The Global Fund

STEP UP THE FIGHT

INVESTMENT CASE

SIXTH REPLENISHMENT 2019

ENDING THE EPIDEMICS OF HIV, TUBERCULOSIS AND MALARIA BY 2030 IS WITHIN REACH, BUT NOT YET FULLY IN OUR GRASP. WITH ONLY 11 YEARS LEFT, WE HAVE NO TIME TO WASTE.

WE MUST STEP UP THE FIGHT NOW.

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STEP UP THE FIGHT

Ending the epidemics of HIV, tuberculosis and malaria by 2030 is within reach, but not yet fully in our grasp. With only 11 years left, we have no time to waste. We must step up the fight now.

We have the opportunity to rid the world of three diseases that have killed millions of people and ravaged communities on every continent. We have the chance to take a massive step toward achieving Sustainable Development Goal 3: health and well-being for all.

It can be done. We know we can end the epidemics of HIV, tuberculosis and malaria. Even without a vaccine or cure for HIV, we can eliminate it as a serious public health threat. Despite TB's persistence, many countries have reduced it to a relatively rare disease. Almost every year, new countries are certified malaria-free – Paraguay and Uzbekistan celebrated this milestone in 2018.

But after years of remarkable progress in the fight against HIV, TB and malaria, new threats have pushed us off track. Right now, we are not on trajectory to reach the Sustainable Development Goal (SDG) target of ending the epidemics by 2030. Wavering political commitment, shortfalls in funding and increasing insecticide and drug resistance have slowed progress and enabled the diseases to gain ground.

The human toll is unacceptable: Nearly 1,000 adolescent girls and young women are infected with HIV every day. A child still dies every two minutes from malaria. And TB is now the world's leading killer among infectious diseases.

We must step up the fight, by increasing resource commitments and innovation, by scaling up prevention and treatment. If we don't, we will go backwards. As we have repeatedly witnessed, any complacency or weakening of resolve lets HIV, TB and malaria resurge at alarming rates.

Stepping up the fight should not be seen as a choice, but as the fulfilment of a promise. Every member state of the United Nations committed to the SDGs in 2015, pledging to deliver health and well-being for all, to achieve universal health coverage, and to build a more prosperous, equitable and sustainable world. Our success or failure in achieving the SDG target of ending three epidemics by 2030 will be one of the clearest tests of that commitment.

The Global Fund plays a vital role in achieving this target and in accelerating progress toward universal health coverage. While governments and communities must take the lead in tackling the epidemics, and in building inclusive health systems, those suffering the greatest disease burdens and lacking financial resources and capacities need external support. The Global Fund partnership is a proven mechanism for maximizing impact.

Now is the time to deliver on our promise. Now is the time to step up the fight.

WE MUST STEP UP THE FIGHT TO GET BACK ON TRACK TO END THE EPIDEMICS AND WE MUST DO SO NOW.

STEP UP OR SLIP BACK?

The Global Plans for AIDS, TB and malaria set in 2015 charted an ambitious but realistic course to end the epidemics by 2030. We have achieved remarkable progress. Antiretroviral therapy saved millions of lives from AIDS. Innovative drugs and diagnostics for TB gave us new weapons against an age-old disease. Insecticide-treated mosquito nets, cost-effective diagnostics and new therapeutics massively reduced the death toll from malaria.

We now face a decisive moment. Do we step up the fight, or do we allow ourselves to slip back? New threats mean there is no middle ground. Either we act now to protect and build on the gains we have made, or we see those achievements eroded, infections and deaths resurge, and the prospect of ending the epidemics disappear.

If we don't prevent teens, particularly girls, from getting infected with HIV, the massive increase in the youth population in Africa will lead to more new infections than at the height of the epidemic in the early 2000s. If we don't tackle the stigma and discrimination that fuels the epidemic among marginalized key populations, we will never stop new infections. One out of four people infected with HIV still doesn't know they have it. Only half of HIV positive children receive antiretroviral therapy.

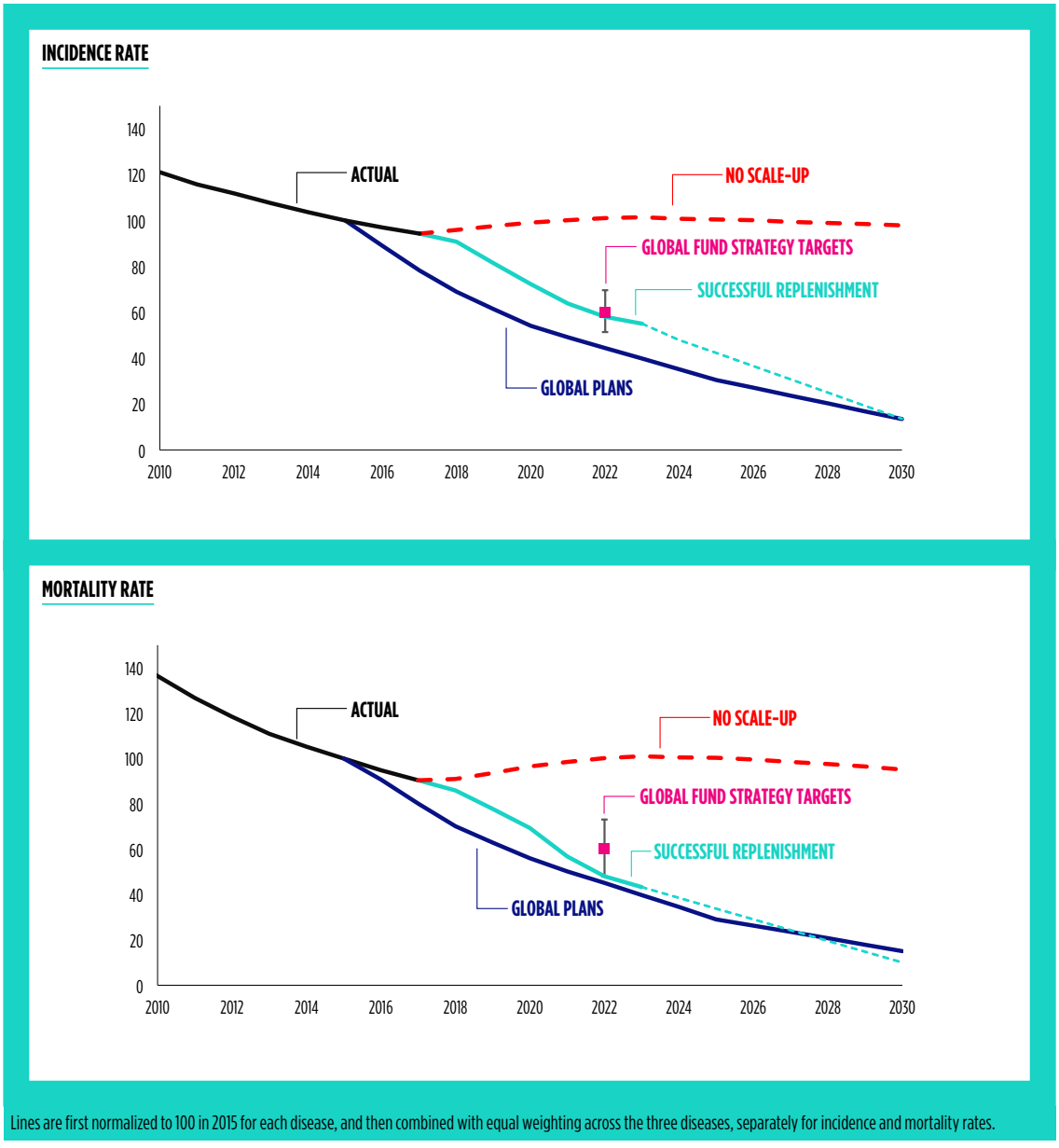
After years of steady declines, malaria cases are on the rise. Mosquitoes in Africa are developing resistance to the most common insecticides used to treat mosquito nets, and in the Mekong region we are seeing growing resistance to the world's most successful malaria drug. We face the possibility of not being able to protect or treat effectively those most vulnerable to malaria – particularly children under 5, who represent two-thirds of all malaria deaths.

More than 10 million people fall ill with TB every year, and nearly 40 percent of those are "missed" – meaning they go untreated and unreported, and can continue to spread the disease to others. Drug-resistant TB makes up one-third of all global deaths from antimicrobial resistance, posing a potentially catastrophic risk to global health security. Only 25 percent of those afflicted with multidrug-resistant TB are diagnosed and treated. TB kills more people than any other infectious disease, mainly the poor and marginalized.

We must step up the fight to get back on track to end the epidemics. And we must do so now.

DECISION POINT 2019

FIGURE 1: COMBINED TRAJECTORY OF INCIDENCE AND MORTALITY



Lines are first normalized to 100 in 2015 for each disease, and then combined with equal weighting across the three diseases, separately for incidence and mortality rates.

- Actual estimates of incidence or mortality
- Global Plans pathway to 2030 incidence or mortality targets for HIV, TB and malaria
- Modelled results for this Investment Case
- Extrapolation of Investment Case trends into future
- Global Fund strategy targets for 2022 with uncertainty bars
- Constant coverage: impact of sustaining services at current levels

The charts highlight the different paths we can take in the countries where the Global Fund invests. The black line shows what we have achieved thus far in terms of reducing disease incidence and mortality. The dark blue line is the trajectory set out in the Global Plans for the three diseases – the path we should be on. The gap between the black line and the dark blue line clearly shows that we are already off track to meet SDG 3: "health and well-being for all". Even more concerning, the dashed red line shows the rebound in incidence and mortality if we simply continue current levels of treatment and prevention. Finally, the turquoise line shows what we could achieve following a successful replenishment of the Global Fund. Alongside sustained levels of other external funding and significantly scaled-up domestic financing, plus more innovation, more intensive collaboration and more rigorous execution, this would enable delivery of the Global Fund strategy targets for 2022 and put us on a trajectory toward attaining the SDG 3 target of ending the epidemics by 2030.

MORE INNOVATION, COLLABORATION, AND IMPACT

Getting back on track to end the epidemics and deliver the broader SDG 3 targets will require all the actors involved, including multilateral and bilateral partners, governments, civil society and the private sector, to raise their game, accelerate innovation, coordinate and collaborate more efficiently, and execute programs more effectively.

We need more innovation in diagnostics, prevention, treatment and delivery models. Only through innovation can we counter the threat of resistance, extend our reach to the poorest and most marginalized, enhance treatment outcomes for the most severe cases, and tackle the root causes of concentrated epidemics. Only through innovation can we stretch every resource to maximize impact.

We need greater collaboration. The World Health Organization-led Global Action Plan's commitment for the key multilaterals to "Align, Accelerate and Account" together must be translated into concrete actions. We must extend this drive for more coordinated action to encompass key bilateral partners, and to include governments, civil society, communities affected by the three diseases and the private sector. Only through intensive collaboration can we defeat the epidemics and deliver universal health coverage.

We need a relentless focus on improving execution, using more granular and timely data. Better data helps identify the most effective interventions and target programming more effectively, implementing stronger controls to manage costs and risks, adopting best practices in patient-centered care and community engagement, and leveraging economies of scale by scaling-up proven interventions rapidly. Only through continuously improving execution can we overcome the inevitable resource constraints.

More innovation, more intensive collaboration and more rigorous execution are essential. But we also need more money.

THE GLOBAL FUND NEEDS AT LEAST US$14 BILLION

The Global Fund needs to raise at least US$14 billion to fund programs to fight the three diseases and build stronger systems for health in the next three-year cycle.

To get back on track, and achieve the turquoise lines set out in the charts, we need to step up total funding from all sources from the US$66 billion in the current cycle to at least US$83 billion for the next three-year cycle, an increase of US$17 billion. Although scientific and process innovations will deliver significant efficiency and effectiveness improvements (and these are factored into the projections), gaps in coverage, demographics, and insecticide and drug resistance mean that current levels of funding will not suffice.

WE NEED A RELENTLESS FOCUS ON IMPROVING EXECUTION, USING MORE GRANULAR AND TIMELY DATA.

Most of the increase will come from increased domestic funding. The Global Fund's Investment Case projects that domestic funding for programs to fight HIV, TB and malaria over the period 2021-2023 will grow to US$46 billion, an increase of 48 percent over the current cycle. These figures are based on co-financing commitments made in the current cycle and broader political commitments to health system development.

Translating these commitments into cash will require sustained political leadership and rapid development of health financing mechanisms. Failing that, we risk getting further off track.

The Global Fund's Sixth Replenishment target of at least US$14 billion represents an increase of US$1.8 billion, or 15 percent over the US$12.2 billion raised during the Fifth Replenishment period[1].

A replenishment of at least US$14 billion would enable the Global Fund to continue to play our leading role in the fight against HIV, TB and malaria, acting as a catalyst for domestic resource mobilization and accelerating progress toward universal health coverage.

This Investment Case recognizes that there are budget constraints and competing priorities. A US$14 billion investment represents the minimum required to achieve the Global Fund strategy goals for 2017-2022 and get back on track toward ending the epidemics – the turquoise lines on the earlier charts. US$14 billion for the Global Fund, alongside increased domestic resources and sustained external funding, represents 82 percent of the resources required to meet the targets set in the Global Plans – the dark blue lines on the charts. An additional US$18 billion would be required to entirely close this gap. More investment – whether through raising more than US$14 billion for the Global Fund, from increased domestic resource mobilization, or increases in other forms of external assistance, would narrow the gap between the turquoise lines and the dark blue lines on the charts, saving millions more lives, accelerating the end of the epidemics, and reinforcing the trajectory toward universal health coverage.

[1] The Global Fund measures overall funding in U.S. dollars, but pledges and contributions are made in multiple currencies. The total amount raised for the Fifth Replenishment period from 2017-2019 is US$12.2 billion, using exchange rates as of 31 December 2018.

US$14 BILLION FOR THE GLOBAL FUND WOULD[2]...

HELP GET THE WORLD BACK ON TRACK TO END HIV, TUBERCULOSIS AND MALARIA:

SAVE 16 MILLION LIVES between 2021 and 2023, reducing the mortality rate by **52 percent** across the three diseases by 2023, relative to 2017 levels.

AVERT 234 MILLION INFECTIONS OR CASES reducing the incidence rate by **42 percent** across the three diseases by 2023, relative to 2017 levels.

REDUCE THE DEATH TOLL across the three diseases to **1.3 million** in 2023, down from **2.5 million** in 2017, and from **4.1 million** in 2005.

ACCELERATE PROGRESS TOWARD SDG 3 AND UNIVERSAL HEALTH COVERAGE:

STRENGTHEN HEALTH CARE SYSTEMS through directly investing approximately **US$4 billion** to build capacities such as diagnostic tools, surveillance systems, supply chain management and training for health care workers, and accelerating the shift toward patient-centered, differentiated models of care.

SPUR DOMESTIC INVESTMENT OF US$46 BILLION toward ending the three diseases and strengthening health systems through co-financing requirements, and technical assistance on health financing.

REINFORCE HEALTH SECURITY by helping build more resilient health systems, with stronger surveillance, diagnostic and emergency response capabilities, and by directly tackling key threats to global health security, such as multidrug-resistant TB.

TACKLE INEQUITIES IN HEALTH including gender- and human rights-related barriers to access, by working with partners, including civil society and affected communities, to build more inclusive health systems that leave no one behind.

YIELD A RETURN ON INVESTMENT OF 1:19 with every dollar invested resulting in **US$19** in health gains and economic returns, further contributing to the achievement of the overall SDG agenda.

[2]With a Sixth Replenishment of at least US$14 billion, the Global Fund would contribute to achieving these results alongside sustained levels of other external funding scaled-up domestic financing, and more innovation, collaboration and rigorous execution.

THE GLOBAL FUND PARTNERSHIP BUILDS ON A ROBUST TRACK RECORD OF IMPACT

Since its creation in 2002, the Global Fund partnership has had extraordinary impact: In the countries in which the Global Fund invests, more than 27 million lives have been saved. The number of people dying from AIDS, TB and malaria has been slashed by one-third. In 2017 alone, results in countries where the Global Fund invests include 17.5 million people on antiretroviral therapy for HIV; 5 million people with TB treated; and 197 million mosquito nets distributed.

The Global Fund delivers this impact with partners including bilateral partners such as the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), Agence Française de Développement, the UK's Department for International Development, Germany and Japan; key multilateral and technical partners such as WHO, UNAIDS, the RBM Partnership to End Malaria, the Stop TB Partnership, Unitaid and Gavi, the Vaccine Alliance; private sector partners such as (RED); foundations such as the Bill & Melinda Gates Foundation; implementing countries; civil society groups; and people affected by the diseases.

By pooling resources and engaging a diverse set of actors, the Global Fund has scale, flexibility and leverage. The advantages of scale are demonstrated by the hundreds of millions of dollars of savings the Global Fund achieves through pooled procurement. The flexibility is shown by the way the Global Fund has pivoted to meet the challenge of HIV infection rates among adolescent girls and young women in Africa, and the threat of malaria drug resistance in the Mekong. The leverage is evidenced by the 41 percent increase in co-financing commitments that governments have signed up to in the current grant cycle, the US$2.7 billion in contributions mobilized from the private sector, and the benefits to the broader health system of Global Fund-supported programs to reinforce supply chains.

NOW WE AIM NOT JUST TO SAVE LIVES, BUT ALSO TO END THE EPIDEMICS – AND BY DOING SO TO SAVE COUNTLESS FUTURE LIVES.

NOW IS THE TIME TO STEP UP THE FIGHT

The original goal of the Global Fund was simply to stop the catastrophic loss of life from AIDS, TB and malaria. Our success has led us to greater aspirations. Now we aim not just to save lives, but also to end the epidemics – and by doing so to save countless future lives. Furthermore, by tackling HIV, TB and malaria through building resilient, sustainable and inclusive systems for health, we pave the road toward universal health coverage.

To achieve these goals we must step up the fight. If we continue on the current path, we will slip back, with immense loss of life, growing economic burden and overwhelming strain on health systems. We must innovate more, collaborate more, and execute more effectively. And we must invest more resources in the Global Fund to enable us to play our vital role as catalyst and leader in the fight against AIDS, TB and malaria. 2030 is only 11 years away.

To achieve the SDG 3 targets of ending the epidemics and creating resilient health systems to deliver health and well-being for all, we must step up the fight now.

MEET MOUSTARIDA

HISTORY HAS SHOWN MALARIA'S ABILITY TO RESURGE

Moustarida, age 3, is one of more than 4 million children under 5 in Niger alone to receive seasonal malaria chemoprevention (SMC).

During the rainy season, when malaria strikes the most, community health workers dispense SMC to protect young children from the disease. This cost-effective, targeted intervention can reduce cases by more than 50 percent. Effective control of diseases like malaria frees health systems to manage other demands and prepare for future threats. But malaria cases are rising in some countries after years of decline; history has shown malaria's ability to resurge even after years of successful control. As the leading international funder of the malaria response, the Global Fund is investing in new tools, data generation, partnerships and innovations – including piloting new mosquito nets to combat insecticide resistance in Africa.

Photography Credit - The Global Fund / David O'Dwyer

II. ENDING AIDS, TB AND MALARIA IS CRITICAL TO ACHIEVING THE SDGS AND UNIVERSAL HEALTH COVERAGE

"We should not let the scale of the challenges before us diminish the achievements we have made, nor should we let our successes blind us to the serious threats we must overcome. With strong global solidarity, we can end these epidemics."

Peter Sands, Executive Director of the Global Fund to Fight AIDS, Tuberculosis and Malaria

Ending AIDS, TB and malaria as epidemics is critical to reaching the Sustainable Development Goal SDG 3: "Health and well-being for all", and is one of the most tangible ways to demonstrate that the SDGs are achievable.

The 2030 Agenda for Sustainable Development, through its goal to "ensure healthy lives and promote well-being for all at all ages" made a firm commitment to free the world from AIDS, tuberculosis and malaria by 2030. Embracing the ambition of the SDGs, the technical partner organizations developed global plans for the three diseases.

- Fast-Track Update On Investments Needed in the AIDS Response, UNAIDS 2016
- Global Technical Strategy for Malaria, WHO 2015
- The WHO End TB Strategy, WHO 2014 and the Paradigm Shift 2016-2020, The Global Plan to End TB 2016 to 2020, Stop TB Partnership, 2015 [3]

Each plan defines the required pathway of mortality and incidence reduction towards the goal to end the three epidemics by 2030 (Figure 1), taking account of scientific advances, new clinical tools, innovations in delivery and data utilization, and demographics and trends in drug and vector resistance.

The Global Fund's strategy for 2017-2022, "Investing to End Epidemics," set ambitious targets that were established together with partners as critical milestones on the path to ending the epidemics by 2030. The strategy also sets out explicitly the Global Fund's role and priorities in delivering the broader objectives of SDG 3, focusing on building resilient and sustainable systems for health and promoting and protecting human rights and gender equality – two critical foundations of universal health coverage.

FIGURE 2: SUMMARY OF GLOBAL PLAN MILESTONES AND TARGETS, 2020, 2025 AND 2030

	MILESTONE	TARGET[4]
HIV Fast Track / UNAIDS Strategy	**BY 2020**	Fewer than 500,000 new infections and 500,000 AIDS-related deaths 90 percent of all people living with HIV will know their status 90 percent of people diagnosed with HIV infection will receive sustained antiretroviral therapy 90 percent of those on treatment will be virally suppressed
	BY 2030	90 percent reduction in new infections and deaths, compared with 2010
TB End TB Strategy/ Global Plan to End TB	**BY 2020**	20 percent and 35 percent decline in TB incidence rate and in absolute number of TB deaths respectively, compared with 2015
	BY 2025	50 percent and 75 percent decline in TB incidence rate and in absolute number of TB deaths respectively, compared with 2015 At least 90 percent of all people with TB diagnosed and all placed on appropriate treatment As part of this approach, at least 90 percent of key populations reached At least 90 percent of all people diagnosed with TB treated successfully
	BY 2030	80 percent and 90 percent reduction in TB incidence rate and in absolute number of TB deaths respectively, compared with 2015 In all milestone years: zero TB-affected families facing catastrophic costs due to TB
Malaria Global Technical Strategy for Malaria	**BY 2020**	At least 40 percent reduction in malaria mortality rate and malaria case incidence, compared with 2015 Elimination in at least 10 countries Re-establishment prevented in all malaria-free countries
	BY 2025	At least 75 percent reduction in malaria mortality rate and malaria case incidence, compared with 2015 Elimination in at least 20 countries Re-establishment prevented in all malaria-free countries
	BY 2030	At least 90 percent reduction in malaria mortality rate and malaria case incidence, compared with 2015 Elimination in at least 35 countries Re-establishment prevented in all malaria-free countries

[3] The TB Global Plan is currently in the process of being updated to reflect the goals and ambition agreed by the UN High Level meeting on Tuberculosis in September 2018.

[4] Table of global targets correspond to all countries and not just Global Fund-supported portfolio.

FIGURE 3: GLOBAL FUND STRATEGY OBJECTIVES 2017–2022:

- Strategic Objective 1: Maximize impact against HIV, TB and malaria
- Strategic Objective 2: Build Resilient and Sustainable Systems for Health
- Strategic Objective 3: Promote and Protect Human Rights and Gender Equality
- Strategic Objective 4: Mobilize Increased Resources

The Global Fund has committed to ambitious targets for the 2017-2022 Strategy (Annex 1). These targets, reviewed by an Advisory Group of independent experts, were approved by the Global Fund Board in March 2017 and are the basis of the Global Fund's Key Performance Indicators. The targets are based on the methodologies of the Global Plans, adjusted in consultation with technical partners to reflect the specific countries the Global Fund invests in and the relevant timeframes. They represent Global Fund-specific milestones on the path to achieving SDG 3 by 2030.

ENDING AIDS, TB AND MALARIA AS EPIDEMICS IS CRITICAL TO REACHING THE SUSTAINABLE DEVELOPMENT GOAL SDG 3: HEALTH AND WELL-BEING FOR ALL, AND IS ONE OF THE MOST TANGIBLE WAYS TO DEMONSTRATE THAT THE SDGS ARE ACHIEVABLE.

Beyond the three diseases, Global Fund-supported programs help build the resilient and sustainable systems for health that underpin universal health coverage. Global Fund interventions to reach out to the poorest and most marginalized communities, and to tackle human rights-related barriers to accessing health services, make concrete the ambition to "leave no one behind." Yet the Global Fund's engagement with the overall SDG Agenda does not stop at SDG 3.

For example, ending the epidemics simultaneously requires progress on and contributes to SDG 1 (No Poverty), SDG 5 (Gender Equality), SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities). Moreover, the Global Fund's multi-stakeholder partnership model embodies the spirit of SDG 17 (Partnership for the Goals).

Reflecting the interdependent nature of both the individual elements underpinning SDG 3 and the relationship with the other SDGs, the key multilateral institutions involved in global health, including the Global Fund, launched the "Global Action Plan for Healthy Lives and Well-being for All" at the World Health Summit in Berlin in October 2018. The Global Fund was actively engaged in the development of the Global Action Plan and is committed to successfully delivering the more effective collaboration and coordination encapsulated in the plan's aspiration to "Align, Accelerate and Account".

Ultimately, the SDGs, the Global Plans and the Global Fund's strategy targets are all about saving individual lives and helping people live healthier, happier and more productive lives. Every year, more than 2.5 million people die from AIDS, TB and malaria in countries where the Global Fund invests. Without universal access to quality health care, millions more die unnecessarily from other infectious and non-communicable diseases. By ending the epidemics of AIDS, TB and malaria, the Global Fund partnership will cut the death toll significantly, and lift a huge burden from communities and overstretched health systems. Moreover, the Global Fund's investments in health systems infrastructure and capabilities, and interventions to extend services to the poorest and most vulnerable, will accelerate progress toward the overarching goal of universal health coverage.

MEET CHANG CHAI

THE SOLUTIONS REQUIRE ACTION AND ENGAGEMENT AT ALL LEVELS

Chang Chai is a construction worker from Myanmar living on the outskirts of Chiang Mai, Thailand. He's the go-to guy for health information in the settlement of about 10 migrant families.

Documented migrants can enroll in health insurance plans, and Global Fund partners such as MAP Foundation employ migrant field officers to raise awareness about HIV and TB testing and treatment services. The complexity and vulnerability inherent in migrant life make it challenging to ensure health coverage for all. The solutions require action and engagement at all levels – from volunteer community leaders like Chang Chai, to robust civil society organizations like MAP and national policies that support achieving universal health coverage.

Photography Credit - The Global Fund / Jonas Gratzer

III. STEP UP OR SLIP BACK?

While remarkable progress has been made against HIV, TB and malaria, new threats have slowed progress and pushed us off the trajectory to reach the Sustainable Development Goal target of ending the epidemics by 2030. To protect and build on the extraordinary gains we have made thus far, we must successfully overcome the profound challenges arising from insecticide and drug resistance, entrenched (and in some cases, worsening) gender inequalities and human rights-related barriers to access to health services, and wavering political commitment and consequently funding.

INCREASING INSECTICIDE AND DRUG RESISTANCE

Increasing insecticide and drug resistance threaten to undermine the progress made in fighting all three epidemics, and, like other forms of antimicrobial resistance, pose a growing threat to global health security. Antimicrobial resistance occurs when infectious organisms develop resistance to the drugs intended to treat them. As a result, treatments become ineffective and infections persist and can spread. Increased global travel, migration and trade mean antimicrobial resistance can spread more rapidly.

IN THE FIGHT AGAINST AIDS, TB AND MALARIA, FOUR TYPES OF ANTIMICROBIAL AND INSECTICIDE RESISTANCE REPRESENT PROFOUND THREATS:

Resistance to mosquito insecticides: Long-lasting, insecticide-treated mosquito nets and indoor residual spraying of houses and other buildings such as schools have proved extraordinarily effective in preventing malaria. Yet the mosquitoes that carry malaria are developing resistance to the insecticides most commonly used to treat mosquito nets and for indoor residual spraying.

Resistance to artemisinin combination therapy for malaria: Artemisinin-based drugs are the most widely used and successful treatments for malaria. However, in the Mekong region, the malaria parasite is showing increasing resistance to such drugs. This poses a huge risk to the region and a potentially major setback for global health security. If the resistance seen in the Mekong were to spread to India or sub-Saharan Africa it could exact a huge toll in human lives.

Drug-resistant TB: Drug-sensitive TB typically responds well to treatment with relatively inexpensive antibiotics. However, multidrug-resistant TB (MDR-TB) is on the rise, with nearly 600,000 people afflicted worldwide in 2017. Only 25 percent of those suffering MDR-TB are diagnosed and treated, and the treatment is much more expensive and prolonged, with lower success rates, than for drug-sensitive TB. Drug-resistant TB represents a potentially catastrophic risk to global health security, including to high income countries. Already, MDR-TB accounts for about for one-third of all deaths from antimicrobial resistance.

Resistance to antiretroviral therapies: Combination antiretroviral therapies have proved enormously effective in treating HIV infections, saving millions of lives and enabling millions of HIV-positive people to lead normal lives. Yet we are encountering increasing resistance to such medicines: in sub-Saharan Africa, over 10 percent of people starting antiretroviral therapy have a strain of HIV resistant to some of the most widely used HIV drugs.

ENTRENCHED AND INCREASING INEQUALITIES

Across all three diseases, inequalities in access to health services exacerbate broader inequalities in living conditions, food supply, economic empowerment, education and security to make the poorest communities and marginalized key populations the most vulnerable to the epidemics. While overall infection and death rates have been falling in most countries, we are not consistently delivering on the SDG aspiration to "leave no one behind". With HIV, for example, we are seeing persistently high, and in some places increasing, rates of infection amongst those disadvantaged by structural inequalities, including discrimination, criminalization and stigma.

Adolescent girls and young women: Girls and young women aged 15-24 years in sub-Saharan Africa are up to eight times more likely to be HIV positive compared to young men of the same age. Nearly 1,000 girls are infected with HIV every day. Root causes include deep structural gender inequalities, including widespread sexual violence, lack of economic opportunities, and educational disadvantages. Urgent action to reduce HIV transmission among adolescent girls and young women is vital to end the epidemic. Given the demographic trends in sub-Saharan Africa, with the 15-24-year-old population expected to increase by 40 percent over the next decade, failure to act decisively could lead to a resurgence of HIV, with more new infections than at the height of the epidemic in the early 2000s.

Key populations: HIV incidence, while declining overall, is relatively high and in some places on the rise among key and vulnerable populations, such as men who have sex with men, sex workers, prisoners, transgender and people who inject drugs. Facing significant human rights-related barriers to accessing health services, including discrimination, criminalization and stigma, such communities are up to 28 times more likely to acquire HIV than the general population. If we do not tackle these barriers, and thus fail to reduce infection rates among key populations, we will not succeed in ending the HIV epidemic, and risk a resurgence.

With TB, many of the same issues arise, with key populations and those in urban slums and the poorest rural communities particularly vulnerable to the disease. With malaria, children and the rural poor, particularly those in isolated communities, are typically the most vulnerable. Across all three diseases, conflict and natural disasters exacerbate vulnerability. Migrants and refugees are especially vulnerable given often inadequate and crowded living conditions and lack of access to health services.

INCREASED GLOBAL TRAVEL, MIGRATION AND TRADE MEAN ANTIMICROBIAL RESISTANCE CAN SPREAD MORE RAPIDLY.

WAVERING POLITICAL COMMITMENT AND INADEQUATE FUNDING

Wavering political commitment – and perhaps a degree of complacency – has resulted in inadequate funding for the fight against the three diseases. International development assistance for health has plateaued and domestic resource mobilization, while increasing significantly, is still far below what is required to defeat the epidemics.

International assistance for health: International development spending for health grew substantially from 2000 through 2010, spurred by the Millennium Development Goals and reflecting generous support for the Global Fund, Gavi, the Vaccine Alliance and the Global Polio Eradication Initiative. As a result, these years saw dramatic declines in deaths and new infections from AIDS, TB, malaria and polio, as well as significant progress against a host of other childhood killers. But the investments that generated so much progress in the early years of the 21st century have plateaued. Development assistance for health grew by 11.4 percent per year from 2000-2010, but by only 1 percent per year between 2010 and 2016[5].

Domestic resource mobilization: National governments have significantly increased investment of domestic resources in health, including funding the fight against AIDS, TB and malaria. Global Fund co-financing requirements have played a catalytic role, with co-financing commitments for the 2018-2020 funding cycle up 41 percent compared to 2015-2017, which in turn was up 33 percent on the previous cycle[6]. However, significant funding gaps remain across all three diseases and in many countries. It is important to note that despite the positive increase in growth of domestic resources for health, those resources are not generated equally across all countries; many low-income countries in particular continue to require international assistance for health to supplement low levels of domestic resources. For example, overall levels of fiscal mobilization remain inadequate in many countries, and most countries in Africa fail to meet the Abuja Declaration target of dedicating 15 percent of public spending to health. For a more detailed breakdown of domestic resource mobilization, please see Annex 3.

THE INVESTMENTS THAT GENERATED SO MUCH PROGRESS IN THE EARLY YEARS OF THE 21ST CENTURY HAVE PLATEAUED.

[5] http://www.healthdata.org/sites/default/files/files/policy_report/FGH/2018/FGH_2017_full-report.pdf

[6] Based on countries that accessed funding as of end July 2018.

PROGRESS SLOWING AGAINST THE THREE EPIDEMICS

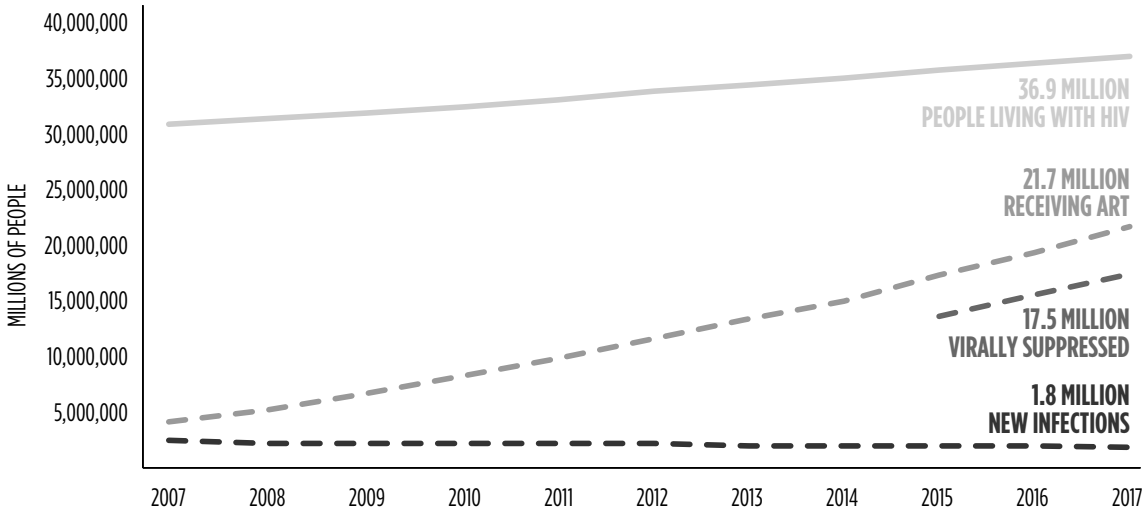
Given these challenges, plus the underlying pressures from demographic changes and broader factors such as climate change, our rate of progress in fighting HIV, TB and malaria has slowed. We need to step up the fight or risk slipping back, sliding further off the trajectory required to end the epidemics by 2030.

KEY PRIORITIES INCLUDE:

Reinforcing prevention of HIV infection: We have made significant progress toward the UNAIDS "90-90-90" targets (Figure 2) through expanding testing and treatment (Figure 4). Worldwide, we have moved from "67-73-78" in 2015 to "75-79-81" in 2017.

However, with 1.8 million people newly infected with HIV in 2017, we need to act with urgency to reinforce and scale up primary prevention programs to reduce HIV incidence, with a particular focus on adolescent girls and young women, and key populations.

FIGURE 4: HIV PANDEMIC

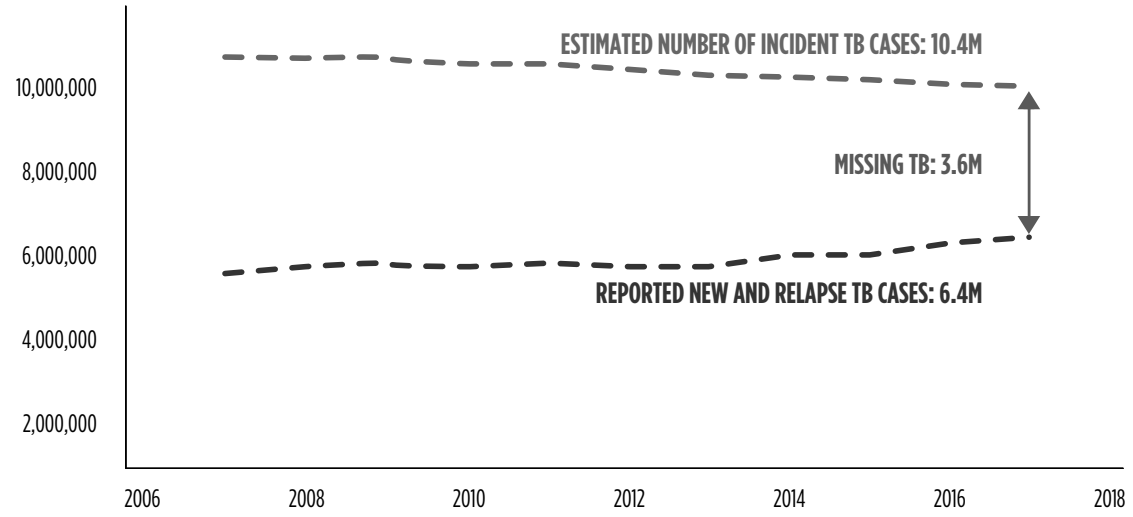


SOURCE: UNAIDS, 2018

Accelerating progress on TB: Causing 1.3 million deaths per year (excluding TB/HIV co-infections), TB is now the world's leading killer among infectious diseases. In countries where the Global Fund invests, while deaths from AIDS have been cut in half since the peak in 2005 and malaria deaths by 45 percent since 2000, deaths from TB have only been reduced by 25 percent since 2000. With TB incidence rates falling even more slowly – by approximately 2 percent per year – the world is not on track to end the epidemic. The fundamental problem is that of the more than 10 million people who fall ill with TB every year, 36 percent are "missed" – meaning they go untreated and unreported, and can continue to spread the disease to others (Figure 5). At the UN High-Level Meeting on TB in September 2018, countries committed to closing this gap, but this will require increased resources, as will use of improved treatment for MDR-TB.

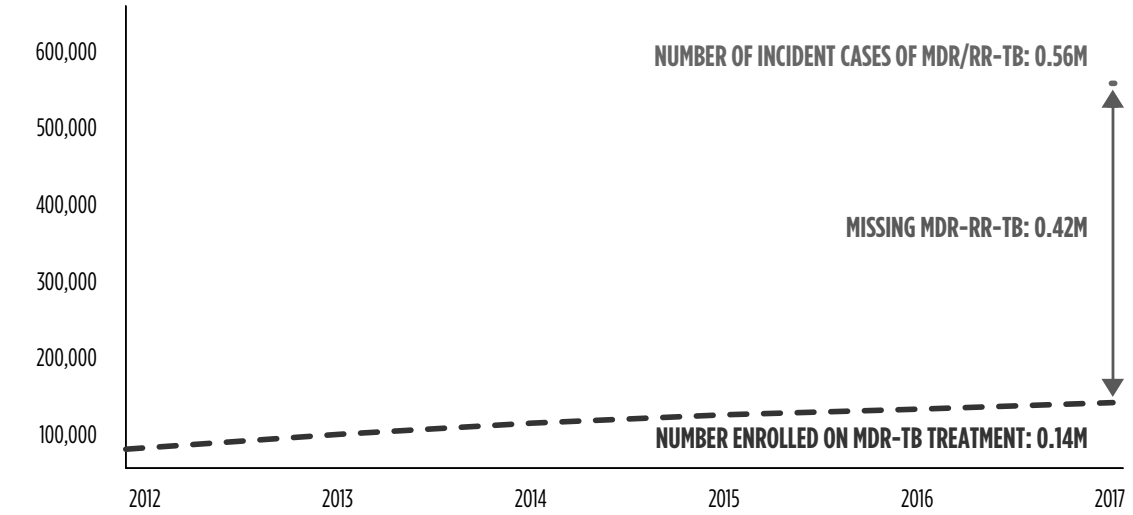
FIGURE 5: MISSING PEOPLE WITH TB AND MULTIDRUG-RESISTANT TB (2017)

MISSING PEOPLE WITH TB



Source: WHO, Stop TB Partnership

MISSING PEOPLE WITH MULTIDRUG-RESISTANT TB



Source: WHO, Stop TB Partnership

MEET ANASTASIA

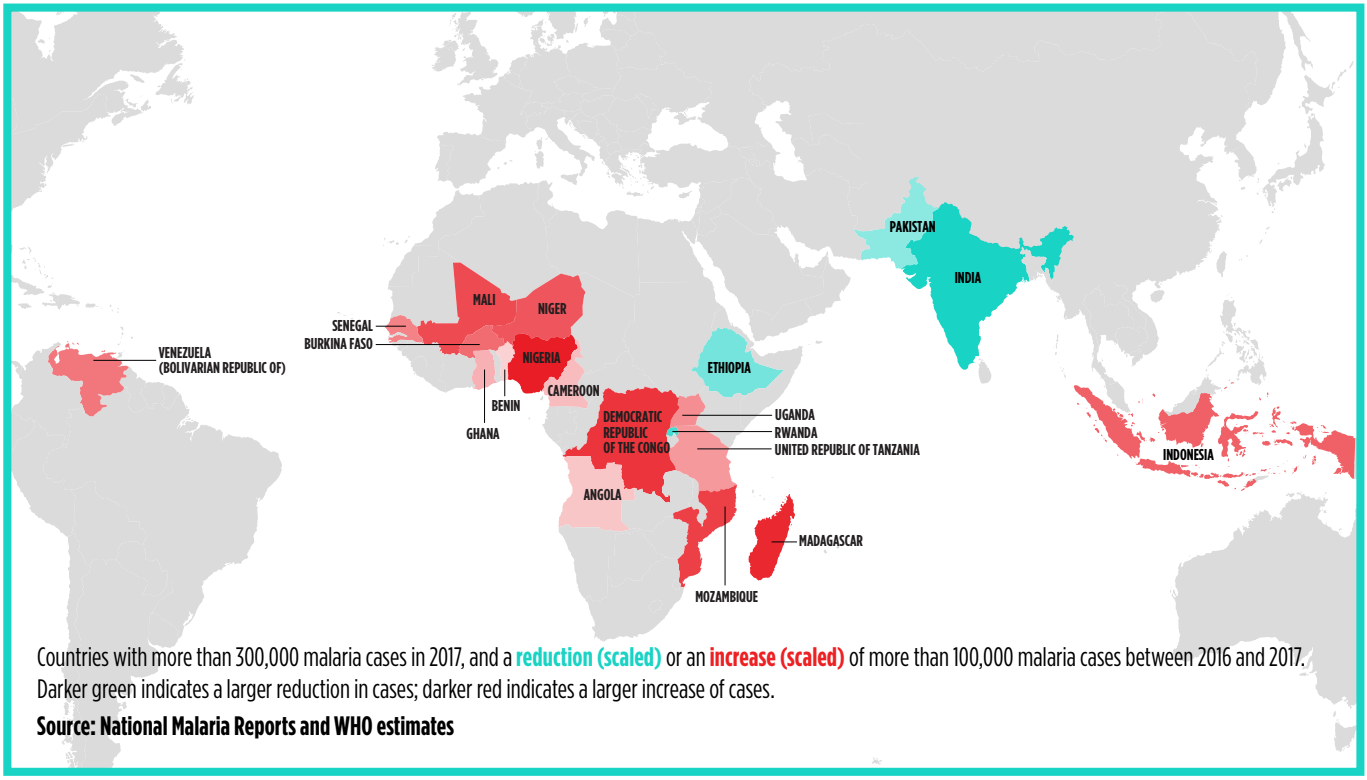
EASTERN EUROPE'S BURDEN OF MULTIDRUG-RESISTANT TB IS THE HIGHEST IN THE WORLD

Anastasia is 17 and she's in the fight of her life. She has multidrug-resistant tuberculosis.

TB is today's most deadly infectious disease, and deaths from drug-resistant TB account for about one-third of all antimicrobial resistance deaths worldwide. And while certain groups are more vulnerable, Anastasia's case demonstrates TB can strike anyone, anywhere. TB incidence in Anastasia's home country of Belarus – and the rest of Europe – is relatively low, but Eastern Europe's burden of multidrug-resistant TB is the highest in the world. In Belarus, nearly 38 percent of new TB cases are MDR. By comparison, the global average is just over 4 percent. We are not on track to meet the goal of ending TB by 2030. But if we step up now, we can achieve a decisive change in trajectory. In the fight against TB, now is the moment.

Photography Credit - The Global Fund / Vincent Becker

FIGURE 6: MALARIA: STEPPING UP OR SLIPPING BACK?



Countries with more than 300,000 malaria cases in 2017, and a **reduction (scaled)** or an **increase (scaled)** of more than 100,000 malaria cases between 2016 and 2017. Darker green indicates a larger reduction in cases; darker red indicates a larger increase of cases.

Source: National Malaria Reports and WHO estimates

Reversing the resurgence of malaria in high-burden countries: While the global figures on deaths from malaria show continued progress, the total number of malaria cases is now rising after 10 consecutive years of decline. In the highest burden countries – most of which are lower income countries – we are not doing enough to break the parasite's transmission cycle (Figure 6). Stagnant funding in countries with rapid population growth has meant per capita funding for malaria prevention and care has declined for the past several years, leading to gaps in vector control coverage and other preventive and treatment approaches. Increasing insecticide resistance has exacerbated these trends. As recognized in the November 2018 launch of "High burden to high impact"[7], a country-led response catalyzed by WHO and the RBM Partnership to End Malaria, we must act now to get back on track toward malaria control and elimination. Furthermore, the prospect of artemisinin resistance spreading more widely underscores the need for urgent action.

Despite tremendous progress, we face daunting challenges in the fight against the three diseases. HIV, TB and malaria are formidable adversaries. The set of interventions and level of investment that yielded great gains over the last decade will not suffice for the next phase of the fight. If we do not step up – innovating, expanding and accelerating our efforts – we will slip back, risking a resurgence of infections and deaths, and surrendering the gains we have made.

We face a choice. We can step up the fight, using the battle against HIV, TB and malaria to turbocharge progress toward the SDG 3 objective of universal health coverage; or we can allow complacency and wavering political commitment to let us slip back, allowing deaths and infections to increase, and fragile health systems to be overwhelmed by the three epidemics.

DESPITE TREMENDOUS PROGRESS, WE FACE DAUNTING CHALLENGES IN THE FIGHT AGAINST THE THREE DISEASES.

[7] http://apps.who.int/iris/bitstream/handle/10665/275868/WHO-CDS-GMP-2018.25-eng.pdf?ua=1

IV. MORE INNOVATION, COLLABORATION, AND EXECUTION

LABORATORY STRENGTHENING IN UGANDA

The Ebola virus outbreak in neighboring Democratic Republic of Congo, the launch of the Global Health Security Agenda and the increasing threats posed by noncommunicable diseases and antimicrobial resistance highlight the critical role of disease surveillance and laboratory services in preparedness and response strategies.

Affordable laboratory systems are not only critical to improving disease preparedness, but also to achieving universal health coverage by 2030 as part of the Sustainable Development Goals.

Global Fund investments have supported the improvement of integrated laboratory services in many countries, including Uganda.

In 2011, the Ugandan Ministry of Health and partners designed a "hub-and-spoke" model. Hubs have been established throughout the country to service all health care facilities within a 40 km catchment area, combined with an integrated specimen transport network. The hubs have improved access to early infant diagnostic services and reduced transportation costs by 62 percent, and led to an impressive 47 percent reduction in sample-to-result delivery time – from 49 days to 26 days. Integrated transport networks facilitate the rapid delivery of testing samples via motorbikes equipped with cooling boxes. Test results are shared via mobile networks, which has greatly improved the connectivity of primary health care centers with the laboratories.

The hub-and-spoke model is now used for other diseases beyond HIV, TB and malaria, and hubs are able to test for many other notifiable diseases through the use of the same motorbike network. Global Fund support allows Ugandan experts to provide technical assistance to other countries in Africa to strengthen their lab systems, including sample referral, and facilitating accreditation by relevant regulatory bodies. The model can pick up pandemic threats early, making it a vital advancement in global health security.

Photography Credit: The Global Fund / Jiro Ose

GLOBAL FUND INVESTMENTS HAVE SUPPORTED THE IMPROVEMENT OF INTEGRATED LABORATORY SERVICES IN MANY COUNTRIES, INCLUDING UGANDA

Getting back on track to end the epidemics and deliver the broader SDG 3 targets will require all the actors involved, including multilateral and bilateral partners, governments, civil society and the private sector, to raise their game, accelerate innovation, coordinate and collaborate more efficiently, and execute programs more effectively.

To stimulate more innovation, greater collaboration and advances in execution, the Global Fund designates a proportion of our funding – US$800 million in the 2017-2019 cycle – as "catalytic funding," creating specific funding pools to advance strategic priorities. Working with partners, the Global Fund delivers catalytic funds in a variety of ways, including regional grants to encourage cross-border collaboration to combat drug-resistant malaria; matching funds to stimulate investments in priority interventions, such as finding the "missing" people with TB; or funding the pilot of new tools, such as next generation mosquito nets.

MORE INNOVATION

We need more innovation in diagnostics, prevention, treatment and delivery models. Only through innovation can we counter the threat of resistance, extend our reach to the poorest and most marginalized, enhance treatment outcomes for the most severe cases, and tackle the root causes of concentrated epidemics. Only through innovation can we stretch every resource to maximize impact.

New diagnostics, drugs, and vector control mechanisms: Across all three diseases, we need further innovation in clinical and prevention tools, both to enhance the efficacy of preventative efforts and to improve treatment outcomes. More research and development is required, but so too is accelerated testing and rollout, so that people benefit more quickly. While the Global Fund's mandate does not extend to funding research and development directly, we work closely with partners such as Unitaid, WHO, Gavi, the Vaccine Alliance, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the President's Malaria Initiative (PMI), as well as the Bill & Melinda Gates Foundation (BMGF), plus private sector pharmaceutical and medical tool manufacturers, to identify and prioritize needs, stimulate research and development, support pilots and testing, adapt treatment guidelines, and incorporate into programs.

Taking malaria as an example, key innovations in which the Global Fund is actively involved include:

- **Catalyzing the development of next generation mosquito nets to counter insecticide resistance:** Working in partnership with Unitaid, and in collaboration with PMI and BMGF, the Global Fund has committed US$33 million in catalytic funding to support pilots of next generation mosquito nets designed to protect against mosquitos that have become resistant to current nets.
- **Testing and piloting a malaria vaccine:** Working in partnership with WHO, Gavi, the Vaccine Alliance, and Unitaid, the Global Fund has committed US$15 million in a separate catalytic fund to support the pilot introduction of RTS,S, a malaria vaccine.

Looking forward, we need to ensure even more seamless collaboration between all the actors involved in the biomedical innovation process, so that we fill gaps more quickly, anticipate and address resistance challenges, and continuously introduce more cost-effective and safer solutions. The Global Fund will play a critical role in this process. As a big – and sometimes the biggest – purchaser of innovative products for HIV, TB and malaria, the Global Fund can facilitate rapid scale-up and integration into programming so people can benefit quickly.

New approaches and program delivery models: New clinical and prevention tools are vital. So, too, are new ways of reaching and working with individuals and communities to maximize impact and to ensure sustainability. The Global Fund partnership operates on global, regional, national and community levels to leverage catalytic funds to incentivize and support such innovation. Examples include:

- **Proactive approaches to identifying "missing" people with TB:** In the 2017-2019 period, the Global Fund will deploy US$115 million through matching funds to encourage countries to adopt new approaches to find, diagnose and treat people with TB who have not been identified, including creative ways of engaging private sector health providers, and focused initiatives, such as the Zero TB Cities Project.
- **Creative interventions to empower adolescent girls and young women to protect themselves from HIV:** Innovative approaches supported by the Global Fund through both country allocations and catalytic funding include schemes to keep adolescent girls in school and to help equip young women to be economically independent, sexuality education programs to build knowledge and understanding on how to stay safe, and HER Voice, which involves private sector partners in supporting adolescent girls and young women in their own advocacy efforts.
- **Groundbreaking work to identify and tackle human rights-related barriers to accessing health services:** Through the "Breaking Down Barriers" initiative, the Global Fund has been working with partners to conduct baseline assessments of human rights-related barriers to accessing health services in 20 countries. These are then the basis for multi-sector workshops to develop specific policy recommendations and action plans for fully funding programs to comprehensively address the barriers.
- **Adopting integrated, patient-centered programming to build health system capacities:** The Global Fund and partners support countries to adopt integrated, patient-centered models that deliver services related to the three diseases through integrated platforms. The four platforms prioritized are antenatal/postnatal care; integrated management of childhood illness at community and facility level; adolescent health; and sexual and reproductive health. For example, in close partnership with the Liverpool School of Tropical Medicine, the Global Fund supports countries to deliver high quality prevention of mother-to-child transmission of HIV, early infant diagnosis, screening children and pregnant women for TB, intermittent preventive treatment in pregnancy and other malaria-in-pregnancy interventions through routine ANC/PNC platforms. Such approaches expand the reach and quality of lifesaving services related to the three diseases through a more holistic patient-centered approach, while contributing to strengthening primary health care systems.

ONLY THROUGH INNOVATION CAN WE STRETCH EVERY RESOURCE TO MAXIMIZE IMPACT.

"FIND. TREAT. ALL."

THIS INITIATIVE HOPES TO FIND AND TREAT 40 MILLION PEOPLE WITH TB DURING 2018-2022

The biggest challenges we must urgently address are drug-resistant TB and the 3.6 million "missing" people with TB – people who are undiagnosed, unreported and untreated each year, contributing to ongoing transmission.

In 2018, the Global Fund, along with WHO and the Stop TB Partnership, launched an initiative called "Find. Treat. All." This initiative hopes to find and treat 40 million people with TB during 2018-2022. This target was included in the UN High Level Meeting on TB in 2018.

The Global Fund is also supporting several initiatives including investing US$125 million in 13 countries that account for 75 percent of missing people with TB globally to find an additional 1.5 million cases by the end of 2019.

Photography Credit: The Global Fund / Yousuf Tushar

- **New ways of engaging communities in protecting health:** The Global Fund's approach to systems for health reflects the complex interactions between disease control programs, formal systems of primary health care and community mobilization. The Global Fund supports a wide range of community responses, including community health care workers, home care, and peer education, as well as community-based monitoring and feedback. The spectrum of community responses make it possible to reach people who would not otherwise be reached by mainstream services. For example, the Global Fund together with partners has been facilitating the expansion of community-based monitoring programs across the portfolio, encouraging affected communities to assess service availability and quality.
- **Innovative ways to collect, analyze and use data:** Mobile data collection can increase the efficiency, accuracy and timeliness of data collected. Consolidating health surveillance, supply chain, finance, weather and other data streams facilitates analysis, significantly improving national decision making and the strategic use of health resources (see Case Study, page 24).
- **Creatively engaging the private sector in solving challenges around data, delivery and sustainability:** For example, Project Last Mile is building better supply chain capabilities in 10 countries, and IBM has helped Global Fund partners create a paperless patient support system reaching over 1 million patients. The Global Fund also leverages private sector expertise in the important areas of data visibility and analytics, for example through in-country solutions to integrate data from multiple sources for improved data use and decision making.

Looking forward, we need continued innovation in program design and delivery, particularly as we put even more emphasis on prevention, which requires greater engagement of individuals and communities, and more cross-sectorial partnerships. One priority is to accelerate the transfer of best practices, so that good ideas pioneered in one country are rapidly adopted elsewhere.

New financing mechanisms to attract other resources and optimize incentives: To underpin innovations in clinical and prevention tools and in program design and delivery, we need innovative financing tools to attract new sources of finance and use financial innovation to increase the efficiency of current resources – optimizing the appropriate use of different types of capital, improving incentives and sharing risks more effectively. Examples of the Global Fund's current initiatives in this arena include:

- **Catalyzing domestic resource mobilization through co-financing requirements:** Global Fund grants typically include an obligation on the recipient government to commit additional domestic resources equivalent to 15-30 percent of the allocated grant. This mechanism has proved remarkably successful in incentivizing increased domestic investment in health, with co-financing commitments in the current cycle up 41 percent on the previous cycle[8]. Moreover, experience from the earlier cycle suggests that over 80 percent of these obligations are met in full (with 96 percent of all countries meeting the minimum co-financing requirements).
- **Stimulating new sources of funding and innovation at a national level:** An example is the India Health Fund launched in August 2016 under the leadership of Ratan Tata and the Tata Trusts in partnership with the Global Fund to attract private sector finance into improving health across India.
- **Devising and supporting blended finance solutions:** The Regional Malaria Elimination Initiative was created in partnership with the Inter-American Development Bank, Bill & Melinda Gates Foundation (BMGF), Clinton Health Access Initiative and Pan American Health Organization to secure a mix of grant and concessional credit funding for collaborative programs to eliminate malaria across Central America and the Dominican Republic. The Global Fund has also worked with the Lives and Livelihoods Fund, which, through a collaboration between BMGF and the Islamic Development Bank, offers countries an opportunity to access concessionary funding for health and priority areas.
- **Implementing Debt2Health solutions:** Debt2Health encourages domestic financing in health by converting debt repayments into lifesaving investments in health. Under individually negotiated debt swap agreements, a creditor nation foregoes repayment of a loan when the beneficiary nation agrees to invest part or all of the freed-up resources into a Global Fund-supported program. To date, contributions made under Debt2Health agreements total over US$120 million with the support of Australia, Germany and Spain.
- **Facilitating consumer-based fundraising initiatives:** The Global Fund has benefited enormously from the extraordinary success of (RED), which since its inception has raised over US$600 million for the Global Fund's fight against AIDS in Africa. (RED) continues to create new partnerships with companies to raise funds from consumers and build awareness, such as the launch of (RED) branded Durex condoms. In Asia, the Global Fund has joined forces with the Asia Pacific Leaders Malaria Alliance and private sector partners to support M2030, a consumer-marketing initiative that will raise money from Asian consumers to support malaria elimination efforts in the region.
- **Implementing result-based financing mechanisms to optimize incentives:** The Global Fund works with partners to implement results-based financing mechanisms that create appropriate performance incentives. For example, in 2015 Rwanda and the Global Fund launched a results-based financing approach called the National Strategy Financing model, which enables Rwanda to evaluate performance against pre-defined targets and shift resources as priorities change.

To prioritize future initiatives in this vital arena and to establish the management and governance mechanisms for executing transactions efficiently, the Global Fund approved "A Structured Approach For Innovative Finance – Increasing Financial Innovation"[9] in November 2018. This makes clear that innovative finance mechanisms should not be seen as an alternative for the Global Fund's core activity of providing grants, but as complementary mechanisms to ensure sustainability, enhance impact and attract other resources.

[8]Based on countries that accessed funding as of end July 2018.

[9]https://www.theglobalfund.org/media/8103/bm40_18-structuredapproachforinnovativefinance_report_en.pdf?u=636797917940000000

INVESTING IN DATA SYSTEMS IN THE DEMOCRATIC REPUBLIC OF CONGO (DRC)

THE NATIONAL HEALTH MANAGEMENT INFORMATION SYSTEM HAS INCREASED QUALITY AND TIMELINESS OF REPORTING

The DRC is a challenging operating environment, with ongoing conflict, population displacement and a tense political context – making health care reform and achievement of universal health coverage a distant goal.

The country has a large share of global malaria burden at 11 percent of deaths and 10 percent of cases worldwide. Despite these challenges, the country has halved under-5 child mortality since 1990, and with the support of the Global Fund and other partners, the country distributed 7.25 million mosquito nets and achieved close to 80 percent coverage of mosquito nets in 2017. The treatment success rate for TB has reached 89 percent – in a country with one of the highest rates of TB/HIV co-infection in the world.

The size and limited resources of DRC make monitoring and evaluation particularly important for assessing the effectiveness of interventions – ultimately informing the scale-up of programs and overall decision-making. For 2018-2022, Global Fund grants are contributing US$17 million to the national health management information system (HMIS) in DRC for 2018-2020, primarily for the countrywide roll-out of DHiS2, an open source platform for managing health data. The DHiS2 has reached full deployment with aggregate reporting for all three diseases, and the national reporting rate across the three diseases has increased dramatically from 17 percent in 2015 to 92 percent in 2018 (90 percent HIV, 95 percent TB, 90 percent malaria). Timeliness of reporting has reached 70 percent on average (75 percent HIV, 73 percent TB, 62 percent malaria).

The alignment of partners and donors around national HMIS plans in DRC has proven a strong model for investment and has facilitated the success of this initiative, reducing parallel reporting systems and improving the availability and quality of data. Coupled with support from the Global Fund and other partners, the domestic attention given to improving HMIS has supported the timely production of data, avoiding double reporting and integrating data from disease specific programs. These programs shift the focus beyond disease-specific targets to broader, more comprehensive approaches in health system strengthening, and ultimately serving as a bridge to the larger goal of achieving universal health coverage.

Photography Credit: The Global Fund / Georges Mérillon

MORE COLLABORATION

We need more systematic and effective collaboration at global, regional and country levels to increase impact and reduce duplication and coordination costs. The Global Action Plan, launched in Berlin in October 2018 at the World Health Summit, committed the key multilaterals engaged in global health to "Align, Accelerate and Account" together. Now this high-level plan must be translated into concrete actions. We must extend the drive for more coordinated action to encompass key bilateral partners and to include governments, civil society, communities affected by the three diseases and the private sector. Only through intensive, inclusive collaboration can we defeat the epidemics and deliver universal health coverage.

Strengthening collaboration at the global level: The Global Fund fully supports the Global Action Plan developed under the leadership of WHO in partnership with 12 multilateral partners engaged in the global health arena, including the Global Fund. The Global Fund is committed to working with these partners to develop and implement the "accelerators" envisaged in the Global Action Plan.

Consistent with the spirit of the Global Action Plan, the Global Fund has been taking action to strengthen our key partnerships. In October 2018, the Global Fund and WHO agreed a new partnership framework to guide the next stage of collaboration toward achieving SDG 3 and universal health coverage.

Following a systematic review of potential synergies conducted in early 2018, the Global Fund and Gavi are working together more closely across multiple areas, including in-country programming, data, policy issues, advocacy, and administrative support. With the two organizations now located in the Global Health Campus, there are significant opportunities to enhance collaboration and coordination to deliver efficiency and effectiveness gains. Building on this effort, the Global Fund has commenced similar systematic reviews with Unitaid, UNAIDS and the Stop TB Partnership to identify ways through which the already close relationships between the organizations can be further enhanced.

In the critical arena of health financing, the Global Fund is working with other global health agencies including Gavi, WHO, and the Global Financing Facility as part of the Global Action Plan's "Sustainable Financing Accelerator;" and with the African Union and the World Bank to accelerate the capacity of countries to raise more domestic resources, give greater priority to health spending, improve the efficiency and equity of investments in health, and ensure that critical public goods such as epidemic preparedness are adequately funded[10]. Key activities include: intensifying advocacy for increased domestic spending on health, supporting accelerated fiscal reforms, supporting public financial management and efficiency reforms, and increasing the deployment of joint financing mechanisms and innovative financing approaches.

Enhancing collaboration at the regional level: Where epidemiological zones cross national boundaries or large numbers of infected people are moving from one country to another, regional collaboration is vital to fighting the three epidemics. The Global Fund uses dedicated catalytic funds to encourage and support such collaboration. Current examples include the Regional Artemisinin-resistance Initiative in the Greater Mekong, focused on eliminating drug-resistant malaria (see Case Study, page 26); TB programs for migrant mine workers in Africa; and initiatives in the Middle East and elsewhere for refugees and other migrants. Looking forward, there are opportunities to deepen existing collaborative efforts, build on the success of current initiatives, and extend such approaches to new regions, for example in fighting malaria in the Sahel.

Reinforcing collaboration and coordination at the country level: In the Global Fund partnership model, each country's Country Coordinating Mechanism (CCM) plays the critical role of ensuring that Global Fund-supported programs are aligned with national priorities and integrated into the national strategic plan for health. The Global Fund also uses catalytic funding to encourage integrated, patient-based programming, the strengthening of broader health system capacities and community systems, sustainability and robust transition planning.

In the next phase of the fight, we need to put even greater emphasis on integrated programming, so we maximize the extent to which the fight against the three diseases strengthens the overall health system and reinforces sustainability. This will require overcoming institutional silos and enhancing coordination among development assistance and technical partners. Through the CCM Evolution Initiative, the Global Fund is already investing in developing the capacity of CCMs to play their crucial role in making this happen. And through strengthening in-country coordination with multilateral partners such as Gavi, WHO and the World Bank, and key bilateral partners, such as PEPFAR, PMI, the Agence Française de Développement and the UK's Department for International Development, the Global Fund is committed to supporting such integration.

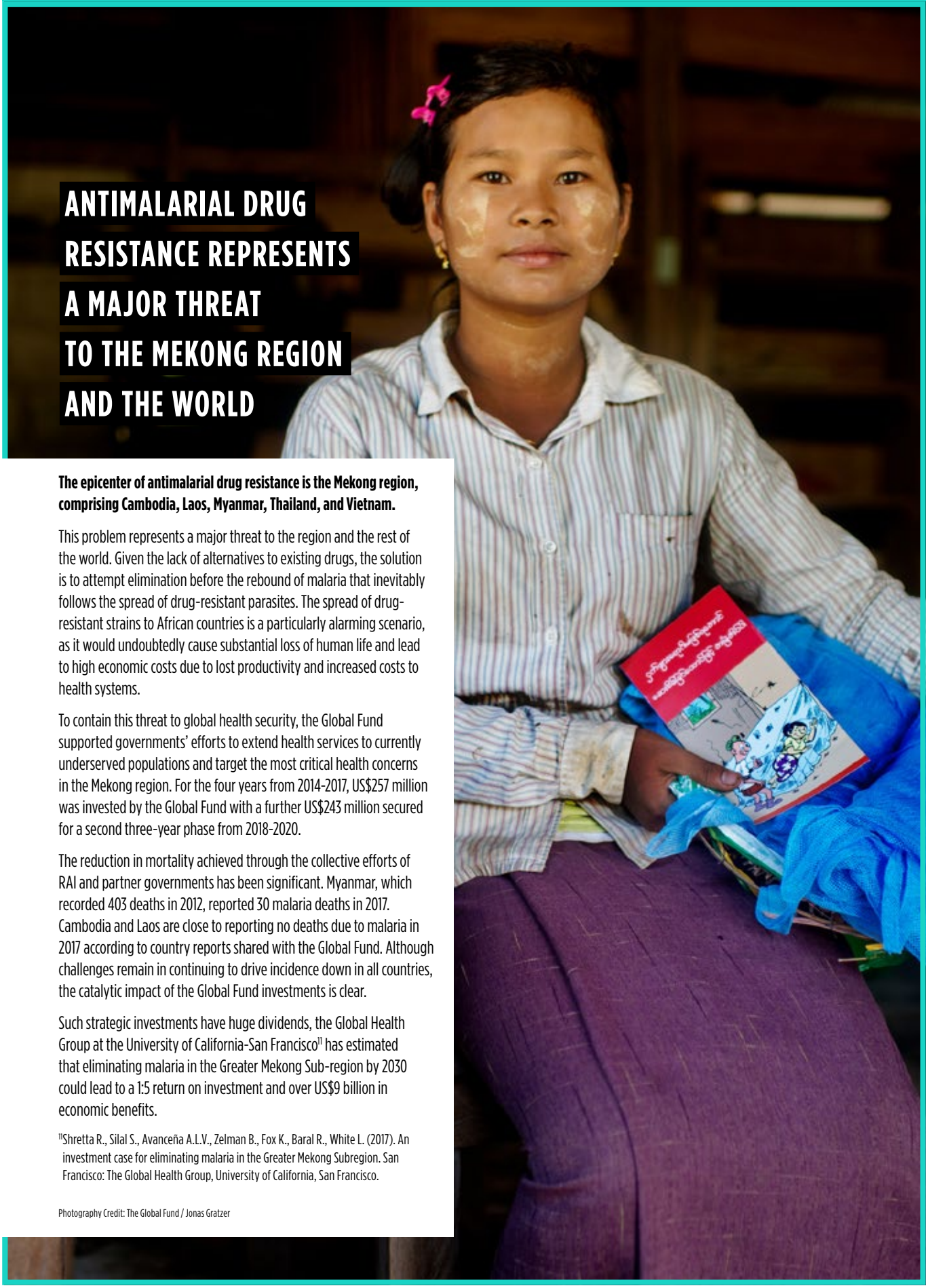
WE NEED TO PUT EVEN GREATER EMPHASIS ON INTEGRATED PROGRAMMING.

IMPROVED EXECUTION

We need a relentless focus on improving execution, using more granular and timely data to identify the most effective interventions and target programming more effectively, implement stronger controls to manage costs and risks, adopt best practices in patient-centered care and community engagement, and leverage economies of scale by scaling-up proven interventions rapidly. Only through continuously improving execution can we overcome the inevitable resource constraints.

[10]This work is undertaken in the context of the SDG 3 Action Plan and is one of the accelerators (Sustainable Financing Accelerators).

THE REGIONAL ARTEMISININ RESISTANCE INITIATIVE (RAI)



ANTIMALARIAL DRUG RESISTANCE REPRESENTS A MAJOR THREAT TO THE MEKONG REGION AND THE WORLD

The epicenter of antimalarial drug resistance is the Mekong region, comprising Cambodia, Laos, Myanmar, Thailand, and Vietnam.

This problem represents a major threat to the region and the rest of the world. Given the lack of alternatives to existing drugs, the solution is to attempt elimination before the rebound of malaria that inevitably follows the spread of drug-resistant parasites. The spread of drug-resistant strains to African countries is a particularly alarming scenario, as it would undoubtedly cause substantial loss of human life and lead to high economic costs due to lost productivity and increased costs to health systems.

To contain this threat to global health security, the Global Fund supported governments' efforts to extend health services to currently underserved populations and target the most critical health concerns in the Mekong region. For the four years from 2014-2017, US$257 million was invested by the Global Fund with a further US$243 million secured for a second three-year phase from 2018-2020.

The reduction in mortality achieved through the collective efforts of RAI and partner governments has been significant. Myanmar, which recorded 403 deaths in 2012, reported 30 malaria deaths in 2017. Cambodia and Laos are close to reporting no deaths due to malaria in 2017 according to country reports shared with the Global Fund. Although challenges remain in continuing to drive incidence down in all countries, the catalytic impact of the Global Fund investments is clear.

Such strategic investments have huge dividends, the Global Health Group at the University of California-San Francisco[11] has estimated that eliminating malaria in the Greater Mekong Sub-region by 2030 could lead to a 1:5 return on investment and over US$9 billion in economic benefits.

[11]Shretta R., Silal S., Avanceña A.L.V., Zelman B., Fox K., Baral R., White L. (2017). An investment case for eliminating malaria in the Greater Mekong Subregion. San Francisco: The Global Health Group, University of California, San Francisco.

Photography Credit: The Global Fund / Jonas Gratzer

The Global Fund is already working with many countries and partners on improving different aspects of program execution, but in every country there are opportunities for further improvement, including by implementing best practices from elsewhere. Examples of areas where improvements can yield significant benefits include:

Using more granular and timely data to drive better decisions: More granular data – for example, patient data segmented by age, gender, occupation and micro-geography – enables better targeting of interventions. More frequent and timely data allows countries to quickly identify and respond to changes in epidemiology and to learn which interventions are having most impact. The Global Fund, in coordination with other partners, is supporting the rollout and maintenance of electronic integrated national health management information systems in over 30 countries. In the Democratic Republic of Congo, the Global Fund and Gavi supported the countrywide rollout of DHiS2, an open source platform for managing health data (see Case Study, page 24).

Integrating disease-specific interventions more consistently into broader health care delivery platforms: To maximize impact and sustainability, we need to ensure that investments made to fight HIV, TB and malaria are more consistently executed in ways that strengthens the overall health system. In many instances this means integrating disease-specific interventions into the development of broader patient-centered health care delivery platforms. For example, interventions to prevent mother-to-child transmission of HIV, ensure early diagnosis of HIV in infants, screen pregnant women and children for TB, and protect pregnant mothers and infants from malaria with interventions like intermittent preventive treatment in pregnancy should be designed and implemented as key components of an integrated strategy for strengthening the overall antenatal and postnatal care platform. The Global Fund is determined to accelerate the shift to more integrated programming, to ensure we make rapid progress on the two interdependent objectives of defeating the three diseases and building resilient and sustainable systems for health to underpin universal health coverage and overall attainment of SDG 3.

Driving greater efficiencies in grant management and the implementation of programs:
Given constrained resources and huge unmet needs, it is vital to ensure that allocated funds are absorbed, and that the programs deliver value for money. Global Fund absorption rates have improved over the 2014-2016 allocation period, with an average of 66 percent for legacy grants versus 84 percent for grants awarded since 2014. Meanwhile, due to more efficient grant-making processes the proportion of programs requiring time extensions has been reduced from more than 50 percent to just 4 percent. In preparation for the next grant cycle, the Global Fund is analyzing what impediments to absorption remain, and further streamlining the grant-approval and grant-making processes to enhance efficiency and effectiveness. The Global Fund is also enhancing the focus on quality in program design and monitoring as a proven approach to delivering better outcomes and cost effectiveness – for example, supporting a quality improvement pilot for HIV treatment in Kenya.

Creating greater capacities in human resources for health at a country level: Many countries' health systems suffer severe human resource gaps. Leveraging critical investments in human resources for health, including developing and executing strategic plans to recruit, train and retain the required mix and numbers of health workers, is a key part of the Global Fund's approach to building sustainable and resilient systems for health. In Zimbabwe, the Global Fund has financed an emergency health worker retention scheme to reverse the brain drain of health care staff from the country due to economic difficulties over the last decade.

Making medical supply chains more efficient and effective: In many countries there are significant opportunities to strengthen supply chains to improve cost-effectiveness, avoid stock-outs and overcome the "last mile" challenges that often prevent lifesaving health products from getting to remote clinics and villages. The Global Fund is working with governments and partners, including the private sector, to strengthen supply chains in multiple countries, including DRC, Mozambique, Ethiopia and Nigeria. Looking forward, the combination of better data, strengthened infrastructure and deeper skills in logistics and supply chain management will yield significant gains, not just in the fight against the three diseases, but in strengthening the overall health system.

Strengthening community systems for health:
While governments have the primary responsibility to guarantee health and human rights, community actors play a vital role, either in augmenting the impact of the formal system, or in filling gaps. Community interventions are especially important in protecting the health and human rights of neglected, marginalized or criminalized key populations, reaching out and providing otherwise unavailable services and support. While there are many great examples of community-based programs being supported by the Global Fund, the key priority looking forward is to ensure that engagement of the community becomes an integral and sustainable part of the development of the larger system for health. In this context, mechanisms like social contracting are a critical component of transition planning and preparation.

THE GLOBAL FUND IS ALREADY WORKING WITH MANY COUNTRIES AND PARTNERS ON IMPROVING DIFFERENT ASPECTS OF PROGRAM EXECUTION.

Ensuring cost-effective access to quality medicines and health products: Through leveraging economies of scale, working with partners such as the Global Drug Facility and USAID, and negotiating directly with manufacturers, the Global Fund has had remarkable success in reducing prices for key medicines and health equipment. In 2000, a one-year supply of antiretroviral treatment cost more than US$10,000; now the figure can be as low as US$72 per year. New framework agreements with suppliers of antiretroviral treatments will deliver further savings of over US$300 million by 2021. Meanwhile, the cost of an insecticidal mosquito net is now down to US$2.30 – a 38 percent decrease since 2013. In 2017, savings achieved through the Global Fund's pooled procurement mechanism amounted to US$205 million, bringing the five-year total to US$855 million.

Enabling countries to access transparent mechanisms for pooled procurement of quality-assured products is key to addressing the procurement-related challenges that can arise on transition. Looking forward, Global Fund priorities in this arena include: ensuring continued savings in medical commodity prices; enhancing security of supply for key medical products; working with partners to execute market-shaping strategies to stimulate competition and new product development where needed; and opening Global Fund resources such as the digital purchasing platform wambo.org to countries conducting their own procurement.

INTEGRATED HEALTH SERVICES IN KENYA

OF THE 1.5 MILLION KENYANS LIVING WITH HIV, 1.1 MILLION ARE NOW ON ANTIRETROVIRAL THERAPY

With support from the Global Fund and other partners, Kenya has significantly scaled up integrated service delivery as part of the effort to achieve universal health coverage by 2022.

The Global Fund has supported the country's integration of reproductive, maternal, newborn, child and adolescent health services, and optimized links between other programs in HIV, malaria and TB. Antenatal clinics serve as "one-stop shops" for pregnant women to address their health care needs, including sexual and reproductive health and cervical cancer screening. Integrating services is critical to advancing the continuum of care, from pregnancy and delivery for women, to childhood and adolescent care and has positive effects across the services provided and can improve coverage and the effectiveness of services. The Global Fund also invests in cross-cutting areas such as refurbishment and procurement of obstetric equipment, upgrading laboratory infrastructure, health information systems, efficient procurement mechanisms for health products and streamlining supply chains. Each of these investments contribute to improvements in basic health services that extend beyond to HIV, TB and malaria.

Such investments translate directly into improved health outcomes. Of the 1.5 million Kenyans living with HIV, 1.1 million are now on antiretroviral therapy, representing 75 percent coverage, with 90 percent coverage of HIV-positive pregnant women. Cumulatively by 2016, the country had distributed 21 million insecticide-treated mosquito nets, and a remarkable additional 14.9 million nets in distributed in 2017 alone. Under-5 mortality has declined rapidly, particularly among the poor, with a 50 percent decrease from 2003 to 2015.

Photography Credit: The Global Fund / Sam Wolson

V. THE GLOBAL FUND NEEDS AT LEAST US$14 BILLION FOR THE NEXT THREE-YEAR CYCLE

THE GLOBAL FUND NEEDS AT LEAST US$14 BILLION

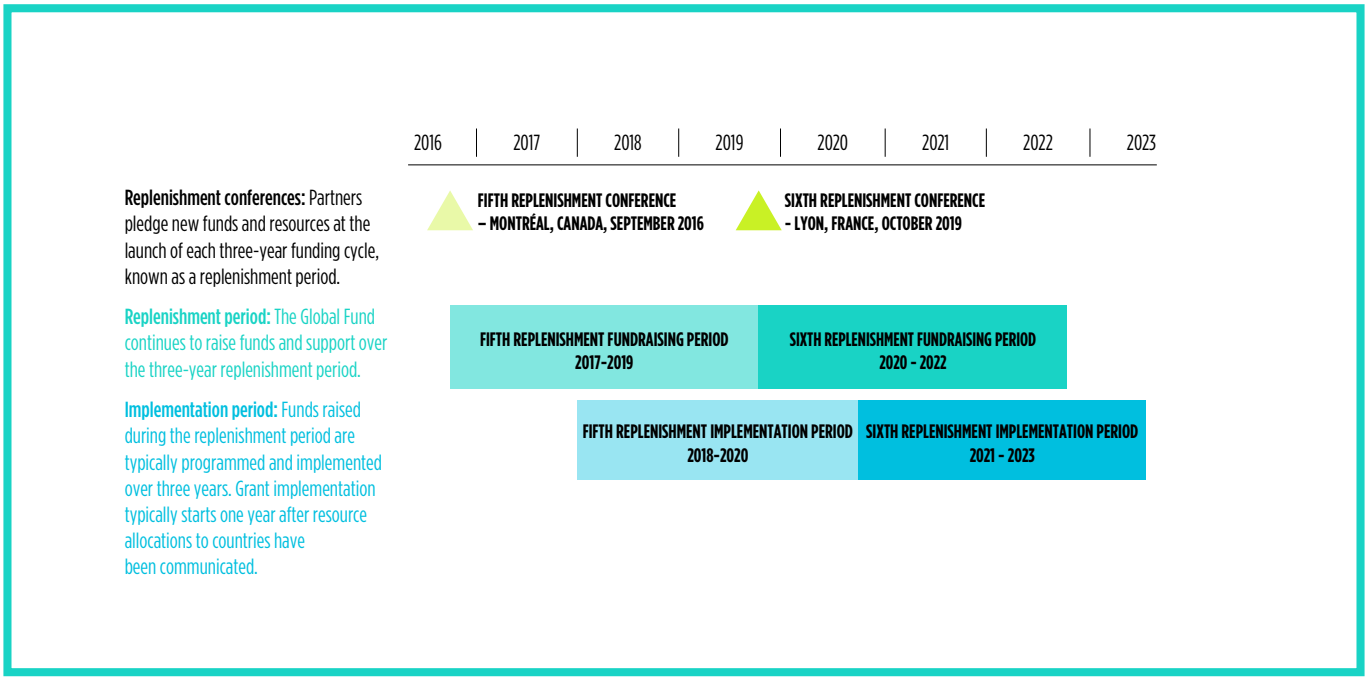
The Global Fund needs to raise at least US$14 billion to step up the fight against the three diseases and to build stronger systems for health. Investing this level of resources in the next three-year cycle – alongside continued external funding from other sources and significantly increased domestic resource mobilization – will enable us to meet the targets of the Global Fund strategy 2017-2022, and is the minimum required to put us back on track toward ending the epidemics HIV, TB and malaria by 2030, while also supporting the overall achievement of SDG 3 and universal health coverage.

The Global Fund's resource requirement over the 2021 to 2023 period (Figure 7 explains the Global Fund's replenishment and implementation cycles) has been derived from a modeling exercise conducted in collaboration with WHO, the technical partners for HIV, TB and malaria (UNAIDS, the Stop TB Partnership, the RBM Partnership to End Malaria) and the modeling groups responsible for the Global Plans for each of the three diseases[12].

The starting point for the analysis was to assess the total resources required to get back on track with the Global Plan targets for the three diseases by 2023, focusing specifically on the portfolio of countries eligible for Global Fund support. The second step was to estimate how much of this resource requirement could be met by other available resources, such as from domestic resource mobilization or from external funding from other bilateral or multilateral donors. The final step was to consider how much of the gap between the total resources required and other available resources could and should be met by the Global Fund to get us back on track toward ending the epidemics by 2030, taking account of the potential impact of projected funding levels.

This Investment Case recognizes that there are budget constraints and competing priorities. If we want to step up the fight and achieve the Global Fund strategy goals for 2017-2022 and get back on track toward ending the epidemics – the turquoise lines on the earlier chart – the analysis demonstrates that the Global Fund must raise a minimum of US$14 billion in the Sixth Replenishment. US$14 billion for the Global Fund, alongside increased domestic resources and sustained external funding, represents 82 percent of the resources required to meet the targets set in the Global Plans – the dark blue lines on the charts. An additional US$18 billion would be required to entirely close this gap. More investment – whether through raising more than US$14 billion for the Global Fund, from increased domestic resource mobilization, or increases in other forms of external assistance, would narrow the gap between the turquoise lines and the dark blue lines on the charts, saving millions more lives, accelerating the end of the epidemics, and would enable the Global Fund to be an even more powerful driver of progress towards the overall SDG 3 objectives including universal health coverage.

FIGURE 7: GLOBAL FUND REPLENISHMENT AND IMPLEMENTATION CYCLES



[12]HIV modelling was carried out by Avenir Health using the Goals model; TB modelling was carried out by Avenir Health using the TB Impact Model and Estimates (TIME) model; malaria modelling was carried out using the malaria transmission model developed at Imperial College.

TOTAL RESOURCES REQUIRED

The first step in the analysis was to estimate the total cost of getting back to the Global Plan trajectory by 2023, in the countries where the Global Fund invests. This total resource requirement was estimated at US$101 billion. This figure represents the total resource need for all three diseases over the three-year period 2021 to 2023. The total of US$101 billion comprises: US$54 billion for HIV; US$27 billion for TB; and US$20 billion for malaria. More details on the drivers and composition of the projected total resource requirements are provided in Annex 3.

OTHER RESOURCES AVAILABLE

The second step was to estimate other resources available in the relevant countries over the 2021-2023 period to meet the total resources requirement. This figure was estimated at US$69.1 billion as described below.

Domestic resource mobilization

To project domestic resource mobilization for 2021-2023, the analysis extrapolates from the commitments on domestic resourcing made in response to Global Fund co-financing requirements in the current cycle, and assumes that countries spending less than those with a similar disease burden and economic capacity have the potential to accelerate spending over time. Further details on methodology are provided in Annex 3.

As a result of this analysis, domestic resources amounting to US$45.8 billion are projected to be available for the fight against the three diseases over the 2021-2023 period. This represents an overall increase of domestic funding of 48 percent over the estimated level of domestic resources over the 2018-2020 period, which equates to an increase of roughly 14 percent per year. To put this significant increase in context, countries' co-financing commitments in the 2018-2020 period were 41 percent over those in the 2015-2017 cycle. For a more detailed breakdown of domestic resource mobilization, please see Annex 3.

Other external funding

External financing from sources other than the Global Fund, such as other bilateral and multilateral donors, has been estimated using latest available data from the Development Assistance for Health database produced by the Institute for Health Metrics and Evaluation (IHME). The fundamental assumption is that non-Global Fund external financing will remain constant over the 2021-2023 period. This assumption is consistent with the approach taken for the Fifth Replenishment. Based on the latest available IHME report[13] this amounts to a total of US$23.3 billion over the three-year period.

THE TOTAL OF US$101 BILLION COMPRISES: US$54 BILLION FOR HIV; US$27 BILLION FOR TB; AND US$20 BILLION FOR MALARIA.

POTENTIAL IMPACT OF PROJECTED FUNDING LEVELS

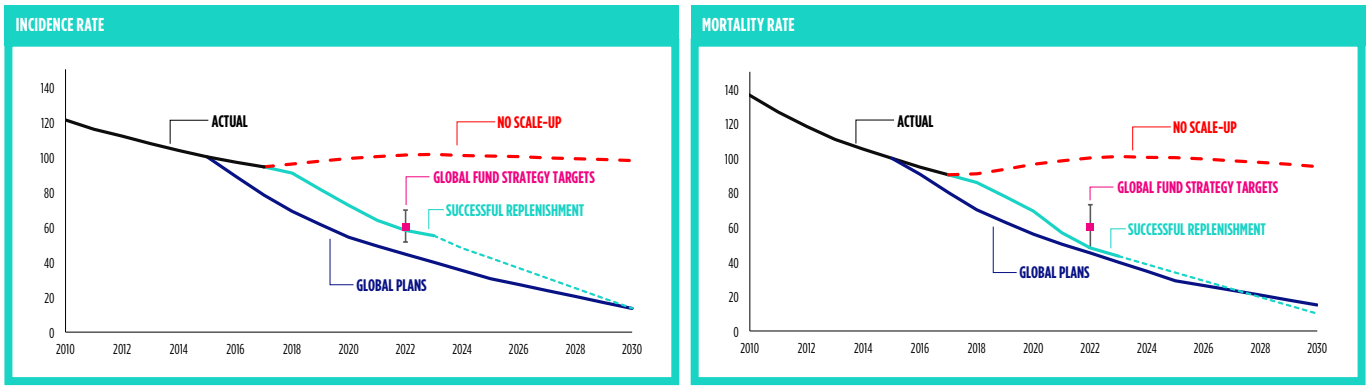
The Global Fund has worked with the technical partners and modeling groups to estimate the results that could be achieved between 2021-2023 by optimally investing the funds raised for the Global Fund in the Sixth Replenishment, alongside projected domestic resource mobilization and other external funding.

This analysis assumes Global Fund investments are optimally allocated across countries, and optimally targeted within countries toward interventions and populations with the highest potential for impact. Moreover, the methodology assumes that actions are taken to accelerate innovation, enhance collaboration and execute programs more effectively (along the lines suggested in Chapter IV). In short, the analysis assumes the investments are deployed for maximum impact. Details of the modeling methodology are described in Annex 4.

The analysis shows that the Global Fund needs to raise a minimum of US$14 billion in the Sixth Replenishment to achieve the required accelerated reduction of incidence and mortality across the three diseases. A Global Fund replenishment at this level would enable the Global Fund partnership to deliver on the targets set out in the Global Fund strategy 2017-2022, get back on track toward ending the epidemics by 2030, and, through stepping up investments in systems for health, accelerate the journey toward universal health coverage and the achievement of SDG 3. In other words, US$14 billion is the minimum required to enable the Global Fund to achieve the objectives the global community has committed to.

[13] Institute for Health Metrics and Evaluation (IHME). Development Assistance for Health Database 1990-2016. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2017.

FIGURE 8: COMBINED TRAJECTORY OF INCIDENCE AND MORTALITY



- Actual estimates of incidence or mortality
- Global Plans pathway to 2030 incidence or mortality targets for HIV, TB and malaria
- Modelled results for this Investment Case
- Extrapolation of Investment Case trends into future
- Global Fund strategy targets for 2022 with uncertainty bars
- Constant coverage: impact of sustaining services at current levels

The charts highlight the different paths we can take in the countries where the Global Fund invests. The black lines show what we have achieved thus far in terms of reducing disease incidence and mortality. The dark blue line is the trajectory set out in the Global Plans for the three diseases – the path we should be on. The gap between the black lines and the dark blue lines clearly shows that we are already off track to meet SDG 3: health and well-being for all. Even more concerning, the dashed red line shows the rebound in incidence and mortality if we simply continue current levels of treatment and prevention.

Finally, the turquoise line shows what we could achieve following a successful replenishment of the Global Fund. Alongside sustained levels of other external funding and significantly scaled-up domestic financing, plus more innovation, more intensive collaboration and more rigorous execution, this would enable delivery of the Global Fund strategy targets for 2022 and put us on a trajectory toward attaining the SDG 3 target of ending the epidemics by 2030.

Based on investments during 2021 to 2023, a successful replenishment of the Global Fund would enable us, together with partners, to achieve the following results:

Get the world back on track to end HIV, TB and malaria[14]:

- Save 16 million lives between 2021 and 2023, reducing the mortality rate by 52 percent across the three diseases by 2023, relative to 2017 levels.
- Avert 234 million infections or cases, reducing the incidence rate by 42 percent across the three diseases by 2023, relative to 2017 levels.
- Reduce the death toll across the three diseases to 1.3 million in 2023, down from 2.5 million in 2017, and from 4.1 million in 2005.

In contrast, if we are only able to maintain coverage at 2017 levels, incidence and mortality rates are projected to increase by 7.6 percent and 11.7 percent respectively between 2017 and 2023.

Accelerate progress toward SDG 3 and universal health coverage:

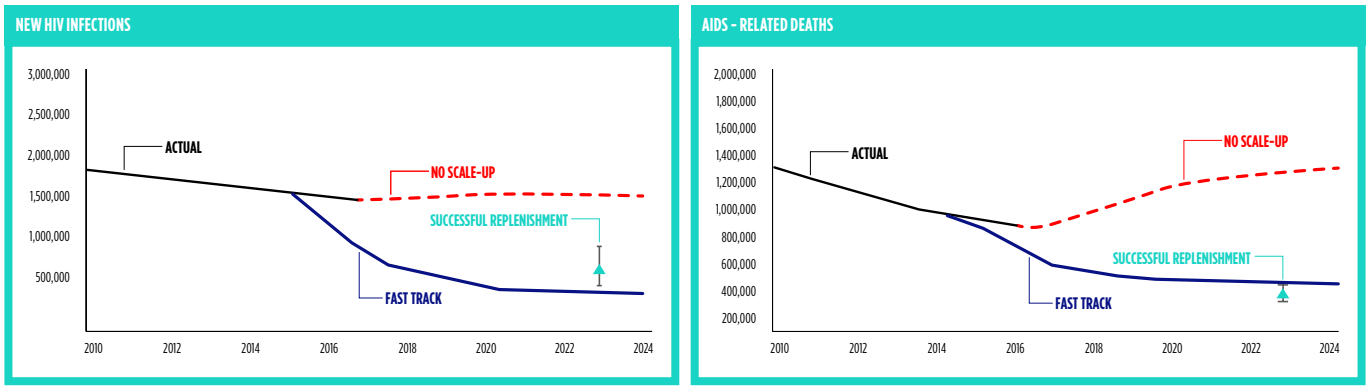
- Strengthen health care systems through directly investing approximately US$4 billion to build capacities such as diagnostic tools, surveillance systems, supply chain management and training for health care workers, and accelerating the shift toward patient-centered, differentiated models of care.
- Reinforce health security by helping build more resilient health systems, with stronger surveillance, diagnostic and emergency response capabilities, and by directly tackling key threats to global health security, such as multidrug-resistant TB.
- Tackle inequities in health, including gender- and human rights-related barriers to access, by working with partners, including civil society and affected communities, to build more inclusive health systems that leave no one behind.
- Spur domestic investment of US$46 billion toward ending the three diseases and strengthening health systems through co-financing requirements, and technical assistance on health financing.
- Yield a return on investment of 1:19 with every dollar invested resulting in US$19 in health gains and economic returns, further contributing to the achievement of the overall SDG agenda.

[14]With a replenishment of US$14 billion, the Global Fund would contribute to achieving these results alongside sustained levels of other external funding, scaled-up domestic financing, and more innovation, collaboration and rigorous execution.

GET BACK ON TRACK TO END HIV, TB AND MALARIA

A successful Sixth Replenishment for the Global Fund, alongside the projected increases in domestic funding and sustained external funding from other sources, would enable us to get back on trajectory toward ending all three epidemics by 2030.

FIGURE 9: INVESTMENT CASE RESULTS FOR HIV



- Actual estimates of incidence or mortality
- UNAIDS Fast Track pathway to 2030 incidence or mortality targets
- Projection based on successful replenishment - with uncertainty bars
- Constant coverage: impact of sustaining services at current levels

KEY RESULTS – HIV

Looking specifically at HIV, the graph shows the gap that has already opened up between UNAIDS' Global Plan (Fast Track) trajectory (the dark blue line) and the actual results as of 2017 (the black line) for both new HIV infections and AIDS-related deaths[15].

A successful Sixth Replenishment, raising at least US$14 billion, would enable us to narrow this gap significantly by 2023, cutting both HIV infections and AIDS-related deaths substantially.

This will be achieved thanks to the increasing alignment and synergy between the Global Fund and organizations such as the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), UNAIDS and WHO, together with trailblazing countries like South Africa and the tireless advocates who continue to fight for care and treatment for all in need.

The analysis suggests that with a replenishment of at least US$14 billion, the Global Fund, together with partners, could[16]:

- Reduce (from 2017 to 2023):
  - New HIV infections by 61 percent, from 1.5 million to 565,000
  - AIDS-related deaths by 52 percent, from 866,000 to 413,000
  - Incidence and mortality rates by 64 percent and 56 percent respectively
  - HIV incidence among adolescent girls and young women in 13 priority countries by 72 percent
- Provide ARV therapy to 27 million people in 2023

In contrast, if we are only able to maintain coverage at 2017 levels, new infections would remain at or above 1.5 million people over 2018-2023, leading to 3.9 million new infections which could have been averted. AIDS-related deaths per year would rise from 866,000 in 2017 to 1.2 million in 2023, resulting in 3 million deaths which could have been averted.

[15]The Fast Track line for HIV represents the Fast Track modelled outputs for the Global Fund portfolio.

[16]With a replenishment of US$14 billion, the Global Fund would contribute to achieving these results alongside sustained levels of other external funding, scaled-up domestic financing, and more innovation, collaboration and rigorous execution.

FIGURE 10: INVESTMENT CASE RESULTS FOR TB

- Actual estimates of incidence or mortality
- Global Plans pathway to 2030 incidence or mortality targets
- Projection based on successful replenishment - with uncertainty bars
- Constant coverage: impact of sustaining services at current levels

KEY RESULTS – TB

Turning to TB, the graph shows clearly that while the TB burden has been declining steadily, the rate of reduction is not nearly fast enough to meet the 2030 objective of ending the epidemic[17].

However, the UN High-Level Meeting in September 2018 demonstrated much greater political commitment to tackling TB. Given that the Global Fund currently represents 69 percent of total external funding for TB, a successful replenishment is crucial to changing the trajectory of the fight.

As the chart shows, a successful Global Fund replenishment will enable a marked acceleration in reducing both new TB cases and TB deaths. However, there would still remain a significant gap with respect to the levels of incidence and mortality reduction required by the Global Plans (the dark blue line in Figure 10), with 63 percent of required total funding being covered.

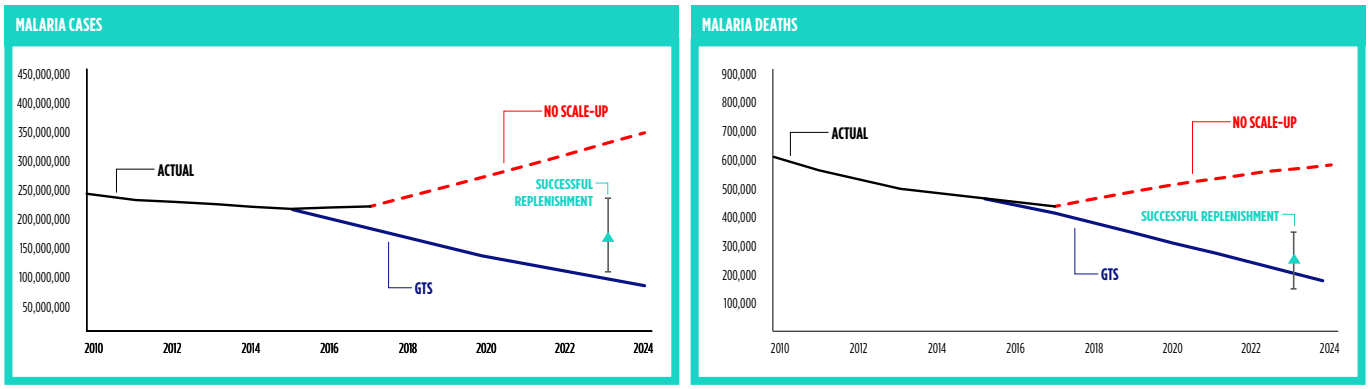
The analysis suggests that with a replenishment of at least US$14 billion, the Global Fund, together with partners, could[18]:

- Reduce (from 2017 to 2023):
  - New TB cases by 22 percent from 8.7 million to 6.8 million
  - TB deaths (excluding HIV-positive people) by 46 percent from 1.2 million to 648,000
  - Incidence and mortality rates by 29 percent and 51 percent respectively
- Treat 31 million people with first-line drugs, and 1 million with second-line drugs between 2018 and 2022, thereby achieving almost 91 percent of the targets adopted at the UN High Level Meeting on Tuberculosis in 2018[19]
- Increase case detection rate (all forms of TB) from 61 percent to 86 percent by 2023

In contrast, maintaining coverage at 2017 levels would result in 5.1 million new cases (all forms) and 1.4 million deaths (excluding HIV-positive) that could have been averted over 2018-2023.

[17]The Global Plan line for TB represents End TB Strategy milestones at 2020, 2025 and 2030, with a linear extrapolation between these.
[18]With a replenishment of US$14 billion, the Global Fund would contribute to achieving these results alongside sustained levels of other external funding, scaled-up domestic financing, and more innovation, collaboration and rigorous execution.
[19]The targets adopted at the UN High Level Meeting were 40 million, including 1.5 million for second line treatments, which translate into 33.7 million and 1.2 million in the portfolio of Global Fund-eligible countries.

FIGURE 11: INVESTMENT CASE RESULTS FOR MALARIA



- Actual estimates of incidence or mortality
- Global Technical Strategy pathway to 2030 incidence or mortality targets
- Projection based on successful replenishment - with uncertainty bars
- Constant coverage: impact of sustaining services at current levels

KEY RESULTS – MALARIA

With malaria, the black lines on the chart show that while we have continued to make progress in reducing deaths, we are seeing a resurgence in the number of malaria cases[20].

Given that the Global Fund currently represents 57 percent of total external assistance for malaria (and 44 percent of total available resources), a successful replenishment of the Global Fund is crucial to reversing the trend on malaria cases, and sustaining the reduction in deaths.

The analysis suggests that with a replenishment of at least US$14 billion, the Global Fund, together with partners, could[21]:

- Reduce (from 2017 to 2023):
  - Malaria cases by 25 percent, from 218 million to 162 million
  - Malaria deaths by 43 percent, from 434,000 to 248,000
  - Incidence and mortality rates by 34 percent and 49 percent respectively
- Distribute 1.7 billion mosquito nets between 2017 and 2023
- Increase vector control coverage through long-lasting insecticidal nets or indoor residual spraying to 66 percent in 2023
- Treat 545 million malaria cases through public sector systems between 2017 and 2023
- Eliminate malaria from an additional five countries between 2017 and 2023

In contrast, if we are only able to maintain coverage at 2017 levels, there would be a rapid and severe resurgence. Malaria cases would increase from 218 million in 2017 to 333 million in 2023, a more than 50 percent increase. Deaths from malaria would increase from 434,000 in 2017 to 577,000 in 2023. This would result in an additional 591 million malaria cases and 1.1 million deaths from malaria that could have been averted over 2018-2023.

[20]The Global Technical Strategy line represents GTS milestones at 2020, 2025 and 2030, with a linear extrapolation between these.

[21]With a replenishment of US$14 billion, the Global Fund would contribute to achieving these results alongside sustained levels of other external funding, scaled-up domestic financing, and more innovation, collaboration and rigorous execution.

MEET AFTAB ANSARI

Aftab Ansari left his village in northern India to work as a diamond cutter in Mumbai.

But his dreams for a better life for his family suffered a blow when he got drug-resistant tuberculosis. Too weak to work, Aftab was forced to spend his savings, sell his wife's jewelry and withdraw his children from school to buy food and pay the rent on his two-room home. He grieved to see his children, 6 and 8, go to bed hungry some nights. To pay bills he took out loans, and sank US$2,000 in debt, equivalent to ten months' salary. Aftab, 32, is today back at work and paying his debts after completing the treatment that cured his TB. Infectious diseases like TB put an enormous financial burden on households worldwide, particularly in lower-income countries, draining billions in medical costs and lost productivity.

Photography Credit - The Global Fund / Vincent Becker

INFECTIOUS DISEASES LIKE TB PUT AN ENORMOUS FINANCIAL BURDEN ON HOUSEHOLDS WORLDWIDE

ACCELERATE PROGRESS TOWARDS SDG 3 AND UNIVERSAL HEALTH COVERAGE

A successful Sixth Replenishment would also enable the Global Fund to act as a powerful driver and catalyst in accelerating progress towards the achievement of the broader objectives of SDG 3, including universal health coverage. While progress on this broader set of objectives is not as amenable to quantitative modeling as with the three diseases, given the multiple dimensions of progress, and the need to respond to individual country contexts and priorities, there is no doubt that a strongly funded Global Fund could turbocharge the SDG 3 agenda.

Key results – strengthening systems for health: The Global Fund is already the largest multilateral provider of grants to build resilient and sustainable systems for health. With a replenishment of at least US$14 billion, the Global Fund would have the resources to step up such investments, with the potential to deploy around US$4 billion over 2021-2023 to build capacities and infrastructure such as diagnostic laboratories, disease surveillance systems, procurement and supply chain management systems, and training and career development for health care workers. With greater resources, the Global Fund could act as an even more powerful catalyst, working with partners to accelerate the shift toward patient-centered, differentiated models of care, and to drive improvements in the quality of care. Building more sustainable and resilient systems for health will be key priority in the next cycle, not just because it is a prerequisite for defeating the three diseases, but also because it is the foundation for delivering the central objective of SDG 3: universal health coverage.

Key results – reinforcing health security: The Global Fund already makes a significant contribution to global health security by helping build more resilient systems for health, with stronger surveillance, diagnostic and emergency response capabilities, and by directly tackling key threats to global health security, such as multidrug-resistant TB. Recent analysis by Georgetown University of Global Fund-supported programs in three countries indicates that a significant proportion of Global Fund investments – in these examples, approximately one-third of the total – supports improvements in critical attributes of health security preparedness, as measured by the Joint External Evaluation Tool.

Looking forward, the Global Fund is uniquely positioned to bridge the gap between efforts to tackle endemic diseases, such as AIDS, TB and malaria, and the imperative to counter potential epidemics such as Ebola, SARS or influenza. The global health security agenda faces the challenge that many of the countries most vulnerable to infectious disease outbreaks find it difficult to prioritize spending on prevention and preparedness for diseases that might kill their people, over spending on disease threats that are killing their people. To achieve a sense of common purpose, we need a concept of health security that is not limited to threats that cause alarm in advanced economies, but encompasses existing threats like AIDS, TB and malaria.

We also need to get smarter in ensuring that investments made to tackle AIDS, TB and malaria yield maximum benefit from a broader health security perspective. A fully funded Global Fund would be a powerful partner in building global health security, both by stepping up the fight against one of the most potent threats from antimicrobial resistance, MDR-TB, and by accelerating the development of more resilient health systems able to prevent and manage infectious disease outbreaks.

Key results – tackling inequities in health, including gender and human rights-related barriers to access: The Global Fund is already a leading actor in tackling inequities in health, whether related to poverty, gender or human rights. A fully funded Global Fund would work with partners to step up the focus on building more inclusive health systems that engage with communities to reach out to and care for the most vulnerable, whether isolated rural populations, displaced people, disadvantaged women or girls, or key populations suffering discrimination and stigma. The Global Fund partnership will thus play a critical in ensuring that the path towards universal health coverage is truly universal, leaving no one behind.

Key results – spurring domestic investment in health to ensure sustainability: The Global Fund already acts as a catalyst for domestic health financing through its co-financing requirements, and by supporting technical assistance and advocacy for sustainable health financing solutions. In the next cycle, a fully funded Global Fund will spur increased domestic investment of around US$46 billion for the fight against the three diseases and the pursuit of SDG 3. Furthermore, as part of its commitment towards delivering the Global Action Plan, the Global Fund will work with partners to develop and implement the Sustainable Financing Accelerator as part of the SDG 3 Global Action Plan. Ensuring the development and implementation of robust health financing strategies – including adequate fiscal mobilization, budget prioritization, health insurance, social contracting and effective resource allocation and control mechanisms – is critical to sustainability and successful transition.

Key results – delivering significant economic gains and a return on investment of 1:19: Economic costs from the three diseases are incurred when workers are absent due to illness or because they have to stay at home to care for sick family members. Children affected by the three diseases are more likely to miss school and therefore may do less well academically. Reduced worker productivity and increased healthcare spending also have a direct cost effect on households that can be catastrophic.

Moreover, these diseases cause pain, suffering and premature death that can be expressed as a monetary value based on a person's willingness to pay to lower their risk of experiencing these health consequences. The Global Fund has worked with independent experts to quantify the potential economic returns on investments to end the three epidemics. The resulting estimates include both the direct effects on economic productivity, and the intrinsic value of health gains based on the monetary value that affected populations themselves would ascribe to projected gains in survival and health-related quality of life (following methods recommended by the Guidelines for Benefit Cost Analysis Project[22]).

These estimates are deliberately conservative, since they do not include the economic gains arising from other health benefits arising from the Global Fund's health system investments, nor indirect benefits from lowering disease risk, such as increasing foreign investment or greater household savings.

Overall these estimates represent a cost-benefit ratio for the investment case of 1:19, when accounting for the intrinsic value of projected health gains; and of 1:2 when restricting estimates only to the direct effects of economic productivity gains. This means that every US dollar invested over the 2021 to 2023 period has a return in broader economic gains of 19 US dollars, and of 2 US dollars in direct productivity gains.

Moreover, if the higher intervention coverages that are projected to be achieved with these investments by 2023 were to be maintained thereafter, the returns would compound over time, resulting in the return of monetized intrinsic value reaching 1:34 and the direct productivity gains reaching 1:4 by 2030. Compared to a scenario in which the coverage of interventions is kept constant at current levels, Global Fund investments from a successful Sixth Replenishment are estimated to generate health gains with a monetized intrinsic value of US$254 billion and direct productivity gains of US$27 billion during the replenishment period. More than 60 percent of these economic gains are estimated to occur in the sub-Saharan African region and half in low- and lower-middle income countries.

Key results – overall: A replenishment of US$14 billion would, if combined with the projected domestic funding increases and sustained support from other external sources, enable the Global Fund to hit the Global Fund Strategy targets and thus get back on track toward ending the epidemics by 2030. However, at this level of funding, the Global Fund would not have the capacity to offset any shortfall in the projected increase in domestic resource mobilization, and there would remain a significant gap of about US$18 billion relative to the estimated total requirement of US$101 billion to hit the steeper trajectory implied by the Global Plan targets. Raising more than US$14 billion would allow the Global Fund to save many more lives and cut infections more rapidly, thus accelerating progress towards ending the epidemics. Raising more than US$14 billion would also enable the Global Fund to be a more powerful driver of progress towards the achievement of the overall SDG 3 goals by 2030.

WE NEED A CONCEPT OF HEALTH SECURITY THAT IS NOT LIMITED TO THREATS THAT CAUSE ALARM IN ADVANCED ECONOMIES, BUT ENCOMPASSES EXISTING THREATS LIKE HIV, TB AND MALARIA.

[22]https://sites.sph.harvard.edu/bcaguidelines/methods-and-cases/

VI. THE GLOBAL FUND PARTNERSHIP BUILDS ON A ROBUST TRACK RECORD OF IMPACT

MEET GOODNESS & NQABILE

Goodness Mbatha and Nqabile Mbatha are more than mother and daughter, and their bond is clear to all who meet them.

When Goodness got pregnant with Nqabile at 23, she knew she was living with HIV. She was infected with the virus when she was raped at 19. She enrolled on treatment to prevent passing HIV to Nqabile and succeeded. Goodness is determined to once again support her daughter to stay free of the virus. At 16, Nqabile is part of a demographic that is at high risk of HIV. Every day, roughly 200 young women and teen girls are infected with HIV in South Africa. To end high HIV infections among young women and girls in the country, the Global Fund partnership is investing in programs that challenge harmful gender norms, discrimination, and violence against women. Support from mothers like Goodness is vital to achieving that goal.

Photography Credit - The Global Fund / Brett Gieseke

EVERY DAY, ROUGHLY 200 YOUNG WOMEN & TEEN GIRLS ARE INFECTED WITH HIV IN SOUTH AFRICA

Less than 20 years ago, in 2000, AIDS, tuberculosis and malaria appeared unstoppable. In many countries, AIDS devastated an entire generation, leaving countless orphans and shattered communities. Malaria ravaged young children and pregnant women unable to protect themselves from mosquitoes, or access lifesaving medicine. Tuberculosis inflicted massive loss of life among the poor and marginalized, whether in urban slums or rural destitution.

The world fought back. Through an unprecedented partnership of governments, civil society, people affected by the diseases, the private sector, and faith-based organizations, the Global Fund was created in 2002 to pool the world's resources to fight AIDS, TB and malaria. This act of global solidarity has proved extraordinarily successful. Since 2002, the Global Fund and partners, including governments and other providers of external assistance, have saved 27 million lives. The number of people dying from AIDS, TB and malaria has been reduced by one-third.

Achieving this impact has required a huge expansion of programs: in countries where the Global Fund invests, 17.5 million people were provided with antiretroviral therapy for HIV in 2017, while 5 million people with TB were treated, and 197 million mosquito nets were distributed.

Scaling up in this manner has also taken significant financial resources. Alongside increased domestic resource mobilization in most affected countries, and sustained and significant contributions from bilateral partners such as PEPFAR and PMI, the Global Fund mobilizes and invests more than US$4 billion a year to support programs to fight HIV, tuberculosis and malaria. As of July 2018, the Global Fund had disbursed more than US$38 billion in more than 140 countries. Pooling the world's resources and bringing together all the key players needed to fight HIV, TB and malaria, the Global Fund acts as a catalyst of change and innovation by incentivizing domestic resources, promoting partnerships, strengthening health and community systems, and addressing human rights and gender equity.

DELIVERING PROGRESS AGAINST THE THREE EPIDEMICS

The scale of the challenges ahead should not overshadow the extraordinary progress that has already been achieved in the fight against AIDS, TB and malaria[23].

Key results delivered – HIV

The Global Fund has invested $19.6 billion from 2002-2018 in programs to prevent and treat HIV and AIDS, currently providing 20 percent of all international funding. In the past 10 years, programs supported by the Global Fund and our partners have cut the number of HIV-related deaths by more than half. Eighty percent of HIV-positive mothers now receive treatment to prevent transmission of the virus to their babies, bringing us closer to the goal of a generation born free of HIV. Nearly 22 million people are on lifesaving antiretroviral therapy – 80 percent of those in countries where the Global Fund invests. Incidence and mortality rates declined by 55 percent and 58 percent respectively between 2001 and 2017.

Key results in countries where the Global Fund invests in 2017:

17.5 million people on antiretroviral therapy for HIV

3.4 million people living with HIV received counseling and care

79.1 million HIV tests have been taken

9.4 million people received HIV prevention services

4.9 million people from key populations reached with HIV prevention services

696,000 HIV-positive mothers received PMTCT

Key results delivered – TB

The Global Fund provides 69 percent of all international financing for tuberculosis and has disbursed US$8.2 billion for TB programs from 2002-2018 (including TB/HIV programs). In countries where the Global Fund invests, incidence and mortality (excluding HIV-positive people) rates declined by 23 percent and 41 percent respectively between 2001 and 2017. At the UN High Level Meeting on TB in September 2018, world leaders committed to concrete, ambitious targets to fast-track the fight against TB, including finding and treating 40 million people with active TB by 2022, and providing preventative treatment for 30 million people with latent TB – particularly vulnerable people like children and people living with HIV.

The Global Fund is already a critical partner in achieving these new goals, working together with WHO and the Stop TB Partnership to find an additional 1.5 million "missing" cases by 2019 alone.

Key results in countries where the Global Fund invests in 2017:

5 million people treated for TB

102,000 people on treatment for multidrug-resistant TB

3,180 people with extremely drug-resistant TB on treatment

343,000 HIV-positive people receiving antiretroviral therapy during TB treatment

97,500 children in contact with TB patients receiving preventive therapy.

Key results delivered – Malaria

The Global Fund provides 57 percent of all international financing for malaria programs, and has invested US$11.4 billion in malaria control programs from 2002-2018. The fight against malaria is one of the biggest public health successes of the 21st century. The malaria mortality rate has dropped by 60 percent since 2001, and the malaria incidence rate has declined by 29 percent between 2001 and 2017. In 2018, another two countries, Paraguay and Uzbekistan, were certified by WHO as malaria-free.

Key results in countries where the Global Fund invests in 2017:

197 million mosquito nets distributed to protect families from malaria

108 million cases of malaria treated

6 million pregnant women received preventive therapy

12.5 million structures covered by indoor residual spraying

213 million suspected cases tested for malaria

[23]The Global Fund's results are calculated using the data for HIV, TB and malaria in countries where we invest in a given year. The Global Fund reports full national results for the countries where we invest, rather than reporting solely on the specific projects or interventions we fund. This reflects a core principle of the Global Fund: that we support national health programs and strategies to achieve national goals. By reporting full national results, we can show the impact of the programs we support together with all partners, and demonstrate where countries are on the trajectory toward achieving 2030 targets to end the epidemics.

DELIVERING PROGRESS ON THE PATH TOWARD SDG 3 AND UNIVERSAL HEALTH COVERAGE

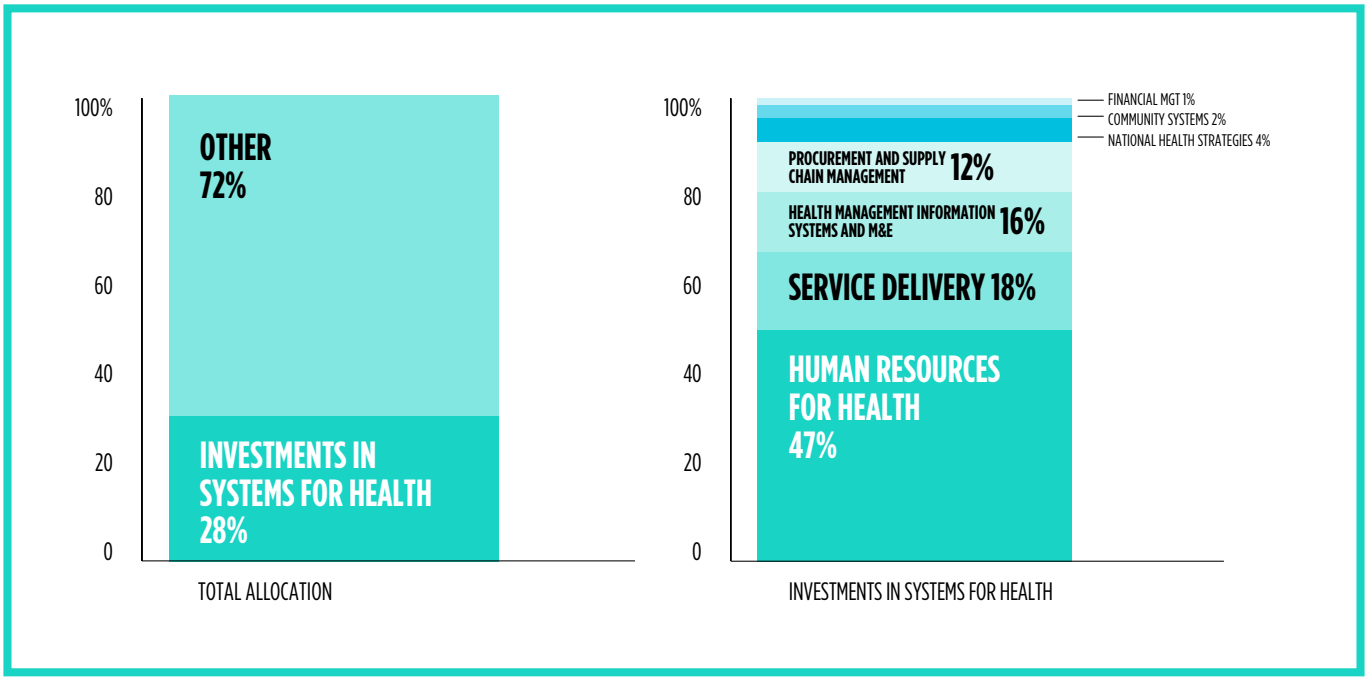
Alongside progress on the three diseases, the Global Fund has worked with partners to help drive the broader SDG 3 agenda, toward the ultimate objective of universal health coverage. The Global Fund strategy 2017-2022 (Figure 3) explicitly recognized the importance of these broader objectives, setting the building of resilient and sustainable systems for health, the promotion and protection of human rights and gender equality and the mobilization of increased resources for health as explicit goals, alongside maximizing impact against HIV, TB and malaria.

Key results delivered – Building resilient and sustainable systems for health: The Global Fund invests about US$1 billion a year in building resilient and sustainable systems for health, making the Global Fund the largest multilateral provider of such grants.

Approximately 28 percent of total Global Fund grant funding is dedicated to health system strengthening, including: improving procurement and supply chains; strengthening data systems and data use; training qualified health care workers; building stronger community responses and systems; and promoting more integrated service delivery so people can receive comprehensive care throughout their lives. Such investments underpin the fight against the three diseases, while also improving health security and accelerating progress toward universal health coverage. Strong health systems provide greater protection against new and emerging diseases, reinforcing health security for the local population and globally. Enhanced laboratories in Uganda can be used to test for emerging pandemics and antimicrobial resistance (see Case Study, page 20), for example, and emergency malaria prevention programs in Sierra Leone helped reduce the strain on hospitals during the Ebola crisis of 2015 and lower deaths from malaria.

Whether it's investing in health information systems in DRC, insurance in Thailand, health extension workers in Ethiopia or supply chains in Tanzania, the Global Fund is building key components of sustainable systems for health, constructing the foundations for universal health coverage. The Global Fund increasingly provides HIV, TB and malaria prevention and treatment programs through community service delivery mechanisms that provide a variety of services, improving overall health outcomes and resulting in a more cost-effective, efficient and patient-centered approach. The Global Fund's sustainability, transition and co-financing policy provides transition funding and program support to countries as they shift from Global Fund grants toward full domestic funding for health programs – through initiatives such as national insurance plans, increased domestic funding, and innovative financing for health care systems.

FIGURE 12: DIRECT AND CONTRIBUTORY INVESTMENTS IN BUILDING RESILIENT AND SUSTAINABLE SYSTEMS FOR HEALTH, 2014-2016 FUNDING CYCLE



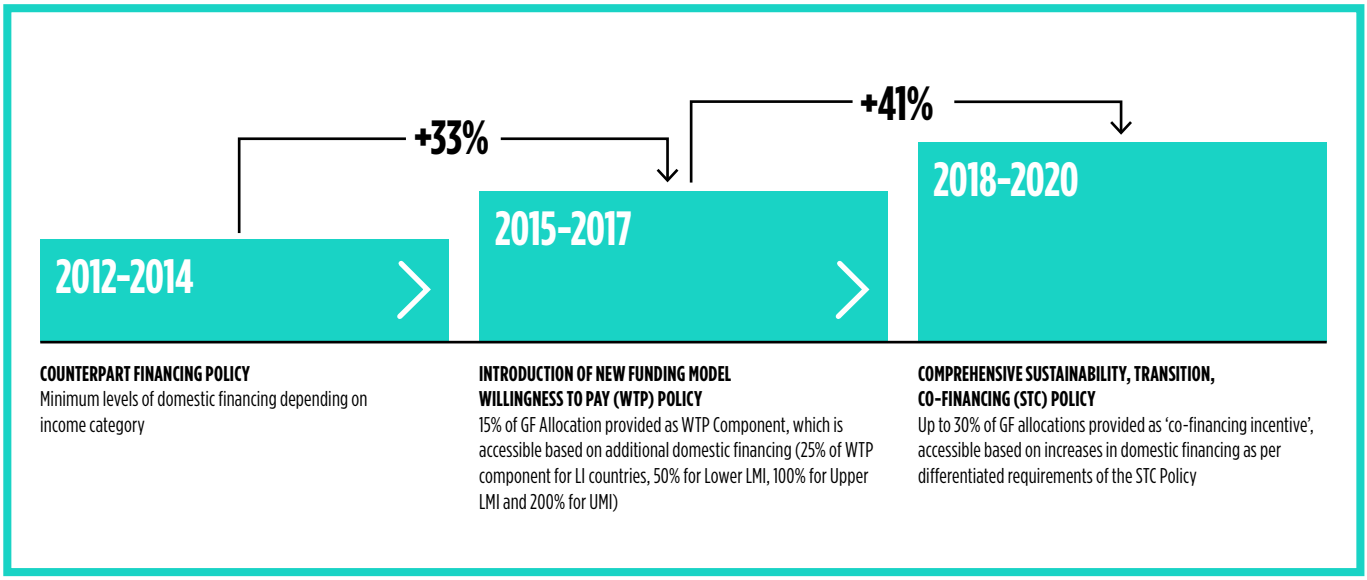
Key results delivered – promoting and protecting human rights: In many countries, people cannot access health care, including testing and treatment, because they are unable to pay, live too far from health services, or are denied access due to discrimination or stigma, human rights- or gender-related barriers. In the current grant cycle, the Global Fund has significantly increased investment in practical interventions to remove persistent human rights-related barriers to health services – stigma, discrimination, punitive policies and practices, and gender-based violence and inequality. In the 20 countries in which the Global Fund provides intensive support to reduce barriers to HIV services, funding allocated to these programs has increased nearly 10-fold versus the previous cycle. The Global Fund's "Breaking Down Barriers" initiative is providing intensive support to 20 countries to conduct baseline studies and hold multi-sectorial workshops to identify specific recommendations to address human rights-related barriers. Although at a relatively early stage, this initiative is already bearing fruit, generating a range of practical outcomes, from legislative changes to communication programs. Having initially focused on HIV, the Global Fund now provides support to programs to reduce human rights-related barriers to services across all three diseases.

In stepping up the fight against gender-based health inequalities, the Global Fund has more than quadrupled investments to reduce new HIV infections for adolescent girls and young women in sub-Saharan Africa with strong community-based prevention programs. At the same time, the Global Fund has joined the MenStar Coalition to increase the number of young men being tested for HIV and accessing and staying on ARV therapy. In Myanmar, the Global Fund has supported both male and female Community Health Workers to treat people in hard-to-reach communities using a gender-specific approach, dramatically improving results.

Key results delivered – mobilizing increased resources: The gains delivered thus far in the fight against the three diseases, and in strengthening health systems, would not have been possible without significant increases in domestic resource mobilization for health. The Global Fund's increasingly rigorous co-financing policies have played a major role in incentivizing these increases (Figure 13). In the 2015-2017 cycle, domestic co-financing[24] increased by 33 percent compared to 2012-2014. Co-financing commitments for the current 2018-2020 cycle[25] indicate a further increase of 41 percent, precisely matching the ambitious growth scenario of 41 percent that was underlying the projections made in the context of the target setting for the 2017-2022 Global Fund strategy.

As shown in Figure 13, the Global Fund has further developed and strengthened our co-financing policy over the three most recent implementation cycles. In addition to incentivizing increases in domestic contributions, the Global Fund is investing in the development and implementation of health financing strategies and systems (20 countries being supported), including supporting interventions on health insurance, national health accounts (40 countries), and social contracting (20 countries).

FIGURE 13: DOMESTIC SPENDING AND COMMITMENTS FOR GLOBAL FUND-SUPPORTED PROGRAMS 2012-2020



[24]Pertains to co-financing of National Strategy Plan (NSP) costs. Does not capture domestic financing of patient care, human resources, and other recurrent costs typically borne by general health service budgets and/or social health insurance; unless included in the costing of NSPs.
[25]Based on funding requests reviewed for the 2017-2019 allocation cycle, as of July 2018.

VII. CONCLUSION: NOW IS THE TIME TO STEP UP THE FIGHT

STEP UP THE FIGHT

The Global Fund has a vital and irreplaceable role to play in accelerating progress towards the delivery of the SDG agenda. Working together with partners, the Global Fund can bring to an end the epidemics of AIDS, TB and malaria – diseases that have cost so many lives, and caused so much misery – while turbocharging progress towards SDG 3 and the ultimate goal of universal health coverage.

The Global Fund has already had massive impact. Programs supported by the Global Fund partnership have saved 27 million lives and resulted in the numbers of people dying from AIDS, TB and malaria falling by one-third compared with 2001. Global Fund investments have strengthened health systems and helped dismantle human rights- and gender-related barriers to health. The impact on the lives of individuals, their families and entire communities has been extraordinary. Together, we have blunted the devastating impact of HIV, TB and malaria, effectively eliminated the diseases in some places, and given communities all over the world the hope that one day soon we can end these epidemics.

This is the prize we must grasp. We can achieve the SDG target of ending the epidemics of HIV, TB and malaria by 2030. We have the tools, and we know what works. Yet we will not attain this goal by simply continuing what we are doing now. We must step up the fight. We must innovate more, collaborate more and execute more effectively. And we must commit more resources.

The alternative is to slip back, giving up some of our hard won gains, letting millions more die. This is not a fight in which we can simply hold our ground, or make progress more slowly. We are either winning decisively, or we are losing. We are already off track. And the combination of drug and vector resistance, persistent inequalities and demographics will push us more off track unless we act with urgency.

And this is not just a story of AIDS, TB and malaria. If we do not defeat these epidemics, we will not achieve the broader goals of SDG 3, nor deliver universal health coverage. We have a choice. We can use the fight against AIDS, TB and malaria to reinforce health systems and deliver universal health coverage, or we can let the epidemics once again overwhelm fragile health systems, reversing progress across multiple health indicators.

A successful replenishment for the Global Fund is critical to stepping up the fight. While partner organizations play critical roles, none can replace the Global Fund. No other institution brings the same combination of inclusivity, flexibility, scale and impact. This unique partnership of donors, implementer governments, civil society, technical partners and the private sector has extraordinary power as a driver and catalyst for change.

WE HAVE THE TOOLS, AND WE KNOW WHAT WORKS. YET WE WILL NOT ATTAIN THIS GOAL BY SIMPLY CONTINUING WHAT WE ARE DOING NOW. WE MUST STEP UP THE FIGHT.

To step up the fight, and put us back on track towards ending the epidemics, we must raise at least US$14 billion for the Global Fund's Sixth Replenishment. With at least US$14 billion, we can achieve the 2017-2022 Global Fund Strategy targets, save millions more lives, and overcome the challenges of resistance and inequalities. With at least US$14 billion we make the tantalizing prospect of ending the epidemics an achievable reality we can grasp and deliver. With at least US$14 billion the Global Fund can turn the fight against AIDS, TB and malaria into the catalyst for delivering SDG 3 and universal health coverage.

IN THE COUNTRIES WHERE THE GLOBAL FUND INVESTS, MORE THAN 27 MILLION LIVES HAVE BEEN SAVED.

VIII. ANNEXES

ANNEX 1: SELECTED GLOBAL FUND 2017–2022 KEY PERFORMANCE INDICATORS AND TARGETS

Key Performance Indicator	Measure	Target
Strategic targets		
1 Performance against impact	i. Estimated number of lives saved	29 million (28-30) over the 2017-2022 period
	ii. Percentage reduction in new infections/cases (average rates across the three diseases)	38% (28-47%) over the 2015-2022 period
2 Performance against service delivery	**HIV**	
	i. # of adults and children currently receiving ART	23 (22-25) million by 2022
	ii. # males circumcised	22 (19-26) million over the 2017-2022 period
	iii. % HIV+ pregnant women receiving ART for PMTCT	96% (90-100%) by 2022
	iv. % of adults and children currently receiving ART among all adults and children living with HIV	78% (73-83%) by 2022
	v. % of people living with HIV who know their status	80% (70-90%) by 2022*
	vi. % of adults and children with HIV known to be on treatment 12 months after initiation of ART	90% (83-90%) by 2022*
	vii. % of PLHIV newly enrolled in care that started preventative therapy for TB, after excluding active TB	80% (70-90%) by 2022*
	TB	
	i. # of notified cases of all forms of TB - bacteriologically confirmed plus clinically diagnosed, new and relapses	33 (28-39) million over the 2017-2022 period
	ii. % of notified cases of all forms of TB - bacteriologically confirmed plus clinically diagnosed, new and relapses among all estimated cases (all forms)	73% (62-85%) by 2022
	iii. # of cases with drug-resistant TB (RR-TB and/or MDR-TB) that began second-line treatment	920 (800-1,000) thousand over the 2017-2022 period
	iv. # of HIV-positive registered TB patients (new and relapse) given antiretroviral therapy during TB treatment	2.7 (2.4-3.0) million over the 2017-2022 period
	v. % of TB cases, all forms, bacteriologically confirmed plus clinically diagnosed, successfully treated	90% (88-90%) by 2022*
	vi. % of bacteriologically-confirmed RR and/or MDR-TB cases successfully treated	85% (75-90%) by 2022*
	Malaria	
	i. # of LLINs distributed to at-risk populations	1,350 (1,050-1,750) million over the 2017-2022 period
	ii. # of households in targeted areas that received IRS	250 (210-310) million over the 2017-2022 period
	iii. % of suspected malaria cases that receive a parasitological test [public sector]	90% (85-100%) by 2022*
	iv. % of women who received at least 3 doses of IPTp for malaria during ANC visits during their last pregnancy	70% (60-80%) by 2022*
8 Gender & age equality	i. Percentage reduction in HIV incidence in women aged 15-24	58% (47-64%) over the 2015-2022 period

***Aspirational target**

ANNEX 2: METHODOLOGY FOR ESTIMATING THE RESOURCE NEEDS

As the vast majority of funds raised for the Sixth Replenishment of the Global Fund, 2020-2022, will be implemented in grants over the years 2021-2023, the total resource need has been defined as the amount of funding that would be required over 2021 to 2023 for every country in the Global Fund portfolio to achieve the intervention coverage and impact levels expected in the respective disease Global Plans for 2023. The costs for reaching the 2023 Global Plan service delivery and impact targets from 2020 level are derived using same methods and models employed in the construction of the Global Plans cost.

The overall resource needs over the 2021 to 2023 were determined based on two steps. First the incidence and mortality levels in Global Fund supported programs by end-2020 were projected assuming that countries would meet the 2020 targets specified in their performance frameworks for Global Fund grants for 2018 to 2020. Those performance framework targets are reviewed as part of the Global Fund funding request review process and are signed into Global Fund grant agreements with countries. The projection was carried out using disease transmission models. (see Annex 4: Methodology for Impact Modelling).

The projected levels of impact in 2020 were then used as a baseline to determine the resource needs over 2021 to 2023 to achieve targets set by the respective Global Plans by end 2023. The population-scale dynamic transmission models used and modelling groups undertaking these estimates are the same that generated modelling results for the respective disease Global Plans. The models have, over several years, been reviewed and developed in collaboration with international modelling consortia. Further details on the modelling methodology are provided in Annex 4.

A short description of the Global Plans

For **HIV**[1] the estimate of resources needed for 2021 to 2023 is based on the Fast Track. It includes accelerated scale-up of HIV prevention and treatment tools over the first few years of the strategy. Specific elements of the Fast Track include: the rapid scale-up of ARV therapy, significantly higher coverage of prevention interventions for key populations, cash transfers for girls in countries with very high HIV prevalence, voluntary medical male circumcision in priority countries and pre-exposure prophylaxis. The 2030 Fast Track target is taken to be a 90% reduction in HIV incidence on 2010 levels.

The Fast Track costing estimate also builds in assumptions of shifting more care from facility to community-based delivery, recognizing the importance of strengthening community systems and improved viral suppression. This will deliver cost savings and improve the uptake of services and bring them closer to the people who need them. It also assumes continued reductions in the average cost of treatment due to continued reductions in drug costs, and reduced visit and testing schedules for those maintaining viral suppression.

The Fast Track also assumes that costs for opioid substitution therapy and cash transfer for girls will gradually be shifted to non-AIDS budgets after scale-up targets are achieved in 2020. Costs for procurement and supply chain strengthening, health management information systems, human resource capacity building, and other program and social enablers are also included.

Additional program elements – management, surveillance and enabling activities – are included in the program, and the costs of these are represented as a fixed mark-up on the direct costs for the interventions, based on their use in the fully costed plan.

The projected cost for HIV is lower than has been previously ascribed to this period, as fewer persons are on ART because programs had been slower than anticipated in starting persons on ART before the beginning of this period.

During the period of the replenishment, mitigating steps needed to tackle resistance are assumed to be taken, with the net result being that the overall effectiveness and costs of the intervention types used is not diminished. That is, new drugs are phased in so as to maintain the same, or higher, level of effectiveness as assumed now.

For **TB**[2] , the estimate of resources needed for 2021 to 2023 has been prepared in close collaboration with the Stop TB Partnership, referencing updates prepared by the partnership to the Global Plan to End TB for the UN High Level Meeting on TB held in September 2018.

Resource needs for TB include the expansion of preventive therapy for child and adult contacts and HIV patients, implementation of new treatment guidelines and regimens, as well as the implementation of modern diagnostic tools such as X-ray and GeneXpert. In addition, the plan includes laboratory costs, procurement and distribution of commodities, health care utilization and program management costs. Costs related to enabling activities including advocacy and communication, direct patient support, mobile technology, public-private mix activities and community engagement are included in this estimate. As far as possible, the costing model for TB explicitly accounts for necessary investments in health systems for the provision of the set of TB services included in the Global Plans, and this is done by making use of WHO's financing database.

While costs for this period include new tools and treatment regimens, it is noted that reaching the 2035 milestones of the End TB Strategy will still require additional new tools not currently available, including improved point-of-care tests and effective TB vaccines.

In the case of TB, there is a significant increase in the estimated resource need compared to previous estimates. This is due to several factors, including: the increasing use of relatively more costly treatments for drug-resistant TB; more of the planned scale-up occurring during this period than originally anticipated; scaling up of preventive therapy; and modernized diagnostics and enabling activities that support greater impact.

The spread of drug-resistant TB, of all types is modelled, and the cost and effectiveness of treatment is assumed to be modified in future years accordingly. In particular, it is assumed that treatment success rates will increase to 90%, reflecting an expansion of treatment options for patients with drug-resistant TB and new drugs (including bedaquiline) will become available.

For **malaria**[3], the estimate of resources needed for 2021 to 2023 are from the Global Technical Strategy (GTS). Costs include scale-up of the following interventions: vector control with long-lasting insecticidal nets or indoor residual spraying, chemoprevention in pregnant women and children, diagnostic testing of fevers for malaria, malaria case treatment and surveillance. Other program elements were included as fixed costs (following GTS methodology) – program management, surveillance (including routine epidemiological and entomological components, malaria indicator surveys and enhanced surveillance in countries with low levels of transmission) and other interventions such as intermittent preventive treatment in pregnancy and rapid diagnostic tests for non-malaria fever.

In dialogue with technical partners it was determined that for the purpose of this exercise the total cost of the GTS between 2021 to 2023 would remain unchanged from the original GTS costing. The major cost drivers of GTS relate to vector control elements and the need for these are not materially affected by changes in epidemic context since the GTS was produced. An increase in costs of treating malaria cases, due to there being more malaria cases due to slower than expected reductions in transmission, is estimated not make a substantial impact on the overall estimation of need. The cost estimates are based on current tools. New tools, which may cost more but which are nevertheless required to meet the 2030 goals, are not anticipated to be used at scale until after the replenishment period.

With regard to resistance to current interventions, it is assumed that mitigating steps are taken, resulting in the overall effectiveness and costs remaining at least similar to current levels.

Further details on the approach to modelling are available in methodological documents developed for the Global Fund strategy target setting exercise modelling.[4]

[1] Fast-Track Update On Investments Needed in the AIDS Response, UNAIDS 2016.
[2] The Paradigm Shift, 2016 – 2020, the Global Plan to End TB, Stop TB Partnership, 2015. Political declaration of the first-ever High Level Meeting of the General Assembly on the fight against Tuberculosis
[3] Global Technical Strategy for Malaria 2016-2030
[4] https://www.theglobalfund.org/media/8057/sc02_er02_annexes_en.pdf

ANNEX 3: PROJECTION OF AVAILABLE RESOURCES

To estimate the amount of funding available in Global Fund-eligible countries over 2021-2023, a forecast was developed for financing from domestic and other external sources. The methodology to project financing was similar to that of the financing forecast for the Investment Case for the Global Fund Replenishment 2017 to 2019 (published in December 2015) and the exercise for setting strategy targets for the 2017 to 2022 period (Board approved in March 2017). The forecast was carried out for all countries eligible for Global Fund support according to the 2018 eligibility list.

1. Domestic financing

As governments increasingly finance the national response to HIV, TB and malaria, a key input to the exercise was the forecast of domestic resources available for the three disease programs. The methodology to project domestic financing was similar to that of the financing forecast for the Investment Case for the Global Fund Replenishment 2017 to 2019 (published in December 2015) and the exercise for setting strategy targets for the 2017 to 2022 period (Board approved in March 2017)

The basis for domestic financing forecast were government commitments for the three disease programs, submitted and reviewed as part of countries' funding requests for the 2017 to 2019 allocation period. When the Investment Case forecast was developed, commitments data were available for 269 components. For most countries, the commitments spanned the 2018 to 2020 period. Where no commitments were available the data from the projections that were derived as part of the strategy target setting exercise were used.

Domestic commitments are projected based on the "Domestic investments priority index" (DIPI) which uses projected economic growth as a baseline and, in addition, assumes that financing from the "underspending countries" reaches by 2030 benchmark levels of spending according to disease burden and size of government expenditure.

The economic growth and government expenditure projections used in the Investment Case were updated with latest data from the IMF (April 2018). The DIPI value is calculated for each country as follows:

$$\text{DIPI} = \frac{\text{disease spending}}{\text{total government spending}} : \frac{\text{disease burden}}{\text{population}}$$

Countries are ranked by their DIPI value. For countries with a DIPI value below the 80th percentile, their domestic spending is projected so that by 2030 it reaches the 80th percentile value. The underlying rationale for this approach is that countries that spend less on the disease program relative to their peers with similar disease burden and ability to pay are the countries with the greatest potential to increase their spending.

The domestic commitments for the 2017 to 2019 allocation period, that have been received and reviewed so far, confirm the validity of this method at the overall portfolio level:

Overall:
Projected increase from 15/17 to 18/20 based on DIPI: 41%

Increase from 15/17 to 18/20 based on reviewed country commitments: 41%

HIV:
Projected increase from 15/17 to 18/20 based on DIPI: 39%

Increase from 15/17 to 18/20 based on reviewed country commitments: 40%

TB:
Projected increase from 15/17 to 18/20 based on DIPI: 51%

Increase from 15/17 to 18/20 based on reviewed country commitments: 48%

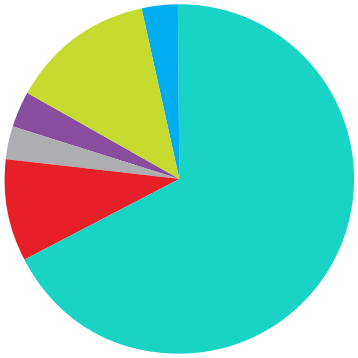
Malaria:
Projected increase from 15/17 to 18/20 based on DIPI: 37%

Increase from 15/17 to 18/20 based on reviewed country commitments: 39%

The original projections are made based on commitments against the cost categories of countries' National Strategic Plans. Adjustments are made in order to make them comparable to the cost categories underlying the costing of the respective Global Plan Resource Needs.

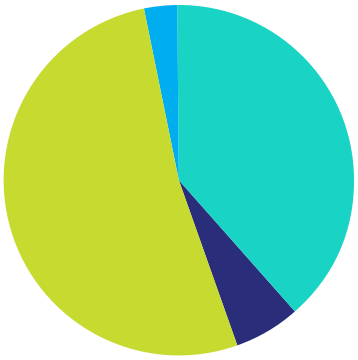
Applying this methodology leads to an overall estimate of US$ 45.8 billion of domestic resources over the 2021 to 2023 period, an increase of 48% over the current three-year period, which implies an average year on year increase between 2018 and 2023 of 14%. The breakdown of the US$ 45.8 billion across the three diseases and across geographical regions is given in the three charts below:

HIV DOMESTIC FINANCING IN 2021–2023, BY WHO REGIONS (TOTAL US$ 24.4 B)



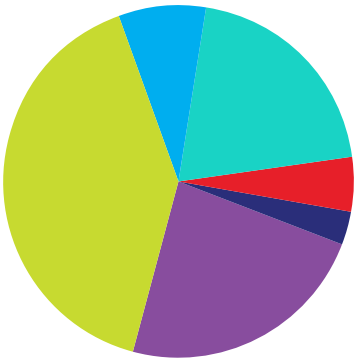
- AFRICA **65%**
- AMERICAS **9%**
- EASTERN MEDITERRANEAN **4%**
- EUROPE **5%**
- SOUTH-EAST ASIA **13%**
- WESTERN PACIFIC **4%**

MALARIA DOMESTIC FINANCING IN 2021–2023, BY WHO REGIONS (TOTAL US$ 8.5 B)



- AFRICA **39%**
- EASTERN MEDITERRANEAN **6%**
- SOUTH-EAST ASIA **53%**
- WESTERN PACIFIC **2%**

TB DOMESTIC FINANCING IN 2021–2023, BY WHO REGIONS (TOTAL US$ 12.9 B)



- AFRICA **20%**
- AMERICAS **5%**
- EASTERN MEDITERRANEAN **4%**
- EUROPE **23%**
- SOUTH-EAST ASIA **40%**
- WESTERN PACIFIC **8%**

2. Non-Global Fund external financing

Non-Global Fund external financing was estimated using latest data from the IHME's Development Assistance for Health (DAH)[5] database, and the aggregate amount per disease was assumed to remain constant over 2021-2023. The IHME data includes estimates that can be allocated to recipient countries as well as estimates for regional and global initiatives. Since the modelling exercise required estimated amounts of funding per country, only country specific funding was taken into account for the purpose of projecting future impact.

The breakdown of external funding over a three-year period by disease is as follows:

HIV	US$ 18.2 billion
TB	US$ 1.7 billion
Malaria	US$ 3.5 billion

3. Global Fund financing

The investment case assumes that Global Fund financing for the 2021 to 2023 period is at the level of the US$14 billion replenishment goal. An amount of US$ 900 million is deducted to reflect expected Operational Expenditures. The remaining US$ 13.1 billion were distributed across the three diseases according to the current global disease split of the 2017 to 2019 allocation methodology.

[5] Institute for Health Metrics and Evaluation (IHME). Development Assistance for Health Database 1990-2016. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2017.

ANNEX 4: METHODOLOGY FOR IMPACT MODELLING

The modelling was carried out in two steps. In the first step, Global Fund performance framework service delivery targets over 2018 to 2020 were used in the disease transmission models to project impact up to 2020 (Section i). In the second step, available funding over 2021 to 2023 was used in disease transmission models to project impact and service delivery for the same period (Section ii).

The models used and modelling groups undertaking these analyses are those that were responsible for the modelling in the respective disease global plans as described below. The models are population-scale dynamic transmission models, which have, over several years, been reviewed and developed in collaboration with international modelling consortia. The scope and application of the models is described in Section iii.

(i) Projecting impact to the beginning of the replenishment period (2018–2020)

The historic trajectory of the epidemic in each country for each disease up to the year of most recent data (2017 in most cases) is consistent with latest official estimates published by WHO/UNAIDS. The official estimates have been informed by direct epidemiological data, programme data and modelling assumptions[6]. The forward projection, up to the end of 2020, is constructed on the basis of expected national coverage targets from the Global Fund performance framework for each country.

Missing values in the performance framework for a particular intervention in a particular year are replaced with extrapolations that carry forward the average annual rate of change in that indicator in 2010 to 2016[7].

In some cases, individual performance frameworks did not include data on some aspects of intervention coverage or quality. In this case, the approach taken assumes that, over the period since the last data on such elements in a country to the end of 2020, these elements had improved such that the levels achieved by the end of 2020 are equal to that which had been anticipated by the global plans for 2020.

In the case of TB, the package of interventions in a program are assumed to track together, such that growth in number of successfully treated patients based on coverage and outcome targets set in the Global Fund performance framework indicates growth in all aspects of the program. Then, the ratio of the number of successfully treated patients from the performance framework targets to the number of successfully treated patients expected in the Global Plan is used to scale the overall impact of the program, relative to a continuation of current trends and the trends that are anticipated in the Global Plan.

(ii) Projecting service delivery and impact over 2021 to 2023

The estimation of impact during the period 2021 to 2023 involved two stages described below. The first stage is the allocation of resources between countries, sub-country units and intervention elements. The second determines the impact on the epidemic that would result from that configuration of interventions. The starting point for this part of the analysis is the projection that has been made for the epidemic states and intervention configurations to the end of 2020 (see Section i above).

STAGE 1: DETERMINING THE ALLOCATION OF RESOURCES BETWEEN COUNTRIES, SUB-COUNTRY UNITS AND INTERVENTION ELEMENTS

For each of the diseases, non-Global Fund resources available to each country (comprising domestic and external sources other than Global Fund) in the replenishment period are first projected (see Annex 3: Methodology for Projection of Available Resources).

For HIV and malaria it is assumed that the use of non-Global Fund resources in each country, with respect to intervention elements funded and geographic distribution (malaria only) is such that the impact is maximised and the epidemic trajectory follows as closely as possible that which had been anticipated by the respective disease Global Plans. The precise formulation of the objective functions for HIV[8] and malaria[9] also ensures that the coverage of key interventions is not reduced. Where funds are allocated to a country that are in excess of what is projected to be the need for that country and disease area, it is assumed that those surplus funds are not used.

Next, the Global Fund-derived budget that would become available for use in each disease area based on the replenishment ask and split between the three diseases assuming the global disease split of the 2017 to 2019 allocation model is allocated between countries, sub-national units and intervention elements, so as to maximise the overall performance of the Global Fund portfolio of countries against the Global Plans (as defined above). Maximal values are set for intervention coverages that are same as for the Global Plans, and there are additional constraints on the rate of growth in service coverage for malaria.

For TB, Global Fund-derived funds are shared between countries by ranking countries with respect to the ascending average cost per death and case averted during the replenishment period for their TB programs under the Global Plan and funding each successive country to its need until the Global Fund-derived budget is exhausted. The resulting impact projection is computed by assuming that the proportion of the impact of the Global Plan (expressed as the percentage reduction in cases and death in each year compared to continuation of recent trend for that year) that is achieved under this scenario is equal to the proportion of the funding need that is met. This implicitly assumes that the configuration of different program elements within a country follows strictly that which is specified in the Global Plan and that impact has a linear relationship to funding.

STAGE 2: PROJECTING IMPACT AND SERVICE DELIVERY OVER 2021 TO 2023

The simulation models are used to project the impact on the epidemic that would result from the program that is specified by the procedure described above. Uncertainty in model projections arises from uncertainty in the overall burden of the epidemic at the end of 2020 and uncertainty in the effectiveness and costs of the proposed interventions. The ranges around the projections below reflect the uncertainty that arises from imperfect knowledge of epidemic burden and intervention effectiveness.

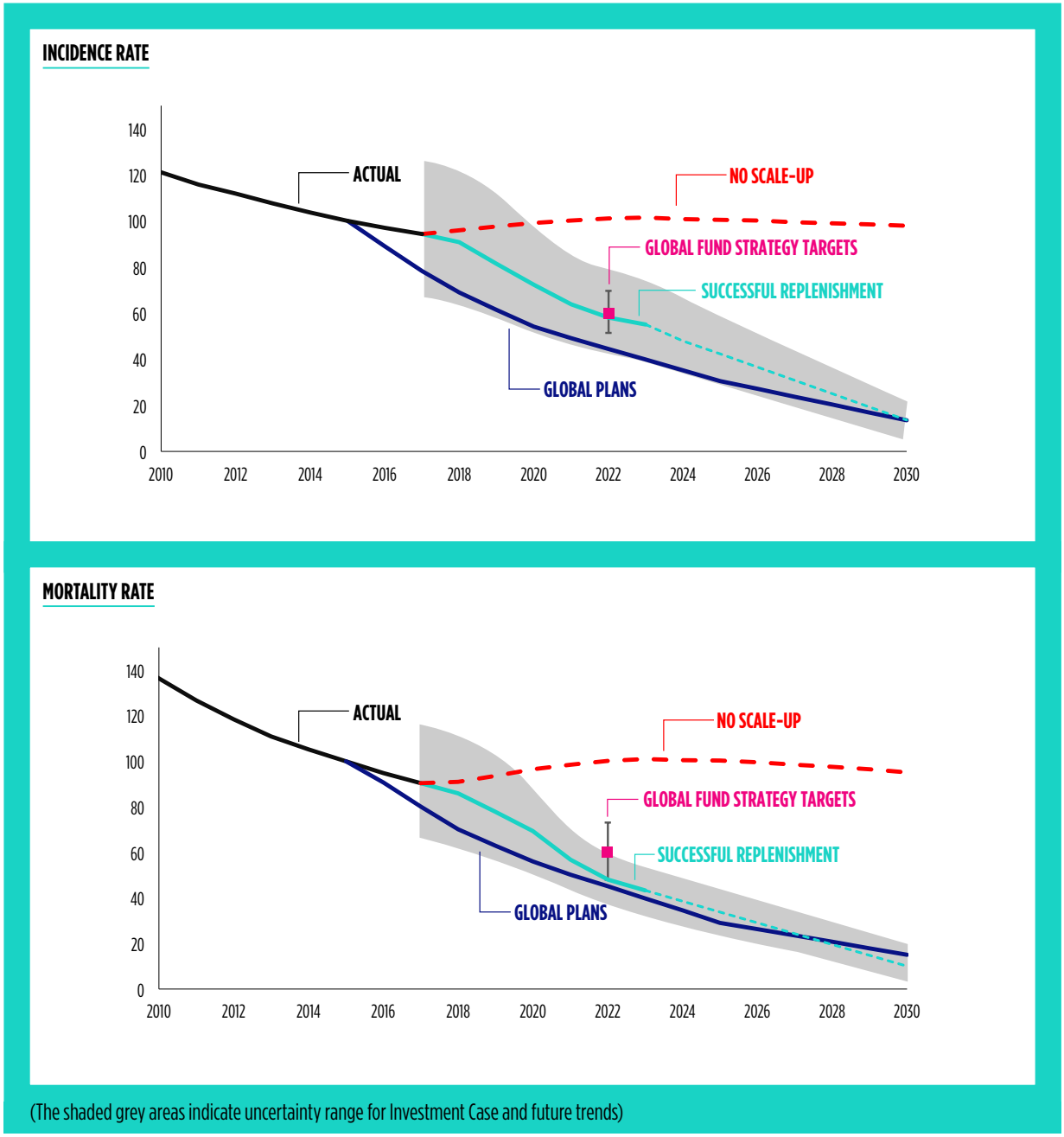
[6]See accounts provided in the Global TB Report 2018 and World Malaria Report 2018 as well as UNAIDS Methods for deriving UNAIDS estimates 2018.

[7]The exception to this is LLIN, for which the numbers in future years was assumed to be equal to the average in 2010–2016.

[8]Maximize total reductions in new infections and deaths for end-2023, giving equal weighting to each and subject to the constraint that ART coverage (expressed as a percentage of persons living with HIV) does not decrease from levels projected for end-2020.

[9]Maximize reductions in cases and deaths, giving equal weighting to each and subject to the constraint that treatment coverage should not drop below the levels (expressed as a percentage) that are anticipated for end-2020.

FIGURE 1A: PROJECTIONS OF INCIDENCE AND MORTALITY RATES FROM THE GLOBAL FUND INVESTMENT CASE[10]



(The shaded grey areas indicate uncertainty range for Investment Case and future trends)

- Actual estimates of incidence or mortality
- Global Plans pathway to 2030 incidence or mortality targets for HIV, TB and malaria
- Modelled results for this Investment Case
- Extrapolation of Investment Case trends into future
- Global Fund strategy targets for 2022 with uncertainty bars
- Constant coverage: impact of sustaining services at current levels

The estimated impact on the epidemics in terms of lives saved is computed by comparing modelled-based trajectories of deaths based on the replenishment scenario compared with a null counterfactual scenario. The null scenario for each disease is defined as follows:

- For HIV/AIDS, no ART from the beginning of 2017 onwards and maintaining behaviors and all other interventions as they were at the beginning of 2017;
- For tuberculosis, no prevention or treatment for TB from the beginning of 2017 onwards; and,
- For malaria a resumption of the mortality rates for malaria as they were without intervention (taken to be the rates estimated for the year 2000).

The impact in terms of infections (for HIV) or cases averted (for TB and malaria) is estimated by comparing model-based trajectory of infections or cases based on the replenishment scenario compared with a constant coverage counterfactual scenario defined as: maintaining coverage of interventions at the levels of beginning of 2017 (for HIV and TB) and continuation of 2016 incidence rates for malaria.

The choice of counterfactual reflects the recommendations of Global Fund health impact experts meeting held in July 2014 and is aligned with the counterfactual used in setting impact targets set in the Global Fund 2017-2022 strategy for reduction in incidence and lives saved.

For malaria, the graphic presentation of the constant coverage counterfactual in the Investment Case report reflects model-based projections of incidence and mortality assuming coverage of interventions is held constant at the level achieved by the beginning of 2017.

[10]Lines are first normalized to 100 in 2015 for each disease and then combined with equal weighting across the three diseases, separately for incidence and mortality rates

The models make projections of the impact of the epidemics made by countries that are in the Global Fund portfolio, but the funding for the interventions that underlie that impact will come from many sources. Thus, the impact that is ascribed to a country or set of countries has been contributed to by Global Fund. However, no estimate of the fraction of that impact that can be attributed to Global Fund is offered because it is the entirety of the country's response which leads to the totality of the impact. It would not be meaningful, for instance, to try to estimate the impact of the diagnostics alone (which one funder might cover), or the health-care worker time alone (which another funder might cover), as the value of such things is realised only in combination with the supply of drugs, and vice versa.

The assumptions that are made regarding what interventions, including new interventions, are available during the replenishment period are the same as in the respective disease Global Plans. For HIV, the model incorporates improvements in the proportion of patients being tested and being virally suppressed, which will come about through new approaches (e.g. community-based testing, adherence support groups), diagnostics (e.g. self-tests) and new drugs (especially dolutegravir). The implicit assumption is that, due to these changes, drug resistance does not reduce the effectiveness of ART or PrEP. No vaccine availability is expected before 2023.

For TB, several programmatic changes are incorporated for the projections of impact during the replenishment period and the evolution of multidrug-resistant TB is modelled. There will be a transition from microscopy to rapid molecular test (Xpert), greater use of X-ray as a screening tool and transition towards universal drug-sensitivity testing, and there will be increased screening activities. A proportion of adult and child contacts and persons on ART of cases will be provided with preventive therapy and there will be further drugs available for preventive therapy.

For malaria, it is assumed that during the replenishment period there is no roll-out of vaccine and that whatever changes occur in the use of LLIN/IRS (for instance, improving distribution of nets, using nets with different insecticide to combat resistance; distributing nets at lower frequencies) this does not have a material impact on the effectiveness or cost of these interventions overall.

Section iii – Description and application of models

HIV: For all Global Fund eligible countries, scenarios were modelled by Avenir Health using the Goals model[11], which was set up for the 56 countries in Fast-Track (representing more than 95 percent of all HIV infections in the Global Fund-eligible countries). The interventions with direct impact included are the same as in Fast-Track: ARV therapy, voluntary medical male circumcision, programs to prevent mother-to-child transmission, condom promotion and distribution, outreach services to key populations (sex workers, men who have sex with men, people who inject drugs), opioid substitution therapy, pre-exposure prophylaxis (for adolescents, sero-discordant couples and key populations in selected countries), and behavior change communications. As not all of the Global Fund-eligible countries were modelled, for the remaining countries, which account for less than 5 percent of burden, a similar trend as for the modelled countries was assumed. Costs included in the Fast-Track estimates besides the 12 direct-impact interventions (including community mobilization, testing, enabling environment and program support) are accounted for by applying a proportional mark-up to the intervention costs.

TB: Avenir Health estimated the epidemiological impact by applying the TB Impact Model and Estimates (TIME) model, which was used to capture the potential impact achieved by implementing the Global Plan to End TB[12]. The model was applied in 29 countries, of which 26 are Global Fund-eligible. To obtain results for the full subset of Global Fund-eligible countries modelled in the Global Plan, the estimated impact for the 29 countries was then applied to TB epidemiological trends for the remaining eligible countries using a method of extrapolation. Unit cost estimates were based on unit costs that have recently been derived by partners in the context of the update of the existing global plan as part of the costing of the targets of the UN high level meeting on TB in September 2018.

Malaria: Impact modelling was done using the malaria transmission model developed at Imperial College, which contributed to the development of the WHO Global Technical Strategy for Malaria[13]. It represents the 65 Global Fund-eligible countries that have stable Plasmodium falciparum transmission and includes geographic specificity to the first administrative level. Those countries with unstable P. falciparum, P. vivax or that were in prevention of reintroduction stages were not modelled.

Further details on the approach to modelling are available in methodological documents developed for the Global Fund strategy target setting exercise modelling.[14]

[11]Stover J, Bollinger L, Izazola JA, Loures L, DeLay P, Ghys PD What is Required to End the AIDS Epidemic as a Public Health Threat by 2030? The Cost and Impact of the Fast-Track Approach PLOS ONE 11(5):e0154893: doi:10.1371/journal.pone.0154893.

[12] TIME Impact – a new user-friendly tuberculosis (TB) model to inform TB policy decisions, Hoeben et al, BMC Medicine 2016 14:56

[13]Griffin, J. T. et al. Potential for reduction of burden and local elimination of malaria by reducing Plasmodium falciparum malaria transmission: a mathematical modelling study. Lancet Infect. Dis. 3099, 1–8 (2016).

[14]https://www.theglobalfund.org/media/8057/sc02_er02_annexes_en.pdf

ANNEX 5: METHODOLOGY FOR ROI CALCULATION

The economic returns of investments projected to be made during the Global Fund Sixth Replenishment period were estimated for each country and disease via two methods: "intrinsic" and "instrumental" valuation of the averted burden of the three diseases over the period 2017-2023. Estimates of the "intrinsic" value of health are based on what individuals are willing to pay for improvements in their own health (see section (i)), whereas the "instrumental" valuation considers the extent to which reductions in sickness and premature deaths increase productive work (see section (ii)).

The investment scenario was compared to a "constant coverage" counterfactual scenario in which disease control programs were assumed to be maintained at 2017 coverage levels. For the investment and counterfactual scenarios, the modelling that has been conducted as part of this investment case (see Annex 4) has estimated the annual number of cases, deaths, disability-adjusted life years, and cost. The cost of the investment compared to the counterfactual scenario is a net cost that includes both the cost of the interventions that prevent cases of disease or improve treatment, as well as health sector cost savings from not having to treat as many cases.

For both valuations, and following standard approaches (1,2), the present value of the projected stream of future costs and benefits was calculated by applying a discount rate of 3% per year. As the Global Fund investments in the portfolio countries as a proportion of the total cost of the investment scenario varies between countries, a Global Fund-specific return-on-investment ratio was derived by weighting the disease-specific costs and benefits according to the countries' share of Global Fund allocations during 2017-2019.

(i) Intrinsic valuation

Following the methodology of recent Benefit Cost Analysis guidelines(1,2), an adjusted Value of a Statistical Life-Year (VSLY) calculation was used to calculate country- and year-specific VSLYs that anticipate economic growth in Global Fund supported countries:

$$VSLY_{it} = \frac{((VSL_{USA*}(GDP_{it}/GDP_{US})^{e}))}{PV<0.5*LEB>} \quad t=2017,2018,\ldots,2023,$$

where $VSLY_{it}$ calculated using the current estimate of the Value of a Statistical Life (VSL) for the USA of $9.4m (1), and transferring it to Global Fund-supported countries based on the difference in income between the USA (GDP_{USA}) and the country (GDP_{it}) , where GDP_{it} is purchasing-power-parity (ppp) adjusted gross domestic product per capita of country i in year t in international dollars, which was obtained from the April 2018 World Economic Outlook (3); GDP_{USA} is the ppp adjusted gross domestic product (GDP) per capita of the USA (estimated at $57,815 for 2018) (3); e is a conservative estimate of income elasticity of 1.5, reflecting that poorer individuals are willing to pay a lower portion of their income for a given incremental of health risk reduction, compared to higher income individuals; and $PV<0.5*LEB_i>$ is the discounted remaining life expectancy from middle-age. As a proxy (recommended in BCA guidelines (2) we used one-half of life expectancy at birth of country i in the year 2016 obtained from the World Bank(4). We deviated from the BCA guidelines by discounting the remaining life expectancy when converting VSL to VSLY, but this was necessary in order to be consistent in discounting all health benefits and costs, accounting for the year in which they occur. To calculate the return on investment, the total number of discounted disability-adjusted life year (DALYs) averted in each country and year as predicted by the modelling underlying the investment case was multiplied by the country-year-specific VSLYs. In this way we made a choice to value deaths proportionally to the remaining life expectancy associated with the counterfactual of that death (how long they would live if they had not died), and we are also valuing the reductions in non-fatal morbidity associated with these diseases.

(ii) Instrumental valuation

When cases are prevented or effectively treated, household members can continue or return to productive work. Following standard human capital approach for calculating "indirect cost" in cost-of-illness studies (5), the productivity loss per case was calculated by multiplying an average duration of temporary disability by a wage rate for both investment and counterfactual scenarios. The duration represented the average days of lost work by the patient (or the patient's parent for childhood malaria cases). For both TB and malaria, the episode duration was not affected by treatment access, but for malaria, the episode duration depended on whether the case was severe or not. The episode duration for HIV cases was assumed to be the period of symptomatic untreated disease, assumed to affect 17.5% of untreated HIV[16] cases in any one year and to result in a 15% reduction in productivity. (6) Wage rate was derived from GDP per capita after subtracting natural resource rents obtained from World Bank (4) and a further downward adjustment to account for the disproportionate concentration of disease burden in groups of lower socioeconomic status.

Productivity loss due to premature death was calculated by multiplying the average remaining working years of life at age of death by a wage rate. It was assumed that each HIV or TB death resulted in a loss of 15 working years, each malaria death in a person over or under 5 years old resulted in a loss of 25 or 30 working years, respectively, after accounting for a lag of 10 years before the working age period would begin.

Over 90% of the productivity-based ROI is due to averting productivity losses due to death. Our approach does not account for the potential societal level impacts on other households not experiencing the disease-related death. It is possible, in settings where much labor is unskilled, and unemployment levels are high, that when workers leave the workforce due to death or disease, they are replaced quickly by another, previously unemployed person, so the net loss at the society level may be reduced. In addition, our analysis does not consider the future consumption (costs) associated with avoiding a premature disease-related death. Finally, we do not consider other macro-level economic changes that may occur such as a shift toward lower fertility and greater per-child investment as child survival increases, and the resulting increase in education levels and economic productivity.

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ANNEX 6: RESULTS: ESSENTIAL INDICATORS

During 2017, countries and regions where the Global Fund invests achieved the following:

countries or regions reporting full or partial results/ countries due for reporting

17.5 MILLION people on antiretroviral therapy for HIV **95**/95

79.1 MILLION HIV tests taken **97**/99

1.1 MILLION medical male circumcisions for HIV prevention **7**/7

4.9 MILLION members of key populations reached with HIV prevention programs* **92**/94

1.6 MILLION young people reached with HIV prevention programs **13**/13

9.4 MILLION total people reached with HIV prevention programs **96**/98

696,000 mothers received medicine to prevent transmitting HIV to their babies **52**/53

3.4 MILLION people living with HIV received care and support services **28**/29

5 MILLION people with TB treated **88**/89

343,000 HIV-positive TB patients on antiretroviral therapy during TB treatment **73**/75

102,000 people with drug-resistant TB on treatment **91**/92

3,180 people with extensively drug-resistant TB on treatment **6**/6

97,500 children in contact with TB patients received preventive therapy **19**/20

108 MILLION cases of malaria treated **63**/64

197 MILLION mosquito nets distributed **55**/58

12.5 MILLION structures covered by indoor residual spraying **17**/18

6 MILLION pregnant women received preventive treatment for malaria **16**/16

213 MILLION suspected malaria cases tested for malaria **54**/57

*Key populations include men who have sex with men, sex workers, people who inject drugs and transgender people

STEP UP THE FIGHT

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