

The Global Fund to Fight AIDS, Tuberculosis and Malaria  
Fourth Replenishment (2014-2016)

# Needs Assessment





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## **Part 1: Introduction**

1. Recent advances in scientific knowledge, clear evidence of high-impact interventions, falling costs and improved implementation know-how have given the global community the opportunity to control AIDS, tuberculosis (TB) and malaria. Controlling these diseases through smart and effective prevention, care and treatment programs will dramatically save and improve the lives of millions of people, their families, communities and countries – and alleviate the burden on development and economic growth that they represent. The global community is now at a crossroads: the choice is to maintain the current level of investment, leading to a continued high number of new infections and deaths, or to accelerate the gains to turn high-transmission epidemics into low-level endemics, saving millions of lives and preventing billions of dollars in additional costs over the long term.

2. Over the last decade, tremendous progress has been made against AIDS, TB and malaria, achieving an impact that was unthinkable at the turn of the millennium. This achievement has been the result of the hard work of governments, health care providers, communities including persons affected by the diseases, faith-based organizations and the private sector all over the world. The resources committed by domestic and external sources have been fundamental to the progress achieved so far. In 2000, just 50,000 people were receiving antiretroviral (ARV) therapy in sub-Saharan Africa. By 2011, it was roughly 6 million.<sup>1</sup> Just over a decade ago, TB case detection rates were 43 percent, and the treatment success rate was just 67 percent among the 22 countries with the highest TB burden.<sup>2</sup> By 2011, the TB case detection rate rose to 66 percent and the treatment success rate to 87 percent. In sub-Saharan Africa, fewer than 5 percent of households owned an insecticide-treated net in 2000.<sup>3</sup> By 2010, that had increased to 53 percent, with hundreds of millions of more nets distributed since then. More important than these outcome measures, mortality patterns provide further evidence of the dramatic progress achieved against the three diseases. From 2005 to 2011, AIDS-related mortality decreased by 24 percent.<sup>4</sup> The TB mortality rate declined by 41 percent from 1990 to 2011.<sup>5</sup> For malaria, the global mortality rate is estimated to have decreased by 26 percent between 2000 and 2010; during this period, more than half of the deaths averted were in the ten countries with the highest malaria burden in 2000.<sup>6</sup> The efforts have saved nearly three-quarters of a million children across 34 malaria-endemic African countries over the past ten years. Even more telling is that 85 percent of these lives were saved in the past five years alone, the same time period during which funding intensified nine-fold.<sup>7</sup>

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<sup>1</sup> Joint United Nations Programme on HIV/AIDS. Global Report: UNAIDS Report on the Global AIDS Epidemic, 2012. Geneva: UNAIDS, 2012.

<sup>2</sup> World Health Organization. Global Tuberculosis Report, 2012. Geneva: WHO, 2012.

<sup>3</sup> World Health Organization. World Malaria Report, 2012. Geneva: WHO, 2012.

<sup>4</sup> UNAIDS. Global Report: UNAIDS Report on the Global AIDS Epidemic, 2012. Geneva: UNAIDS, 2012.

<sup>5</sup> World Health Organization. Global Tuberculosis Report, 2012. Geneva: UNAIDS, 2012.

<sup>6</sup> World Health Organization. World Malaria Report, 2012. Geneva: WHO, 2012.

<sup>7</sup> Roll Back Malaria. Progress & Impact Series: Malaria Funding and Resource Utilization: The First Decade of Roll Back Malaria. <http://www.rbm.who.int/ProgressImpactSeries/report1.html>

3. Because of dedicated programs within countries, increased funding and recent scientific advances, the Millennium Development Goal targets for HIV, TB and malaria are within reach. The world has halted and begun to reverse the spread of HIV: prevalence appears to have stabilized and the number of new HIV infections, while significant, has steadily declined since the late 1990s.<sup>8</sup> TB incidence rates have been falling since 2002, and the number of TB cases has fallen since 2006.<sup>9</sup> Malaria incidence and mortality have both fallen since 2000, with most of that progress since 2005.<sup>10</sup>

4. Despite these significant strides, HIV/AIDS, TB and malaria continue to impose a devastating human and economic toll. There were some 2.7 million deaths from AIDS- and TB-related causes in 2011, and 660,000 malaria-related deaths in 2010.<sup>11</sup> Without sufficient resources to support prevention, care and treatment for these diseases, the world is at risk of losing ground in this fight. It is important that the global community prevent the epidemics from reversing the gains of the past ten years. A resurgence of these diseases would result in costs that would likely grow beyond any affordable range.

5. Decisions that are made now – by implementing countries and donors – will determine whether current progress can be maintained and related international goals be met, including the UN Secretary-**General's call** to achieve near-zero malaria deaths by the end of 2015; the 2011 Political Declaration on HIV/AIDS and the UNAIDS strategy to achieve zero new HIV infections, zero discrimination, and zero AIDS-related deaths; and accelerating reduction in TB cases and mortality to ultimately eliminate TB as a global public health problem. As this replenishment is the last one in advance of the Millennium Development Goal deadline, it **represents one of the international community's final** opportunities to enable their achievement. It is therefore imperative to secure the funding needed to sustain the gains and bring us to the tipping point in order to defeat the three diseases.

6. After research and close consultation with key partners at the national and international level, the Global Fund estimates that US\$ 87 billion will be required from 2014 to 2016 to reach all vulnerable populations in Global Fund-eligible low- and middle-income countries with essential services to bring all three diseases under control. This level of financing requires a joint effort of all partners and must be seen as a shared responsibility of implementing countries and the international community. A contribution of US\$ 15 billion from the Global Fund would allow the global community, working collectively, to cover 87 percent of the total funding needed to effectively fight the three diseases in the 2014-2016 period.

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<sup>8</sup> WHO, UNAIDS, UNICEF. Global HIV/AIDS response: epidemic update and health sector progress towards universal access: progress report 2011. Geneva: WHO, 2011.

<sup>9</sup> World Health Organization. Global Tuberculosis Control 2011. Geneva: WHO, 2011.

<sup>10</sup> World Health Organization. World Malaria Report 2011. Geneva: WHO, 2011.

<sup>11</sup> Joint United Nations Programme on HIV/AIDS, Global Report: UNAIDS Report on the Global AIDS Epidemic, 2012; World Health Organization, Global Tuberculosis Report, 2012; World Health Organization, World Malaria Report, 2012.

7. **The Global Fund's new funding model is designed to** achieve more strategic investment through enhanced dialogue with applicants and increased partnership with governments, civil society and affected communities, technical partners and other external funders, and the provision of more flexible timing and predictable funding. Earlier and better country dialogue will improve the response to the diseases and map contributions from all partners to the full funding gap. This will help prioritize interventions and financing for the right populations, which increasingly are highly vulnerable, marginalized and stigmatized groups including young women, pregnant women and children, sex workers, people who inject drugs and men who have sex with men. **The Global Fund's new funding model is poised to** support programs make significant strides towards defeating the diseases. The new funding model also strives to align investments in HIV, TB and malaria with national health strategies while strengthening health systems and serving as a platform for promoting the health of a person rather than only combating specific diseases.

8. The advance of the new funding model, together with new technology and new evidence on effective disease responses were factored into estimates made with technical partners for the potential financial need in Global Fund-eligible countries over 2014 to 2016.





## **Part 2: Forecast of Total Resource Need During 2014-2016**

9. The Global Fund collaborated with partners (the United Nations Joint Programme on HIV/AIDS (UNAIDS), the World Health Organization (WHO), the Stop TB Partnership and the Roll Back Malaria Partnership) to estimate the total amount of resources required over the 2014-2016 period to finance HIV, TB and malaria programs in the low- and middle-income countries it supports. Estimates are based on country realities and factor in best practices in program design and delivery, as well as opportunities for the expansion of essential interventions for maximum impact.

10. WHO, UNAIDS, Stop TB and Roll Back Malaria have published projections of the overall resources required annually to achieve global targets for 2015 for the three diseases. These global plans were taken as the starting point to develop an assessment of total resource needs for 2014-2016.<sup>12</sup> In the Global Plan to Stop TB 2011 to 2015, key targets for 2015 include reducing prevalence of and deaths due to TB by 50 percent compared with 1990 levels. Resource needs for HIV are based on the Investment Framework for HIV/AIDS, which was developed to achieve universal access targets for 2015 and continue thereafter. For malaria, the Global Malaria Action Plan outlines the resource needs to achieve universal coverage for all populations at risk with locally appropriate interventions for prevention and case management by 2015.

11. The resource needs estimates were filtered to include only countries eligible to apply to the Global Fund as of 2013.<sup>13</sup> Costs included in the partner estimates were also reviewed for eligibility for Global Fund grants. Overlapping costs across the diseases were identified and adjusted accordingly. In particular, resource needs for ARV therapy for HIV-positive TB patients were specifically excluded from the TB forecast, as they are already incorporated in the HIV estimates.

12. Estimates were refined to provide a realistic reflection of financial need and absorptive capacity. Global Plan targets for the three diseases were extended to 2016 and updated where appropriate to incorporate country context.<sup>14</sup> To ensure that the estimates are based on targets that are ambitious but realistic, country-level data was incorporated wherever possible. Through partner-led workshops conducted in early 2013, representatives from supported programs updated and extended financial gap analyses until 2016, supplemented by desk reviews. Estimates were updated to consider the latest developments in costs, market dynamics, and new technologies.

13. Based on this methodology the Global Fund estimates that a total of US\$ 87 billion is needed to finance urgently needed programs for HIV/AIDS, TB and malaria over the 2014-2016 period in Global Fund-eligible countries.

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<sup>12</sup> These projections are available in the Global Plans developed by partners: the Investment Framework for HIV/AIDS ([http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2012/JC2359\\_investing-for-results\\_en.pdf](http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2012/JC2359_investing-for-results_en.pdf)), the Global Plan to Stop TB 2011-2015 (<http://www.stoptb.org/global/plan>), and the RBM Global Malaria Action Plan (<http://www.rbm.who.int/gmap/gmap.pdf>).

<sup>13</sup> According to the 2013 Global Fund eligibility policy, 128, 118 and 102 countries are eligible for funding for HIV, TB and malaria respectively.

<sup>14</sup> Annexes A-C provide further details on the targets used to estimate these resource needs.

14. For HIV, the total estimated financing need is US\$ 58 billion over this period. All costs are for programs eligible for Global Fund financing, including those of the six key program activities that underpin the Investment Framework as well as the critical enablers and synergies areas. Treatment, care, and support are the largest single cost area, but substantial costs are also forecast for activities for key populations at higher risk and for elimination of new HIV infections among children. The estimates assume significant cost savings as a result of market dynamics and changes to more efficient service provision, particularly through community-based approaches.

15. For TB, the total estimated resource need is US\$ 15 billion over the period. These estimates cover four major components of TB care and control: 1) DOTS diagnosis and treatment for drug-susceptible TB; 2) scale-up of rapid molecular diagnostics and associated laboratory strengthening, in particular to improve diagnosis of multidrug-resistant TB and diagnosis of TB in people living with HIV; 3) treatment of multidrug-resistant TB; and 4) collaborative TB/HIV activities required to jointly address the TB and HIV epidemics not already covered in the HIV estimates. The areas of expanded diagnosis and effective treatment for drug-susceptible TB (which can prevent multidrug-resistant TB) account for the largest share of the costs, requiring an estimated US\$ 2.6 billion a year over the 2014-2016 period. To address the major threat of multidrug-resistant TB, which currently affects an estimated 630,000 people, expanding prompt and effective treatment for multidrug-resistant TB requires an estimated US\$ 1.3 billion per year. Expansion of rapid diagnostics and associated laboratory strengthening requires US\$ 0.6 billion per year.

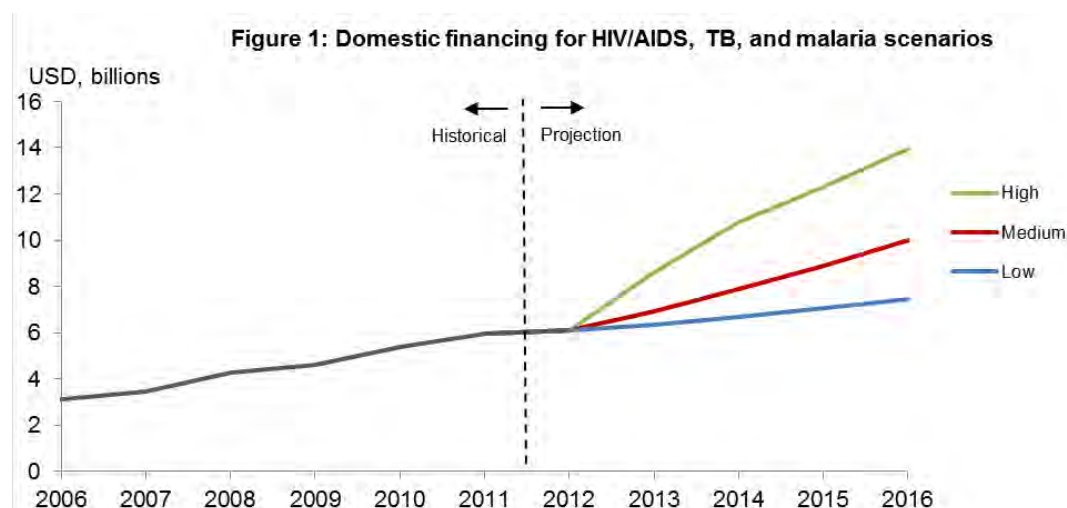
16. The total estimated resource need for malaria is US\$ 14 billion over the three-year period. The majority of these resources are to support sustained universal coverage of vector control interventions, namely long-lasting insecticidal nets and/or indoor residual spraying, plus malaria case management, which includes malaria diagnostic testing with rapid diagnostic tests and treatment with artemisinin-based combination therapy (ACT) through public health facilities, at the community level and also in the private sector where appropriate. Intermittent preventive treatment of malaria for pregnant women and seasonal malaria chemoprevention are also included. The resource need also incorporates updated estimates on the financing required to contain artemisinin resistance and forestall insecticide resistance. Additionally, supportive interventions – including monitoring and evaluation, program management and behavior change and communication – are also included, as well as malaria-related health and community systems strengthening costs, particularly support to community case management of febrile illness, for instance, through community health workers, given the focus on expanding access to diagnostics and treatment over this period.

17. Additional detail on the methodologies used to estimate the total resource need during the replenishment period is outlined in Annexes A through C.

### **Part 3: Forecast of Other Available Resources and Remaining Gap**

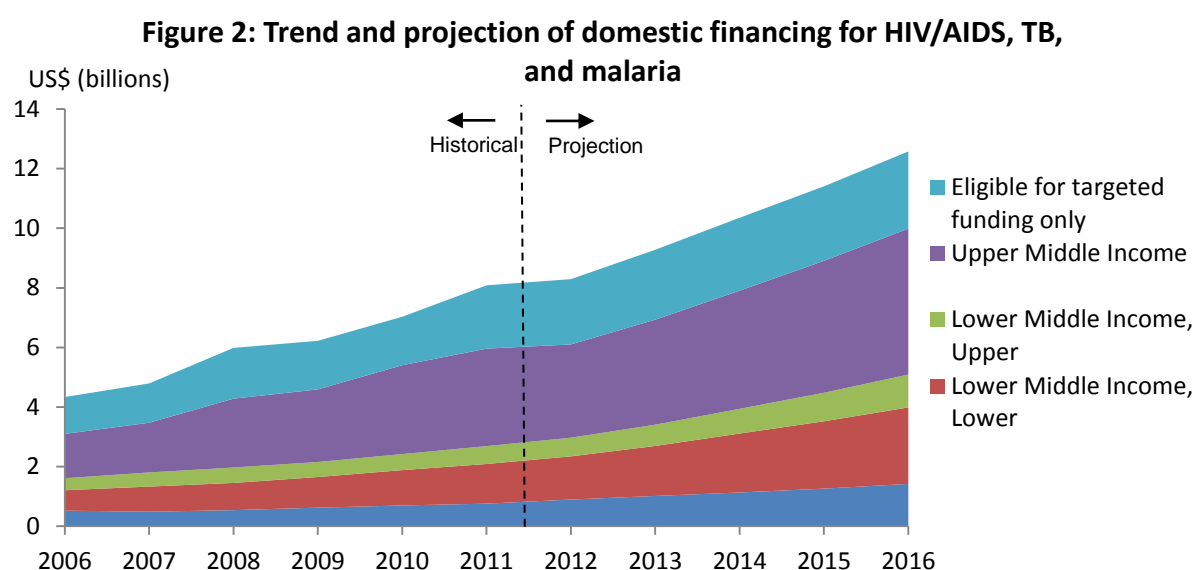
18. To assess what portion of the total need could be covered by non-Global Fund resources, the Global Fund and its technical partners developed financing projections over 2014-2016 for domestic and other external funders.

19. Multiple scenarios were considered for the potential of domestic resources to contribute to the overall financial need. Figure 1 illustrates three scenarios considered in relation to recent trends in domestic financing for the three diseases. This includes a “low” scenario where implementing countries maintain pace with their International Monetary Fund (IMF) forecasts of projected growth in general government expenditure, as well as “medium” and “high” scenarios whereby countries that currently underperform in terms of domestic funding relative to their disease burden and ability to pay improve to reach a benchmark “domestic investment priority” index by 2020. In the “medium” scenario the benchmark is set at the 50<sup>th</sup> percentile (i.e. all countries currently below the 50<sup>th</sup> percentile increase their financing at the rate necessary to achieve the 50<sup>th</sup> percentile by 2020), whereas in the “high” scenario the benchmark is the 75<sup>th</sup> percentile.



20. It might be reasonably be expected that domestic financing would increase at a rate similar to forecasted economic or government expenditure growth (i.e. the “Low” scenario). However, in order to be sustainable over the longer term, expanded financing for the fight against the three diseases cannot be the sole responsibility of external donors. The technical partners assume an increasing portion of the funding will come from implementing countries. There is currently strong momentum in domestic funding mobilization and the Global Fund will increasingly be able to leverage domestic funding through its new funding model and its iterative country dialogue. As a result, technical partners settled on the “medium” scenario based on a 50<sup>th</sup> percentile benchmark, representing ambitious but realistic assumptions that countries will continue efforts to boost domestic financing for HIV, TB and malaria programs. Partners reviewed the forecasted contributions for a sample of individual countries to ensure that these projections fit with their knowledge on the capacity of the governments to contribute additional resources.

21. As illustrated in Figure 2, this scenario assumes countries across income levels to achieve strong growth rates (represented by the gradient of the lines in the figure). At lower income levels, the increase projected is more moderate, while at upper middle income levels the increases are higher. In countries eligible only for targeted funding, the domestic funding growth is particularly high and is expected to cover most or all of the need; this is consistent with Global Fund expectations of only providing a small amount of catalytic financing in these countries to address underserved and most-at-risk populations.<sup>15</sup> But the projected growth across income levels is not out of line with what has been achieved over the last few years. For example, over 80 countries increased domestic investments for the AIDS response by more than 50 percent between 2006 and 2011.<sup>16</sup> Similarly, domestic funding for TB care and control in 104 countries increased in aggregate by over 30 percent from 2006 to 2011.<sup>17</sup> Over the same period, domestic funding for malaria control increased by nearly 40 percent.<sup>18</sup>



22. In light of recent trends (Figure 3) and continued pressure on fiscal expenditure, non-Global Fund external financing is projected to remain constant – with the exception of malaria, where a modest increase in funding is expected – amounting to approximately US\$ 8 billion per year for all three diseases combined.<sup>19</sup> While it is anticipated that programs will submit applications to the Global Fund for 2014-2016 with more updated views on external funding within their individual countries, past proposal experience has suggested that programs usually, at best, assume constant levels of funding from other donors. Thus it is expected that relatively constant other external funding is a reasonable reflection of what programs may include in their concept notes as a basis for assessing their remaining

<sup>15</sup> The Global Fund's eligibility policy restricts funding to certain countries (primarily upper-middle-income countries with less than a severe disease burden) to a limited amount that can only be used for purposes focused on underserved and most-at-risk populations and/or highest impact interventions within a defined epidemiological context (GF/B23/14 Attachment 1)

<sup>16</sup> Joint United Nations Programme on HIV/AIDS. Global Report: UNAIDS Report on the Global AIDS Epidemic, 2012. Geneva: UNAIDS, 2012.

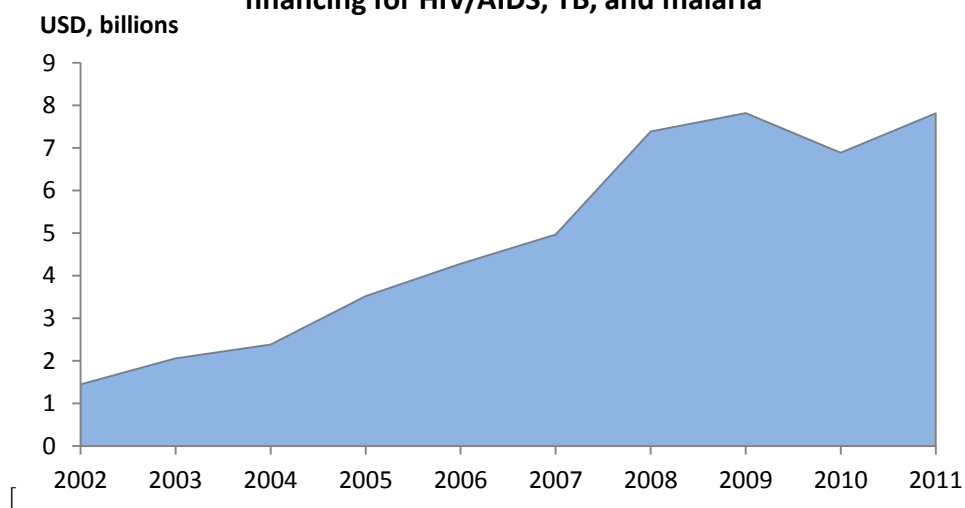
<sup>17</sup> World Health Organization. Global Tuberculosis Report, 2012. Geneva: WHO, 2012.

<sup>18</sup> World Health Organization. World Malaria Report, 2012. Geneva: WHO, 2012.

<sup>19</sup> This estimate is based on 2011 levels of non-Global Fund external financing, which were US\$ 6.7 billion for HIV, US\$ 0.2 billion for TB and US\$ 1.0 billion for malaria. (Source: UNAIDS World AIDS Day Report, 2012, WHO Global Tuberculosis Report 2012, WHO World Malaria Report 2012). For malaria, US\$ 0.2 billion was added to the annual estimates for 2014-2016 to reflect the increase in Department for International Development (DFID) funding projected in the World Malaria Report 2012.

financial need. Nevertheless, this may be an optimistic scenario given financial pressures currently facing many donors.

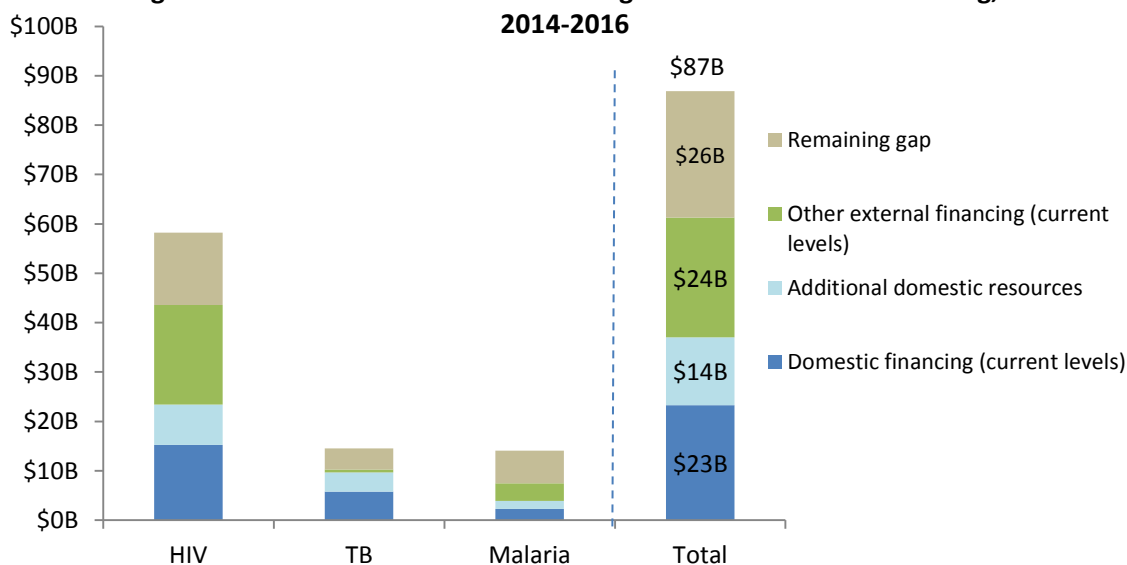
**Figure 3: Trend in other (non-Global Fund) external financing for HIV/AIDS, TB, and malaria**



23. Additional details of the methodology used to establish the domestic and other external financing estimates are included in Annex D.

24. Figure 4 illustrates the overall financial need and projected domestic resources and other external financing by disease and in aggregate. With an overall financial need of supported programs in Global Fund-eligible countries of US\$ 87 billion and ambitious increases in domestic resources, the external financing need will nonetheless amount to US\$ 50 billion during the 2014-2016 period. With non-Global Fund external funding assumed at US\$ 24 billion, the remaining external financing gap is forecast to be US\$ 26 billion.

**Figure 4: Resource needs in countries eligible for Global Fund financing, 2014-2016**

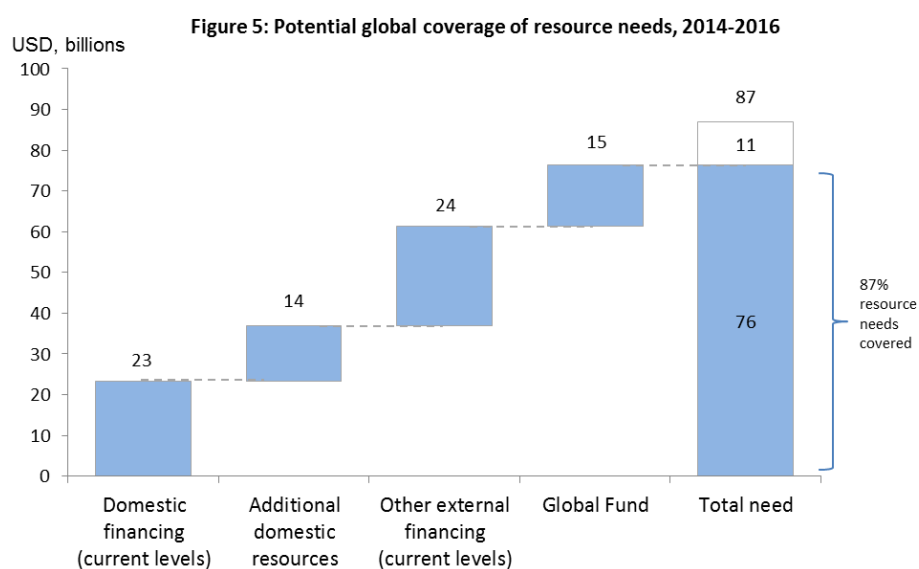




## **Part 4: Potential Impact of Meeting the Need**

25. A total of US\$ 26 billion is needed to fully fund the remaining gap in HIV, TB and malaria programs in eligible countries. The Global Fund could, in theory, be asked to finance all of the overall remaining gap if implementing countries submitted requests to cover the full unmet need.

26. At this pivotal moment in the fight against the diseases, the Global Fund needs to expand its support for programs that are in a position to make dramatic gains to save millions of lives and tens of billions of dollars in the future. A contribution of US\$ 15 billion from the Global Fund would allow the global community, working collectively, to cover 87 percent of the total funding needed to effectively fight the three diseases in the 2014-2016 period (Figure 5). Financing 87 percent of the total funding needs would extend coverage towards universal access where the returns in terms of impact on morbidity and mortality are highest. Additionally, with better prioritization of high-impact interventions, better targeting, use of scientific advances and further efficiencies in service delivery, the world will be well positioned to bring the effective contribution nearer to the full amount indicated and push towards complete control of HIV, TB and malaria.



27. For the purposes of estimating what global resources might achieve under this funding scenario, the US\$ 15 billion amount **has been divided according to the Global Fund's** historical distribution of funding across the three diseases.<sup>20</sup> Under this assumption, 87 percent, 86 percent and 85 percent of the total needs would be met for HIV, TB and malaria programs, respectively. Prioritizing funding and efficiency gain behavior would mean that attaining 87 percent of the total resource need would achieve more than its corresponding share of impact.

<sup>20</sup> **The Global Fund's traditional distribution of funding was applied** to the amount (less forecasted Secretariat operating expenses), which corresponds to 52 percent for HIV, 32 percent for malaria and 16 percent for TB. This distribution is used to approximate outcomes and impact of the proposed funding scenario, and does not represent a forecast of how funding will be distributed between the diseases in the 2014-2016 period. Work is on-going to develop a methodology for resource allocation in the 2014-2016 cycle of the Global Fund's new funding model.

28. The impact of US\$ 15 billion in funding would mark a significant gain over maintaining global funding at recent levels.<sup>21</sup> In the case of HIV and AIDS, the collective available resources would cover 87 percent of the total need. While this falls short of the resource needs projected by UNAIDS, this level of resources may get the world on track towards convergence in the rates of new infections between lower-middle income and industrialized countries by 2025, according to new work undertaken by the HIV modeling consortium under the leadership of UNAIDS. This new work shows that significant further gains could be achieved if ARV therapy were to be scaled up strategically for those eligible under the revised treatment guidelines (CD4 count below 500). Under these assumptions, more than 18 million adults eligible for treatment could be on ARV therapy by 2016.<sup>22</sup>

29. The cost for the additional people living with HIV on ARV therapy would be about US\$ 1 billion annually, which represents a less than 10 percent increase of overall cost.<sup>23</sup> A number of countries have shown to be able to achieve rapid and significant efficiency gains going beyond the assumptions described in the investment framework publication. In addition, about one-quarter of the total resource needs have been assumed to support synergistic efforts in broader development areas. That share could be reduced if other sectors step up to the plate and consequently resources could be shifted towards basic programs. It is thus reasonable to assume that, with the appropriate commitment, these additional treatment numbers could be achieved within the resource envelope described in this paper.

30. However, if global funding were to remain constant **at today's** levels, there would be a total of 2.6 million new HIV infections per year, corresponding to an average of 1.3 million more infections annually over 2014-2016 than if full scale-up were achieved. The cost of not making this investment now would reduce savings in the long term, as the funding required in 2014-2016 is largely offset by savings incurred from avoiding future treatment costs of the excess infections averted during this period.

31. For TB, under the assumption that funding would be prioritized to cover high-burden low-income countries first, a collective funding effort covering 86 percent of TB resource needs would result in 17 million TB and multidrug-resistant patients receiving care and treatment in Global Fund-eligible countries between 2014 and 2016 (see Figures 6 and 7).<sup>24</sup> With greater access to TB and multidrug-resistant treatment, almost 6 million lives would be saved over this three-year period. If, however, global funding were to flat-line over the three-year period, only around 14 million people on would be treated for TB and multidrug-resistant TB<sup>25</sup> – and consequently 1 million fewer lives would be saved compared with the proposed funding scenario.

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<sup>21</sup> Additional detail on the methodology for estimating impact is included in Annexes A-C.

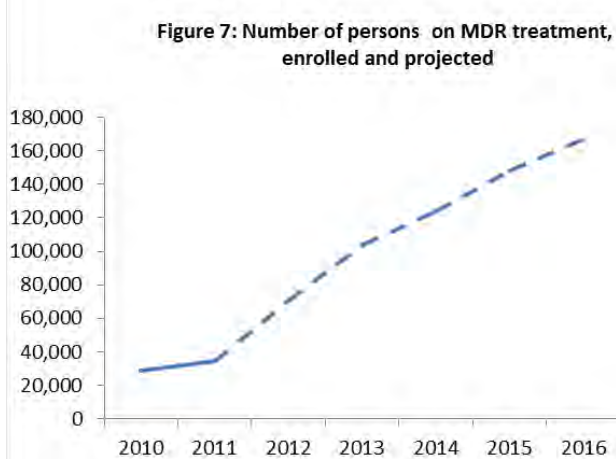
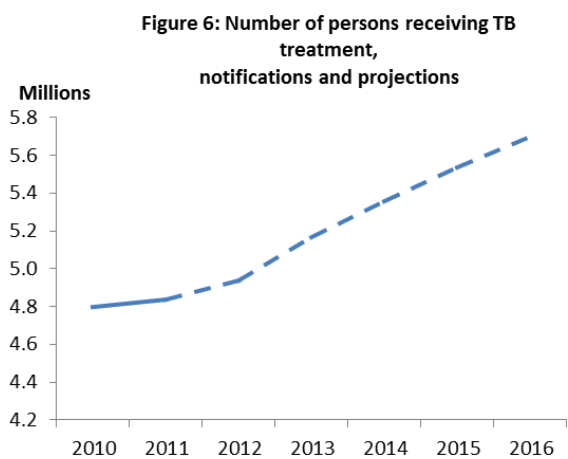
<sup>22</sup> It was not possible to produce a graph depicting number of persons on ARV therapy as the newly-revised estimates have not been published. This graph will be provided after WHO publication of the new treatment guidelines in mid-2013.

<sup>23</sup> This estimate refers to the cost across all countries, not just Global Fund-eligible countries.

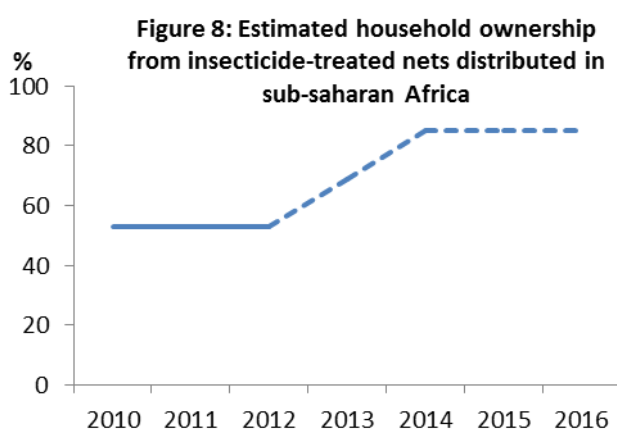
<sup>24</sup> This corresponds to 16.6 million patients receiving TB care and treatment, and 0.4 million patients receiving multidrug-resistant TB care and treatment.

<sup>25</sup> This corresponds to 14 million receiving TB care and treatment, and 0.3 million receiving multidrug-resistant TB care and treatment.





32. For malaria, the increased collective effort in funding would also lead to significant gains and fuel the drive to achieving near-zero deaths from malaria, as well as further enable progress toward elimination in certain settings. As the full funding need would not be covered, the assumption is that funding would be prioritized by targeting the highest-burden countries in order to achieve 100 percent coverage in the 18 highest-burden countries and 50 percent coverage elsewhere, as most malaria-related deaths occur in the highest-burden countries. Through this prioritization, a global effort addressing 85 percent of the funding need would result in a substantial increase in coverage in sub-Saharan Africa over the 2014-2016 period (Figure 8). As a consequence, during this period approximately 196,000 more lives would be saved per year than with current funding levels. Moreover, without an increase in funding for malaria, insecticide-treated net coverage could even decrease because the number of insecticide-treated nets delivered in 2011 and 2012 was not sufficient to protect all populations at risk or to fully replace insecticide-treated nets delivered three years earlier, likely resulting in resurgence and renewed epidemics of malaria and a potential return to 2000 levels of mortality (1.2 million deaths per year).<sup>26</sup>



<sup>26</sup> World Health Organization. World Malaria Report 2012. Geneva: WHO, 2012.



## **Part 5: Conclusion**

33. Based on consultations with key partners at the national and international levels, a total need of US\$ 87 billion is forecast for the 2014-2016 period for HIV/AIDS, TB, and malaria programs in Global Fund-eligible countries. Realistic but aggressive increases in domestic financing could cover US\$ 37 billion of this need. With external financing besides the Global Fund relatively flat at US\$ 24 billion, the remaining gap would be US\$ 26 billion.

34. If the Replenishment delivered US\$ 15 billion in financing to the Global Fund to support programs, an overall 87 percent of the total need would be covered, with similar proportions of the total HIV/AIDS, TB, and malaria needs being met.

35. Through a collective effort, additional efficiency gains and investment in high-impact interventions, the goals the international community has previously set itself in the fight against the three diseases could be within reach where an additional US\$ 15 billion in funding was provided to programs through the Global Fund partnership. By taking advantage of scientific advances and investing strategically, a concerted global effort to boost funding would deliver a decisive step towards ending the burden of HIV/AIDS, TB and malaria.

36. These estimates should serve as a catalyst for further discussion on what are realistic but ambitious targets the global community should strive to achieve in the next **replenishment period, and what the Global Fund's share should be in the collective effort to provide the financing necessary to achieve these goals.**



## **Annex A: Methodology Used for the HIV Demand and Impact Estimates**

### ***Resource Needs***

The HIV resource needs estimates for the Global Fund demand forecast were provided by UNAIDS, based on the Investment Framework for HIV/AIDS.<sup>27</sup> The Investment Framework estimates the resource needs and potential impact for 139 low- and middle-income countries for the period 2011-2020, and is intended to facilitate more focused and strategic use of resources.

Adjustments were made to the Investment Framework estimates to include only the 128 countries eligible for Global Fund support according to 2013 eligibility criteria. Of this subset, 30 upper-middle-income countries are eligible only for targeted funding from the Global Fund. To approximate the request to the Global Fund in these cases, a fixed amount of US\$ 2.5 million per year in Global Fund resources was used for the potential demand for each of these countries.<sup>28</sup>

All costs included in the Investment Framework are eligible for Global Fund financing and are included in the forecasts, including those of the six key program activities that underpin the Investment Framework. Key components of health and community systems strengthening are included in these estimates. These include components from the “critical enablers” and “synergies with the development sectors” categories of the Investment Framework model, such as community mobilization, procurement and logistics, and monitoring and evaluation. To avoid double-counting HIV/TB costs, as agreed by partners, ARV therapy costs for HIV-positive TB patients are included in the HIV estimates and excluded from the TB estimates. Costs related to testing HIV patients for TB using Xpert are included in the TB estimates and not under HIV.

Health and community system strengthening costs are embedded in the costs for providing the basic program services and are also included in “critical enablers” and “synergies with the development sectors” categories of the Investment Framework model. It is important to recognize that costs for health and community system strengthening are captured differently in the estimates for each disease. Efforts will continue to build the evidence base on the health and community systems funding needs for each of the diseases.<sup>29</sup>

The epidemiology projections in the Investment Framework model are built from assumptions on coverage scale-up reported in 2009-2010 by national programs and build on country-specific estimates to produce projected treatment needs at a global level.

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<sup>27</sup> The Investment Framework as described by Schwartländer et al is available at: <http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2811%2960702-2/abstract>. The methodology is described in detail in the paper’s web appendix.

<sup>28</sup> Based on the precedent set in Global Fund’s Round 10 MARPS channel and the policy for targeted funding described in the Eligibility, Counterpart Financing, and Prioritization policy.

<sup>29</sup> Ongoing work on costing community health work needs, and the associated impact on overall costs and effectiveness of disease programs from addressing these funding needs, is one example of the work that the Global Fund will work with partners to incorporate in future forecasts.

The demand estimates model the resources needed to increase from 2011 levels of coverage to achieve universal access target coverage levels by 2015 and maintain them thereafter.<sup>30</sup> Universal coverage for ARV therapy is defined as 80 percent of those eligible for treatment given that a proportion of the eligible population are outside of the health system, refuse to take treatment, or cannot take treatment due to other conditions.

**The Investment Framework's targets are ambitious but realistic as they are based on the best available evidence on what works in HIV prevention, treatment, and care and benefit from rigorous, country-by-country analysis.** In addition to proposing a clear, achievable roadmap to reach universal access targets, the Investment Framework assumes significant cost savings as a result of market dynamics and changes to more efficient service provision modalities, particularly through community-based approaches. For example, the average cost per patient on first-line ARV therapy is forecast to decline by approximately 65 percent between 2010 and 2020 based on past trends in ARV prices and the possibility of less-expensive drug combinations and diagnostic tests. Service delivery costs are assumed to decline faster in low-income countries than in middle-income countries as the latter are unlikely to switch to community-based models.

Information on the unit costs of providing services is based on published literature and four regional workshops on resource needs that engaged experts from 58 countries in 2009. Cost estimates are based on a provider perspective. Figures are expressed in 2009 constant dollars but incorporate inflation-adjusted costs.

### ***Impact***

The Goals model, developed by the Futures Institute, was used to assess the impact of the selected program activities on the epidemic. The model considers male and females aged 15-49 years divided into six groups: not sexually active, low-risk heterosexual (one partner), medium-risk heterosexual (more than one partner in the last year), high-risk heterosexual (female sex workers and male clients), men who have sex with men, and people who inject drugs. The model includes a component to estimate the effects of prevention interventions on key behaviors based on a summary of the impact literature.

Goals models had been prepared for 23 high-burden countries, which together account for 77 percent of the total HIV burden. Information for this model was updated with the latest coverage information from the national 2010 United Nations General Assembly Special Session (UNGASS) reports and with unit costs from the UNAIDS regional resource needs workshops and AIDS2031 activities. Estimates of new HIV infections and AIDS deaths were extracted for the 23 countries and scaled up to obtain global estimates.

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<sup>30</sup> Specific coverage targets are provided in the Lancet web appendix.

## **Annex B: Methodology Used for the TB Demand and Impact Estimates**

### ***Resource Needs***

The TB resource needs estimates for the 2014-2016 Global Fund demand forecast were developed by WHO and build upon the Global Plan to Stop TB 2011-15,<sup>31</sup> which sets out annual funding needs for three major components of TB care and control: DOTS diagnosis and treatment for drug-susceptible TB; diagnosis and treatment of multidrug-resistant TB; and collaborative TB/HIV activities required to jointly address the TB and HIV epidemics. Key 2015 targets from the Global Plan include: 6.9 million TB cases diagnosed, notified and treated, 100 percent of previously treated TB patients tested for multidrug resistance, 20 percent of new TB patients tested for multidrug-resistant TB (equivalent to all those considered at high risk of having multidrug-resistant TB), and 100 percent of TB patients tested for HIV.

In the Global Plan, multidrug-resistant TB accounted for the biggest increase in resource needs between 2011 and 2015. Since the Global Plan was developed, WHO has endorsed a new rapid diagnostic test (Xpert MTB/RIF) in December 2010; funding needs for Xpert MTB/RIF were not explicitly estimated in the Global Plan.

The demand forecast is based on the resources needs of countries eligible for TB funding from the Global Fund (118 of the **Global Plan's 149 low-** and middle-income countries). Of this subset, 16 upper-middle-income countries are only eligible for targeted funding from the Global Fund. To approximate the request to the Global Fund in these cases, it was suggested that a theoretical ceiling of US\$ 2.5 million per year be applied to each of these countries.<sup>32</sup> However, for each of the targeted countries, once domestic financing was accounted for, the remaining gap was less than this ceiling; therefore no adjustments were necessary in practice.

To ensure that the demand forecast is based on targets that are ambitious but realistic, a workshop jointly organized by the Global Fund, the Stop TB Partnership and WHO with support from the Bill & Melinda Gates Foundation and USAID was held in January 2013 with country teams from nine high TB burden countries representing a mix of income and epidemiological settings. The nine countries were Ethiopia, Kenya, India, Indonesia, Kazakhstan, Nigeria, Pakistan, South Africa and Ukraine; collectively, they account for about 60 percent of TB cases and multidrug-resistant TB cases among the 118 countries eligible to apply to the Global Fund. The workshop was used to review and discuss targets for scaling up diagnosis and treatment of TB and multidrug-resistant TB, taking into account the baseline of 2012 and non-financial constraints to scale-up; to define updated targets for 2013–2016 where appropriate; and to set out targets and associated funding requirements for 2013-2016, using the WHO TB planning and budgeting tool.

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<sup>31</sup> The Global Plan to Stop TB 2011-15 is available at: [http://www.stoptb.org/assets/documents/global/plan/TB\\_GlobalPlanToStopTB2011-2015.pdf](http://www.stoptb.org/assets/documents/global/plan/TB_GlobalPlanToStopTB2011-2015.pdf). The Global Plan's methodology annex is available at: [http://whqlibdoc.who.int/publications/2006/924159487X\\_eng.pdf](http://whqlibdoc.who.int/publications/2006/924159487X_eng.pdf)

<sup>32</sup> Based on the precedent set in Global Fund's Round 10 MARPS channel and the policy for targeted funding described in the Eligibility, Counterpart Financing, and Prioritization policy.

During the workshop, the focus was on three major components of TB care and control for which resources are needed: 1) treatment of multidrug-resistant TB; 2) use of rapid diagnostics to detect TB and drug-resistant TB, and associated laboratory strengthening; and 3) resources needed for inpatient and outpatient care during treatment that are not part of TB-specific budgets. The rationale for prioritizing the first two components was that they accounted for the biggest share of the increase in funding requirements between 2011 and 2015 estimated in the Global Plan, and that they are the components of the original global estimates for which there was greatest uncertainty in terms of actual country plans for scale-up. The reason for focusing on resources needed for inpatient and outpatient care was that this can represent an important share of the funding needed for TB care, and the workshop was a good opportunity to verify or update information previously reported to WHO.

Following the workshop, the targets for scaling up detection and treatment for TB and multidrug-resistant TB in the nine countries were summarized and compared with the targets established in the Global Plan to Stop TB, 2011-2015. This showed that:

- the targets for scaling up detection and treatment of TB were in line with the targets set in the Global Plan;
- the targets for scaling up treatment of multidrug-resistant TB reached about 80 percent of the 2015 target set in the Global Plan, but in terms of resource needs this was offset by higher estimates of unit costs for multidrug-resistant TB treatment in Africa than initially estimated in the Global Plan.

On this basis, resource needs for treatment of TB and multidrug-resistant TB for the 109 remaining countries that are eligible to apply to the Global Fund were based on the country-specific estimates for 2013–2015 already used for the Global Plan, and then extended to 2016.

For diagnosis of TB and drug-resistant TB specifically, Global Plan estimates were updated for the remaining 109 countries. These revised estimates were produced by extrapolating from the plans for scaling up the use of rapid diagnostics and associated laboratory strengthening set out by the countries that came to the workshop. Two approaches were explored: a) extrapolation from India, which had the most detailed and well-developed plan among the nine countries that attended the workshop, with suitable adjustments for the relative number of people to be tested; and b) extrapolation for each country by using data from the country among the nine to which it was considered most similar. Both approaches produced similar results.

All implementation costs from the Global Plan to Stop TB are eligible for Global Fund financing and are included in the forecast. Estimates have been revised to include the scale-up of rapid diagnostics for TB and drug-resistant TB using Xpert MTB/RIF, which was endorsed by WHO in December 2010. For South Africa specifically, the cost of treatment for extreme drug-resistant TB was updated to allow for the use of a newly-approved drug, bedaquiline. Research and development costs are not eligible and are excluded from these estimates.



Health and community systems strengthening costs included in the Global Plan to Stop TB are included in the demand forecast. Examples include the staff, infrastructure and overhead costs associated with providing inpatient and outpatient care for TB patients in general primary care facilities; some renovation/construction of facilities to support the treatment of multidrug-resistant TB and infection control for TB care; training of staff related to TB; and in countries where community-based referral and patient support are part of the national strategy for TB care and control, resources required for community-based care. Health systems costs that are relevant to TB resource needs but not captured in these estimates include building of new health care facilities; training to increase the supply of new health care and community health workers; vital registration that needs to be strengthened in many countries to improve measurement of TB mortality among other causes of death; and infection control in hospital wards or outpatient clinics that are not specific to TB care. It is important to recognize that costs for health and community system strengthening are captured differently in the estimates for each disease. Efforts will continue to build the evidence base on the health and community systems funding needs for each of the diseases.<sup>33</sup>

To avoid double-counting HIV/TB costs with those in the HIV demand forecast, partners agreed that resource needs for ARV therapy for HIV-positive TB patients were specifically excluded from the TB estimates, as they are included in the HIV estimates.

Following the Global Plan approach, the demand estimates are based on provider costs and an "ingredients" approach (intervention quantity multiplied by unit price). Both the estimates drawn directly from the Global Plan and those taken from the workshop are adjusted for inflation at a rate of 3 percent per year.

Unit costs were sourced from the Global Plan to Stop TB and the TB demand forecast workshop. For the nine countries that participated in the workshop, funding needs are based on the latest information about costs in these countries. For all countries, the funding needs reflect the recently-negotiated (August 2012) unit price for Xpert MTB/RIF cartridges (US\$ 9.98, down from around US\$ 18 when the technology was first endorsed at the end of 2010).

## ***Impact***

Methods for estimating impact are based on those previously agreed with the Global Fund for the purposes of the Global Fund Strategy 2012–2016 and that have been used in the Global Fund results reports as well as the 2012 WHO Global Tuberculosis Report.

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<sup>33</sup> Ongoing work on costing community health work needs, and the associated impact on overall costs and effectiveness of disease programs from addressing these funding needs, is one example of the work that the Global Fund will work with partners to incorporate in future forecasts.

For every 100 patients treated for TB in a DOTS program, it is estimated that 33 lives will be saved. For HIV-negative TB patients, the comparison is with a 70 percent death rate without treatment among new smear-positive pulmonary cases and a death rate of around 20 percent without treatment among people with other types of TB, with an overall death rate of about 40 percent. It is assumed that all HIV-positive TB cases would die from TB without TB treatment. For multidrug-resistant TB treatment, it is assumed that for every 100 patients treated, 50 lives will be saved.

The numbers of patients treated for drug-susceptible TB in DOTS programs and the numbers of patients treated for multidrug-resistant TB are based on a) the targets set out by the nine countries that attended the TB demand forecast workshop; and b) the targets included in the Global Plan for the remaining 109 countries.

## **Annex C: Methodology Used for the Malaria Demand and Impact Estimates**

### ***Resource Needs***

The malaria resource needs estimates in the Global Fund 2014-2016 demand forecast build on the WHO 2008 Global Malaria Action Plan, which sets out the annual funding required to achieve the 2015 goals of the Roll Back Malaria Partnership.<sup>34</sup> WHO and RBM updated these figures through a dual **approach: 1) For African countries, RBM's Harmonization Working Group** hosted two workshops where 45 of the 48 Global Fund eligible countries updated their comprehensive programmatic gap analyses for the 2013-2016 period.<sup>35</sup> 2) For 41 of the 56 non-African countries eligible for Global Fund malaria funding, consultants from Results for Development conducted desk research to update the Global Malaria Action Plan figures with available information, including Global Fund proposals and national strategic plans (where available) for 12 countries, including the eight countries with the highest financial need.<sup>36</sup>

All implementation costs in the Global Malaria Action Plan and programmatic gap analysis are eligible for Global Fund funding. Key costs include vector control (long-lasting insecticidal nets and indoor residual spraying), and case management (diagnostic testing and treatment). To incorporate new approaches and technologies, the estimates take into account the latest resource needs estimates on artemisinin resistance, including financing needs for containing resistance in Mekong countries and resistance testing in Africa. The estimates factor in an additional 30 percent to indoor residual spraying costs to account for more expensive insecticides used in rotation to forestall insecticide resistance. Given the uncertainty on the extent to which the RTS,S vaccine may reach market during this period, resources for a potential vaccine have not been included in these initial estimates. Research and development costs are not eligible for Global Fund funding and are thus excluded from demand forecasts.

Health and community systems strengthening costs as outlined in the Global Malaria Action Plan are included in the malaria demand forecast. A fixed amount has been estimated for the costs of health staff, infrastructure and overhead costs associated with providing inpatient and outpatient care for malaria patients in health facilities; in-service training of staff related to malaria; and in countries particularly in Africa, the resources required for the rollout and implement integrated community case management. Malaria-related health management information systems support and procurement and supply chain systems financing are also included. It is important to recognize that costs for health and community system strengthening are captured differently in the estimates for each disease. Efforts will continue

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<sup>34</sup> The 2008 Global Malaria Action Plan (GMAP), methodology annex, resource mobilization report, and 2011 targets update are available at: <http://www.rbm.who.int/rbmgmap.html>. The 2012 World Malaria Report is available at [http://www.who.int/malaria/publications/world\\_malaria\\_report\\_2012/en/index.html](http://www.who.int/malaria/publications/world_malaria_report_2012/en/index.html)

<sup>35</sup> Djibouti, Cape Verde and Eritrea were not able to attend either workshop.

<sup>36</sup> The resource needs for 15 countries are relatively minimal and therefore were not costed in this exercise.

to build the evidence base on the health and community systems funding needs for each of the diseases.<sup>37</sup>

During the workshops, coverage targets were updated for African countries with the latest figures from national plans, taking into consideration absorption constraints. For non-African countries, the basic structure of the Global Malaria Action Plan model<sup>38</sup> was retained, with the following adjustments made:

- Allowed the introduction of country-specific target populations for vector control in place of the Global Malaria Action Plan **model's default target population of all people at any risk of malaria**.<sup>39</sup> The most important change was that target populations for vector control were reduced for India, Indonesia Pakistan, Bangladesh, and the Philippines to those targeted in their national plans. Changing the target populations for India and Indonesia alone accounted for nearly half of the reduction in vector control costs between the original Global Malaria Action Plan estimates and the revised figures. In all countries where vector control target populations were reduced, total vector control (long-lasting insecticidal nets and indoor residual spraying) coverage levels were increased to 100 percent, where these had been lower in the Global Malaria Action Plan, to be consistent with national plans in aiming for high coverage of vector control for smaller, defined, high-risk populations.
- Delayed the year in which an assumed decline in incidence begins to reduce the need for diagnosis and treatment from 2012 in the original model until 2014, as scale-up is not complete in most countries.
- Reduced the decline in need for diagnosis from fully proportional to decline in incidence to half-proportional. Especially in relatively low-incidence settings, declining malaria incidence will not produce a proportionate fall in fevers requiring diagnosis. Some reduction may eventually occur as more regions are considered malaria-free and routine testing of all fevers is suspended.
- Delayed the scale-up of rapid diagnostic test coverage so that it reaches 50 percent only in 2016 in all countries except India (where coverage is estimated at 30 percent in 2016). Coverage of other interventions is assumed to be complete before 2014 (in the original model scale-up occurred between 2009 and 2011). Recent experience in Africa suggests that net coverage can be scaled up rapidly with mass distribution campaigns. But rapid diagnostic test coverage, which is more dependent on the health system, is likely to take longer.

The estimates are based on provider costs and an "ingredients" approach (intervention x unit price). They are adjusted for inflation at a rate of 3 percent per year.

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<sup>37</sup> Ongoing work on costing community health work needs, and the associated impact on overall costs and effectiveness of disease programs from addressing these funding needs, is one example of the work that the Global Fund will work with partners to incorporate in future forecasts.

<sup>38</sup> The Global Malaria Action Plan model estimates the need for the major interventions in each country, multiplies by fully loaded unit costs, adds modest amounts for a range of programmatic costs, then scales up coverage to high levels

<sup>39</sup> In Myanmar, Cambodia, Viet Nam, and Thailand, the Global Fund adopted the target populations used in the resistance-containment costing which were also lower than total population at risk.

The unit prices used for key commodities and their distribution are as follows: For long-lasting insecticidal nets, all countries based their costs on US\$ 3.30 per net at the factory gate, plus US\$ 2.50 for shipping and distribution, for a fully loaded cost per net of US\$ 5.80. For indoor residual spraying, in non-African countries the **Global Malaria Action Plan's** US\$ 7.75 per household was assumed, except for US\$ 5 for countries in the Asia-Pacific region and US\$ 3-5 for India and similar countries with a long history of indoor residual spraying, as indoor residual spraying costs vary greatly by country, housing characteristics and other local factors. For African countries, indoor residual spraying unit prices were based on country-specific implementation estimates. For ACTs, costs used for African countries were US\$ 0.80 per ACT course, plus US\$ 0.20 for distribution. This cost is an average of formulations for different weight bands, but the ratio of child to adult malaria cases is in general much higher in Africa than in the rest of the world. Therefore, for non-African countries the costs used were US\$ 1.20 for adult course and US\$ 0.60 for course for children under 5. For rapid diagnostic tests, costs of US\$ 0.70 per test, plus US\$ 0.30 for distribution, were used for African countries. These estimates are based on Pf-only tests, and the combination tests required by most countries outside Africa are more expensive. Based on an analysis of the **Global Fund's Price and Quality Reporting** database, it was estimated that recent prices paid for combination rapid diagnostic tests were about 30 percent higher than those paid for Pf-only tests. Therefore, rapid diagnostic test costs for non-African countries were assumed to be US\$ 0.90 per test. All commodity costs are considered stable over the three-year period. Other costs for the African countries are based on country-specific cost estimates.

### ***Impact***

WHO obtained estimates of the share of households owning at least one long-lasting insecticidal net in 2012 from nationally representative household surveys (DHS, MICS or MIS). If a household survey was not conducted in 2012, estimates of long-lasting insecticidal net coverage were derived using a model developed by Flaxman *et al.*<sup>1</sup> which takes into account results of previous household surveys, the number of long-lasting insecticidal nets procured from manufacturers and the number of long-lasting insecticidal nets distributed by national malaria control programs.

In order to estimate the total number of lives saved, the number of malaria deaths that would occur without any long-lasting insecticidal nets 2014-2016 was estimated, then the number of malaria deaths that would occur under the funding scenarios (85 percent funding covered and flat funding). The number of lives saved under each funding scenario was then derived by subtraction.

### *Estimating the number of malaria deaths 2014-2016 with no long-lasting insecticidal nets.*

This was accomplished in two steps:

1. The number of malaria deaths in 2010 was derived from estimates made in the World Malaria Report 2012.<sup>4</sup> The number of deaths assumed to occur if there were no insecticide-treated nets in 2010 was estimated to be:

The estimated impact of long-lasting insecticidal nets for 2014-2016 was derived from the estimate for 2010 and assumed to grow in line with population growth. The formula is as follows:

$$D_0 = D_{2006} / ((1 - X_{2010}) + X_{2010} * E)$$

Where:

- $D_0$  = deaths due to malaria in 2010 if no insecticide-treated nets in a country
- $D_{2010}$  = malaria deaths estimated to occur in a country in 2010 in World Malaria Report 2012
- $X$  = percent of households owning at least one insecticide-treated net, as derived from a model of insecticide-treated net coverage developed by Flaxman *et al*
- $E$  = effectiveness of owning at least one net in reducing malaria-specific mortality in children under 5 years of age. Assumed to be 55 percent, as derived from a review of randomized control trials by Eisele *et al*.<sup>2</sup> (this parameter can be varied in the spreadsheet model).

2. The number of malaria deaths for years 2014 to 2016 without an insecticide-treated net was derived from the estimate for 2010 and assumed to grow in line with population growth.

### *Estimating the number of malaria deaths averted 2014-2016.*

The number of malaria deaths averted in each year was derived from the percentage of households with at least one insecticide-treated net as below:

$$V = D_i * X_i * E$$

Where :

- $V_i$  = Deaths averted in year i
- $D_i$  = Deaths due to malaria in year i if no insecticide-treated nets in a country
- $X_i$  = Percentage of household owning at least one net in year i
- $E$  = effectiveness of owning at least one net in reducing malaria specific mortality in children under 5 years of age.

This assumes that children living in households with nets have the same risk of dying from malaria as children in households that do not receive nets. In practice, nets may be distributed to households with lower prior risks of malaria.

To estimate the potential impact under constrained resources, the following options for prioritization were developed:

A: No targeting - each country achieves 85 percent coverage.

B: Nigeria, Democratic Republic of the Congo and Tanzania reduced so that they account for only 7 percent of total insecticide-treated nets each (a budget cap that results in 85 percent coverage overall).

C: Targeting to highest burden countries – 50 percent coverage in the 27 countries with lowest burden and 100 percent elsewhere (resulting in 85 percent coverage overall).

As Options A and C depict two extremes of the range (evenly spread across countries vs. highly targeted), the average of the two options was selected to estimate the impact of 85 percent resource needs covered.





## **Annex D: Methodology Used for the Domestic and Non-Global Fund External Financing Estimates**

### ***Domestic financing***

Estimates of the domestic funding in Global Fund-eligible countries that could be mobilized up to 2016 for HIV, TB and malaria were produced in collaboration with Oxford Policy Management and technical partners. These projections are based on a methodology applied to HIV estimates when the HIV investment framework was developed in 2010-2011.

The projections of domestic funding were based on government funding data (including loans) reported to WHO and UNAIDS. The baseline year used was 2011, since this was the most recent year for which reliable data have been reported. Estimates were imputed for countries where data were not available. All of the projections are expressed in US\$ at current prices, which includes inflation. Note that the baseline and, thus, projections for domestic financing for malaria does not include government spending on general health expenditures related to malaria programs.

Three options were developed to forecast domestic resources for HIV, TB and malaria. In the first, domestic funding was assumed to grow in line with IMF projections of the growth in general government expenditures.

The second and third options were developed from an observation of the priority that each country gives to the domestic financing of the three diseases. This was expressed in the form of an index of domestic investment priority (DIPI), which scales the level of domestic expenditure by both the overall government budget and by the disease burden for each of the diseases.<sup>40</sup> The underlying normative assumption for this approach is that lower-spending countries have the potential to move closer to the average level of spending in other countries. This additional reallocation in the lower-spending countries results in a higher global forecast of domestic expenditure. There is no corresponding adjustment in the currently high-spending countries.

In the second option, domestic funding was assumed to grow in line with IMF projections of the growth in general government expenditures *and* resources were reallocated such that **currently “underperforming” countries reach the median value of the DIPI by 2020. The third option was similar to the second except that “underperforming” countries reach the 75<sup>th</sup> percentile of the DIPI over the same period.**

For each of the diseases, domestic expenditure projections were capped by the level of estimated resource need in each country to ensure that they would not exceed the resource need within the projection period.

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<sup>40</sup> The index was constructed by dividing the actual domestic expenditure by the product of government budget and disease burden per capita. The measures used for disease burden are population prevalence rate for HIV, prevalence rate for TB, and incidence rate for malaria.

Because expanded financing for the fight against the three diseases cannot be the sole responsibility of external donors, technical partners assumed that an increasing portion of the funding will come from implementing countries. Moreover, domestic funding has increased significantly in recent years and there is currently strong momentum in further domestic resource mobilization. **As a result, technical partners settled on the “medium”** scenario based on a 50<sup>th</sup> percentile benchmark, representing ambitious but realistic assumptions that countries will continue efforts to boost domestic financing for HIV, TB and malaria programs.

### ***Non-Global Fund External Financing***

As the trajectory of external funding sources is often difficult to predict, non-Global Fund external financing is projected to remain constant at 2011 levels except where reliable information is available to forecast a change.

For TB, non-Global Fund external financing was estimated using data reported to WHO in the last few years combined with specific information about USAID allocations to countries in 2012. USAID is the single largest bilateral donor for TB; data reported to WHO each year suggest that other donor contributions are relatively small.

For HIV, UNAIDS provided 2011 levels of non-Global Fund external financing for all low- and middle-income countries.

For malaria, the volume of non-Global Fund external financing in 2011 is estimated from the 2012 World Malaria Report. An additional US\$ 0.2 billion was included in the annual estimates for 2014-2016 to reflect the increase in DFID funding projected in the World Malaria Report 2012.



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