



Development
Progress

Case Study Summary

Health

NO LONGER NEGLECTED Tackling Sierra Leone's neglected tropical diseases

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A community drug distributor in Sierra Leone prepares a dose of medication for a patient with elephantiasis.
Photo: © Olivier Asselin, courtesy of the Sabin Vaccine Institute

- Sierra Leone's mass drug administration (MDA) programmes for neglected tropical diseases (NTDs) have reached five million people each year for the past three years, equivalent to over 80% of the population.
- As a result of the NTD Programme, the prevalence of onchocerciasis fell by 60% between 2007 and 2009, lymphatic filariasis by 88% between 2007 and 2011 and schistosomiasis by 67% between 2009 and 2012.
- MDA programmes for NTDs have reached virtually every city, town and village in the country with its 29,000-strong army of voluntary Community Drug Distributors proving critical for programme coverage.
- The treatment of NTDs globally has mobilised the largest drug donations in history, equivalent in value to over \$1 billion since the late 1980s and more than \$27 million to Sierra Leone from 2008-2011.

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Why explore neglected tropical diseases in Sierra Leone?

Just 12 years ago Sierra Leone emerged from a devastating decade-long civil war. The country's health system remains fragile and under-resourced and Sierra Leoneans still face some of the worst maternal and child health indicators and the most severe rates of malnutrition in the world. Nevertheless, the country has achieved dramatic progress in recent years in tackling neglected tropical diseases (NTDs).

NTDs are a group of 17 diseases that are prevalent in tropical climates and cause debilitating conditions, including blindness, chronic pain, severe disability, disfigurement and malnutrition. If left untreated they create a cycle of poverty and illness that, coupled with stigma and exclusion, threatens people's future prospects.

They are known as the 'diseases of the poor' because the one billion people affected are overwhelmingly from marginalised and impoverished communities (WHO, 2010). The successful treatment of NTDs can accelerate progress across a range of complementary development areas, such as poverty, nutrition, water and sanitation, women's empowerment and education.

Health development efforts have neglected these diseases in the past, partly because they affect only the most marginalised groups, but also because their impact is mainly one of morbidity rather than mortality. Over the past decade, however, there has been a gradual scaling-up of efforts to tackle NTDs, driven by increased awareness of their implications, including their links to malnutrition, school absenteeism and marginalisation.

Efforts to tackle NTDs globally have been supported by donations of drugs by a range of pharmaceutical companies, an increase in earmarked donor funds to support the distribution of such drugs, and a framework of action on how to deal with NTDs led by the World Health Organization (WHO). In addition, preventive chemotherapy distributed through an approach called Mass Drug Administration (MDA) has become the main strategy to control and eliminate the five NTDs that account for up to 90% of the global NTD burden (WHO, 2007). These are:

- Onchocerciasis (oncho) or river blindness, the world's second leading infectious cause of blindness.
- Lymphatic filariasis (LF), which is also known as 'elephantiasis' because it often leads to the swelling of limbs.
- Soil-transmitted helminthiasis (STH), sometimes referred to as intestinal worms, which can cause a range of problems such as diarrhoea, abdominal pain and anaemia, and can also contribute to malnutrition and stunted growth.

- Schistosomiasis (SCH) or bilharzia, sometimes referred to as snail fever, a chronic illness that can damage internal organs and, in children, impair growth and cognitive development.
- Trachoma, an infectious eye disease that is the leading cause of infection-related blindness worldwide.

Four of these diseases – oncho, LF, STH and SCH – are prevalent in Sierra Leone. They are currently being controlled – and some are close to elimination – by Sierra Leone's integrated NTD Programme (NTDP), which is led by the government and supported by a small group of international partners.

This case study illustrates how NTDs and similar diseases can be tackled, even in the most fragile contexts, through concerted government efforts and community engagement, backed by the right international support.

What progress has been achieved?

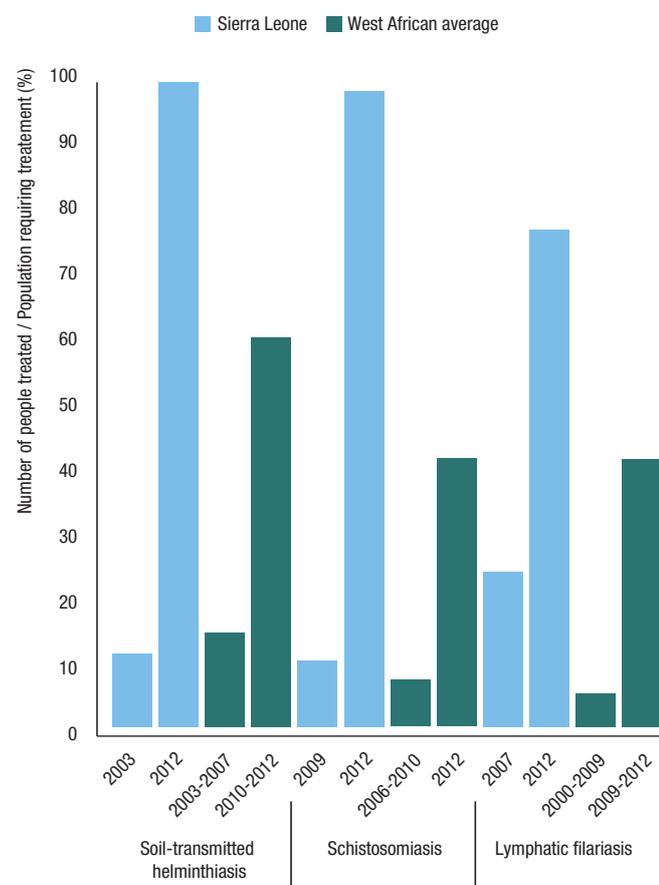
Sierra Leone's rapid progress against NTDs is remarkable, given its difficult recent history and context. The country has managed to successfully implement the WHO recommendations and guidelines to tackle the NTDs endemic in the country, using MDA as part of the NTDP. As a result, Sierra Leone has not only brought these diseases under control, it has made their national elimination a real possibility. It has out-performed every other country in West Africa in terms of its MDA coverage (Figure 1).

Progress on NTDs has been supported by a favourable health-policy environment in which health delivery has brought health services closer to the rural population through the creation of a tiered system, with peripheral health units (PHUs) being the first port of call for most people seeking health care. The National Health Sector Strategic Plan (2010-2015) launched in 2009, the Basic Package of Essential Health Services launched in 2010 and the Free Health Care Initiative, also launched in 2010, have all contributed to an environment where the most vulnerable people (including women and children) have had preferential or free access to primary care services.

MDA programmes for the four NTDs of significance in Sierra Leone have been scaled-up significantly over the past 5-10 years, with dramatic results. Drugs have been disbursed by a cadre of (currently 29,000) Community Drug Distributors (CDDs) – volunteers from every village, town and city in the country who work with their communities to deliver the drugs. These CDDs have been supported by a coordinated system of training, social mobilisation and monitoring overseen by the NTDP at

‘At the beginning, the first and second round, it was a bit difficult to get people to accept the medicines, but when they started seeing results ... they started asking, “When are the drugs coming?”’ – Donor key informant

Figure 1: Mass Drug Administration national coverage for NTDs in Sierra Leone and in West Africa



Source: WHO (2013)

every level of the health system (HKI and MoHS, 2011). The progress achieved through the MDA programmes for each of the four diseases is outlined below:

Onchocerciasis

The WHO's mapping of the prevalence of oncho from 2002-2004 found that 12 of Sierra Leone's 14 health districts were affected by the disease. The eight rounds of MDA administered between 2005 and 2012 have helped to roll out treatment to over 70% of those requiring it and reduced the prevalence of the disease by 60.3% between 2007 and 2009 (MoHS, 2010) (Figure 2, overleaf).

Lymphatic filariasis

Mapping of LF in 2005 found that the disease was endemic in every district of the country (Koroma et al., 2012). An MDA for LF was integrated into the NTDP in 2007, and this programme was scaled up to national level in 2010. An impact assessment in 2011 found that four districts had reduced prevalence to zero and that the national prevalence of LF had decreased by 88.5% between 2007/2008 and 2011 (Koroma et al., 2013) (Figure 3, overleaf).

Schistosomiasis

Mapping of schistosomiasis in 2008 found that the disease was endemic in parts of seven districts. Based on these results, MDA for schistosomiasis was piloted in 2009 with school children in high-risk areas, before being expanded in 2010 to include rural adults and all school-age children in high-risk districts. A 2012 impact assessment found that overall prevalence declined by 67.2% between 2009 and 2012 (Sesay et al., 2014) (Figure 4, overleaf).

Soil-transmitted helminthiasis

Mapping for STH in 2008 showed that infections were widespread throughout Sierra Leone. These results, coupled with prevalent anaemia, justified the administration of MDA-STH twice a year for school aged children (SAC) and pre-SAC which commenced in 2004 and 2006 respectively. There have been four national rounds of MDA for STH to date, plus biannual de-worming of children aged 12-59 months through the national Mother and Child Health Weeks programme. Although there has been no impact assessment of the MDA programme, MDA for STH have had coverage levels consistently above 88% since 2006 and according to key informants from the NTDP, STH is on the verge of being fully controlled in Sierra Leone.

What are the factors driving change?

1. Long-standing experience in addressing neglected tropical diseases

The first attempts to control malaria and LF vectors in Sierra Leone were made as long ago as 1899 (Bockarie et al., 1999). This pioneering history has helped to build local knowledge and expertise that has enhanced the implementation of WHO strategies in recent years.

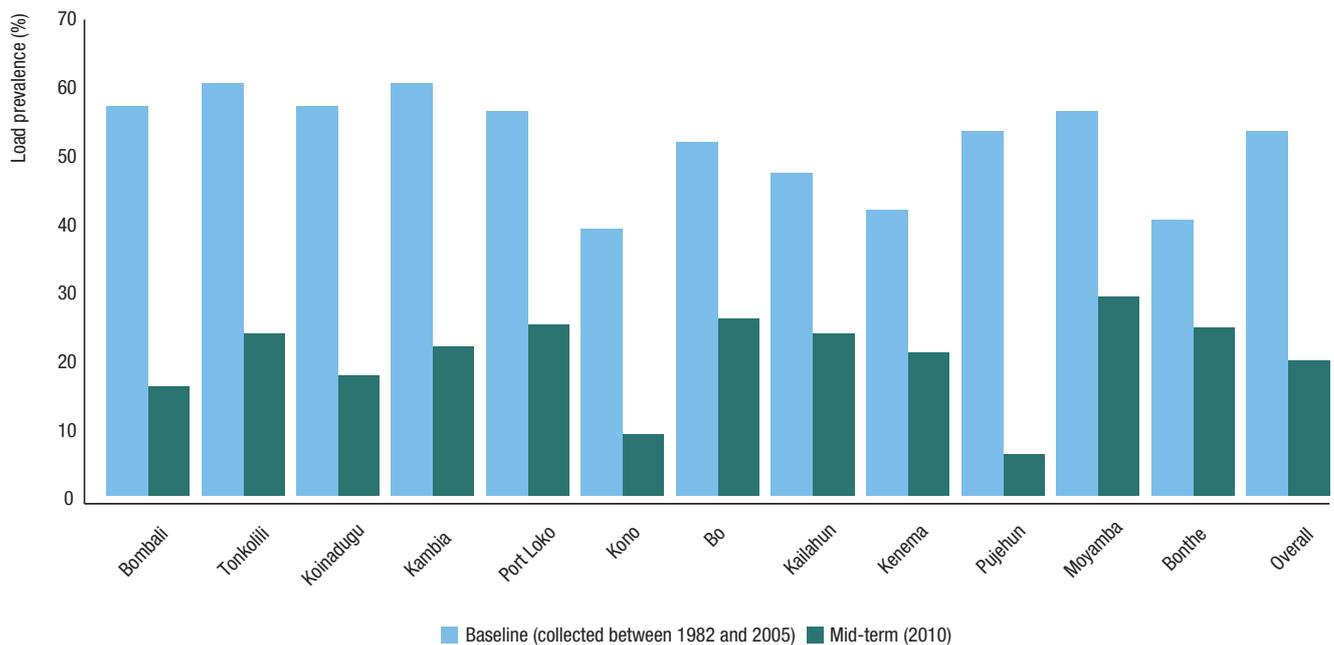
The first control programme to tackle NTDs, the National Onchocerciasis Control Programme, was established in 1988 following Sierra Leone's inclusion in the WHO's Onchocerciasis Control Programme (OCP). Although its efforts were interrupted by the civil war, this historical experience has helped to develop capacity, experience and knowledge that has benefitted the NTDP and led to lower oncho and LF prevalence rates in the post-war period.

2. Integrated and cost-effective control efforts

In 2007 Sierra Leone transformed its NOCP into the integrated NTDP to tackle the four key NTDs. This integration of all four diseases under one programme has been crucial to Sierra Leone's progress on NTDs, as it has enhanced the cost-effectiveness of the programme by:

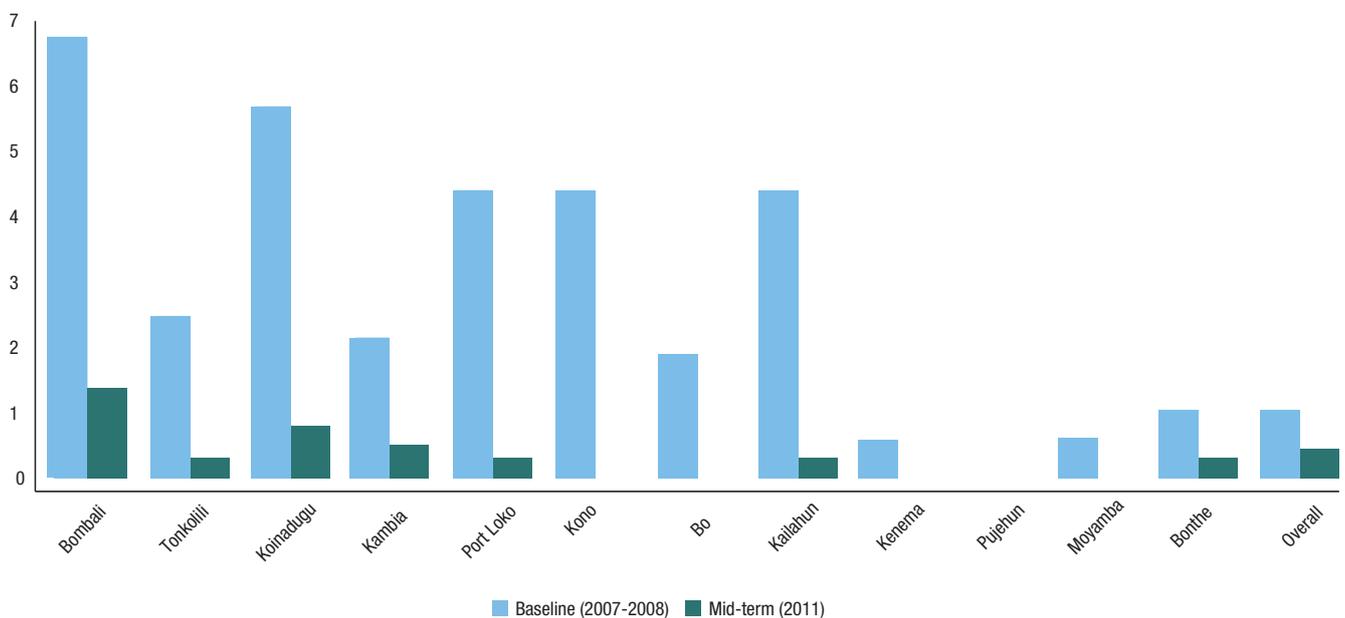
- treating four NTDs at the same time, using a combination of 3-4 drugs
- leveraging drug donations from pharmaceutical companies
- achieving economies of scale by tapping into existing national distribution systems.

Figure 2: Oncho microfilariae load prevalence at baseline and during mid-term review, by district.



Note: The mid-term survey was conducted in 39 villages in 12 oncho-endemic districts with the highest prevalence at baseline.
Source: MoHS (2010)

Figure 3: Lymphatic filariasis prevalence at baseline and during mid-term review, by district



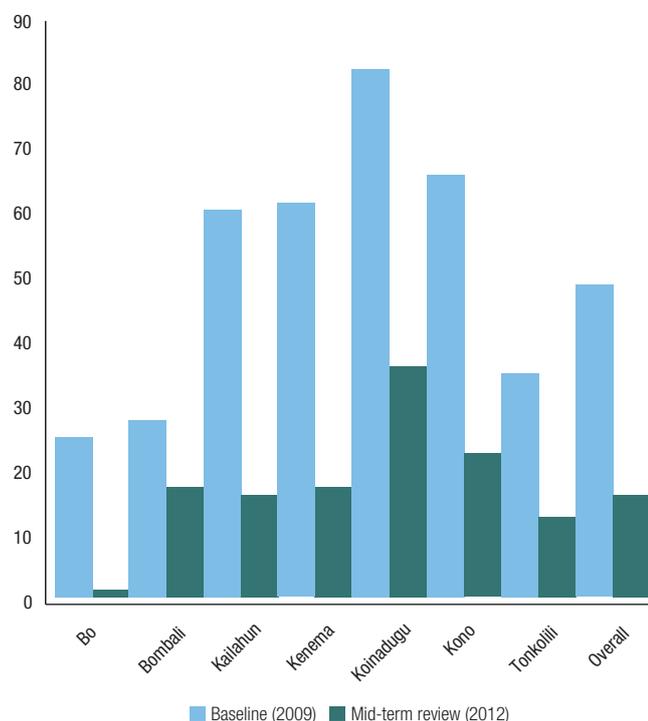
Source: Koroma et al. (2013).

The inclusion of drugs to treat LF in the already established Oncho MDA in 2007 had a knock-on impact on other endemic NTDs: not only because LF drugs are also suitable for tackling STH, but also because LF is endemic throughout the country. The distribution of

anti-LF drugs has covered areas that are hyper-endemic for oncho (i.e. where prevalence is greater than 40%) that were not previously covered.

Following the approach of the original NOCP, the NTDP is a formal programme under the Ministry of

Figure 4: Schistosomiasis prevalence at baseline and during mid-term review, by district.



Note: The mid-term survey was conducted in 26 sentinel sites in 2012 (nine months after the third MDA round).

Source: Sesay et al. (2014)

Health and Sanitation and has been delivered through the ministry's structures. The decentralisation of the health sector that began in 2004 has led to the establishment of a multi-tiered health system that reaches every community in the country. It includes PHUs in villages, small towns and chiefdoms, which are overseen in turn by District Health Management Teams, each of which has an NTD focal point whose role is to oversee the delivery of their district's NTD programmes.

The implementation of the programme through the national health system has, therefore, facilitated access to vital existing structures right down to the village level. It has used an established and tiered system of health staff and has embedded local knowledge on NTDs while fostering

the commitment and ownership of government staff and ensuring long-term sustainability. Its implementation through workers already on the government payroll as well as volunteer CDDs helps to make the most efficient use of the limited resources available.

The integration of the treatment of multiple NTDs within the health system has also helped to promote efficiencies in programme delivery. Studies of such programmes in sub-Saharan Africa highlight that they can cost as little as \$0.40 to \$0.79 per person per year, while generating an economic return of 15-30% (Hotez et al., 2007).

Integration has also helped to develop mutually beneficial linkages between the NTDP and other health programmes. The NTDP has benefitted, for example, from the integration of deworming into the Maternal and Child Health Week. Equally, NTDP training activities have helped to build the capacity of health staff in areas such as logistics and record keeping. In addition, the pre-MDA census of communities carried out by CDDs has been used to support vitamin A supplements, malaria and polio programmes.

3. Political will, external funds and strong partnerships

The political commitment to tackle NTDs has been instrumental to the progress made. The government's commitment has been illustrated by its establishment and resourcing of a dedicated NTDP that has the same institutional status as other key health programmes (such as the reproductive and child health and malaria programmes).

Commitment from external development partners has also played a major role. Financial resources from donors have been relatively modest in absolute terms – just over \$1 million a year, mostly from USAID and bolstered by contributions from the World Bank, WHO and SightSavers. But they have covered at least 85% of total financing for NTD activities in the country.¹ There have also been very significant contributions from a number of pharmaceutical companies.²

Strong partnerships between the government, development agencies and non-governmental organisations (NGOs) have also been a significant factor. The key partnership has been that between the NTDP and Helen Keller International (HKI), in which the NTDP contributes its long-term experience in addressing NTDs and its essential local knowledge, and HKI contributes its considerable experience in developing, piloting and testing new community models.

'I was reluctant to take the medicine. We were suspicious but the CDDs explained to us why it was important. After taking the medicine, my itching stopped and I could see much better' – Woman interviewed in Bo district

¹ Authors' calculations based on END 2008, 2009, 2010 and 2011.

² The authors calculate that drug donations from Merck & Co. Inc and GlaxoSmithKline to treat LF and schistosomiasis in Sierra Leone were equivalent in value to \$26.4 million and \$0.4 million respectively over the period 2008-2011.

4. A bottom-up approach creates local ownership

The NTDP has ensured ‘buy in’ from a wide range of stakeholders, from parliamentarians to community groups, who have taken part in every stage of MDA campaigns. It has also been supported by a wide range of community actors, especially the CDDs, who carry out a census of their communities, raise awareness of the programme, address community concerns and ensure that the drugs are disbursed successfully. Traditional leaders, local political actors and other high-profile community actors are also engaged to publicise the programme and ensure the full participation of their communities.

Such community involvement has been instrumental to the success of Sierra Leone’s MDA campaigns in two ways:

- It has generated a sense of ownership and pride among the CDDs themselves: the CDDs lead efforts to implement the MDA programmes within their communities, which has helped to strengthen community ownership of the programme.
- It has helped to reduce barriers in treatment uptake: people feel confident about receiving medicines from the CDDs because they are part of the community.

5. Broader improvements and developments within the health sector contribute to the NTDP’s performance

Sierra Leone’s recent progress on NTDs has taken place within a health sector that has benefitted from significant efforts in rebuilding the country (focusing on good governance), significant budget increases and the 2010 introduction of free health care to pregnant and lactating women, and children under the age of five. These investments have helped to develop the capacity of the health sector and improve the availability of curative care. There have also been important signs of improved accountability in the health sector, which, with the introduction of a decentralised health system, has helped to improve health services for communities.

What are the challenges?

Although progress in tackling NTDs has been remarkable, there are still a number of challenges that need to be addressed to fully control and eliminate the transmission of the targeted NTDs.



Catchment area for the Makama Community Health Centre, Makeni, Bombali District. Photo: © Romina Rodríguez Pose for the Overseas Development Institute

The financial sustainability of the NTDP is key. There is strong commitment from the government to resource the NTDP in terms of basic staffing, but its non-salary costs are funded almost exclusively by external sources whose long-term commitment cannot be guaranteed. Increased domestic financing is, therefore, important, with a potential role for the private sector, for example mining companies.

The retention of CDDs is another major challenge. While most CDDs seem to be highly motivated, they are starting to feel the effects of several years of MDA campaigning, as shown by their significant turnover. Although the CDDs interviewed for this case study expressed a desire to be financially rewarded, incentives such as training certificates or basic consumables relevant to the role (footwear, for instance) could be helpful (Sesay and Gondoe, 2010).

Population movement and job-seeking migration has increased since the end of the war. The most challenging aspect of this in terms of NTD control relates to the cross-border movement of people from neighbouring countries where NTD-control activities are less advanced. Addressing such challenges requires more intensive efforts to coordinate NTD-control activities across neighbouring countries through the Mano River Union.³

Limited progress on water, sanitation and hygiene (WASH) represents another challenge, especially in relation to STH. More sustainable progress on NTDs requires increased access to improved water and sanitation facilities, broader awareness on how WASH issues relate to NTDs and improved cooperation between the NTDP and WASH-sector programmes.

‘We have so many constraints but we are doing it for the love for our country and for our communities. We are helping our mothers, our siblings, our friends’ – CDD

³ The Mano River Union is an international association established in 1973; it is named after the river that passes through its member countries, which currently include Côte d’Ivoire, Guinea, Liberia and Sierra Leone.

Lessons learned

Not every country that faces endemic NTDs can draw on the pioneering history of research and control activities seen in Sierra Leone. However, this case study suggests that progress on NTDs in endemic countries depends, to some extent, on whether national governments can take advantage of the growing global momentum on NTD control and find partners to work with to make the best possible use of national resources. The case of Sierra Leone illustrates five key lessons for creating an integrated, cost-effective and locally-owned model for tackling NTDs:

- **Strong and sustained political commitment is vital to end the ‘neglect’ of NTDs.** Over the past two decades, collaborative work between the WHO and its partners as well as global partnerships and initiatives (e.g. between the WHO, the Bill & Melinda Gates Foundation, DFID, World Bank and pharmaceutical companies), has led to the development of the drugs and tools that countries need to fight NTDs. But these global commitments need to be mirrored at the national level. For example, governments in NTD-endemic countries need to move NTDs up their national agendas, tailor international guidelines to local contexts and source sustainable funding.
- **Coverage and cost-effectiveness can be strengthened through pursuing integrated programmes for NTD control.** The findings of this case study show that the integration of NTD interventions under one umbrella – in this case the NTDP – minimises costs, achieves economies of scale and expands programme coverage. Similarly, using existing structures also minimises costs and allows for maximum reach. The NTDP in Sierra Leone has used existing health and education structures, relying on government workers who are already on the payroll, as well as volunteers. This approach helps to ensure sustainability, a sense of ownership and commitment among staff and has had positive spillover effects in terms of strengthening health systems.
- **Strong partnerships are needed between all stakeholders at all levels.** Well-functioning partnerships between governments, donors, NGO and communities are needed to combine resources, technical assistance and local knowledge. Such partnerships are likely to result in increased ownership: in the case of Sierra Leone, the NTDP has gradually moved from being donor-driven to being owned and managed by the government. Sharing knowledge, innovations and learning from other settings can also be very helpful.
- **A bottom-up approach is needed to build national and community ownership.** Ownership is critical for successful and sustainable programmes. One key way to achieve this is through bottom-up processes that involve communities, traditional leaders and government officials in awareness raising, planning and distribution. Not only does this lead to increased ownership, but it also leads to increased uptake of interventions and helps to reach even the most remote areas.
- **A strengthened and decentralised health sector contributes to successful scaling up.** A strong health-policy environment is an important ingredient for the successful scaling up of any programme to control NTDs. Characteristics of such an environment include initiatives that target the most vulnerable people, and accountability mechanisms related to funding, monitoring and supervision. Efforts on reconstruction and rehabilitation in the post-conflict setting have been key in the overall improvement of the health system. Decentralisation can be a supportive policy within this environment: it not only gives implementers at district-level room to manoeuvre and make decisions based on local realities, but it makes it easier to deliver messages and gather feedback while reinforcing commitment and ownership.

This summary is an abridged version of a research report and one of a series of Development Progress case studies being released at developmentprogress.org

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