the BMBF published its framework programme for health research, in which neglected and poverty-associated diseases were defined as one of six fields of action.⁸⁴ Particular emphasis was given to Product Development Partnerships (PDPs), cooperation within the G8/G20 framework

to strengthen African research networks, national project financing for research into infectious diseases and the participation in European Developing Countries Clinical Trial Partnership (EDCTP) measures.⁸⁵ In July 2011 a set of funding guidelines followed on the development of products for the prevention, diagnosis and treatment of neglected and poverty-associated diseases, the "Funding Plan for

Neglected Tropical Diseases" that was adapted to new framework conditions (e.g. the outbreak of the Ebola virus in West Africa) in December 2015.⁸⁶ Here the goals of "government for research and development" within the field were set until 2020: the combination of research activities regarding infectious diseases and a focus on PDPs for new products aiming at the prevention, diagnosis and treatment

of NTDs or diseases that primarily affect children and the poorest regions of the world.

Progress can hence be seen in the area of PDPs: between 2011 and 2015, 21 million euros were invested in PDPs. In 2016, five further PDP contracts for over 50 million euros were signed via the KfW Development Bank. Amongst these were the Program for Appropriate Technology in Health (PATH) for the development of malaria vaccines, the TB Alliance for effective and affordable drugs against tuberculosis, the Medicines for Malaria Venture (MMV) for the development of new drugs against malaria and the Drugs for Neglected Diseases initiative (DNDi) for the development of drugs against African sleeping sickness, visceral leishmaniasis, chagas disease and worm infections.⁸⁷

At the same time, the KfW Development Bank is financing the Global Health Investment Fund (GHIF) on behalf of the BMZ with a subsidy of 10 million euros. The GHIF invested, for example, in the registration planning of a drug against river blindness (Moxidectin) – the project was carried out by Medicines Development Limited, a non-profit organisation for developing affordable drugs and vaccinations.⁸⁸

Measured in relation to economic power, Germany is nonetheless at the lower end of the spectrum of comparable countries: only 0.0015 per cent of GDP is dedicated to research into neglected tropical diseases. Other G7 countries make much more money available: the US (0.008 per cent), United Kingdom (0.0037 per cent), France (0.0025).⁸⁹ This situation is clearly illustrated

by the table below: although Germany has increased its commitment, its contribution is comparatively small. Moreover, a study by the Office of Technology Assessment at the German Bundestag (TAB) indicated that, alongside a research funding plan from the BMBF, a procedure agreed upon by many departments would be necessary to do justice to the complexity of research into neglected, poverty-associated diseases.⁹⁰

Table 4: Money for research and development relating to neglected diseases, 2010-15

	2010	2011	2012	2013	2014	2015	2015 %
US	1572	1538	1638	1462	1430	1387	72%
EU	84	99	87	105	104	125	6%
United Kingdom	153	125	87	119	124	102	5%
France	37	56	50	73	60	60	3%
Germany	35	30	51	41	45	51	3%
Others	272	272	272	277	215	200	10%
Total	2,153	2,120	2,185	2,077	1,978	1,925	100%

Note: These figures for research and development funding do not relate only to NTDs. For example, HIV/AIDS and tuberculosis are also included. Limiting figures to NTDs would lead to a significant reduction in the above numbers.

Source: G-Finder. (2016). Neglected disease research and development: A pivotal moment for global health.

NEGLECTED TROPICAL DISEASES AS A CROSS-SECTORAL TOPIC TO ACHIEVE THE SUSTAINABLE DEVELOPMENT GOALS

The previous sections described how dynamic changes in measures to combat NTDs are taking place in order to meet the challenges of sustainable development goals. Integration is the principal motive. This involves more than just the simultaneous combatting of infectious diseases. An integrated implementation of measures to combat NTDs means, in this case, introducing NTD programmes into national health systems and developing connections with other sectors.

Neglected tropical diseases are appropriate for this kind of integration for three reasons:

- 1** Identify measures to combat NTDs, reach and help the poorest within societies.
- 2** Successful counter-NTD strategies are inherently cross-sectoral.
- 3** Integration has been the guiding principle of measures to combat NTDs for more than a decade.

For Germany, this situation offers many potential connections to issues in related sectors. The following section aims to elaborate these in terms of the strengthening of health systems, nutrition/hunger, water and hy-

giene provision, and gender. In doing so, it can only address a handful of possible connections and within each sector can also only refer to a single central idea. The state of knowledge within the different sectors varies and in many cases, thorough implementation research is required. Nonetheless, a number of possibilities are presented that show where an integration into German global health and development politics appears promising.

The figure at the beginning of the report illustrates this idea, connecting selected sectors with neglected tropical diseases. The selection of sectors is based on the priorities of German global health and development politics. A comprehensive overview of

these connections is presented elsewhere⁹¹ and by the WHO in its fourth progress report on measures to combat NTDs.⁹² The relevance of NTDs for the “unfinished business” of the Millennium Development Goals relating to health was discussed in particular in reaction to the new edition of Germany’s sustainability strategy.⁹³

4.1 Connecting the combat against neglected tropical diseases to healthcare systems

Embedding NTDs into the broader hygiene global health agenda requires an engagement with the different approaches within the sector. A central factor will be how the programmes targeting individual diseases could contribute to attaining universal health coverage (SDG 3.8).*

! Logic of connecting NTD programmes and UHC measures

In recent years, German global health politics, together with other partners, has placed the strengthening of health systems on the international agenda. With the initiative “Healthy Systems, Healthy Lives”, presented at the 2015 UN summit on the adoption of SDGs, the federal government set in motion a process that led in 2017 to a joint strategy document, “UHC2030 – Healthy systems for universal health coverage – a joint vision for healthy lives.”⁹⁴

The document describes three fields of action that lead to a strengthening of health systems: (1) healthcare services, (2) governance and (3) financing. There are interconnections with NTD programmes in all three areas.

The measures to combat NTDs also correspond to the overriding principles of the UHC agenda: leaving no one behind, transparency and accountability for programme results, evidence-based national strategies and leadership, cross-sectoral engagement for health systems, and international cooperation on the basis of common learning, going beyond national borders and different principles of effectiveness. These principles are an integral aspect of

combatting NTDs and measures to combat NTDs can hence contribute to progress in the aforementioned fields.

G Germany’s potential in the combination of UHC and measures to combat NTDs

In the past, many NTD programmes were implemented as vertical programmes. An integrated implementation of different programmes, e.g. of preventive chemotherapy, is of central importance in terms of sustainability.

Germany has proven during recent years that strategic rethinking is possible. For example, owing to Germany’s engagement, the committee of the Global Fund took up the goal of strengthening health systems in its 2017-2022 strategy.⁹⁵ As part of Gavi, the Vaccine Alliance Germany is also aiming at strengthening health systems by a combination of vaccination campaigns and complementary measures.⁹⁶

At present Germany alone is funding 120 bilateral projects via the BMZ in which health plays a central role. In total, budgets worth roughly 500 million euros have been approved.**

Within this “portfolio” there are numerous examples of financial cooperation (e.g. KfW)⁹⁷ and technical cooperation (e.g. GIZ)⁹⁸ that show how German cooperation can work towards integrating so-called vertical programmes – similar to some NTD programmes – into the health system (see Box on page 30).

✓ Integration experience of NTD programmes

The programmes of various African countries make clear how such an implementation of the fight against NTDs can function. The Northern Nigeria Integrated Neglected Tropical Disease Control (UNITED) Programme, which is a four-year programme supported by the Department for International Development (DFID), aims to contain and interrupt the transmission of seven NTDs that can be treated with preventive chemotherapy.

* “Achieve universal health care, including protection against financial risks, access to high-quality basic health services and access for all to safe, effective, high-quality and affordable essential medicines and vaccines”.

** The project database provided on the BMZ website was used for the calculation (IATI). Projects with sector codes 121,122 and 130 were taken into account and individual health projects from sectors 160 (‘Other social infrastructure and services’) and 130 (‘Other multisector / Rural development’) were added. In the calculation, the programme budgets were summed up and only current or promised projects were taken into account.

Table 5: Interconnections between measures to combat NTDs and UHC fields of action

Healthcare services	
UHC field of action	Contribution by measures to combat NTDs
Expansion of healthcare services, in particular primary healthcare	A central element of NTD programmes is that they have to transport drugs and essential healthcare services to the most remote regions. Apart from the polio programme, hardly any other healthcare programme is capable of this.
Coverage of healthcare needs of marginalised groups	Not only reaching more people, but also the “target group” of humans with NTDs makes NTD treatments valuable for the attainment of UHC. Mainly the poorest members of a population are affected, a fact that can directly be associated with the justice and social equality principles of UHC.
Increasing of engagement of non-state actors	NTD programmes are implemented through the broad engagement of non-state organisations. Thus, in the Neglected Tropical Disease NGO Network, for example, more than 50 organisations come together to exchange knowledge and harmonise efforts.
Support of cross-sectoral cooperation to address the social determinants of health	Insofar as NTDs are prevented (e.g. in cooperation with WASH initiatives) NTD programmes help to reduce the physical and mental effects of diseases and to avoid the consequences of their catastrophic costs.
Governance	
UHC field of action	Contribution of measures to combat NTDs
Support of regional and global partnerships for coordinated activities	The integration of different diseases into NTD programmes has led to a multitude of global initiatives that also connect regions.
Strengthening of research and development, as well as a mechanism for technology transfer	The non-profit organisation DNDi is an example of how neglected tropical diseases can be addressed in research whilst at the same time increasing the accessibility of this knowledge.
Financing	
UHC field of action	Contribution of measures to combat NTDs
Strategic purchasing to improve the efficiency of healthcare expenditure, with a focus on public goods and health	The NTD drugs on the WHO list of essential medicines are being donated by the pharmaceutical industry which supports the implementation of UHC.

Source: International Health Partnership. (2017). Selection by the authors.

Five measures are being implemented by an association of NGOs (including Sightsavers, Helen Keller International, CBM) and businesses (including Accenture Development Partners):⁹⁹ (1) Completion of

the mapping of NTDs in five northern states, (2) Communication with the goal of changing behaviour, (3) Strengthening of the health system, (4) Capacity building to strengthen logistic management, (5) Mass drug

administration (preventive mass treatment with drugs)

So far, more than 77 million treatments have been carried out by the Network of Community Health Work-

German engagement and NTDs in East-African states

Just how different healthcare measures could be combined is made clear by the example of the regional programmes in the East-African Community (EAC) funded by the KfW. With regard to the reduction of infant mortality through vaccinations against diarrhoea and respiratory diseases, poor population groups require special protection. Here, the programme builds on the positive experiences in Tanzania. The coordination of different vaccination projects plays an important role.

Burundi, Kenya, Tanzania, Uganda, Rwanda and South Sudan belong to the East-African Community. In these countries neglected tropical diseases are a major health challenge. The estimates of the Global Burden of Disease Study 2016 indicate a major burden from schistosomiasis and infections of the gastrointestinal tract caused by worm-related diseases, though there are also regional burdens from onchocerciasis (South Sudan) and lymphatic filariasis (Tanzania). Schistosomiasis is especially present in the vicinity of large lakes in the region and in many areas other NTDs are endemic.¹⁰⁰ In total, the study covers over 70 million prevalent cases of different NTDs.

Germany's development cooperation has projects in all countries of the East-African Community. In Burundi, Tanzania and Kenya, health is an explicit focus of German development cooperation. The projects in the region explicitly (but not exclusively) encompass the expansion of healthcare services to poor and marginalised population groups and the improvement of mother and child health, and of coordination with organisations such as the Global Fund.¹⁰¹ Moreover, Germany is promoting the expansion of healthcare infrastructure (equipping of hospitals and laboratories) in these countries.

The neglected tropical diseases in the region are not taken into account by German programmes, and no BMZ-funded bilateral projects demonstrate interest in combatting NTDs. At the same time, however, these countries (with the exception of Burundi) have given measures to combat NTDs a clear strategic priority within their cooperation agreements with the WHO.¹⁰²

German engagement for an integrated implementation of measures to combat NTDs could make use of the long-term experience in these countries in order to actively unite the strengthening of health systems with existing national counter-NTD efforts and external partners. The necessity of this coordination in terms of the strengthening of health systems becomes clear when we take account of the fact that, according to the NTD Partners Map, in the six countries of the East-African Community alone, 111 projects are engaged in combatting NTDs with various partner organisations.¹⁰³

ers. The measures to strengthen health systems include anchoring NTD indicators within the "monitoring tool" led by the states. In addition, NTD task forces are being established in the states and the integration of NTD master plans as an element of their health goals is being supported.

Alongside this integrated implementation on a local level, it is possible to build on existing integration processes on a strategic level: already in 2013, the World Health Assembly (WHA) adopted the strategy 'Universal Eye Health: A Global Action Plan 2014-2019', which, alongside the reduction of the global prevalence of avoidable visual impairment, set a second goal of establishing national action plans and programmes for general eye health and harmonising them with the WHO action plan for the strengthening of health systems.¹⁰⁴

A case study from Ghana shows that this integration of programmes must in reality be comprehensively coordinated. By interviewing officials from the health programme on local, regional and national levels, many administrative hurdles were identified that can make integration more difficult.¹⁰⁵ Thus, the obligation of donor organisations to generate reports and outcome/impact measurements in a timely fashion is considered to have led to the creation of parallel monitoring and evaluation structures. These structures are also created on a national level, since the capacity for monitoring and evaluation on a local level is limited.

Figure 4: BEST framework of the Neglected Tropical Disease NGO Network

The Components of the BEST Framework: The inclusion of these aspects within the BEST framework does not imply that they should be addressed exclusively by NTD programmes; instead, it recognises the necessity of working across sectors and strengthening systems to maximise the positive impact made by development investments in NTD endemic countries.

BEHAVIOUR

Behaviours play a key role in successfully tackling NTDs. **Physical behaviours** have long been addressed in many NTDs programmes, tackling aspects such as personal hygiene and other risk-reducing behaviours. Programmes could be further strengthened by emphasising aspects relating to vector control, waste management and livestock keeping, as well as addressing uptake of protective and treatment seeking behaviours. Other behaviours, however, are often ignored or under-prioritised in NTD programme design. Addressing **attitudes** at all levels including community, schools, the health systems etc., can contribute greatly to the success of programmes by promoting inclusion by families and society of people affected by NTDs, particularly those subjected to stigma and misconception. **Institutional behaviours** are necessary to ensure NTD programmes contribute to system strengthening and the progressive achievement of UHC; examples include collaborative programme design across sectors and agencies to fund, develop and implement comprehensive NTDs programmes.

SOCIAL INCLUSION

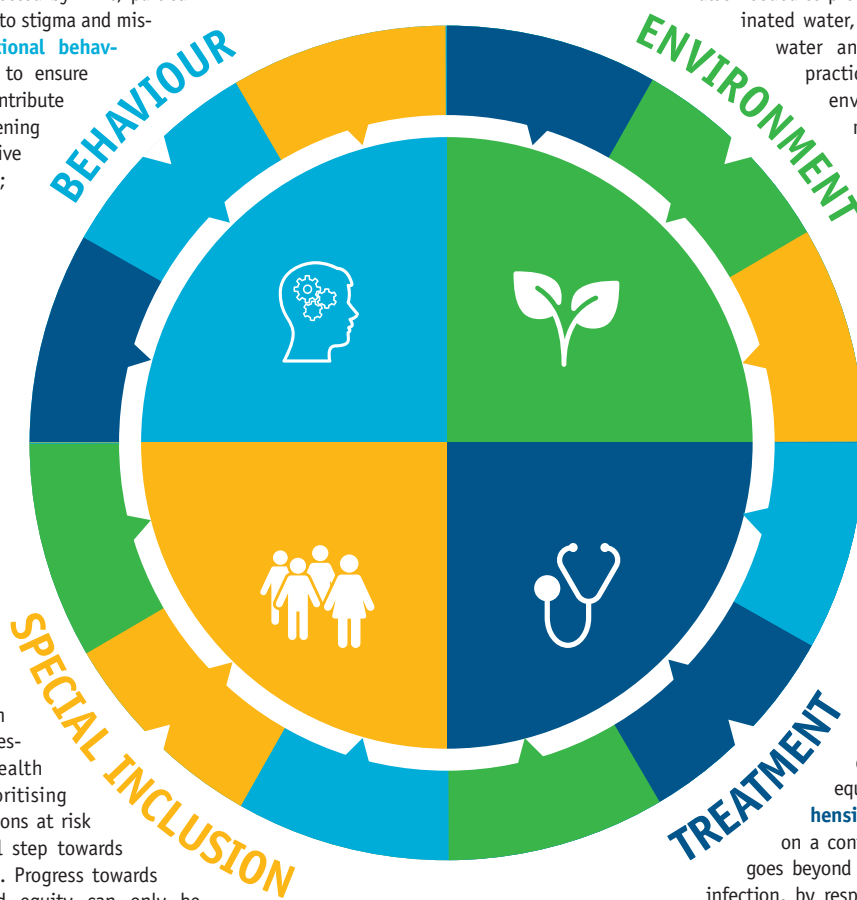
Driving progress towards **Universal Health Coverage** by strengthening health systems to deliver essential quality health services and prioritising coverage of populations at risk of NTDs is a critical step towards equity and inclusion. Progress towards social inclusion and equity can only be achieved by addressing barriers to participation in a person's environment, improving universal access to quality promotive, preventive, curative and rehabilitative services and ensuring poverty is not a barrier to accessing NTD services in line with UHC. This requires **mainstreaming inclusion** across all NTD Interventions, ensuring infrastructure is accessible and support services reach women, children, people with disabilities and other targeted population groups. **Empowerment of communities affected by NTDs** is necessary to facilitate greater agency, participation and support of all individuals and communities to make decisions about services for their health and well-being. **Addressing stigma and discrimination** against people affected by NTDs will mean provision of high quality social support services in the family and the community, and formal and informal work.

ENVIRONMENT

Environmental measures for disease control are often only partially incorporated into NTD programmes, or delivered separately from and without consideration for disease control priorities. While some NTD programmes include **environmental sanitation** aspects by encouraging the construction of basic household latrines, a comprehensive approach to environmental sanitation is needed to achieve disease control objectives by safely separating waste from humans and animals and reduce the risk of vector breeding and contamination of water and soil. In healthcare settings, this must include **Infection Prevention and Control** and vector control measures. **Safe, reliable, affordable, universally accessible and sustainable water infrastructure** is also needed to prevent consumption of contaminated water, reduce contact with surface water and enable personal hygiene practices. A robust approach to environmental disease control must also include use of **Integrated Vector Management**. Additionally, **Veterinary Public Health** services should be incorporated within disease control efforts, ensuring appropriate livestock keeping and food safety practices and utilizing the available expertise for disease surveillance and control.

TREATMENT

Achieving progress towards **Universal Health Coverage** means strengthening health and other systems so they are equipped to deliver a **comprehensive treatment**. This is based on a continuum of care approach that goes beyond efforts to prevent or cure an infection, by responding to the broader needs of individuals and communities. **Preventive chemotherapy** is a fundamental component of NTD programmes and should be implemented where a clear strategy for treatment has been developed and where tools and safe and effective drugs enable implementation of large-scale treatment alongside other BEST interventions. A comprehensive approach to NTDs must also ensure that sufficient capacity for surgery within the national health system is sustained. **Diseases management and self-care** are essential for reducing the severity of many diseases, to prevent suffering and increased vulnerability to poverty stigma and exclusion. Access to quality, affordable rehabilitation services not only respects human rights, but can deliver economic and social benefits, for example by facilitating recovery from surgery, addressing pain management and maintaining dignity and maximising independence. As diseases decrease their burden and elimination is achieved, a **functional disease surveillance** system is essential, to ensure that achieved goals are maintained via a strengthened health structure capable of detecting disease outbreaks and potential re-emergence.



Source: <http://www.ntd-ngdonetwork.org/best-framework>

Integration organisations have already been pushing for the integration of different fields for some years. The necessity of doing so arose in part from different financial priorities (e.g. the reallocation from leprosy to HIV/AIDS and malaria) and in part from the conviction that a combination of initiatives would lead to better results.

Although reliable studies for the initiatives are scarce, there are none-

theless already conceptual frameworks that show how integration can succeed, in spite of differences between diseases. One example is the BEST framework of the Neglected Tropical Disease NGO Network (NNN), which was founded in 2009 to strengthen the exchange between organisations in the fight against neglected tropical diseases. The BEST framework relates to the goal of UHC in that it emphasises (1) the extensions of “coverage”, (2) a compre-

hensive package of essential services and (3) equal participation via social inclusion as an explicit part of the NTD agenda.

4.2 Connection of combatting neglected tropical diseases with programmes for the provision of water, sanitation and hygiene (WASH)

Logic of the connection between NTD programmes and WASH measures

More than one third of the global population has no access to sanitary systems that prevent their contact with excrement. 2.5 billion people hence face an increased risk of cholera, typhus or schistosomiasis.¹⁰⁶ The drinking water supply is often also contaminated with faecal matter and increases the risk of infection. The connection between NTDs and WASH are manifold.

- Contaminated water (e.g. with faecal matter from humans or animals) is a breeding ground for the transmission of schistosomiasis.
- Inadequate toilet facilities represent reservoirs for mosquitoes, which transmit the parasites that lead to lymphatic filariasis.
- Water reservoirs (whether intentional or not, e.g. old, improperly disposed-of car tyres) create reservoirs for mosqui-

toes, which transmit Zika, chikungunya and dengue fever.

■ Inadequately disposed-of faeces represent a breeding ground for the flies that transmit the bacteria which lead to trachoma.

Two elements of WASH programmes are hence central for an integrated implementation of measures to combat NTDs. Firstly, WASH measures support the treatment of NTDs and the care of those affected. Secondly, hygiene measures and careful (waste-)water management are essential to interrupt the transmission chain of neglected tropical diseases.¹⁰⁷

Although the positive effects of WASH interventions on the containment of NTDs are demonstrated in several systematic literature reviews,^{108,109,110} cooperation between the two sectors is still in its starting phase. There are substantial, but surmountable, reasons for this.

One is the difference in financing structures between WASH and NTD projects. Since NTD control traditionally

focuses mainly on vertically organised preventive chemotherapy, programmes are often established on a national level by health ministries. As the drug distribution takes place, comprehensive contact with stakeholders is necessary during an intensive, but also time-limited, phase of the year. NTD programmes are primarily directed at endemic regions and financial support (including drugs, which are often donated by pharmaceutical companies) is relatively consistent.

On the other hand, WASH programmes often function on a local and district level and require significant involvement from stakeholders from planning right up to the maintenance phase. The form of financing is also different: since infrastructure frequently requires investment and running costs are incurred, budgets are usually larger than in the area of combatting NTDs.

At the same time, it is also possible to scale WASH programmes in different ways. By contrast, NTD programmes are conceived on the largest scale possible.

Both sectors address the most marginalised population groups. WASH works primarily within a “rights-based approach.” The WASH sector has also already found many more ways into other areas. By contrast, NTD programmes work primarily within the field of health.

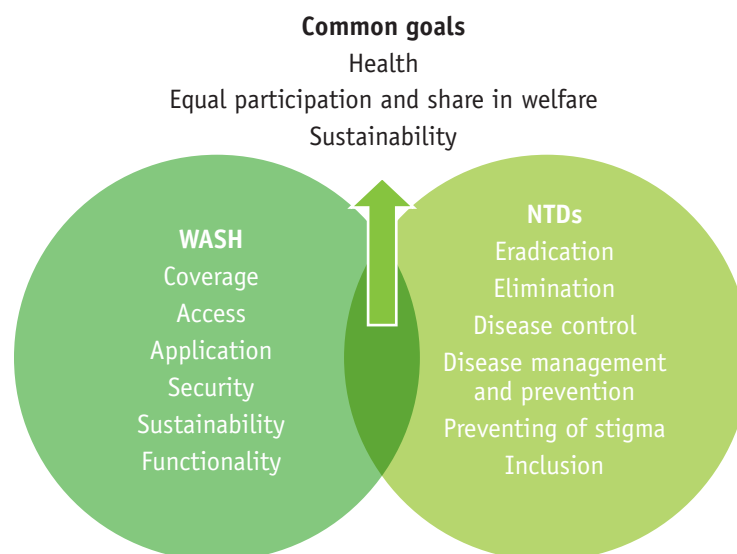
The cooperation of the two sectors has made great progress over recent years. A central element is the NTD–WASH strategy of the WHO 2015–2020.¹¹¹ This identifies three important overlaps between strategies: health, equal participation and share of wellbeing, and sustainability. Both sectors address the most marginalised population groups.

G Germany’s potential in combining WASH and the fight against NTDs

Germany’s development work attributes great importance to the expansion of water infrastructure. As part of the bilateral cooperation with partner countries across the world the BMZ is presently financing 99 projects with a total budget of over 600 million euros.* The geographic focal point is Africa, in particular countries south of the Sahara.

The strategic approach of the BMZ was formulated in the “BMZ Water Strategy”, published in 2017, and was set as one of four goals: “To create access to sanitary and drinking water and to guarantee hygiene.”¹¹² Relevant here for the health sector is that the BMZ initiative “Sanitary Supply for Millions” should reach four million people by 2022 and expand WASH infrastructure in 500 healthcare institutions. The water strategy is the most developed in relation to the SDGs and hence emphasises cross-sectoral cooperation between WASH and health.

Figure 5: Strategic overlapping of WASH and the fight against NTDs



Source: World Health Organization (WHO). (2015). Water Sanitation & Hygiene for accelerating and sustaining progress on Neglected Tropical Diseases – A Global Strategy 2015–2020. Geneva.

This approach offers an excellent basis for an integrated implementation of measures to combat NTDs: more than 40 per cent of all Germany’s bilateral WASH project funds (~264 million euros) are being invested in countries in which four or more NTDs are endemic.** Nonetheless, none of the current projects take into account the effect of WASH measures upon NTDs. Possible synergistic effects,, which might benefit the very poorest people.

Moreover, Germany has additional potential: the integration of NTD measures into water projects – in particular dam construction, riverbed and irrigation projects – can also be essential for vector control. It is not only advisable to develop synergies, but also to avoid threats that could turn back successes in development. In the wake of large dam and hydropower projects, schistosomiasis is often seen to flare up (e.g. Gezira-Managil dam, Sudan;

Aswan dam, Egypt; Melkasadi dam, Ethiopia; and the Danling and Huangshi dams, China).¹¹³ In the case of the so-called “Three Gorges Dam” in China the spreading of schistosomiasis is also a concern.¹¹⁴

* The project database provided on the BMZ website was used for the calculation (IATI). Projects with sector code 140 have been considered. However, the actual volume of water management and supply is probably even higher because other areas such as energy and urban development will also include relevant projects.

** Only Guinea Worm Disease, STH, trachoma, schistosomiasis, onchocerciasis, lymphatic filariasis, Chagas disease, dengue fever and leishmaniasis were taken into account. The actual figure is likely to be higher than the 264 Million euros quoted here, as cross-border projects are excluded from the analysis.

Integration experience of NTD programmes

The connection of WASH and NTD elements promotes the improvement of living conditions for the poorest people. Two projects of German NGOs show how such cooperation can function.

The CBM-Amhara Trachoma Control Programme (ATCP) in Ethiopia (with financial support from Italy, Germany and Canada) is an example of how NTDs can better be fought with WASH components. The trachoma-combating programme was active for ten years, although the disease has not

been eliminated. This pointed authorities and NGOs to insufficient hygiene practices and WASH infrastructure. For this reason, heavy investments were made in health community workers, communities, WASH committees, school clubs against trachoma, and water infrastructure.¹¹⁵

A project led in Tanzania by the German Leprosy Relief Association (DAHW) and the Medical Mission Institute Würzburg, supported by the city of Würzburg, shows how an integrated implementation of measures to combat NTDs can bring together WASH components (drinking water,

fixed jetties), awareness campaigns and drug treatment of schistosomiasis.¹¹⁶ In a similar fashion, in the Democratic Republic of Congo, the German NGO Malteser International is combining measures to combat soil-transmitted helminths and trachoma with the expansion of hygiene facilities and sources of drinking water. The project is supported both by the Foreign Office and the EuropeAid in relation to the topic 'Health Systems Strengthening'.¹¹⁷

4.3 Connecting measures to combat neglected tropical diseases with the fight against hunger

More than 200 million children under five years old cannot fulfil their full development potential.¹¹⁸ Limitations in mothers' nutrition during pregnancy and the first years of a child's development have long-term negative effects on the immune system's response to infections and learning potential, and increase the risk of death.¹¹⁹

Logic of connecting measures to combat NTDs with the fight against hunger

Neglected tropical diseases are closely connected with the nutritional situation of affected regions. There is a clear geographical relationship between the two hurdles to development: in 34 countries malnutrition and undernourishment are severe problems. In precisely these countries, people are heavily affected by tropical diseases related to poverty.¹²⁰ The problems are even more pronounced in ten countries in particular

that carry 90 per cent of the worldwide disease burden for NTDs.¹²¹

A high prevalence of NTDs has a negative effect on the nutritional situation of a population in two substantive ways. On the one hand, a direct channel exists, primarily owing to competition for food between infected people/animals and parasites. On the other, an indirect channel results in particular from the long-term impairment of infected people (Figure 6).

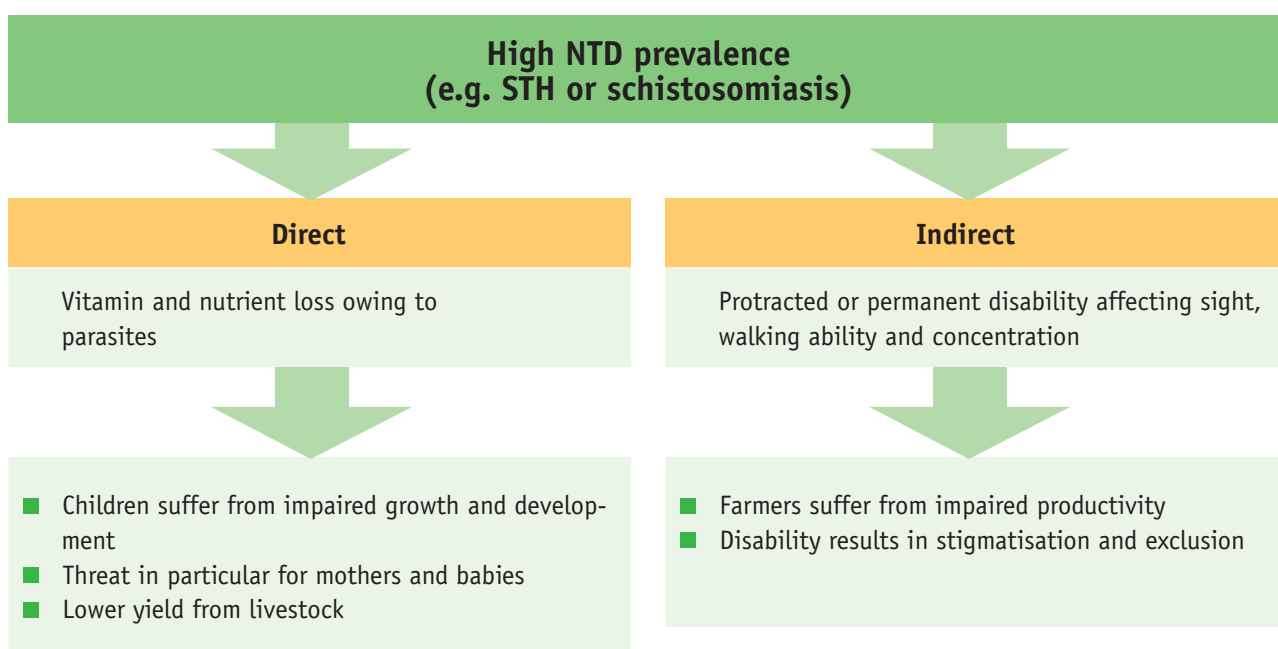
The indirect channel above reflects the potential of NTDs to cause various impairments, ranging from protracted physical and mental limitations to permanent impairments of sight, walking ability and concentration. These disabilities can limit the individual's ability to provide for his or her own nutritional needs or those of the household. Furthermore, malnutrition (exacerbated by infection) can reduce productivity in the workplace. Stigmatisation and exclusion as

a result of disability can also reduce employment opportunities.

Direct channel: Two kinds of NTDs cause and exacerbate malnutrition, intestinal worm infections – by so-called geohelminths (also known as soil-transmitted helminths, STHs) – and schistosomiasis. These diseases contribute to deficiencies in vitamin A and iron, two of three essential micronutrients, which are particularly harmful and pose serious health risks to mothers, infants and children.¹²²

The competition for nutrients particularly affects infants and children. A three-year longitudinal study of 545 children up to 36 months of age found that infant growth (weight, height and head circumference) was compromised in children infected by roundworms, schistosomiasis, STHs or malaria.¹²³ In the case of double infections, growth retardation was even more severe. Similar results were found in Peru in preschool children,¹²⁴ in Honduras¹²⁵ and the Philippines in

Figure 6: Effects of NTDs on nutrition



Source: Compilation of the authors based on the 4th WHO progress report on combatting NTDs

schoolchildren.¹²⁶ Conversely, numerous studies have demonstrated the positive effects of deworming campaigns on schoolchildren's nutrition.¹²⁷

In addition to children, pregnant women in particular can suffer dramatic negative effects as the result of parasitic diseases. Hookworm infections and schistosomiasis are among the most common causes of iron deficiency in the world. They can result in insufficient nutrition for both mother and child. When these diseases occur, pregnant women experience more severe iron deficiency, which increases the likelihood that the child will have a low birth weight and therefore a higher mortality risk. In addition, hookworm infections lead to anaemia in pregnant women. They are at greater risk of bleeding during delivery,^{128,129,130} and bleeding (haemorrhages) is among the most common

causes of maternal mortality.¹³¹ The challenge is immense: it is estimated that 44 million pregnant women worldwide are infected with hookworms. Women in Africa are particularly affected. In Africa, about one third of all pregnant women suffer from hookworm infections and schistosomiasis and 10 million pregnant women suffer from schistosomiasis. In general, the population of Africa accounts for about 90 per cent of the global disease burden caused by schistosomiasis.¹³²

Animals are also affected by these diseases. NTDs can therefore also directly affect humans' food sources. For example, ruminants infected with worms (in this case, geohelminths) put on less weight than healthy ruminants. Cows with a roundworm infection can also produce up to 15 per cent less milk.¹³³

G Germany's potential in the combination of nutritional and NTD programmes

In recent years, German development cooperation has developed a strong focus on food security and rural development. Thanks to the special initiative "One World Without Hunger",¹³⁴ launched in 2014, and also in the spirit of the G7 declaration for a "broader food security and nutrition development approach" in 2015, the German government has become a driving force in the fight against world hunger.¹³⁵

Integrated implementation in combatting neglected tropical diseases plays an important role, in particular in two key areas of the special initiative "One World Without Hunger": food security and resilience of pop-

ulations. In the 15 partner countries that are targeted by this special initiative and in which NTDs are a serious problem, the Federal Ministry for Economic Cooperation and Development (BMZ) either has a food security programme or is giving increased food aid to multilateral and non-state actors.* Four or more NTDs are present in all of these countries, with the exception of Somalia. The NTDs that have particularly debilitating effects on nutrition – ground-borne helminths and schistosomiasis – are in fact present in all 15 countries.**

Here Germany has the potential to expand its commitment to food security and, at the same time, to improve the lives of the world's poorest populations. The BMZ is currently providing almost 314 million euros of funding to bilateral nutrition-related projects in sub-Saharan Africa.*** So far, measures against NTDs have not been included in these programmes, although in 2016 alone these countries suffered 483 million prevalent cases of schistosomiasis and intestinal worm infections and a loss of 2.6

million healthy years (DALYs), according to the Global Burden of Disease Study.

Integration experience of NTD programmes

In September 2017 the WHO published recommendations for extensive deworming programmes aimed at improving the nutrition of children and other population groups that are particularly at risk of becoming infected by soil-transmitted helminths.¹³⁶ Extensive deworming programmes in high-risk groups improve the nutrition of affected individuals and prevent impairments to their everyday lives. Numerous studies have highlighted the positive contribution of NTD containment and elimination programmes to the effectiveness and efficiency of agriculture. A 2014 study found that NTD programmes can increase both the safety and quality of food and increase the return on investment of food security projects.¹³⁷ Within the Global Schistosomiasis Alliance, a cross-sectoral and interna-

tional coalition of NTD community actors, there is already an awareness of the importance of rural development issues.¹³⁸

* The BMZ publication EINEWELT ohne Hunger ist möglich, published in 2015, was used to identify the countries. Only those countries have been selected in which there is either a food security programme or where increased commitment to food security through multilateral cooperation, non-governmental development cooperation and transitional aid is noted.

** The only exception is India, where schistosomiasis is not prevalent.

*** Since the sectoral demarcation via the IATI sector codes is not helpful in food security, only those current projects were selected which included an improvement of the food situation in the description of measures. The amount corresponds to the total of committed action budgets. Projects that could not be clearly assigned to sub-Saharan countries were excluded.

4.4 Linking the fight against NTDs with gender programmes

Logic of linking the fight against NTDs with gender programmes

Like other social determinants of health, gender plays a role in how individuals are affected by neglected tropical diseases and, depending on the particular disease, there is often a marked variance in disease burden and mortality rates between women and men. Men are more likely to be affected by African sleeping sickness (HAT) and schistosomiasis than women, possibly because they are often

more exposed to risk factors (fishers and farmers, for example, are more exposed).¹³⁹

Women may be physically at risk of neglected tropical diseases for biological reasons and also owing to their socio-cultural roles.¹⁴⁰ From a biological point of view, women are particularly likely to suffer ill effects from a neglected tropical disease during pregnancy. Women who suffer from chronic helminth infection are likely to suffer from anaemia (see previous section).¹⁴¹ When anaemic women give birth, they are more vulnerable to bleeding.

At the same time, some studies indicate that women are exposed to more disease risk factors on account of their socio-cultural roles. Women and men have different roles in families and communities. Often, women are responsible for the education and care of young children, who tend to have higher infection rates than adults. In preschool children in Mali, for example, no gender-related prevalent differences were identified, but there was a strong correlation between trachoma in mothers and their children.¹⁴² In addition, in two thirds of cases, women and girls are responsible for collecting water,

which puts them at considerable risk in endemic countries.¹⁴³

Beyond this, some NTDs – especially genital schistosomiasis – place a particular burden on girls and women. Here worm eggs cause chronic inflammation of the bladder, ureter, cervix and vagina. This can result in symptoms such as pelvic pain and bleeding after intercourse. Estimates suggest that around 150 million girls and women in sub-Saharan Africa are affected by genital schistosomiasis.¹⁴⁴ The overlap of the prevalence of HIV infection and genital schistosomiasis is also worrying. An increasing number of studies are showing that genital schistosomiasis is a plausible risk factor in HIV infection.¹⁴⁵ For this reason, deworming campaigns in the affected geographic regions that employ mass administration of praziquantel are considered successful and cost effective in reducing the transmission risk of HIV while also improving women's reproductive health.¹⁴⁶

In addition to effects on physical health, mental health also plays a role in the fight against NTDs. It is well documented that people who suffer from neglected tropical diseases face stigmatisation.¹⁴⁷ Visible symptoms or the perceived impairment of job performance (for example, in the case of Chagas disease) are some of the reasons why communities stigmatise NTD sufferers.¹⁴⁸ Women in particular are often stigmatised, especially as a result of trachoma, as a study carried out in a rural region of Niger shows. There, women with trichiasis are often excluded from social life, suffer verbal abuse and are shunned by others at communal meals.¹⁴⁹ Trichiasis can hence exacerbate the difficult situation of families, many of whom are already living in poverty, and prevents women from working and contributing to the household, undermining the social status of women.

Germany's potential in combining gender and NTD programmes

For years, German development co-operation has focused on the sexual and reproductive health of women and girls and the health of mothers and children. At the same time, it has supported the fight against HIV/AIDS and the promotion of mental health. The BMZ Development Policy Action Plan on Gender Equality 2016 – 2020 (Gender Action Plan or GAP II for short), **** published in 2014, laid out a cross-sectoral approach to gender equality in development cooperation in concrete terms.¹⁵⁰ Of the nine priority thematic areas identified in the GAP II, the following three areas are particularly relevant for synergies with NTD programmes: (1) employment and economic empowerment, (2) health and sexual and reproductive health, and (3) water and sanitation.

NTD programmes can help achieve goals in these areas in a number of ways. Reduction of NTD infection, which can cause chronic physical and mental distress and impairment, helps women in particular to continue to perform their roles in caring for the household. At the same time, a reduction in schistosomiasis infections can also reduce the risk of HIV infection in women. Deworming programmes can also reduce the risk of excess blood loss during childbirth and thus also the risk of women dying during childbirth – see also the section on nutrition in this study. Ultimately, improving hygiene, access to sanitation and water supply not only

helps reduce the risk of NTD infection, but also enables particular attention to be given to the needs of women and girls.

Germany's expertise in these areas can help identify overlapping areas and plan possible synergies. This work can be linked to projects to strengthen health systems, such as WASH projects, and also to rural development projects.

Integration experience with NTD programmes

In 2016, a joint report by UK AID, the Bill and Melinda Gates Foundation, the WHO and Uniting to Combat NTDs (UTC) outlined how NTD control programmes can focus on women and girls.¹⁵¹ In particular, mass drug administration programmes (MDA) were identified as a potential means to reach women and children. At the same time, questions were raised that are relevant to many other areas: for example, while these MDA programmes are supposedly gender neutral, differences in access at the implementation level may be apparent.

**** GAP II refers to the fact that the current action plan can be seen as a follow-up document to the gender action plan 2009-2012.

FIVE POINT STRATEGY FOR THE INTEGRATION OF NEGLECTED TROPICAL DISEASES (NTD) INTO GERMAN GLOBAL HEALTH POLICY

The previous analysis shows how diverse an integrated implementation of NTD combat may be when sector boundaries are overcome. It is also clear that neglected tropical diseases hit those population groups most who are affected by poverty - especially in developing and emerging countries. These people are confronted with inadequate drinking water and hygiene conditions, live in poor housing or in the close proximity with their animals. This means that combatting neglected tropical diseases is essential for a policy aiming at protecting the poorest and most marginalised people.

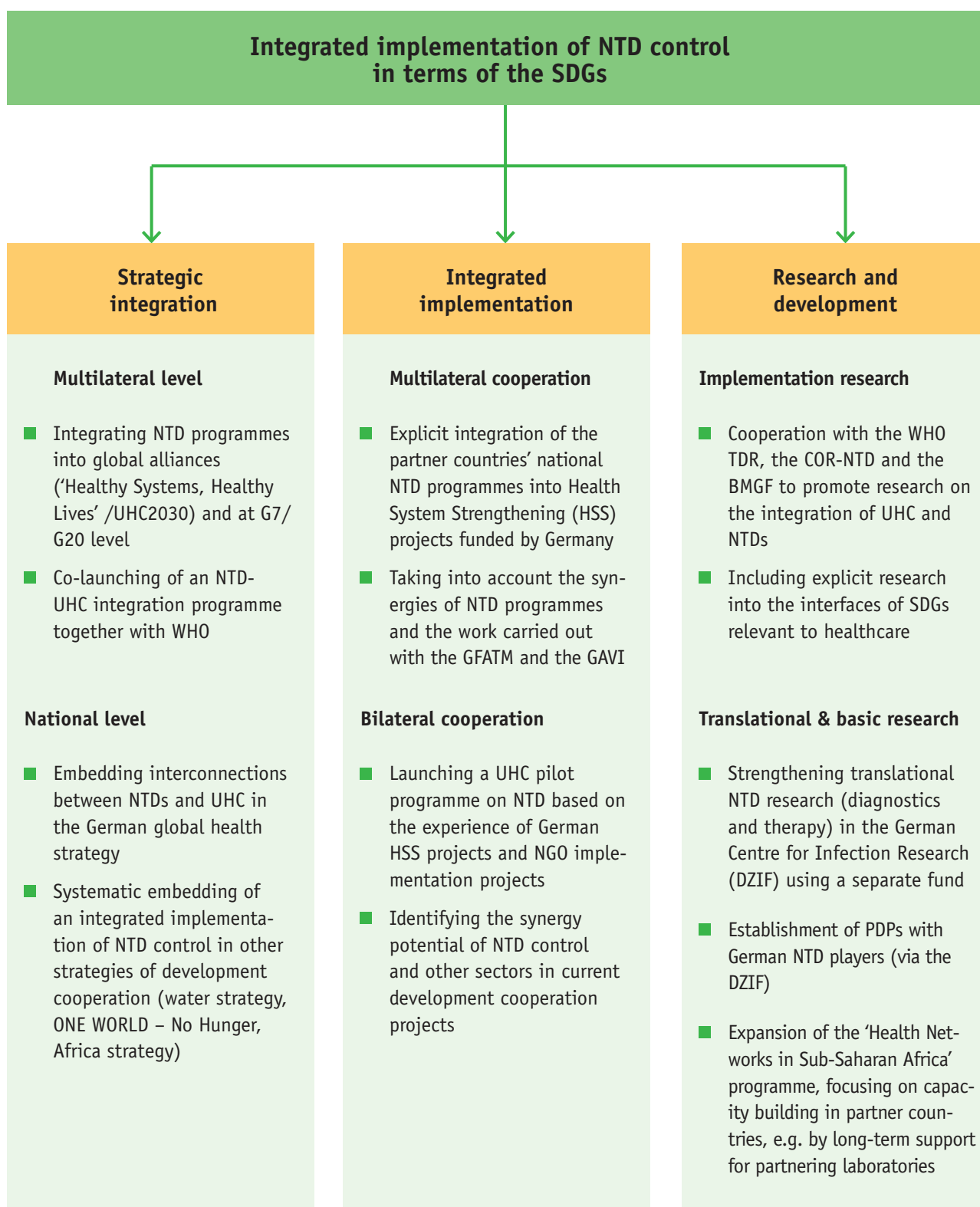
NTD control does however not have to be vertically organised. In order to advance the Universal Health Coverage (UHC), the positive features and achievements of the existing NTD control strategies for an integrated implementation of NTD control must be further developed in terms of the sustainable development goals (SDGs). These include, in particular, the large reach of interventions in remote areas, the NTD's 'tracer' function to identify equal participation in the healthcare system of all people, and the international and supra-sectoral network that has been set up over the past

15 years. An integrated implementation of NTD control provides Germany with the opportunity to build on its many years of experience in the development of social protection systems and to further develop its own geographical priorities (in particular in Africa). The exploitation of this potential however requires to consider and seize the opportunities to combat NTD in the individual policy areas in a cross-sectional manner, which (as documented above) is something that has not been greatly apparent in Germany's sectoral strategies and programmes. German stakeholders should take advantage

of the current situation that sees a reorientation in combatting NTDs at the WHO and other important organisations involved, and render a creative contribution to this end.

With respect to an enhanced German commitment, five interrelated steps seem to be promising (see page 40):

Figure 7: Options for Germany at different levels



1 Establishing an integrated implementation of NTD control as a strategic goal in strengthening the healthcare system

The importance of an integrated implementation of NTD control (and addressing the health problems of the poorest people in the population) should be consistently anchored as a central element in achieving UHC. Germany's efforts to strengthen the healthcare system should include NTD programmes in the corresponding goals and measures and promote them in the partner countries. Accordingly, the integrated implementation of NTD control must be incorporated into the strategies of ministries and implementing organisations (e.g. an update of the German global health strategy and a renewed healthcare sector concept by the Federal Ministry for Economic Cooperation and Development (BMZ)). Such integration should also be reflected in the selection of indicators to describe the healthcare situation in the countries (NTDs as tracers for the equity component of UHC).

2 Exploiting the synergy potential and strengths of NTD control to achieve SDGs in other sectors

An integrated implementation of NTD control can only be successful in combination with other programmes and sectors. This means that NTDs and the benefits of combatting them should also play a stronger role in the BMZ's central strategies (e. g. the Africa strategy concepts and the Marshall Plan with Africa, the BMZ water strategy and the BMZ strategy on social security systems). The aim should be to integrate NTDs into the major bilateral programmes. In this context poverty and hunger relief programmes (e. g. ONE WORLD without hunger), agricultural support

programmes and WASH infrastructure programmes, as well as programmes to strengthen resilience against the consequences of climate change should be taken into account. The indicator (proxy) function of NTDs, i.e. the fact that NTD endemic regions generally point towards marginalised and neglected people in most cases, should be used to make targeted development investments where these are most needed.

3 Supporting multilateral players with respect to integrated NTD control measures

At multilateral level, Germany is able to exercise a strong integrative force by financially and politically supporting the WHO programme against NTDs. With its new approach of 'mainstreaming NTDs within UHC', the WHO is in line with the German approach of strengthening the healthcare system and is also becoming a strong partner in this area. An important step in this process is that the possibility of combatting NTDs is systematically included in German programmes which strengthen the healthcare system. Against this backdrop, a joint programme with the WHO to launch the integration of vertical programmes into healthcare systems would be an opportunity.

4 Politically highlighting interconnections of NTDs with other SDGs and global health priorities

In addition to the continuation and expansion of preventive medical mass treatment, the ongoing combat against NTDs will also develop connections with other areas (e. g. diagnostics and surveillance). Germany should become actively involved in shaping these interconnections, in this way promoting the embedding of NTD treatment into healthcare systems. In this context, links to other

SDGs (e. g. animal health and vector control) should also be highlighted.

5 Continuing and expanding implementation and translational research on NTDs

A continuation and expansion of Germany's role in NTD research should be accompanied by an integrated implementation of NTD control. Here, emphasis should be placed on translational research in diagnostics and therapies, as well as on investigating the potentials of NTD control and measures for other SDGs taking place simultaneously. In this respect, German players should be supported (e. g. in PDPs and in the German Centre for Infection Research, DZIF) and partnerships at multilateral level should be strengthened (e. g. COR-NTD and WHO TDR).

With these five directions of impact, an integrated implementation of NTD control can be structured at three levels: (a) the strategic integration of NTDs, (b) an integrated implementation and (c) the promotion of research and development.

THE ROLE OF THE GERMAN NTD COMMUNITY

In its fourth progress report on neglected tropical diseases, the World Health Organization (WHO) has taken the step towards fully embedding NTDs in the 2030 agenda.

The NTD community in Germany should also take this step. This study has referred to numerous initiatives, programmes and projects by non-governmental players, that are already pointing in the right direction. This cross-sectoral 'ecosystem' of NGOs, enterprises and science is an important driver towards an integrated implementation of NTD control. At present, the following four clues seem to be of major importance with respect to further activities:

1 Connecting policy areas: Intersectorality and pressure to make the parties involved communicate with each other (pharmaceutical companies, science sector, NGOs) as well as the international linkage are a major asset of the NTD community - and a unique feature in the global health arena. Companies have shown stronger commitment than in other areas. This not only applies to medicine donations, but also to supply chain development, which has potential relevance for many development and cooperation areas in the SDG context. This competence should be used to assume a mediating role between policy areas.

2 Connecting programmes: The NTD community is extremely familiar with the realities in endemic countries. For this reason, the German NTD community should closely accompany the integration of NTDs into development cooperation in the SDG context. Interconnections between ministries must be looked for and identified. The science sector and NGOs should work closely together. In addition to global health policy areas (e. g. co-morbidity with HIV/AIDS), other areas should also be analysed, and the results should be included in the debate on development policy.

3 Connecting players: The science sector, NGOs and companies in Germany have already been strongly integrated into international NTD networks and alliances. The knowledge obtained from these networks must also be shared with Members of Parliament, ministries and the public in Germany. The setting of priorities by the NTD community will be helpful in this respect.

4 Pilot programmes in individual key countries: The integration of NTDs into existing country pro-

grammes is a challenging task, and is to a great extent pioneering work. Pilot studies should be conceived to test the feasibility of an integrated implementation of NTD control in the respective fields on the basis of defined task areas, with the help of the KfW Development Bank, GIZ and the locally active non-governmental organisations.

ANNEX

Ref. 2.2: The geographic expansion of neglected tropical diseases

If the burden of disease is broken down to individual NTDs, countries and regions, the picture is very varied: soil-transmitted helminth infections (STHs) can be found in countries of sub-Sahara Africa as well as in South Asia, Southeast Asia and (to a lesser extent) in the Latin American countries Mexico and Brazil. With respect to schistosomiasis and onchocerciasis, all ten countries with the highest prevalence rates are located in Africa. As far as lymphatic filariasis is concerned, African countries (except for India and Indonesia) are also significantly affected. Trematoda transmitted by contaminated food are strongly represented in China and Thailand. Chagas disease is mainly a health problem in Latin America, but recent estimates for the United States calculate that there are approximately 300,000 prevalent cases.¹⁵² Most cases refer to immigrants from endemic countries in Latin American, who are affected by this disease.

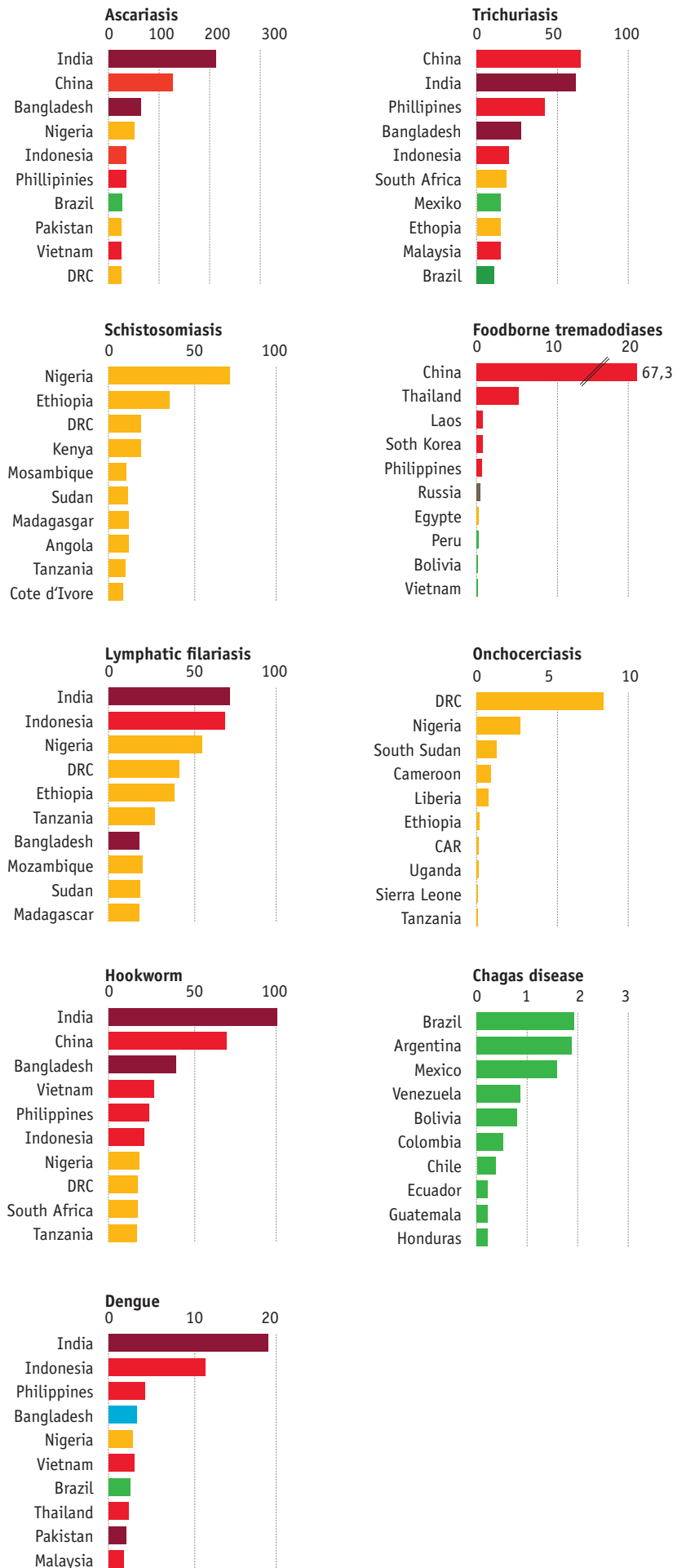


Figure 8: Geographic burden of disease

- Africa
- Southeast Asia, East Asia and Oceania
- South Asia
- Latin America and the Caribbean

Ref. 2.3: NTD programmes of USAID, DFID and the Bill and Melinda Gates Foundation (BMGF)

A stronger German commitment to combatting neglected tropical diseases can only be achieved through interaction with other players. Both the USA and the UK have set up separate programmes concerning NTDs and have played a central role in the progress made with respect to some diseases. Whether this commitment will remain at the same level, is however uncertain. The budget of the US NTD programme will decrease by more than 10 per cent in 2017, and the new UK Secretary of State for International Development announced a hard 'value for money' check for each DFID programme.¹⁵³ The programmes are briefly outlined in the following to provide some understanding of the scope and environment in which the programmes operate.

USAID

In the year 2006, the United States Congress decided to launch the USAID NTD programme, the first health-care programme to bundle the fight against seven neglected diseases. In this step, only so-called 'tool-ready' diseases were selected, i.e. where safe, inexpensive and tested medicines were available.¹⁵⁴ These diseases included lymphatic filariasis (elephantiasis), onchocerciasis (river blindness), schistosomiasis, trachoma and three soil-transmitted helminth infections.¹⁵⁵ The activities focussed on scaling mass treatment in order to contain these diseases (including data collection regarding the burden of disease), as well as on setting up capacities for the administration of national NTD programmes in the respective countries.¹⁵⁶

The geographic scope of the USAID programme to combat NTDs has

gradually expanded; initially starting with five countries, projects were financed in 25 countries in 2016.¹⁵⁷

From the beginning, the programme was supported at the highest political level, for example by both George W. Bush and Barack Obama. The annual programme budget rose from 15 million US dollars in the year 2006 to ultimately 100 million US dollars in 2016.¹⁵⁸ USAID serves as the central coordination and implementation organisation in this connection. In addition, the National Institutes of Health (NIH), the Centres for Disease Control and Prevention (CDC), the Department of Defence and the US Food and Drug Administration (FDA) are involved in the activities.¹⁵⁹

The largest project supported by USAID is the Envision programme which has included activities of disease mapping, mass treatment, monitoring, capacity building, medicine & diagnostics purchasing and implementation research in 19 countries since 2011.¹⁶⁰ The non-profit research institute RTI manages most of the country activities, supported by further partners such as World Vision, CBM, Sightsavers or Light For The World. Over the entire funding period, the programme's budget finally rose to 175 million US dollars.¹⁶¹

In addition to the NTD programme, the National Institutes of Health (NIH), the Centres for Disease Control and Prevention (CDC) and the Department of Defence also support the research and the development of new tools to combat NTDs. Here, the research activity goes beyond the seven tool-ready diseases, including dengue fever and Chagas disease, for

example. The Food and Drug Administration plays a central role in the R&D of new medicines.¹⁶² In order to overcome the incentive problem in the NTD research landscape, the FDA awards a 'voucher' to companies that have successfully reached approval of a new medicine against NTDs, which can later be used by the company to qualify for a prioritised procedure in the approval of other medicines.¹⁶³

Department for International Development (DFID)

An initiative similar to the US programme was launched by the UK Government in 2008 with a volume of 59 million pounds.¹⁶⁴ The UK Government increased its support in 2013 and 2017, and other aspects were added to the programmes, such as disease monitoring.¹⁶⁵ Between 2012 and 2016, the UK Government spent approximately 30 million pounds annually on combatting NTDs. In April 2017, the Secretary of State for International Development, Priti Patel promised an additional 360 million pounds for the period 2017 to 2021/22. This doubles UK annual expenditure on NTD control.¹⁶⁶

Since 2009 Great Britain, for example, has supported the Global Alliance to Eliminate Lymphatic Filariasis (GAELF) – a public/private partnership – with funding of almost 30 million euros. GAELF was originally initiated by the WHO and the pharmaceuticals company GlaxoSmithKline, and is now based at the Liverpool School of Tropical Medicine, bringing together far more than just one company.¹⁶⁷ One pioneering

project began in November 2012 with the aim of fighting neglected tropical diseases in Nigeria using an integrated approach. The programme is coordinated by the international NGO Sightsavers, by different partner organisations (e.g. CBM), and works with the Nigerian authorities. Different diseases are dealt with and measures are undertaken in an integrated manner.¹⁶⁸ Since the project got underway, the DFID has paid almost 10.5 million pounds in implementation support.¹⁶⁹ The table below provides information about some of the currently active projects of the DFID on NTDs.

Bill and Melinda Gates Foundation

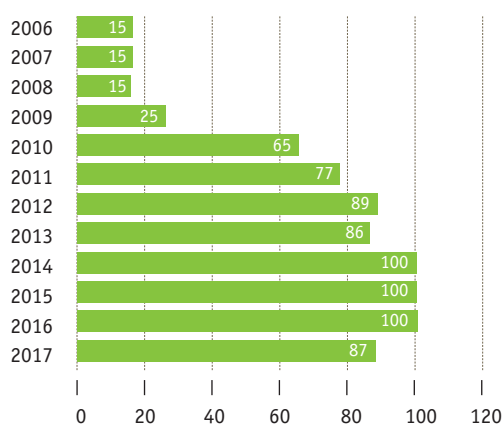
In addition to the government-financed projects, the USA and Great Britain have developed lively 'ecosystems' for fighting NTDs. Both philanthropically motivated foundations like the Bill and Melinda Gates Foundation or the Carter Center, and NGOs from the context of development work (e.g. Sightsavers, World

Vision and CBM International) play an important role here. These actors have come together gradually in broad networks that also include actors from the area of scientific research (e.g. London School of Hygiene and Tropical Medicine, Johns Hopkins University).

In the year 2008, the BMGF brought individual funding programmes under one umbrella, the 'Neglected and Other Infectious Diseases'.¹⁷⁰ According to the foundation's own funding database, it has invested* approx. 1.35 billion US dollars in projects working in the area of neglected tropical diseases. Of this amount, 540 million alone has been donated between 2010 and today. That corresponds to about 67.5 million US dollars per year. Although the NTDs have secondary priority for the foundation, the BMGF is still one of the biggest money donors in the area of neglected tropical diseases. The NTD project portfolio of the BMGF includes a broad spectrum that covers funding research (e.g. DNDi) and implementation research (e.g. with

the Liverpool School of Tropical Medicine), implementation projects (e.g. Carter Center) right up to international networking (e.g. Task Force for Global Health and WHO) and advocacy (e.g. Sabin Institute). In view of the funding volumes and the breadth of organisations supported, it is astounding that only one single project in Germany working in the area of NTDs received direct financial support by the BMGF. In 2013, a research project into onchocerciasis run by Bonn University Clinic received 1.7 million US dollars.

Figure 9: Financial scope of the USAID NTD Programme 2006-2017 (in millions of USD)



Source: Foreign assistance dashboard, www.foreignassistance.gov, 2017

* Here, the categories 'Neglected Tropical Diseases' and 'Neglected and Infectious Diseases' were selected, and random samples carried out to see whether the funding objective actually had to do with neglected diseases. Two larger 'Global Policy and Advocacy' projects were excluded, as was a funding project with the WHO, as the NTDs played a secondary role here. Bill and Melinda Gates foundation. (2017). Grants Database. Retrieved May 15, 2017 from <https://www.gatesfoundation.org/How-We-Work/Quick-links/grants-database>.

Table 6: DFID NTD programmes from 2009*

	Budget (£)	Project period	Implementation
Support WHO's Department of Neglected Tropical Diseases for capacity strengthening and Visceral Leishmaniasis (VL) ¹⁷¹		from: March 2012 to: Dec 2017	WHO
Conduct of implementation research alongside the delivery of integrated NTD Control Programmes on the ground ['Countdown' project] ¹⁷²	8,1 M	from: July 2013 to: Oct 2019	Consortium of: Liverpool School of Tropical Medicine, FHI360
Integrated programme approach to control a range of NTDs in Nigeria ¹⁷³	12,2 M	from: Nov 2012 to: Dec 2017	Several NGOs (amongst others CBM), PMO: Sightsavers
Support the Global Alliance to Eliminate Lymphatic Filariasis (GAELF) to enable endemic countries to reduce prevalence of LF ¹⁷⁴	30,5 M	from: Oct 2009 to: Sep 2017	Liverpool School of Tropical Medicine/Global Alliance to Eliminate LF
Reduce morbidity and mortality in up to ten African countries by delivering a total of 203.5 million treatments for schistosomiasis and soil-transmitted helminths ¹⁷⁵	50,0 M	from: Feb 2010 to: Dec 2018	Clinton Health Access Initiative
Support implementation of SAFE activities to prevent, control and treat trachoma in a number of high-burden countries in SSA ¹⁷⁶	50,0 M	from: July 2012 to: Dec 2018	Sightsavers (Grant Manager), several NGOs (amongst others CBM)
Increase access to effective prevention and prompt treatment for Visceral Leishmaniasis (VL) ¹⁷⁷	27,3 M	from: July 2013 to: Oct 2018	WHO
Support to strengthen the planning, resource mobilisation and sustainability of national programmes to combat onchocerciasis . ¹⁷⁸	4,0 M	from: Dec 2014 to: Dec 2018	International Bank for Reconstruction and Development (IBRD) Sightsavers WHO
Global Guinea Worm Disease Eradication Program : DFID funds measures such as surveillance, containment of cases and dissemination of information. ¹⁷⁹	4,5 M	from: Nov 2015 to: June 2018	Carter Center
Translational research: Transfer infectious disease knowledge, solutions and implementation strategies into policy and practice in disease endemic countries.	12 M	from: Apr 2013 to: March 2018	WHO

*Funding of research and programmes of vaccination as Gavi and combatting polio was excluded.

In the projects, three strategic impact directions of the foundation became clear: in the various individual programmes for mass administration (MDA) of infectious diseases, which are included under NTDs today, it became increasingly clear that it was necessary to integrate this implementation programme. The experiences of the BMGF from these initial test runs of integrating several diseases was taken up with success by the USAID NTD Programme and it exceeded its targets in its initial years.*

The second impact direction has to do with those diseases for which there are fewer good ways of treating and diagnosing them (e.g. sleeping sickness and leishmaniasis). Here – as with the development funding for vaccines – the BMGF invested in the research initiatives of universities and private institutes.

A third impact direction are investments in vector controls. Here, the foundation had also not shied away in the past from high-risk investments (e.g. genetically modified mosquitoes). The focus here is on dengue fever, sleeping sickness and leishmaniasis).

Apart from these impact directions, however, the advocacy projects also make the BMGF one of the central actors in the fight against neglected tropical diseases. Via numerous implementations studies, events and through research funding, the foundation has managed to take on a kind of lighthouse function via which further resources for a topic can be mobilized, and the attention of political decision-makers for topics raised considerably. In June 2017, the foundation committed to the NGO Speak up Africa to support the Ex-

panded Special Project to End NTDs (ESPEN) in Africa, based in Senegal to the tune of 4.2 million US dollars, providing strategic advocacy, communication and mobilisation of resources.¹⁸⁰

* Jacobson J., Rabinovich R. (2011). The Bill & Melinda Gates Foundation approach and strategy to the neglected tropical diseases 1998-2010. In: Institute of Medicine (US) Forum on Microbial Threats. The Causes and Impacts of Neglected Tropical and Zoonotic Diseases: Opportunities for Integrated Intervention Strategies. Washington (DC): National Academies Press (US); 2011. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK62504/>

Table 7: The organisations receiving the highest funding from the BMGF in the area of NTDs, 2010-2017

Drugs for Neglected Diseases initiative	76,150,300.00
The Carter Center	56,962,654.00
The Task Force for Global Health, Inc.	52,063,406.00
Liverpool School of Tropical Medicine	35,218,021.00
World Health Organization	28,823,678.00
University of California San Francisco	27,589,737.00
Natural History Museum	27,164,541.00
Institute of Tropical Medicine Antwerp	22,447,418.00
CARE	19,741,427.00
Albert B. Sabin Vaccine Institute, Inc.	17,542,497.00
Funding volume 2010-2017	363,703,679.00

Ref. 2.3.: Medicine donations from research-based pharmaceutical companies

Table 8: NTD medicine donors acc. to disease

Company	Active substance	Scope of donation; indication
Bayer	Nifurtimox	2014-2019: up to 320,000 tablets/year (120 mg, 30 mg); African sleeping sickness (HAT)
Bayer	Nifurtimox	2012-2017: up to 1 million tablets (120 mg, 30 mg suitable for children); Chagas disease
Bayer	Suramin	to Nov 2017: up to 10.000 1 g-vials/year; African sleeping sickness (HAT)
Eisai	Diethylcarbamazine	to 2020: up to 2.2 billion tablets; lymphatic filariasis
Gilead	Amphotericin B	2012-2016: up to 445.000 vials; visceral leishmaniasis
GSK1	Albendazole	donations without time limit; lymphatic filariasis
GSK1	Albendazole	2012-2016: up to 400 million tablets; soil-borne worm diseases
J&J1	Mebendazole	2012-2020: up to 200 million tablets/year; soil-borne worm diseases in school children
Merck	Praziquantel	donations without time limit of up to 250 million tablets/year; schistosomiasis
MSD	Ivermectin	Direct donation without time limit; lymphatic filariasis, onchocerciasis
Novartis	Rifampicin	donations without time limit; leprosy
Novartis	Clofazimine	donations without time limit; leprosy
Novartis	Dapsone	donations without time limit; leprosy
Novartis	Triclabendazole	Unlimited donation; foodborne worm diseases
Pfizer	Azithromycin	unlimited amount up to at least 2020; blindness due to trachoma
Sanofi	Eflornithine	unlimited amount up to 2020; African sleeping sickness (HAT)
Sanofi	Melarsoprol	unlimited amount up to 2020; African sleeping sickness (HAT)
Sanofi	Pentamidine	unlimited amount up to 2020; African sleeping sickness (HAT)

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