RESULTS FOR DEVELOPMENT

PEPFAR

Financing National AIDS Responses for Impact, Fairness, and Sustainability

Highlights from a Review of 12 PEPFAR Countries in Africa

Results for Development Institute

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This document contains key sections from a longer report, which also includes 12 country chapters and a statistical appendix. The full report, "Financing National AIDS Responses for Impact, Fairness, and Sustainability," can be obtained upon request from April Williamson: awilliamson@r4d.org.

I. Executive Summary

I. Objectives

The purpose of this review is to provide the President's Emergency Plan for AIDS Relief (PEPFAR) with critical strategic information that can support the design, monitoring, and implementation of Partnership Framework Implementation Plans (PFIPs). The report focuses on the 12 largest recipient countries of PEPFAR funding to date: Botswana, Côte d'Ivoire, Ethiopia, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zambia.

Broadly speaking, the review seeks to examine key issues and options related to the following question:

To what extent can these countries increase domestic resources for AIDS and what implications could that have for PEPFAR financing in the future?

II. Analytical Approach

The overall study is made up of a cross-country review, a profile on each of the 12 countries, and a related statistical appendix.

The study includes a retrospective review that analyzes how each of the 12 countries has been spending domestic resources on HIV/AIDS. The study develops a framework and a set of related indicators for assessing government domestic financial commitment to AIDS. This framework is then used to compare levels of domestic financial contribution to AIDS programs across countries, as well as against several normative reference points. As part of the retrospective review, PEPFAR allocations to these countries are examined in relation to indicators of country need, country ability to pay, and country financial effort.

The study includes a forward-looking analysis that examines the medium-term funding needs for AIDS programs in the 12 countries and the potential for each country to increase its level of domestic financing to meet those needs. The study then assesses the gaps between projected resource needs and domestic resource availability under a number of scenarios. The review evaluates the implications of these scenarios and gaps for future PEPFAR financing.

The study also examines the adequacy of current approaches to tracking the financial resources allocated to AIDS for monitoring progress in meeting commitments under PFIPs.

III. Main Findings and Recommendations

Overview

The main findings and recommendations of this review are summarized below, discussed briefly in this Executive Summary, and elaborated on in the main text. They are grouped into three areas: financial burden sharing, allocation of PEPFAR resources, and data and tools for decision making.

A. Financial Burden Sharing

- Domestic AIDS spending falls short of benchmarks for 'fair share' in most countries.
- All countries have the fiscal space to contribute a larger amount of money to their AIDS programs from domestic resources and some, especially the upper-middle-income countries, should be able to move over the coming years to finance their AIDS programs entirely from domestic resources.
- The total resources needed by these 12 national AIDS programs are continuing to grow and are projected to be US$7.26–US$9.51 billion annually by 2016, compared to US$6.10 billion that was estimated to have been required (less was actually spent) in 2012.
- Even if countries provide the maximum 'fair share' domestic financing of their AIDS programs, many of them, particularly low-income, high burden countries, will continue to need substantial external support for some time.
- It will be difficult politically to achieve the maximum domestic financing targets that were assessed in this review. However, achieving the targets even partially would represent important progress in the 12 countries.
- PEPFAR could help countries to set and achieve more ambitious domestic funding levels and support robust financing for national programs in general by

  (a) generating and publishing better data on its own AIDS expenditures;

  (b) supporting efforts to establish more accurate and up-to-date national baseline expenditures;

  (c) working to enhance the quality and consistency of estimated AIDS resource needs;

  (d) reviewing, discussing, and agreeing with countries on financing scenarios, 'fair and sustainable' benchmarks

like those included here, and reasonable targets in PFIPs; and by

(e) providing countries with more predictable, medium-term estimates of future PEPFAR financing.

B. Allocation of PEPFAR Resources

- A variety of factors are taken into account in setting PEPFAR allocations to individual countries. These include disease burden, country income, performance, the history and strength of U.S. relations with the host government, and other variables.
- As countries take greater ownership of their AIDS programs, PEPFAR could make use of the tools developed for this study to identify allocation patterns that could give greater weight to the burden of HIV disease in different countries and the ability of those countries to finance their AIDS programs from domestic resources.
- Such an approach would allow PEPFAR to continue to support the large unmet financial needs for AIDS across highly impacted countries, particularly in low-income, high-burden nations, and would also bring the Global Fund and PEPFAR closer to following a common approach to resource allocation.

C. Data and Tools for Decision Making

- The data on AIDS expenditure, generally collected through National AIDS Spending Assessments (NASAs) or National Health Accounts (NHAs) HIV Subaccounts, tend to be several years old and thus are not well suited for planning or monitoring PFIPs.
- PEPFAR has an opportunity to develop with its partners other resource tracking approaches such as 'NASA- lites', in which only the top two or three sources of funding are measured. This could produce expenditure data in a routine and more timely way. PEPFAR's new Expenditure Analysis (EA) tool will be a valuable input into such an effort.
- Costed estimates of countries' future AIDS programs are not done consistently and produce varied results. PEPFAR should continue to work with UNAIDS and low- and middle-income countries to apply a common methodology.
- In combining resource tracking with estimates of future AIDS funding needs, it would be useful for PEPFAR to develop a standardized tool for budgeting PFIPs and monitoring performance. In the process of doing so, PEPFAR and its partners will need to harmonize divergent PEPFAR and government programmatic and budget categories.
- 'NASA-lites' should only be an interim solution. Eventually, government cost accounting systems and routine reporting, as well as PEPFAR and Global Fund expenditure tracking systems, should be improved to the point that they can adequately capture in a timely and routinized manner the resources allocated to AIDS.

Each of these findings is discussed further below.

Key Findings and Recommendations

A. Financial Burden Sharing — the Potential for Increasing Domestic Funding and Implications for PEPFAR

A central element of this study was to examine the extent to which countries could increase their contribution of domestic resources to their AIDS programs. The study then examined the implications of such increases for the need for PEPFAR financial resources.

The first part of the analysis of domestic resources was a retrospective review of the financing of AIDS in the 12 countries. The financing of AIDS in each country was assessed against a variety of benchmarks and metrics. An analysis was also carried out of how the countries compared to each other in meeting these benchmarks.

One key metric included government health expenditure (GHE) as a share of gross domestic product (GDP). Another was government expenditure on health as a share of total government expenditure (GGE). We also examined the extent to which government expenditure on health as a share of total government spending met the benchmark of the 'Abuja target' — an agreement among African Ministers of Health that 15% of total government expenditures should be allocated to health. The first column in Table 1 (GHE/GGE) shows how close each country is to reaching the 15% Abuja target.

A second set of metrics involved government expenditure on AIDS from domestic resources (GAE) as a share of GDP and as a share of government health expenditure (GHE). We compared the share of the health budget devoted to fighting AIDS with the share of the total disease burden due to AIDS in the country (measured in Disability Adjusted Life Years or DALYs). We used this comparison to form another benchmark: the 'DALY share target' — in which countries are assumed to allocate AIDS funds in their health budget equal to the share of AIDS in their burden of disease. This comparison is shown in columns 2 and 3 (GAE/GHE compared to AIDS DALY share) of Table 1.

We also calculated for each country a metric known as the AIDS Domestic Investment Priority Index (DIPI). The 'UNAIDS DALY DIPI' compares the burden of disease from AIDS as a share of the total burden of disease with domestic expenditure on AIDS as a percentage of total government revenues (GGR). Another similar DIPI metric used throughout this study is called the 'health

expenditure-based DIPI'. Instead of comparing burden from AIDS with domestic AIDS spending as a percentage of government revenue, it compares the disease burden of AIDS with domestic spending on AIDS as a percentage of government health expenditure (GHE). These metrics are important in answering the question, "is country X making an effort to pay for its AIDS program in a manner that is proportional to the weight of AIDS in the country's total burden of disease?"

It is important to note that unlike the DALY share and Abuja targets, the DIPI is not a normative benchmark. That is, the usefulness of the two DIPI indicators is in the ability to compare DIPI scores across countries, not to compare the DIPI scores of any one country to a 'target' DIPI score. For this reason, Table 1 below, shows countries' DIPI rankings rather than their actual DIPI scores.

As can be seen in Table 1, many countries are falling behind the normative benchmarks (the Abuja target and DALY share target). Only four countries are meeting or exceeding the Abuja target of devoting 15% of general government expenditure (GGE) to health: Rwanda, Tanzania, Zambia, and Botswana. Furthermore, only two countries (Uganda and Kenya) come close to meeting the DALY share target. On the UNAIDS DALY DIPI ranking, the best performers are Botswana, Uganda, and Rwanda, while on the health expenditure-based DIPI, Uganda, Kenya, and Rwanda perform the best. South Africa, Côte d'Ivoire, Tanzania, and Mozambique consistently perform the worst on both DIPI metrics.

Overall, the main conclusion of this part of the analysis was that domestic spending on AIDS falls short of benchmarks for 'fair share' in most countries. In addition, while the upper-middle-income countries are financing substantial shares of their AIDS programs, the low-income and lower-middle-income countries are very dependent on external financing. Many low-income and lower-middle-income countries provide a very small amount of domestic resources for their AIDS programs.

The study reviewed the financial resources that would be needed from 2012-2016 to address AIDS in each country. Where data was available, this was done based on three sources which provide a range of the most authoritative estimates of future AIDS funding requirements across the countries: a National Strategic Plan (NSP); the UNAIDS Investment Framework; and the aids2031 'Hard Choices' scenario. The use of these sources is explained in detail in the main text.

The study then compared these future resource needs with the funds that countries could raise for HIV/AIDS over the next five years in three different ways: from general

Table 1: Country Health Expenditure Ratios, AIDS Expenditure Ratios, and DIPI Rankings

Country	Govt Health Expenditure/Total Govt Expenditure (GHE/GGE)	Govt AIDS Expenditure/ Govt Health Expenditure (GAE/ GHE)	AIDS DALY Share (AIDS DALYs/ALL DALYs)	UNAIDS DALY DIPI Ranking	Health Expenditure-Based DALY DIPI Ranking
Low-Income and Lower-Middle-Income Countries					
Côte d'Ivoire	5%	4%	11%	10	9
Ethiopia	10%	5%	7%	4	4
Kenya	5%	22%	24%	8	2
Mozambique	14%	1%	22%	12	12
Nigeria	8%	3%	6%	7	7
Rwanda	16%	7%	10%	3	3
Tanzania	15%	2%	18%	11	11
Uganda	10%	19%	19%	2	1
Zambia	17%	10i%	30%	6	8
Upper-Middle-Income Countries					
Botswana	17%	36.0%	51%	1	5
Namibia	13%	25.7%	47%	5	6
South Africa	10%	11.8%	41%	9	10

economic trends (the country's overall expected economic growth and growth in total government expenditures, as predicted by the World Bank); from increasing their spending on health to meet the Abuja target of 15% of government expenditure (while keeping their AIDS spending a constant share of their health expenditure); and from meeting the DALY share target by allocating government funds for AIDS in the health budget proportional to the share of the total burden of disease attributed to AIDS (while keeping their health budget a constant share of total government expenditure). The projected AIDS resource needs and domestic AIDS expenditures were further compared to a benchmark for 'feasible' government AIDS expenditure as a percentage of the country's total GDP. Several recent studies have determined that it is reasonable for a country to expend approximately 2% of GDP on AIDS — a benchmark which only Botswana meets, and all other countries in this study are far below.[1,2]

This part of the analysis suggests that all 12 countries could allocate larger amounts of domestic resources to their AIDS programs. Increasing domestic spending in line with economic trends alone over the period 2012-2016 would generate about US$260 million in additional domestic financial resources that could be used for AIDS programs, a rise from the current baseline of US$1.95 billion to US$2.21 billion.

If, over the next 5 years, countries adopt some combination of the two strategies analyzed here, on top of the effects of economic trends alone — that is, increase health spending as a share of the national budget (in line with Abuja goals), and/or spend on AIDS from the health budget in proportion to the share of overall DALYs lost due to AIDS — the 12 countries together could increase annual domestic contributions from US$2.21 billion annually to US$3.27–US$5.67 billion a year, covering 33%-70% of their combined resource needs for AIDS. This would be a very substantial move away from country dependency on donor assistance, toward greater national self-sufficiency.

The estimated financing gap is smallest under the most optimistic case based on the UNAIDS Investment Framework resource needs estimates, coupled with countries meeting both the Abuja target of 15% of total government expenditure and the DALY share target by making government expenditure on AIDS proportional to the burden of disease from AIDS (meeting both of these targets forms the 'max spending' scenario). In this case, the annualized external funding requirement could drop to US$2.20 billion, significantly below the current US$3.29 billion in PEPFAR financing. However, even in this optimistic situation, PEPFAR would still need to provide about two-thirds of what it is currently spending in the 12 countries, in order to fill the overall financing gap.

In the most pessimistic case, in which government AIDS spending only rises with increases in overall government expenditure and GDP, and total funding needs are those expressed in the countries' National Strategic Plans, external funding requirements (the 'gap') could be as large as US$7.31 billion, nearly double what PEPFAR has allocated to the 12 countries in recent years.

The size of the funding gap and the need for PEPFAR and other external assistance will vary from country to country, depending on which methodology is used for estimating future resource needs and on the fiscal measures adopted by the countries to generate more domestic financing.

Table 2 below illustrates for the 12 countries under review the resources needed for AIDS programs in these countries according to the National Strategic Plan estimates, how domestic expenditure would grow in line with two funding scenarios, and the resulting funding gaps. For the sake of simplicity, Table 2 only compares the future needs for financial resources with the amount that would come from economic growth alone (the 'economic trends' scenario) and the amount that would be available if countries meet both the Abuja target and the DALY share target (the 'max' scenario).

Under the 'max' scenario examined in the table, the countries left with the largest funding gap, as a percentage of their resource needs, would be Ethiopia, Rwanda, and Uganda. The countries with the smallest funding gap, as a percentage of their total resource needs, would be Botswana, Namibia, and South Africa.

While there may be scope for each of the 12 countries to increase its domestic financial contribution to the national AIDS effort, the political and fiscal challenges of doing so should not be underestimated. There are many obstacles to be overcome — including rigid budgeting practices that make it hard to reallocate revenues toward AIDS; the limited analytical and advocacy capacity of AIDS and health officials to make the case to their counterparts in finance ministries for more funds; and deeply ingrained perceptions by finance and other senior government officials that "donors will take care of the AIDS program," as indeed donors have done over the past decade.

In this light, it will be extremely challenging for the 12 countries to achieve the maximum targets outlined in this study. However, even moving partway in this direction would represent important progress in some countries.

The above analysis suggests that PEPFAR should help countries to set and work toward the achievement of more ambitious domestic funding levels for their AIDS

[1]Markus Haacker and Elizabeth Lule, "The Fiscal Dimension of HIV/AIDS in Botswana, South Africa, Swaziland, and Uganda", The World Bank, 2012.

[2]Brian Williams and Eleanor Gouws. "Affordability, cost, and cost effectiveness of universal anti-retroviral therapy for HIV". 2012.

Table 2: Country Domestic AIDS Expenditures, Resource Needs, and Resulting Funding Gaps (US$ Millions), Yearly Averages for 2012-2016					
Country	**Resource Needs (National Strategic Plan)[1]**	**Govt AIDS Expenditure (Econ. Trends)[2]**	**Govt AIDS Expenditure (Max Share)[3]**	**Funding Gap as Share of Resource Needs (%) (Econ. Trends)[4]**	**Funding Gap as Share of Resource Needs (%) (Max Share)[4]**
Low-Income and Lower-Middle-Income Countries					
Côte d'Ivoire	$177	$12	$108	93%	39%
Ethiopia	$855	$48	$101	94%	88%
Kenya	$1,054	$141	$456	87%	57%
Mozambique	$574	$8	$186	99%	68%
Nigeria	$879	$118	$579	87%	34%
Rwanda	$263	$19	$29	93%	89%
Tanzania	$816	$17	$222	98%	73%
Uganda	$756	$84	$133	89%	82%
Zambia	$507	$83	$256	84%	50%
Upper-Middle-Income Countries					
Botswana	$354	$268	$354	24%	0%
Namibia	$275	$111	$241	60%	12%
South Africa	$3,005	$1,297	$3,005	57%	0%

1. Resource Needs Estimates annualized over 2012-16, as costed in countries' National Strategic Plans (NSPs)
2. Projected government AIDS expenditure annualized over 2012-16, adjusted for economic trends only (changes in GDP and overall government expenditure)
3. Projected government AIDS expenditure if governments were to meet a combination of the Abuja target scenario (increasing the ratio of health expenditure to total expenditure to 15%) and the DALY share scenario (increasing the ratio of AIDS expenditure to health expenditure to equal AIDS' share of disease burden), annualized over 2012-16
4. The annualized funding gap, as a percentage of total unmet resource needs, over 2012-16 between total resource needs and government AIDS expenditure

programs. In practice, this means deepening collaboration with national officials, the Global Fund, and other external partners, through PFIPs and other instruments, to ensure that financing plans for AIDS programs are based as much as possible on sound assessments of resource needs and on the fiscal capacity of each country to contribute to its AIDS programs. It is also important that national AIDS financing plans and targets for government and external donors be based on an agreed notion of what burden sharing arrangements are 'fair', and on metrics that allow for measuring each party's actual performance, plus appropriate processes for enforcing accountability.

However, even if countries provide the maximum fair share of domestic resources, many of them, particularly low-income and high burden countries, will continue to need substantial external support for their AIDS programs for some time to come.

B. Allocation of PEPFAR Resources

B.1. Past Allocations

The study reviews the allocation of PEPFAR resources across the 12 countries over time. There are a number of criteria that are considered in setting the PEPFAR allocation to any country, including its epidemiology and resulting funding required to effectively fight AIDS, availability of domestic and other outside funding, past implementation performance, the history of relations between PEPFAR and the country's government, and larger goals of US foreign policy.

The analysis in this study assesses the extent to which PEPFAR has obligated its funding in line with the countries' relative AIDS funding needs and their ability to pay for their AIDS programs from domestic resources, and to what extent it has considered other variables.

It would be preferable to analyze PEPFAR expenditures rather than obligations, but actual spending data are not yet routinely recorded or collected in a manner that permits analysis. This will change with the implementation of the new PEPFAR Expenditure Analysis (EA) tool in 2013. For this paper, PEPFAR obligations, which are broken down by programmatic area in each country's annual country operating plan (COP), were the best available proxy for actual spending.

PEPFAR's planned expenditures of US$14.5 billion from 2006 to 2010 were examined against three variables: per capita income, disease burden, and Gross National Income (GNI) per person living with HIV (PLHIV), a composite metric that combines need and ability to pay.

If PEPFAR spending were driven purely by country need, we would expect to see PEPFAR spending per PLHIV to be highest in low-income countries like Ethiopia and Mozambique and lowest in middle-income countries such as Botswana and Namibia. The actual pattern is different, as shown in Figure 1. Among low-income countries, Rwanda has a commitment per PLHIV of US$722, four times the commitment to Ethiopia and almost five times the per PLHIV allocation for Mozambique. Among the middle-income countries with similar per capita income, Namibia has a PEPFAR commitment per PLHIV more than 6 times that of South Africa. As mentioned earlier, a variety of factors might account for these variations.

As also seen in Figure 1, one can also compare PEPFAR support levels to country need for external funding as measured by Gross National Income (GNI) per PLHIV. Countries with greater GNI per PLHIV have greater ability to pay domestically for their AIDS programs. If PEPFAR allocated its funds on the basis of this measure, one would expect COP obligations per capita to have an inverse shape (falling from left to right in the graph) — higher for countries with low GNI per PLHIV and lower for countries with high GNI per PLHIV. As seen in the figure below, the actual Country Operational Plan (COP) obligations per capita (height of bars) follow a different pattern. Some of the PEPFAR allocations in favor of the more affluent countries may be explained by higher unit costs for interventions, especially higher labor costs for health workers and other personnel. There may also be issues with achieving economies of scale in countries with small populations, such as Botswana, Namibia, and Rwanda.

In examining the relative allocation of PEPFAR funding across countries, it is also important to consider the financial support of other donors, especially the Global Fund. As seen in Table 3, it appears that, among these 12 countries, the per capita allocation of donor aid from the Global Fund runs in the same direction as PEPFAR spending. Many of the countries where the Global Fund plays a more significant role are also countries where PEPFAR financial outlays have been larger, such as in Namibia, Rwanda, and Zambia.

B.2. Implications for Future PEPFAR Financing

If a limited amount of PEPFAR funding is available, and there is an interest in considering different options for allocating this funding pool, a series of variables including the disease burden of AIDS and country ability to pay, as expressed through GNI per capita, could be used to develop indicative shares of PEPFAR funding for each country. This is where a composite measure like GNI per PLHIV could be one tool to help shape decisions on allocating scarce PEPFAR funds. Of course, such a division of PEPFAR funding across countries would have to be adjusted for other factors mentioned earlier, including past performance, the strength of national institutions (and thus the country's ability to absorb and manage the funds efficiently), and other geopolitical

Figure 1: PEPFAR Funding 2006-2010 Compared with GNI per PLHIV

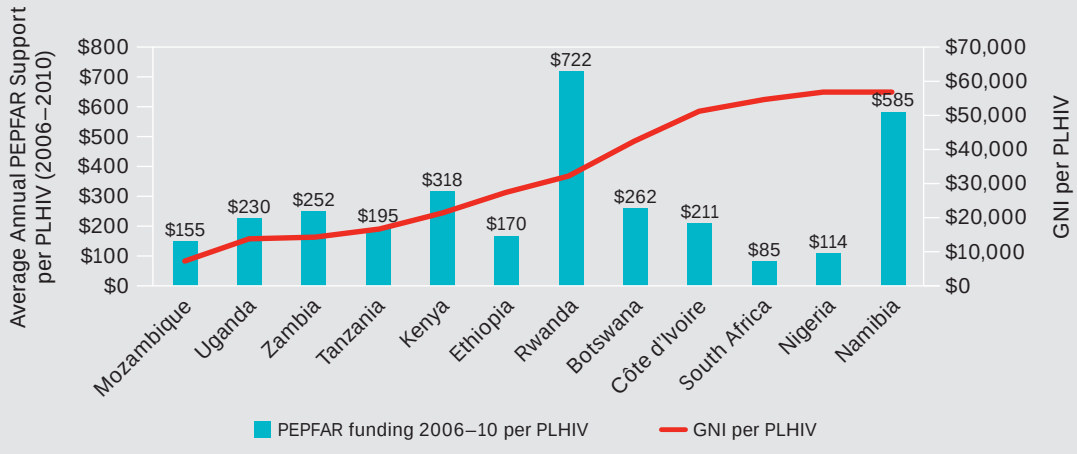


Table 3: PEPFAR and Global Fund Financing 2006-2010					
World Bank Income Category	**Country**	**Annualized PEPFAR 2006–2010 (US$ Millions)**	**Annualized PEPFAR per PLHIV 2006-2010**	**Annualized GF 2006–2010 (US$ Millions)**	**Annualized GF per PLHIV 2006–2010**
Upper-middle	Botswana	$81	$262	$2	$7
	South Africa	$466	$85	$54	$10
	Namibia	$94	$585	$38	$211
Lower-middle	Nigeria	$364	$114	$33	$10
	Côte d'Ivoire	$99	$211	$7	$15
Low	Zambia	$236	$252	$66	$68
	Kenya	$445	$318	$19	$13
	Rwanda	$116	$722	$27	$161
	Tanzania	$274	$195	$102	$73
	Uganda	$253	$230	$31	$26
	Mozambique	$201	$155	$23	$16
	Ethiopia	$271	$170	$185	$155
	Total	**$2,899**	**$164**	**$587**	**$33**

considerations. Country needs – a blend of disease burden, ability to pay with domestic resources, and remaining funding gaps after accounting for other outside sources of financing – should be seen as one input, among several, in the overall determination of the shares of the PEPFAR budget channeled to each country.

In addition, the fiscal space analysis done for this report could point the way to estimating what might be the maximum fair and sustainable financial effort that national governments could make to their AIDS programs. This could set a target for domestic financing in the PFIPs and help in defining the remaining gap that PEPFAR and other external sources could strive to fill, within their financial means and taking into account relative priorities across different countries.

C. Data and Tools for Decision Making

C.1. Available Data and Tools

It is vitally important that PEPFAR and national governments have systems and processes to generate and use in a timely way quality data on HIV and AIDS spending. This includes data on past AIDS expenditure and data on the future costs of a country's AIDS program. It is also important that there be good data on the planned and budgeted amounts that can be expected to come from key sources, including national governments, PEPFAR, and other funding sources.

Timely and reliable data are also essential for negotiating and setting the financial targets in PFIPs, monitoring actual spending, and developing detailed financial plans and budgets for national AIDS programs, which reflect anticipated funding from PEPFAR, national governments, and other major sources and can be broken down by geography (province, district, etc.) and programmatic area (e.g., prevention of mother to child transmission, male circumcision, adult treatment, etc.). Without such data, the PFIPs cannot be used to develop and monitor financial commitments and improve accountability for financial and programmatic results in national AIDS programs.

As this study shows, data on past AIDS expenditures are inadequate in their timeliness and sometimes in their quality. Much of our analysis of past and current domestic financial performance relies on data from NASAs and NHAs, as well as Public Expenditure Reviews (PERs) and Country Progress Reports submitted to UNAIDS for periodic United Nations-hosted reviews of country and donor performance (UNGASS Country Progress Reports). Some of these sources contain high quality data. There are also many cases of lower quality or suspect data, as the country profiles in this study can attest. PEPFAR officials have argued that for a number of countries, NASA and

NHA figures on US government spending tend to underestimate the level of PEPFAR financial support. Moreover, the NASA and NHA data are published 2-3 years after the end of the budget period being covered, and are thus not very useful for setting financial targets and monitoring financial performance under PFIPs.

The new PEPFAR Expenditure Analysis (EA) tracking tool, due to generate the first comprehensive country spending reports in 2013, should help to get a better picture of actual PEPFAR expenditure. In addition, some promising work is under way in some of the countries to track government spending for AIDS on a routine basis using national budget tracking systems.

Another challenge to using high quality data for decision making is that different resource needs estimates (RNEs) vary substantially, and sometimes dramatically, for the same country. They produce a wide range of numbers that make it challenging to assess gaps and project fair financial burden sharing among the key parties. National Strategic Plans (NSPs) have in-built upward biases in most countries, since they are used to advocate for funds from national finance ministries and donors, and are highly variable across countries. The kinds of projections done by UNAIDS and by independent expert groups such as aids2031 may be more politically neutral, but do not always reflect local priorities, are not always customized to country-specific unit costs, and can also become outdated if not repeated regularly.

C.2. Implications for PEPFAR

Generating more accurate and timely AIDS financing data for the planning, implementation, and monitoring of PFIPs will require the development of new tools, such as 'NASA-lites.' Table 4 shows the 7 countries for which there was sufficient information on the specific sources of external financing. As shown in the table, in most of these countries more than three-quarters of all AIDS spending comes from three sources or less — PEPFAR, the Global Fund (GF), and the national government. (Mozambique is an outlier, in that it also had a number of other external partners). If spending by the three main sources is tracked and integrated using algorithms to 'cross walk' spending from one organization's spending categories to the others, it may be possible to produce a consolidated AIDS expenditure report for each country relatively soon after the end of the financial year. This is currently being tested in South Africa for PEPFAR and national government spending, which together are estimated to amount to 85% of total spending on HIV/AIDS.

There would also be an opportunity for better monitoring expenditure on HIV/AIDS if PEPFAR would harmonize its budget categories with those of recipient governments, as noted earlier, and if PEPFAR would develop a common approach and related set of tools for budgeting, planning, and monitoring commitments in the PFIPs.

National Strategic Plans for HIV/AIDS and related spending projections also need to become more standardized, so that national governments, PEPFAR, and other donors can plan and manage activities together in a more coherent and efficient way. The UNAIDS investment framework offers one methodology for doing so. As additional AIDS service coverage and unit cost data emerge in many countries, as has happened in recent years, the technical underpinnings for these national resource needs estimation exercises should also become more solid.

Table 4: Major Funding Sources of Selected PEPFAR Recipient Countries

Country	Funding Sources Contributing >10%	% of Total: GF and USG Spending	% of Total: GF, USG, and Government Domestic Spending
Low- and Lower-Middle-Income Countries			
Mozambique	USG	40%	44%
Nigeria	USG, GF, DFID, GoN	51% (71% w/ DFID)	76% (96% w/ DFID)
Rwanda	USG, GF, GoR	80%	90%
Tanzania	USG, GF, GoT	80%	92%
Zambia	USG, GF, GoZ	69%	98%
Upper-Middle-Income Countries			
Namibia	USG, GF, GoN	48%	97%
South Africa	USG, GF, GoSA	10%	85%

Moreover, with PEPFAR now beginning to project five years of indicative funding levels in their Partnership Framework Implementation Plans, and the Global Fund giving countries three year indicative financial envelopes for HIV as part of its new funding model, country governments should have fewer incentives to inflate their estimates of resource needs. Medium-term expenditure frameworks, published by countries' ministries of finance, can also include three-year projections of domestic public spending for HIV/AIDS. With these figures in hand from PEPFAR, the Global Fund, and national governments, a solid and credible AIDS financing plan can be constructed. In any country, the impact of any changes in PEPFAR funding levels on health systems and capacity to maintain necessary services must be carefully considered.

Beyond these promising recent developments, the application of a formula to shape the allocation of money across countries by the Global Fund could mean that financial burden sharing in the future might largely be driven by such formulas. This would diminish somewhat the value of conducting national AIDS spending requirement exercises. All of this would place the focus more squarely on fair donor allocations across countries and fair burden sharing between national governments and PEPFAR/Global Fund *within* countries. Once these allocations are made on a clear and transparent basis, countries and donors could then focus more of their attention on designing and implementing the most efficient and equitable HIV/AIDS programs possible, in order to maximize the number of HIV infections averted and lives saved.

II. Cross-Country Review

I. Overview

In order to support the design, monitoring, and implementation of Partnership Framework Implementation Plans, this report provides PEPFAR with critical strategic information regarding domestic and external financing of AIDS programs in the 12 largest recipient countries of PEPFAR funding (Botswana, Côte d'Ivoire, Ethiopia, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zambia). It focuses on countries' historical domestic commitment to AIDS programs and their ability to finance these programs in the future. Utilizing available epidemiologic and economic data, the study includes a comparative retrospective review of AIDS financing to establish the baseline situation and a forward-looking analysis of AIDS program financing under alternative scenarios defined by a set of normative benchmarks for domestic contribution.

As part of this effort, the report provides the most up to date information regarding:

- historical trends in the level and source of funds for AIDS expenditures;
- the priority that countries have attached to allocating domestic financial resources to their AIDS programs, relative to their peers and relative to normative benchmarks;
- medium-term projections of resource needs for each country's AIDS program;
- quantitative estimates of each country's potential to finance a greater share of their AIDS programs from domestic (public) resources; and
- corresponding implications for PEPFAR.

The retrospective review analyzes how much each of the 12 countries has been paying to combat AIDS. Drawing upon current theory and methods for evaluating domestic financial commitment to health priorities, we develop a framework and a set of related indicators for assessing government AIDS expenditure. We then use this framework to compare levels of domestic financial contribution to AIDS programs across countries, as well as against several normative reference points. We also look at PEPFAR allocations among these countries in relation to indicators of country need, ability to pay, and country effort.

In the forward-looking analysis, we report the best estimate of the medium-term funding needs for AIDS programs and assess the potential for each country to increase its level of domestic AIDS financing to meet those needs. After estimating how much more money could be mobilized from domestic sources and how this would compare with past efforts and with future AIDS funding requirements, we discuss implications for PEPFAR. Given expected resource needs and elevated domestic effort, we examine the resource gaps and the extent to which PEPFAR might consider different ways to allocate its financing in some countries under various scenarios. We also discuss the adequacy of current approaches to tracking the financial resources allocated to HIV for monitoring progress in meeting commitments to Partnership Framework Implementation Plans.

II. Background

II.A. The Fiscal Challenge of AIDS Programs

Flows of aid earmarked for AIDS programs have increased dramatically in the past decade, with very substantial positive impacts on national AIDS programs that have been widely documented [1]. External aid committed to recipient countries over the past decade has enabled the delivery of antiretroviral therapy (ART) to more than six million people, preventing millions of deaths. However, it has also created a situation in which high levels of recurrent spending will be required for several decades, both to meet the lifetime treatment needs of current patients and to undertake and sustain any expansion in treatment. The unacceptability of discontinuing ART in patients whose survival demands it renders these large spending requirements 'quasi-liabilities' — long-term fiscal obligations similar to social programs, such as retirement pensions [2].

Similarly, the multi-billion dollar flows of external assistance have enabled many countries to substantially expand their HIV prevention programs, including targeted packages of interventions for high-risk groups such as sex workers, persons who use drugs, and men having sex with men. Linked to this, many countries have made important progress in expanding condom promotion, male circumcision, and prevention of mother-to-child transmission. Subsequently, and perhaps partially as a consequence, the rate of new infections has fallen in dozens of low- and middle-income countries. If financing for these activities is not sustained, progress in reducing the number of new infections could be reversed.

Despite these major accomplishments, the unprecedented expansion of international financing for HIV/AIDS in the past decade may be hitting a plateau. In the context of changing political leadership and global economic slowdown, many in the development community are concerned about the extent to which external financing for AIDS, including PEPFAR, can be sustained. The financial requirements appear even more daunting when considering the goals featured in most countries' National Strategic Plans for HIV, which typically involve extending the benefits of ART to all those who need it and increasing the scale of high priority prevention activities.

In this context, countries must assess prospects for future external aid, and their own domestic fiscal space, as they prioritize, plan, and mobilize resources for AIDS program activities. PEPFAR's leaders must at the same time consider carefully how to best allocate scarce US government financial resources for AIDS, in order to maximize impact on the epidemic, while simultaneously encouraging heavily affected countries to pay for as much of their national AIDS responses as is fair and sustainable.

II.B. Role of Partnership Frameworks

According to the guidance document for Partnership Frameworks (PFs), the 2008 reauthorization of PEPFAR (Public Law 110-293) included calling on the USG "to establish framework documents with partner countries to promote a more sustainable approach, characterized by strengthened country capacity, ownership, and leadership." The stated purpose of Partnership Frameworks is "to provide a 5-year joint strategic framework for cooperation between the USG, the partner government, and other partners to combat HIV/AIDS in the country through technical assistance and support for service delivery, policy reform, and coordinated financial commitments." As a result of PFs, country governments will be "better positioned to assume primary responsibility for the national responses to HIV/AIDS in terms of management, strategic direction, performance monitoring, decision-making, coordination, and, where possible, financial support and service delivery."

Taken together, the guiding principles for Partnership Frameworks point to PFs that (1) increase 'country ownership' by improving alignment of external aid with the country's national priorities and migrating to countries the operational responsibility for scaled-up AIDS programs in a rational, organized, and progressive manner; (2) clarify the USG medium-term commitment to bilateral AIDS program support, so as to reduce uncertainty among national policymakers and planners; and (3) increase domestic contributions to AIDS programs in ways that are fair and sustainable.

PEPFAR's recent initiative pursuing PFs to govern the next phase of bilateral support with recipient countries is consistent with the recommendations of many development experts. It is well recognized that improving the predictability of aid commitments and disbursements over the medium term greatly improves the ability of national policymakers to take a long-term view and productively leverage external commitments [3] [4]. Additionally, at least to the extent that donor and recipient priorities overlap, such frameworks ensure better alignment of external funding with resource gaps faced when striving to reach national policy goals.[5]

Notwithstanding the reality that most health aid is at least partially fungible both within and across sectors [6-8], it may also be possible through a framework mechanism to identify particular programmatic areas, activities, or types of funding for which the donor has a comparative advantage. For example, donor funds may be more productively spent procuring tradable goods such as medications, supplies, and equipment, than providing salary support for health workers. Likewise, there may be situations in which it is preferable for the donor to fund investment costs and the national government to fund recurrent program costs, especially if the investment costs involve a one-off outlay of capital, such as for buildings and equipment, which does not have to be repeated. Additionally, there may be programs for which political realities make domestic financing challenging, and external aid may be particularly useful in enabling programs, such as prevention efforts among stigmatized groups,

Guiding Principles for Partnership Frameworks

1. Country ownership
2. Sustainability
3. Support for country coordination of resources
4. USG interagency collaboration
5. Engagement and participation
6. Strategic framework
7. Flexibility
8. Progress towards policy reform and increased financial accountability
9. Integration of HIV/AIDS into strengthened health systems and broader development agenda
10. Monitoring and evaluation (M&E)
11. Collaborative but not contractual
12. Transparency
13. "Do no harm"

and ultimately catalyzing domestic support [4]. In some cases, national governments may seek a medium-term continuation of external funding for a new or technically challenging AIDS service, such as male circumcision, where the external financing may be accompanied by specialized technical assistance or training. If successful, Partnership Frameworks will not only ensure that the gains of the last decade are maintained, but also increase the value of AIDS programs by improving alignment of funding with national strategic planning objectives and enabling donor resources to be allocated where they have a comparative advantage.

II.C. Information Requirements for Partnership Framework Negotiation and Monitoring

To develop a Partnership Framework that is fair and financially sustainable requires an understanding of national strategic goals for AIDS, the current 'baseline' state of the AIDS response in the country, the current levels and historical trends in domestic and external funding for AIDS, and the projected fiscal space for domestic support of the AIDS program. Sound PFs also require projections of programmatic activities in the medium-term, according to a National Strategic Plan, and corresponding estimates of the cost of those activities.

Downstream of the PFs, the US government and the developing country governments signing the Frameworks are also designing joint 'Partnership Framework Implementation Plans' (PFIPs) that set more specific financial targets for the coming five years. Ideally, these PFIPs should project the level of financial commitments from the national government, PEPFAR, and other domestic and external sources, by year, AIDS program area, and sub-geography within the country (province, district, etc.). Countries must be able to track, measure, and report program outputs and actual spending by different sources, including government, PEPFAR, and other donors, so that agreed cost-sharing arrangements are followed in practice. The PFIP should also define a process by which PEPFAR and the national authorities can jointly monitor and examine actual spending patterns, in order to assess compliance with PFIP financial and other commitments; and a related process for more collaborative and integrated annual financial planning and budgeting consistent with the PFIP five year financial projections. As a practical matter, since (with the single exception of UK's DFID in Nigeria) the only other external source contributing more than a 10% share of AIDS program funds in the 12 countries reviewed is the Global Fund to Fight AIDS, TB, and Malaria, it would make sense to systematically coordinate with the Global Fund during the negotiation and monitoring of PFs and PFIPs.

This overview and the accompanying country profiles examine the quality, coherence, completeness, and timeliness of the financial tracking systems and tools currently in place, and consider ways that these can be improved.

III. Analytical Framework

Our analysis consists of two major sections:

(1) a retrospective review of financing for AIDS programs, comparing countries to one another and to selected benchmarks; and

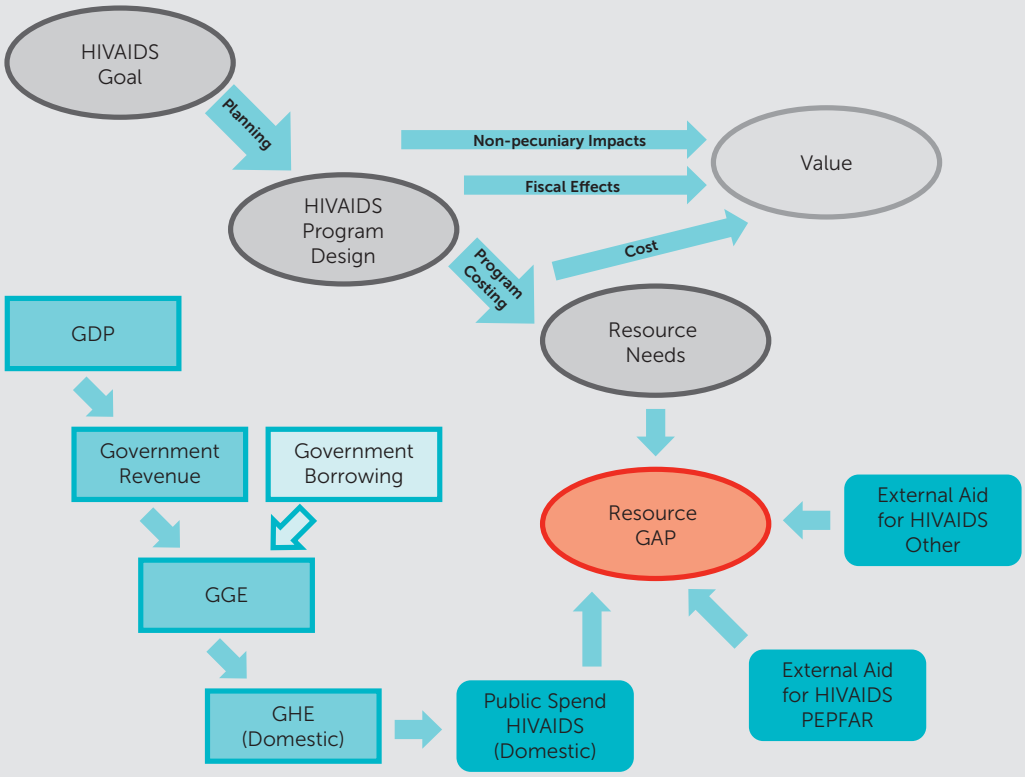
(2) a forward-looking analysis of AIDS program resource requirements, based on epidemiological trends and programmatic targets (national strategic goals), an assessment of the potential for increasing domestic financing of AIDS programs, and the implications for future external financing, especially from PEPFAR.

These analyses follow the logic model diagrammed in Figure 1 in which the resource needs of programs designed to meet national AIDS control goals are matched against the level and sources of AIDS financing. Domestic funds for AIDS flow through a cascade of hierarchical pools of funds that start with country income. Within this overall country income constraint, the size of these pools for government revenue, total government expenditure, health expenditure, and AIDS expenditure are largely a function of policy choices. But, at each lower level the resource allocation decisions are constrained by the decision at the level above. So, AIDS spending levels depend heavily on health spending and overall government size. The potential for growth in the domestic contribution is evaluated, taking into account the projected changes in national income, government expenditure, and health spending.

While national AIDS programs are multi-sectoral, the vast majority of required interventions and financial resources are typically located in the health sector. Thus, our emphasis in this paper is on health budgets and expenditures. It is also worth noting that in many countries, government health expenditure is complemented by private health expenditure—much of which is out-of-pocket household spending. Our analysis does not consider private spending on health generally or AIDS specifically, as these types of spending are not governed by PFs.

Where costed national strategic plans (NSPs) for AIDS exist, we used these resource needs estimates (RNEs) in the analysis. In most cases, it was necessary to extrapolate NSP-based RNEs to cover the 5-year time horizon of our analysis, 2012-2016. For some countries, the resources needed to achieve the objectives of a national strategic plan (NSP) for AIDS have not been credibly estimated. In that case, we supplemented the NSP-based analysis with analysis based on RNEs that were calculated in two

Figure 1: AIDS Financing Model



GDP = Gross Domestic Product, GGE = General Government Expenditure, GHE = Government Health Expenditure

previous efforts to model the longer term costs of AIDS programs: the aids2031 project and the UNAIDS Investment Framework [9, 10]. In addition to filling a data gap for countries without costed NSPs, the use of a common RNE model enables a consistent comparison across countries.

There exists no well-accepted normative standard for what level of domestic spending on AIDS represents a 'fair' or 'affordable' share of program financing. When assessing the levels of domestic contribution to AIDS programs, quantifying how much a country could afford, and estimating the corresponding level of 'need' for external support to fill funding gaps, we used several reference points. Key among them is the 'Abuja target' for public sector health spending, which African leaders agreed in 2001 should reach 15% of total government expenditure.

Another reference point is the share of a country's disease burden that is due to AIDS. While the most recent data from the WHO Global Burden of Disease studies is from 2004 and based on underlying data that is over a decade old, new 2010 estimates, by country, based on recent data and a significantly enhanced methodology are being prepared. The analyses in this report can be updated upon their release, if there are significant changes in the AIDS share of the total burden of disease in the countries being considered here.

IV. Country Characteristics and GNI per HIV Infection

IV.A. Income

The 12 original PEPFAR focus countries have a wide range of income levels, AIDS burdens, and population sizes (Table 1). Three countries, Namibia, South Africa, and Botswana, are classified by the World Bank as upper-middle-income (UMI), with 2010 gross national income (GNI) per capita (Atlas method) of US$4500, US$6090, and US$6790, respectively. Nigeria and Côte d'Ivoire are lower-middle-income (LMI) countries with GNI per capita around US$1200, and the rest are low-income (LI) countries with GNI per capita ranging from a low of US$390 in Ethiopia to a high of US$1070 in Zambia[1].

[1]Zambia was a low-income country until 2011. For our historical analysis Zambia is treated as a low-income country. In forward-looking analysis, countries are not grouped by income category, but it should be noted that Zambia is at the cusp of lower-middle-income during this time period.

At the highest level, a country's AIDS spending is constrained by income level. However, to get a more refined picture of the government's ability to pay for AIDS programs, especially in the short-to-medium term, one might consider the size of government and the share of government spending that is allocated to the health sector. The size of government, measured by its expenditures as a share of gross domestic product (GDP), ranges from 17% in Ethiopia and Uganda to 48% in Botswana, and tends to be smaller in poorer countries that have more difficulty collecting revenue to support government spending. The share of government expenditures devoted to the health sector ranges from 5% in Côte d'Ivoire to 17% in Zambia and Botswana. However, government health spending figures can be misleading, as they often include a sizable portion of external aid, especially in low-income African countries and in countries with small populations. The World Health Organization (WHO) National Health Accounts (NHA) database includes an indicator 'public funds for health, excluding external aid' but it is not available for all countries or for recent years (Table 1). Nonetheless, what data are available suggest that as much as half of government health expenditure (GHE) is from external sources in several countries. This should make us more cautious about using GHE as a proxy indicator of the countries priority for health in resource allocation, but it still provides useful information regarding the size of the resource 'bucket' in which most domestic expenditure on AIDS occurs.

IV.B. HIV Burden

HIV prevalence ranges from around 2.9% in Rwanda to 25% in Botswana and the number of people living with HIV (PLHIV) varies from 170,000 in Rwanda to 5.6 million in South Africa (Table 1). The contribution of AIDS to the national disease burden ranges from 6% in Nigeria to 51% in Botswana, according to the WHO 2004 Global Burden of Disease data. The range of variation along these different dimensions suggests that PEPFAR Partnership Framework Implementations Plans will have to be highly customized to individual countries.

Table 1: Indicators of Ability to Pay for AIDS Programs and AIDS Disease Burden

		Ability to Pay for AIDS Programs					AIDS Disease Burden		
Country		GNI per capita (2010 Atlas)	Size of Govt GGE/GDP (2009)	Health Share of Govt GHE/GGE (2009)	Public Funds for Health PFH/GGE (2008 or *2006)	GHE per capita (2009)	Adult HIV Prevalence (2009)	PLHIV (2009) x1000	AIDS Share of Total Disease Burden (2004)
		World Bank	WHO NHA Database	WHO NHA Database	WHO NHA Database	Calculated	UNAIDS	UNAIDS	WHO Global Burden of Disease
Upper-Middle-Income	Botswana	$6,790	48%	17%	—	$526	24.8%	320	51%
	South Africa	$6,090	33%	10%	—	$198	17.8%	5,600	41%
	Namibia	$4,500	32%	13%	9.7%	$179	13.1%	180	47%
Lower-Middle-Income	Nigeria	$1,180	30%	8%	—	$26	3.6%	3,300	6%
	Côte d'Ivoire	$1,160	21%	5%	5.5%	$12	3.4%	450	11%
Low-Income	Zambia	$1,070	21%	17%	7.6%*	$36	13.5%	980	30%
	Kenya	$790	28%	5%	3.6%	$12	6.3%	1,500	24%
	Tanzania	$530	26%	15%	7.7%	$20	5.6%	1,400	18%
	Rwanda	$520	24%	16%	9.4%*	$21	2.9%	170	10%
	Uganda	$500	17%	10%	—	$8	6.5%	1,200	19%
	Mozambique	$440	33%	14%	13.2%*	$22	11.5%	1,400	22%
	Ethiopia	$390	17%	10%	5.3%	$7	2.3%	1,200	7%

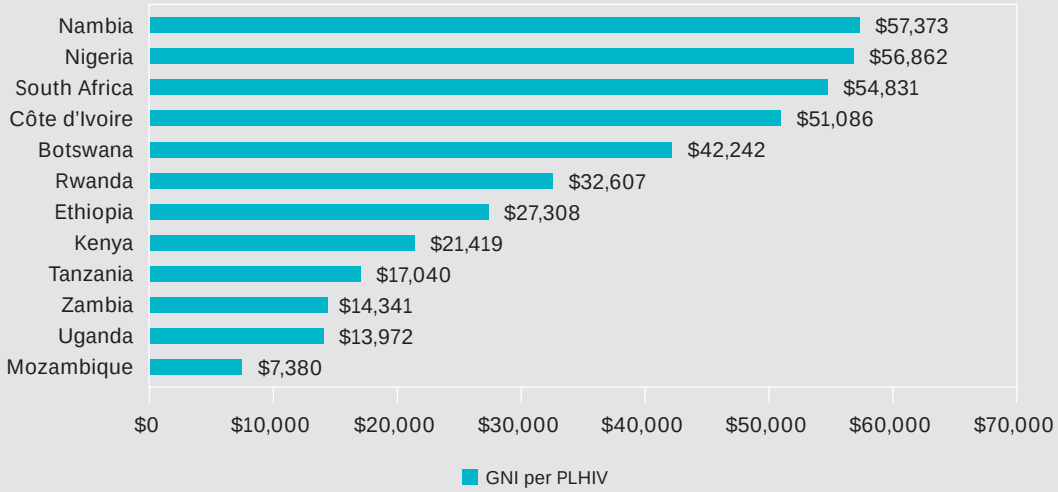
PLHIV= Person living with HIV, GNI= Gross National Income, GGE= General Government Expenditure, GHE= Government Health Expenditure, PFH = Public Financing for Health. Burden of Disease is measured in disability adjusted life years (DALYs), Govt = Government

IV.C. Income in Relation to HIV Burden

Combining information on country income and size of the AIDS epidemic, the single indicator 'Gross National Income (GNI) per person living with HIV (PLHIV)' provides a rough measure of the extent to which a country could locally manage the financial requirements of a comprehensive AIDS response. GNI per PLHIV does not account for country variation in the unit cost of delivering HIV services, the mix of HIV services required, the relative size of government (e.g. government revenue as a percent of GDP), or competing priorities for national spending. Nevertheless, it gives a good first approximation of the gross level of domestic resources potentially available to respond to the AIDS epidemic. Figure 2 shows wide variation in this indicator across the 12 countries. Countries with the highest ratios of national income per person infected with HIV (at the top of the chart) should be in the best position to pay for their AIDS responses with domestic funds, while those with the lowest ratios (bottom of the chart) are less able to pay for their national AIDS programs with domestic resources and may need to turn to external funders to assist them. There is an 8-fold difference in the amount of domestic income per PLHIV between the worst-off country (Mozambique) and the best-off countries (Namibia and Nigeria). In other words, Nigeria has 8 times more national income per prevalent case of HIV than Mozambique. An interesting insight from Figure 2 is that need for external support is not perfectly correlated with either income or disease burden. Both Côte d'Ivoire and Nigeria are much poorer than Botswana, Namibia, and South Africa, but have comparable or higher income per HIV case. Likewise, Ethiopia and Rwanda are very poor countries that have lower need according to this crude measure than richer countries, such as Zambia and Kenya. Moreover, Botswana's level of need measured in this way is not so much less than that of Ethiopia and Rwanda.

GNI per PLHIV may overstate the difference in 'ability to pay' between higher and lower income countries because unit costs of providing HIV services are positively correlated with country income. Costs are higher in wealthier countries due to the higher cost of non-tradable inputs such as labor and buildings and perhaps also due to higher service delivery quality. However, it is likely that richer countries can afford to spend a larger portion of GNI on AIDS programs, and this will likely offset higher price levels. There is currently little high-quality systematic evidence regarding the extent to which the cost of AIDS programs varies across settings and how much of this is driven by unit cost of inputs. However, recent studies undertaken by the US Centers for Disease Control and Prevention (CDC) [11] and the Bill & Melinda Gates Foundation [12] should soon increase our understanding of inter-country cost differences and their potential causes. Preliminary findings from this work do show higher costs for ART in richer countries. However, the unit costs appear to grow more slowly than growth in GNI. These higher unit costs should be mitigated by the greater fiscal space available for health programs in higher-income countries. Thus, on the whole, GNI per PLHIV can be taken as a reasonable rough proxy for countries' ability to pay.

Figure 2: Gross National Income per PLHIV: A Summary Indicator of Crude Need for External AIDS Program Support



US Dollars. GNI = Gross National Income (2010 Atlas Method). PLHIV = Person living with HIV.

V. Past AIDS Spending

In this section, we analyze the financing of AIDS programs from each country's domestic resources over time to understand how domestic support varies across recipient countries. This entails:

- Examining domestic contributions to AIDS, focusing on public sector spending measured in ad-hoc National AIDS Spending Assessments (NASAs), National Health Accounts (NHAs) HIV Subaccounts, Public Expenditure Reports (PERs), and UNGASS Country Progress Reports.
- From the same data sources, reporting the level of externally-sourced AIDS funding.
- Separately, analyzing past PEPFAR support budgeted in approved country operating plans (COPs), because NASAs and NHAs appear to inadequately capture PEPFAR contributions and PEPFAR is only now beginning to track its own actual disbursements in detail.
- Comparing government AIDS expenditure to government spending on health and government spending generally.
- Making use of the UNAIDS Domestic Investment Priority Index (DIPI), a summary indicator of domestic contribution to AIDS programs, and some related indicators, to assess the recent level of commitment to domestic financing of AIDS programs.

NASAs and NHAs are useful sources, but both have important limitations that need to be addressed. First, these methods of resource tracking are 'ad hoc' rather than routine, so tracking is sporadic without annual time series. Only in a few cases (Nigeria, Rwanda) is a series of annual estimates emerging. Second, despite efforts to standardize the NASA protocol across countries and over time, there are still variations in definitions and assumptions from study to study. For instance, Uganda's most recent NASA applies a novel approach to calculating private out-of-pocket expenditures on AIDS that is distinct from other NASAs, and which resulted in a notably high share of AIDS expenditure from this source. Third, there is a substantial lag time from when the funds are expended to the time a NASA or NHA study documenting that expenditure is available to decision makers — such a lag is commonly 2-3 years. The most recent data from these sources is from 2010 and only available for three countries. Fourth, the accuracy of estimates of expenditure from external sources is sometimes questionable. An example of this is the discrepancy between PEPFAR funding levels in South Africa, and those attributed to PEPFAR in the NASA.

Donor funds can be particularly hard to track when they are 'off-budget', such as when they flow directly to implementing partners without passing through a government ministry. Likewise, when funds, domestic or external, are distributed to sub-national levels of government as a block, financial management systems are not always robust enough to track how funds were spent, such as across programmatic areas. In Tanzania, for example, there is at least a 5-fold difference between the US$12–US$17 million in annual government AIDS expenditures reported in the Public Expenditure Report and the US$108 million reported in the 2007 NASA. Furthermore, there is some concern that some external aid that flows through the government as general budget support may be included in the estimate of government AIDS spending. These limitations point to the need for more routine and systematic resource tracking in most countries, if PFIPs are to be adequately monitored. Tools for tracking government, PEPFAR, and Global Fund expenditures annually with less than three months lag are needed. Where good financial accounting systems are not available or cannot readily be adapted to produce the necessary information, an intermediate step may be needed, such as the 'Expenditure Analysis' tool PEPFAR has developed to monitor its partners, or the development and application of a 'NASA-lite' methodology that can be carried out rapidly yet systematically.

V.A. Total AIDS Expenditure and Domestic Government Share

Most of the countries in our study have conducted at least one National AIDS Spending Assessment (NASA) following the UNAIDS methodology. Additionally, some countries have done AIDS resource tracking using the National Health Account (NHA) HIV/AIDS Subaccount or public expenditure review methodology.

Table 2 summarizes the most recent findings on AIDS expenditure and presents three comparative metrics: the domestic share of all AIDS expenditure, the share of government health expenditure devoted to AIDS, and the government expenditure on AIDS per person living with HIV (PLHIV).

As can be seen, the three upper-middle-income (UMI) countries, Namibia, Botswana, and South Africa, are the only countries to fund a majority of their AIDS programs domestically. No other government, except Nigeria, contributes more than 15% of the total AIDS spending in their country. Namibia, Botswana, and Kenya are spending over a fifth of their health budgets on AIDS, while others, like Tanzania and Mozambique, devote less than 2% of government health expenditures to their national AIDS effort. Botswana is currently spending 2.2% of GDP on AIDS, and Namibia is the only other country spending more than 1% of GDP. Five countries (Kenya, Rwanda, South Africa, Uganda, and Zambia) are spending between one-fourth and one-half of 1% of GDP. The remaining countries (Côte d'Ivoire, Ethiopia, Mozambique, Nigeria, and Tanzania) are spending less than one-tenth of 1% of GDP on AIDS. There is also substantial

variation in government spending on AIDS per PLHIV, which can only partially be attributed to variation in price levels (which increase somewhat with GDP).

The data in Table 2 show a high dependence on external support by low-income countries and a contrasting high level of financing of AIDS programs from domestic resources in South Africa, Botswana, and Namibia. Figure 3 shows AIDS spending on a per PLHIV basis. Here, one would expect somewhat higher spending levels in higher income tiers, but reasonably similar levels within countries of the same income level. The plot reveals that South Africa's massive outlays for AIDS programs do not translate into a high level of spending relative to the epidemic size. Total expenditure on AIDS in South Africa is only US$251 per PLHIV—about a quarter of the expenditure level in the other two upper-middle-income countries, on par with Zambia and Côte d'Ivoire, and lower than in Tanzania, Kenya, Uganda and Rwanda—low-income countries which rely much more on external aid. Rwanda stands out as a low-income country with a more modest epidemic that has total AIDS expenditure of over US$700 per PLHIV. This high level of spending is almost entirely externally financed. Those with the lowest total spending per PLHIV

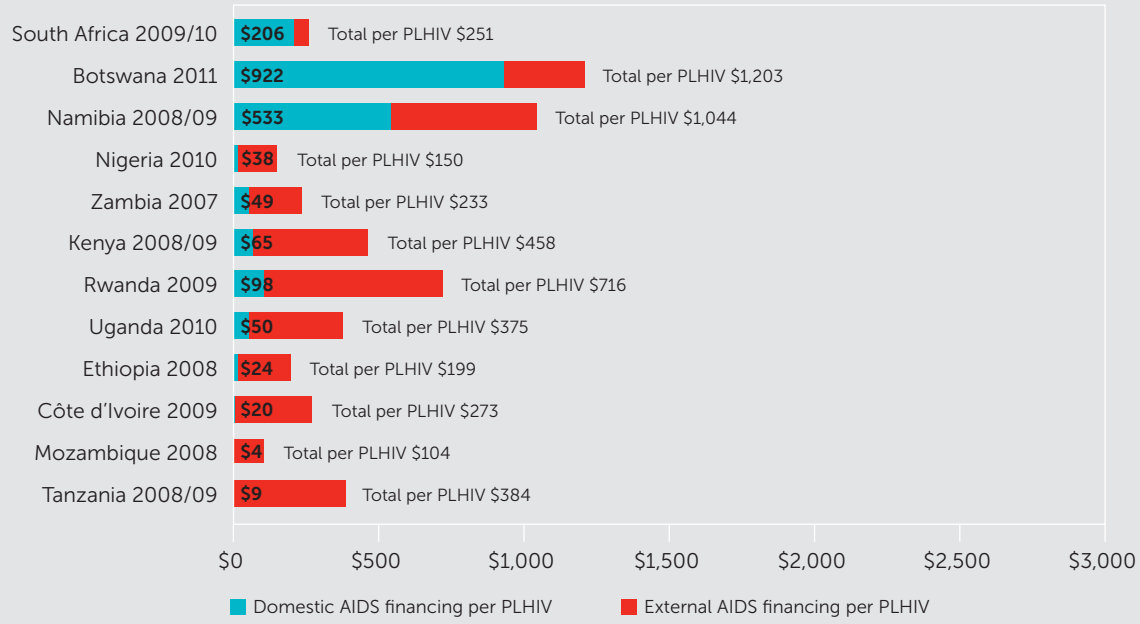
Table 2: Recent Government AIDS Expenditure (GAE) Sorted by GAE as a Fraction of Government Health Expenditure

Country	Years Available (post-2003 only)	Most Recent Data						
		Source	External AIDS Expenditure (EAE, US$ Millions)	Government AIDS Expenditure (GAE, US$ Millions)	GAE/ (GAE+EAE)	GAE/ GHE	GAE/ GDP	GAE per PLHIV
South Africa	UNGASS (2006–2007), NASA (2007–2009), MTEF (2009/10)	NASA	$251	$1,153	82%	11.8%	0.41%	$206
Botswana	NASA (2006–2008), NASA (2003–2005), UNGASS (2010)	UNAIDS[2]	$90	$295	77%	36.0%	2.24%	$922
Namibia	NASA (2007–2008)	NASA	$92	$96	51%	25.7%	1.11%	$533
Nigeria	NASA (2007–2008), NASA (2009–2010)	NASA	$371	$125	25%	2.7%	0.07%	$38
Kenya	NASA (2006–2007), NHA (2005, 2009), UNGASS (2006–2008), UNGASS (2009)	UNGASS	$589	$98	14%	21.8%	0.36%	$65
Zambia	NASA (2001–2006), NHA (2003-2006)	NASA	$180	$48	14%	10.4%	0.40%	$49
Uganda	UNGASS (2005), UNGASS (2007–2008), NASA (2009–2010)	NASA	$390	$60	13%	18.8%	0.36%	$50
Ethiopia	NHA (2007)	NHA	$209	$28	12%	4.9%	0.09%	$24
Rwanda	NHA (2006), NASA (2006–2008), NHA (2009/10)	NHA	$157	$17	9.6%	6.8%	0.30%	$98
Côte d'Ivoire	NASA (2006–2008), UNGASS (2006–2009)	UNGASS	$114	$9	7.3%	3.7%	0.04%	$20
Mozambique	NASA (2004–2006), NASA (2007–2008)	NASA	$140	$5	3.5%	1.1%	0.05%	$4
Tanzania	NASA (2005), NHA (2004–2006), PER (2006–2008)	PER	$526	$12	2.2%	1.5%	0.06%	$9

GAE = Government AIDS Expenditure, EAE = External AIDS Expenditure, PLHIV= Person Living with HIV, GHE = Government Health Expenditure, MTEF= Medium Term Expenditure Framework, UNGASS= United Nations General Assembly Special Session

[2]Expenditure figures are from the UNAIDS' online database: aidsinfoonline. 2010 matches up with the figures in the UNGASS

Figure 3: Most Recent Estimate of AIDS Expenditure per Person Living with HIV



Dollar amounts on bars are the domestic (left) and external (right) share of the AIDS spending. The amount of domestic AIDS expenditure per PLHIV is indicated near the left end of bars and the total amount of AIDS expenditure per PLHIV is indicated to the right of bars.

are Mozambique and Nigeria, at US$104 and US$150, respectively. As a lower-middle-income country, this level is especially low for Nigeria. Zambia, Kenya, Uganda, and Rwanda all spend more than Nigeria per PLHIV from government sources, as well as in total. Ethiopia, Côte d'Ivoire and Tanzania also receive more external aid per PLHIV than Nigeria, but spend less from government sources.

V.B. PEPFAR Support to Date

In this section, we examine the last five years of PEPFAR obligations and analyze their correlation with country income levels and the size of the AIDS epidemic—addressing the question of the extent to which PEPFAR has allocated its funding until now in line with countries' (a) overall AIDS financing needs, (b) domestic capacity or ability to pay with domestic resources, and (c) domestic effort. As discussed earlier, there are a number of criteria that are considered in setting the PEPFAR allocation to any country. These criteria could include the country's epidemiology and resulting funding resource needs, as well as the availability of domestic and other outside funding, past implementation performance, the history of relations between PEPFAR and the country's government, and larger goals of US foreign policy. The analyses below are meant to illustrate different options for allocating a limited funding pool, in ways which would allow PEPFAR to continue to support the large unmet financial needs for AIDS across high-impact countries.

It would be preferable to analyze PEPFAR expenditures rather than obligations, but actual spending data is not yet routinely recorded or collected in a manner that permits analysis. This will change with the implementation of the new PEPFAR Expenditure Analysis (EA) tool, which was implemented starting in late 2012, with preliminary results emerging in 2013 and a second round planned for 2013-14. For this paper, PEPFAR obligations, which are broken down by programmatic area in each country's annual country operating plan (COP), were the best available proxy for actual spending.

Between 2006 and 2010, PEPFAR COPs indicated planned expenditures of US$14.5 billion in the 12 PEPFAR focus countries (Table 3). PEPFAR support to these countries has not historically been tightly correlated with income, disease burden, or GNI per PLHIV. South Africa, Botswana, and Namibia are upper-middle-income (UMI) countries with high AIDS burdens. In each of these countries, HIV accounts for over 40% of total DALYs. PEPFAR has funded Botswana and Namibia at US$262 and US$585 per PLHIV per year over the last 5 years, respectively. South Africa has received the most total PEPFAR support over the 2006-2010 period, but with nearly 12 times the HIV cases of Botswana and Namibia combined, this translates into less PEPFAR support on a per PLHIV basis (US$85 per PLHIV).

Table 3: PEPFAR and Global Fund Financing 2006–2010						
World Bank Income Cat.	**Country**	**PEPFAR Support 2006–2010, US$ Millions (Share of Total)**	**Annual PEPFAR per PLHIV 2006–2010**	**Global Fund Support 2006–2010, US$ Millions (Share of Total)**	**Annualized GF per PLHIV 2006–2010**	**GF/ (GF+PEPFAR)**
Upper-middle	Botswana	$406 (2.8%)	$262	$11 (0.4%)	$7	3%
	South Africa	$2,327 (16.1%)	$85	$271 (9.2%)	$10	12%
	Namibia	$468 (3.2%)	$585	$189 (6.4%)	$211	40%
Lower-middle	Nigeria	$1,818 (12.5%)	$114	$167 (5.7%)	$10	9%
	Côte d'Ivoire	$496 (3.4%)	$211	$33 (1.1%)	$15	7%
Low	Zambia	$1,182 (8.2%)	$252	$331 (11.3%)	$68	28%
	Kenya	$2,224 (15.3%)	$318	$94 (3.2%)	$13	4%
	Rwanda	$578 (4.0%)	$722	$137 (4.7%)	$161	24%
	Tanzania	$1,368 (9.4%)	$195	$511 (17.4%)	$73	37%
	Uganda	$1,264 (8.7%)	$230	$153 (5.2%)	$26	12%
	Mozambique	$1,007 (6.9%)	$155	$114 (3.9%)	$16	11%
	Ethiopia	$1,357 (9.4%)	$170	$924 (31.5%)	$155	68%
Total		**$14,494**	**$164**	**$2,936**	**$33**	**20%**

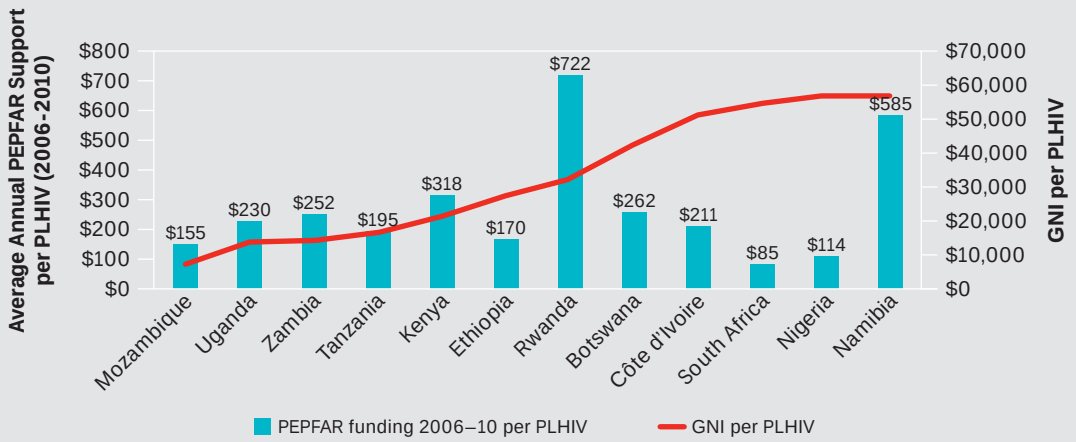
Among the low- and lower-middle-income countries, Rwanda stands out as a country that has gotten by far the most PEPFAR funding: US$722 per PLHIV per year between 2006 and 2010. Among the remaining countries, Kenya, Uganda, Zambia, and Côte d'Ivoire have received intermediate amounts, (US$211-318 per PLHIV), while Ethiopia, Nigeria, and Mozambique have received relatively less PEPFAR funding (US$114-170 per PLHIV). However, PEPFAR considers many other variables in determining its funding allocations, including disease burden and those discussed above, and thus one would not expect PEPFAR funding to correlate completely with a country's income level.

One can also compare PEPFAR support levels to country 'need.' Countries with greater GNI per PLHIV (shown by the line, right vertical axis in Figure 4) have greater ability to pay domestically for their AIDS programs. The bars indicate the annualized amount of PEPFAR support per PLHIV. An allocation pattern driven by 'need' alone would result in a graph with the bars declining in height from left to right, indicating greater PEPFAR support in countries with less ability to fund their AIDS program domestically. The COP obligations do not follow this pattern, suggesting that there may be opportunities within Partnership Framework Implementation Plans to replace PEPFAR funds with domestic resources in some countries over time and shift these funds to other countries with greater need, but also showing that many other variables are considered by PEPFAR in setting its allocations.

In allocating funds, PEPFAR may also prioritize countries that have made a substantial domestic effort. To evaluate this, PEPFAR spending was compared directly to domestic spending on AIDS (Table 4). While the correspondence is not particularly tight, there does appear to be a trend supporting the hypothesis that countries which spend more of their own resources on AIDS have gotten more PEPFAR resources on a per PLHIV basis. Among the upper-middle-income countries, PEPFAR has given over six times more to Namibia than to South Africa per PLHIV, but at the same time, Namibia's government AIDS expenditure per PLHIV is more than 2.5 times greater than South Africa's. Similarly, Kenya's domestic spending is about double the level of Zambia, and PEPFAR has contributed about 25% more to Kenya than to Zambia per PLHIV. Rwanda, which is poorer than Zambia, has contributed about three times more per PLHIV, and PEPFAR has allocated to Rwanda three times more per PLHIV than it has to Zambia. Among the low-income countries, Tanzania and Mozambique have the lowest levels of government AIDS expenditure, and these countries have also received some of the lowest levels of PEPFAR support per PLHIV.

When looking at PEPFAR spending, it is also important to consider whether the spending of other donors complements PEPFAR funds. We found that in general, in the 12 countries studied, donor aid from different sources tends to run together. Some of the largest Global Fund allocations per PLHIV were in countries where PEPFAR support

Figure 4: PEPFAR Support per PLHIV per Year 2006–2010



has also been substantial, such as Namibia and Rwanda. Similarly, when PEPFAR allocations are compared with the allocation of all external support reported in ad hoc expenditure analyses discussed earlier (Table 2), we see that within this set of 12 countries, those that receive lower levels of PEPFAR support also receive less support from other donors.

VI. Benchmarks for AIDS Spending

A key objective of this paper is to assess, using the best data and evidence available, whether the domestic contributions are reasonable, and whether countries could

Table 4: PEPFAR Support Compared to Government AIDS Expenditure

Country	Annual PEPFAR Support per PLHIV	Government AIDS Expenditure per PLHIV	Ratio of PEPFAR to Domestic
Botswana	$262	$825	0.3
South Africa	$85	$206	0.4
Namibia	$585	$533	1.1
Nigeria	$114	$38	3.0
Côte d'Ivoire	$211	$20	10.6
Zambia	$252	$49	8.4
Kenya	$318	$65	4.9
Rwanda	$722	$98	7.4
Tanzania	$195	$9	21.7
Uganda	$230	$50	4.6
Mozambique	$155	$4	38.8
Ethiopia	$170	$24	7.1

Note: The PEPFAR aid figures in column 2 are the annual average over 2006-2010, whereas the Government AIDS Expenditure (GAE) figures in column 3 are mainly estimates from a single most recent year expenditure during the period 2006-2010. Annual GAE estimates over this period do not exist for most countries. Evidence of a GAE trend in some countries (Rwanda, Nigeria, Uganda) suggests increases in GAE over the period. Thus the support ratios in column 4 may be lower than the actual ratio one would obtain by considering an annualized cumulative GAE over the 5 years from 2006-10, if such data were available.

do more without cannibalizing non-AIDS programs. We first consider the Domestic Investment Priority Index (DIPI) developed by UNAIDS, which is intended to be a comparative measure showing how countries stack up to one another in terms of their domestic investment in the fight against AIDS, after accounting for income level and disease burden. Because this summary indicator is complex and difficult to interpret, we then pursue several more specific indicators which help identify the opportunities to increase GAE in particular countries. These indicators center on government investment in the health sector in which most AIDS programs reside and indicators specific to AIDS programs.

The analyses that follow in this section show a wide variation across the 12 countries in the priority they place on AIDS programs, after adjusting for country income and disease burden. We find that the reasons for low AIDS spending vary. Some countries have a low level of government revenue and expenditure relative to GDP, some have low levels of health spending, and some simply don't prioritize AIDS within the health budget as much as others.

VI.A. Summary Measures of Domestic AIDS Spending Priority

UNAIDS developed the Domestic Investment Priority Index (DIPI) in 2010 to measure countries' domestic financing effort for AIDS, relative to their income and epidemic size. This measure has been refined by UNAIDS since its introduction. One version of the indicator, which we will refer to as the UNAIDS DALY DIPI, measures domestic AIDS spending as a share of total government revenue, adjusting for AIDS' share of the country disease burden, measured in DALYs. The logic of the DALY DIPI is that two countries with the same priority for AIDS should spend the same fraction of government revenue on AIDS per unit of contribution of AIDS to the country's overall disease burden. If hypothetical Country A and Country B both have an AIDS burden that represents 20% of their overall disease burden, then, according to the DALY DIPI, they would have the same priority for AIDS if they each were to allocate the same share of their government revenue to AIDS programs. There is no normative standard that dictates what that share should be, but across our 12 countries, about 1/20th of 1% of government revenue is spent per 1% of disease burden due to AIDS.

The DALY DIPI score is only affected by AIDS' share of overall disease burden, and not by the absolute level of AIDS DALYs, which may be very different in countries which show the same shares because of large variations in burden due to other non-AIDS diseases. The DALY DIPI scoring algorithm overlooks the idea that countries with higher disease burdens ought to spend more of their government revenue on health, including AIDS. The DALY DIPI score also does not account for differences in the unit cost of program inputs which vary systematically with income level. While the unit costs of some inputs do increase with country income level, they increase at a rate slower than the growth in income level (price elasticity is positive but less than 1). Thus, to provide the same level of AIDS services, a relatively wealthier country will need to spend more per PLHIV, but the corresponding larger government AIDS expenditures may still be a smaller share of government revenue. In this situation, the wealthier country will appear as if it is placing a lower priority on AIDS when, in fact, it is delivering exactly the same services. Another practical limitation of the DIPI is that there is no normative DALY DIPI threshold value that countries can target. When conducting comparisons, an individual country's score can be compared to the mean or the maximum value achieved among peer countries (with caveats, discussed below), but the score itself has no natural interpretation.

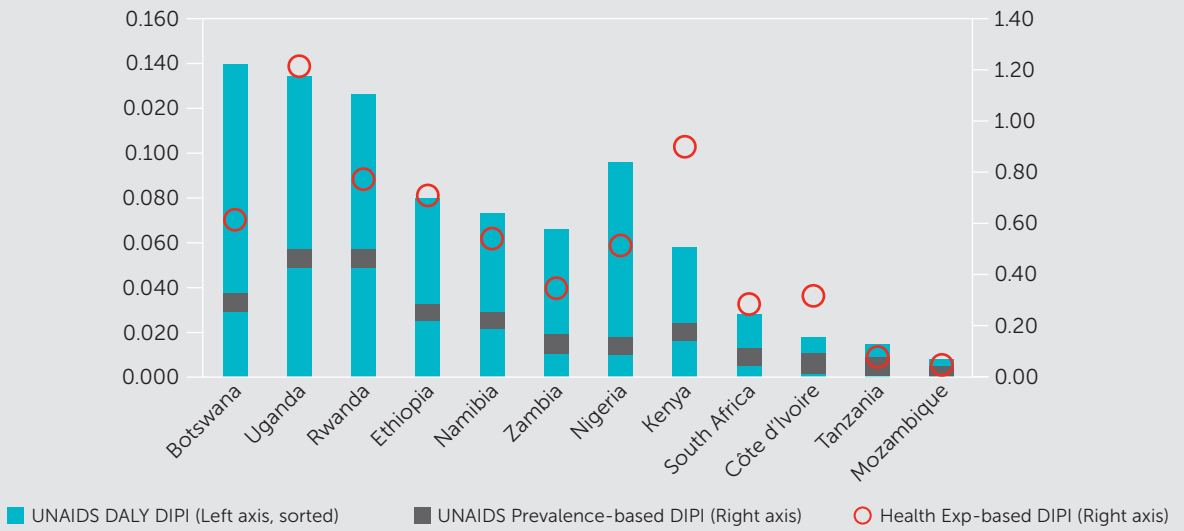
As Figure 5 shows, using the UNAIDS DALY DIPI as the metric, Botswana, Uganda, and Rwanda appear to make the strongest fiscal effort on AIDS relative to their epidemic size, while Mozambique, Tanzania, and Côte d'Ivoire rank lowest.

UNAIDS has put forth another version of the DIPI that substitutes HIV prevalence for the DALY fraction. This indicator, which we will refer to as the UNAIDS Prevalence-based DIPI, has most of the same strengths and weaknesses as the UNAIDS DALY DIPI, but also contains one key advantage. As ART is scaled up in countries, the ratio of DALYs to HIV cases will change, since there will be less life lost to AIDS. So, as ART scales up, the number of prevalent cases and resource needs will rise, but the AIDS' fraction of total DALYs may decline. Another practical advantage is that HIV prevalence estimates are routinely updated with well-established methods, whereas DALYs are rarely updated (about every 5 years) with major time lags (up to 2 years) between data collection and data availability. It is likely that the 2010 HIV prevalence data is more precisely reflective of the current situation than 2004 DALY estimates.

The analysis of the prevalence-based DIPI measure reveals that for every 1% of HIV prevalence, countries spend between one-tenth and one-half of 1% of government revenue on AIDS. The cross-country comparison of domestic effort varies somewhat depending on the DIPI measure selected. The prevalence-based DIPI makes Kenya rank a bit higher and Botswana rank a bit lower than they do using the DALY DIPI.

Another variation of the DIPI which we explored is a measure in which the AIDS spending is measured as a share of government health expenditure. This 'health expenditure-based DIPI' measure focuses on the allocation of the health budget, and indicates the extent to which the spending on AIDS is proportional to AIDS' share of disease burden measured in DALYs. This measure is less driven by overall country income and government revenue. When

Figure 5: Comparison of Domestic Investment Priority Index Variants



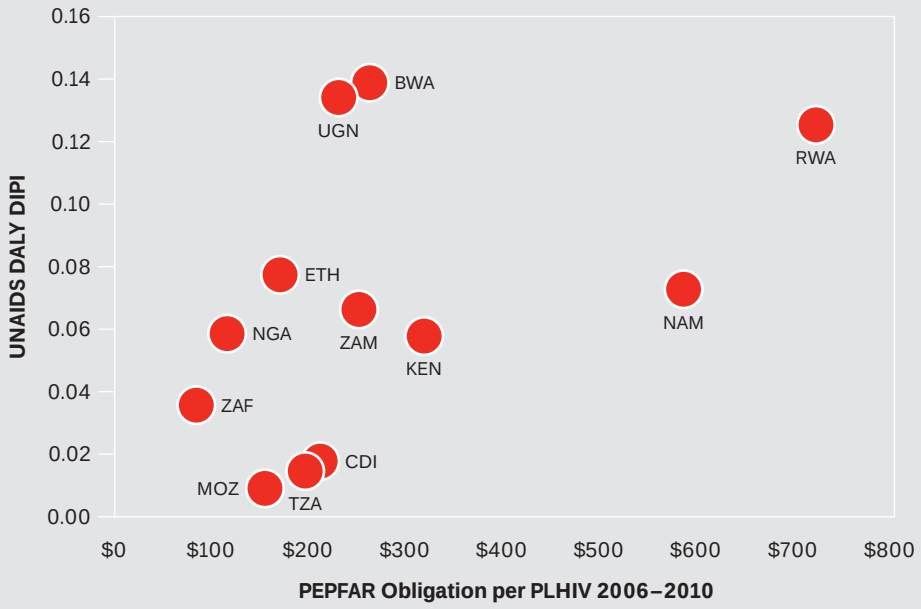
using this indicator, Kenya ranks substantially higher, and Botswana and Zambia rank lower.

Consistent with our earlier finding that PEPFAR's support is correlated with countries' government AIDS spending per PLHIV, we also find that PEPFAR's support to countries is positively correlated with DIPI score (Figure 6). Countries for which AIDS is a higher domestic priority (as measured by the UNAIDS DALY DIPI score) have received more per PLHIV from PEPFAR. However, the correlation is weak, (R Squared = 0.2151) and there are clear outliers, including South Africa and Ethiopia, that have been under-supported by PEPFAR relative to their DIPI scores, and Rwanda and Namibia that have been over-supported by PEPFAR relative to their DIPI scores.

Interpreting DIPI scores between countries can be challenging because similar DIPI scores can result from very different reasons. Here are two illustrative examples:

- Uganda scored relatively high on the UNAIDS DALY DIPI, but Uganda's revenue collection is very weak — government revenue was only 15% of GDP in 2009. So

Figure 6: Level of PEPFAR Support Compared to DALY DIPI Score



although a relatively large share of revenue is devoted to government AIDS programs, the absolute amount could be much larger if Uganda's tax revenue effort, as a share of GDP, was more in line with its peers.

- Botswana has already reached near universal coverage of ART and domestically funds over two thirds of its AIDS program, so its DALY DIPI score is near its logical ceiling. If Botswana replaced all external funding, so that its program was 100% domestically financed and service coverage levels were near universal, the DIPI score would increase to roughly 0.15. Oddly, if Uganda, which currently pays for 12% of its total AIDS spending from domestic funds, were to double its AIDS spending, its DALY DIPI would exceed Botswana's maximum possible DALY DIPI.

As illustrated by these examples, the utility of the DIPI for cross-country comparisons is limited. These limitations in the DIPI are exacerbated by the age and poor quality of both government AIDS spending data and disease burden data. Nonetheless, at current levels of domestic spending, which are consistently below the level that would meet programs' full resource needs, the DIPI is still a useful summary measure to provide a snapshot of relative domestic effort.

The analysis in subsequent sections of this report unpacks the DIPI and compares countries' effort to finance AIDS programs in the context of their disease burden, income, government expenditure, government health expenditure, and external aid levels. In particular, we focus on government expenditure overall, the level of health expenditure as a fraction of all government expenditure, and AIDS' share of health expenditure. Doing so enables us to better characterize the situation that underlies an observed summary DIPI score in ways that help distinguish what policy options may be most appropriate for a given country situation.

VI.B. Benchmarks for Government Expenditure on Health

In this section, we examine how countries allocate funds for health in general. Most domestic AIDS spending flows through the health sector. Countries with strong financial commitment to health will have more potential fiscal space for AIDS programs. We identified two established benchmarks for government health expenditure (GHE) level: (a) the 'Abuja target' of 15% of general government expenditure (GGE), and (b) 3-5% of GDP. Together these indicate strong investment in health and promising space for AIDS program support.

Our main finding, elaborated below, is that only four countries (Botswana, Tanzania, Rwanda, Zambia) are meeting both benchmarks, five (Ethiopia, Uganda, Kenya, Côte d'Ivoire, and Nigeria) are meeting neither, and the three remaining countries are missing one target (the 15% of GGE target). Thus, PFIPs can encourage increases in health spending in at least half of the countries in this analysis, of which a considerable share might reasonably be devoted to AIDS.

Benchmarks for Health Spending

Adequate investment in health is indicated by meeting both of the following criteria regarding the share of resources allocated to government health expenditure:

- 15% of Government Expenditures
- At least 3% of GDP

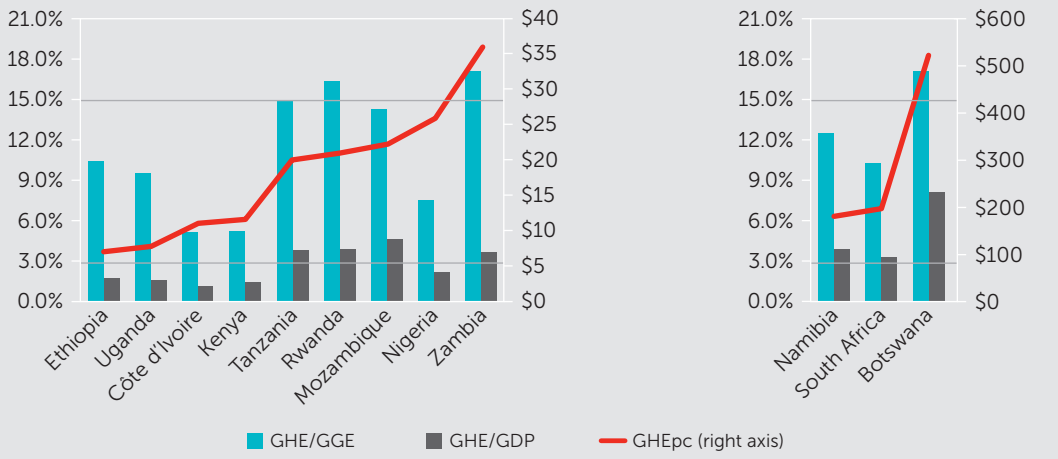
In 2001, the heads of state and government of Africa pledged to increase the share of their governments' budgets spent on health to 15%. This indicator is directly tied to resources within the control of government, so we take the 'Abuja target' as the primary benchmark for government health spending.

Those who study sector-based spending targets have suggested another benchmark — 3-5% of GDP — as a minimum level of domestic public health spending that is necessary to produce good health outcomes [13]. In most cases, 15% of General Government Expenditure (GGE) for health will translate into more than 3% of GDP, (because GGE is usually more than 20% of GDP), but in Ethiopia and Uganda, GGE is under 20%, so even if they achieved the 'Abuja target' for health spending as a share of GGE, they would not meet the minimum health spending target of 3% of GDP.

The countries included in this study fall into several different categories when examined with the above benchmarks/indicators in mind. This is indicated in Figure 7, which shows upper-middle-income countries on a separate panel, due to the scale of per capita spending. Of the 12 countries:

- Five are below the 3% GHE/GDP minimum threshold and eight are below the Abuja target for GHE/GGE.
- Four countries — Botswana, Tanzania, Rwanda, and Zambia — are meeting both the 3% GHE/GDP and 15% GHE/GGE target.
- Mozambique, Namibia, and South Africa's governments are spending over 3% of GDP on health but are not meeting the Abuja target for GHE/GGE. These countries have a higher level of overall government spending (GGE/GDP) but are not allocating as much to health.
- Ethiopia, Uganda, Côte d'Ivoire and Zambia have relatively low levels of GGE from which to allocate health spending.

Figure 7: Country Performance on Health Spending Benchmarks



	ETH	UGN	CDI	KEN	TZA	RWA	MOZ	NGA	ZAM	NAM	ZAF	BWA
GHE > 3% GDP					✓	✓	✓		✓	✓	✓	✓
GHE > 15% GGE					✓	✓			✓			✓
GGE/GDP > 24%				✓	✓	✓	✓	✓		✓	✓	✓

Government Health Expenditure per Capita (GHEpc); Government Health Expenditure (GHE) as a Fraction of General Government Expenditure (GGE); and GHE as a Fraction of Gross Domestic Product (GDP) in 2009. The left-hand graph shows the low- and lower-middle-income countries while the upper-middle-income countries are shown on the right. Benchmark targets are indicated by horizontal lines from the left axis. Checkmarks in the corresponding table at the bottom of the figure indicate that the country has achieved the benchmarks.

- Three low-income countries — Ethiopia, Kenya, and Uganda — and two lower-middle-income countries — Côte d'Ivoire and Nigeria — are not meeting either target.

In some cases, these countries are collecting very little revenue. Governments in these settings may be able to raise more revenue to enable an increase in government health expenditure (GHE) without cannibalizing other sectors.

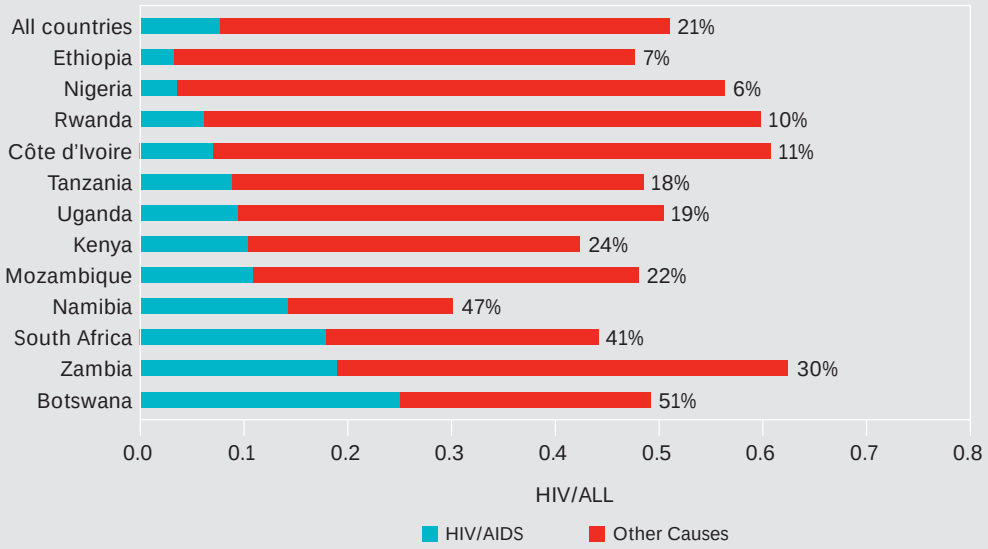
VI.C. Benchmarks for AIDS Programs' Share of Health Spending

At the highest level of government, the overall allocation of resources to health and other competing sectors is decided. Some consideration for particular health priorities may occur at this level of decision making. But most allocation decisions regarding specific health priorities occur at the level of the health budget. In this section, we explore normative standards for AIDS spending as a share of health spending. While previous work has generated some guidance for assessing a government's financial commitment to the health sector, there are not clear benchmarks for assessing the level of spending within a single disease area such as AIDS. However, one starting place is with disease burden. We consider AIDS' share of overall disease burden as a basis for allocating health budgets to AIDS programs. Our main finding is that the ratio of Government AIDS Expenditure/Government Health Expenditure (GAE/GHE) to AIDS DALYs/All DALYs, varies widely, from 5% to 100%. Only a few countries (Uganda, Kenya and Ethiopia) come close to having government health expenditures on AIDS proportional to AIDS disease burden share. PFIPs can encourage a greater share of health budgets in most partner countries to be allocated to AIDS programs.

Total cases and HIV prevalence are useful epidemiologic indicators; however, they do not give a picture of the severity of corresponding health burden in absolute terms or relative to other diseases in the country. To remedy this general problem, the WHO Global Burden of Disease Study, published in 2008 and using 2004 data, estimated the total disease burden and AIDS-attributable disease burden for all countries of the world, using a summary measure of disease burden known as the disability adjusted life year (DALY). As shown in Figure 8, across our 12 countries, the share of this burden that is attributable to AIDS varies from 6% in Nigeria to 51% in Botswana (21% average for the 12 countries). (This paper uses the DALY data from 2004, since country data on HIV from the most recent burden of disease study published at the end of 2012 was still not available at the time this study was published.)

Allocating health resources in rough proportion to disease burden may be consistent with the design of a health program that equitably addresses the broad health needs

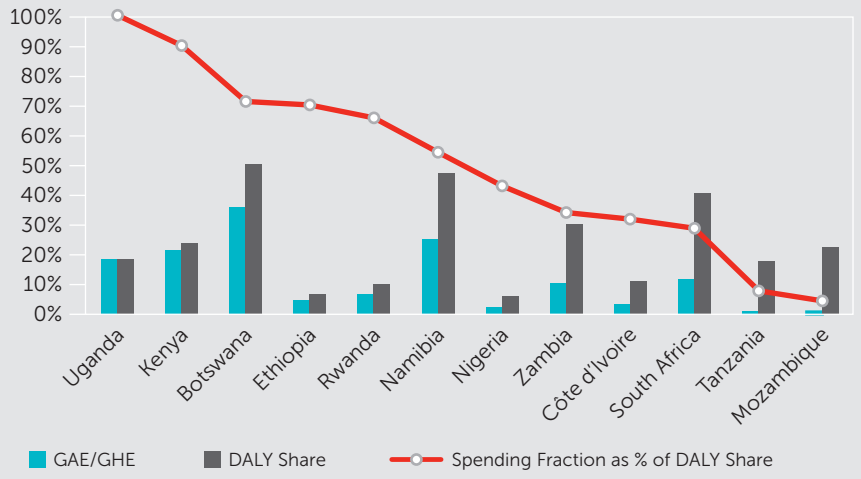
Figure 8: Burden of Disease Measured in Standard Disability-Adjusted Life Years and AIDS Share of Burden in PEPFAR Focus Countries



of the population. Accordingly, it may be argued that AIDS spending as a share of all public health spending should be proportional to the share of AIDS in the country's burden of disease. This allocation basis may not be consistent with a goal of maximizing health impact for a given amount of resources for health because it does not consider the cost-effectiveness of available interventions targeting AIDS and other health priorities [14]. Nevertheless, even if the fraction of health resources allocated to AIDS ought to be less (or more) than its share of disease burden due to cost-effectiveness and other considerations, it should be related to the relative size of the disease burden, and be consistent across countries. As such, DALY share is a useful, if imperfect, benchmark for cross-country comparison.

Across the 12 countries, there is broad variation in the correspondence between AIDS spending as a fraction of health spending and AIDS' share of disease burden. Figure 9 compares government expenditure on AIDS (GAE) as a share of government health expenditure (GHE) to AIDS share of the total disease burden. Kenya, Uganda, Botswana, and Ethiopia come closest to spending on AIDS in proportion to AIDS share of disease burden (AIDS DALYs). In these countries, the fraction of health resources

Figure 9: Government AIDS Expenditure (GAE) Compared to AIDS Share of Disease Burden Measured in DALYs



allocated to AIDS is above 70% of the AIDS share of total DALYs. Mozambique and Tanzania do least in AIDS spending relative to AIDS DALY share, with AIDS' share of health spending less than 15% of the DALY share. This variation in the ratio of GAE share (of health) to AIDS DALY share (of burden) holds even when comparing countries with similar AIDS DALY share, such as Kenya, Uganda, Tanzania, and Mozambique. Likewise, we see wide variation among countries with similar income levels. Such variation suggests opportunities for some countries to increase their effort to support AIDS programs.

VII. Future Fiscal Space for AIDS Programs

Up to this point, we have considered the current and historical AIDS financing situation in 12 PEPFAR countries. We have shown that there is potential for all countries to increase their financial support of AIDS programs, with the amounts and proportions varying widely from one country to another. In this section of the report, we turn to the future, using medium-term projections of economic growth, general government expenditure, and AIDS program resource needs. Our goal is to examine what countries will spend on HIV in the medium term and, given economic trends, as well as possible changes in spending patterns, the extent to which countries will be able to meet the costs of their AIDS programs from domestic resources.

VII.A. Methods and Data for Forward-Looking Analysis

For our forward-looking projections, we considered scenarios based on four ways in which a country's expenditure on AIDS could grow:

- through increased overall government revenue and spending driven by economic trends
- by increasing government health spending to the Abuja target level, in addition to gains from economic trends
- by allocating the health budget in proportion to AIDS' share of the country's disease burden, measured for the Global Burden of Disease study in DALYs, in addition to gains from economic trends
- a combination of all three of these factors in a 'maximal effort' scenario.

In these scenarios, we compared the expected domestic financial effort with the total future financial resource requirements to fight the epidemic, generally referred to as Resource Needs Estimates (RNEs). Resource needs estimates from three sources were examined: National Strategic Plans (NSPs) and two international AIDS resource needs estimation projects — aids2031 and the UNAIDS Investment Framework. The two international resource needs estimation projects used a similar model developed with tools from the Spectrum suite (Futures Institute, Glastonbury CT), but using different assumptions about unit costs and program activities. We considered both the baseline UNAIDS Investment Framework (IF) scenario and the aids2031 'Hard Choices' scenario [4, 10], and in the end we used the IF estimates since they were available for all 12 countries, whereas aids2031 projections were only available for 8 countries.

We gathered the available National Strategic Plan (NSP) documents of all 12 countries and extracted resource needs information. NSP RNE levels and patterns over time tend to be more variable than the two model-based RNEs, and generally entail higher estimates of future financial need, perhaps in part because they are used for advocacy and resource mobilization.

Our main forward-looking analysis is based on the NSP RNEs, which in many cases were extended to cover the 2012-2016 time horizon of the analysis. We also conducted a forward-looking analysis using the UNAIDS Investment Framework (IF) RNE projections as our reference point. This is a more optimistic scenario, because the overall resource needs estimated by UNAIDS are lower than in the NSPs of most countries.

For each future scenario, we calculated the domestic fiscal contribution and its share of total projected AIDS spending for the country, in order to see whether the government would take on a larger share of the entire financial burden of fighting AIDS. We then computed the resource gap remaining after applying this government share and Global Fund obligations through 2016, while maintaining annual PEPFAR support at its current level. When all required resources were available (i.e., there was no gap), we computed the reduction in PEPFAR support that could be realized.

VII.B. Results for the Four Scenarios Using NSP as the Overall Requirement

Economic trends during the 2012-2016 period would increase Government Expenditure on AIDS (GAE) by 12% overall in the 12 countries, from US$1.95 billion to US$2.21 billion. Still, all countries, except Botswana, would face some resource gap if growth in government AIDS spending is only due to general economic trends. Ten countries would still have gaps exceeding 25% of their national RNE. The overall gap would be 36% for the 12 countries together (Table 5).

Combined with expected economic trends, meeting the Abuja target in the seven countries not currently doing so would increase domestic government AIDS expenditure overall to US$3.27 billion, but all countries would still have gaps. Of the US$1.06 billion increase above the 'economic trends only' scenario, South Africa, Kenya, and

Table 5: Annualized Amounts of Financing by Source and Residual Gaps for 2012–2016 (US$ Millions)

Country	NSP Extended	Domestic Share	Global Fund Share	PEPFAR Share	Residual Gap	PEPFAR Max	Fraction of Max Req'd
Economic Trends Only							
Botswana	$354	$268	$0.0	$86.4	None	$87.0	99%
Côte d'Ivoire	$177	$12	$0.8	$119.1	$44.6 (25%)	$119.1	100%
Ethiopia	$855	$48	$101.6	$291.3	$414.5 (48%)	$291.3	100%
Kenya	$1,054	$141	$26.1	$548.1	$339.1 (32%)	$548.1	100%
Mozambique	$574	$8	$20.3	$269.1	$277.1 (48%)	$269.1	100%
Namibia	$275	$111	$0.0	$102.6	$61 (22%)	$102.6	100%
Nigeria	$879	$118	$61.4	$459.2	$240.3 (27%)	$459.2	100%
Rwanda	$263	$19	$37.6	$131.4	$74.5 (28%)	$131.4	100%
South Africa	$3,005	$1,297	$18.6	$367.0	$1,322.2 (44%)	$367.0	100%
Tanzania	$816	$17	$48.3	$358.0	$392.2 (48%)	$358.0	100%
Uganda	$756	$84	$170.1	$286.3	$215.6 (29%)	$286.3	100%
Zambia	$507	$83	$105.8	$276.7	$41.1 (8%)	$276.7	100%
Total	**$9,514**	**$2,206**	**$590.6**	**$3,295.3**	**$3,422.3 (36%)**	**$3,295.8**	**100%**
Abuja							
Botswana	$354	$268	$0.0	$86.4	None	$87.0	99%
Côte d'Ivoire	$177	$35	$0.8	$119.1	$22 (12%)	$119.1	100%
Ethiopia	$855	$69	$101.6	$291.3	$393.4 (46%)	$291.3	100%
Kenya	$1,054	$403	$26.1	$548.1	$77.2 (7%)	$548.1	100%
Mozambique	$574	$8	$20.3	$269.1	$276.8 (48%)	$269.1	100%
Namibia	$275	$131	$0.0	$102.6	$41.1 (15%)	$102.6	100%
Nigeria	$879	$233	$61.4	$459.2	$125.2 (14%)	$459.2	100%
Rwanda	$263	$19	$37.6	$131.4	$74.5 (28%)	$131.4	100%
South Africa	$3,005	$1,870	$18.6	$367.0	$749.7 (25%)	$367.0	100%
Tanzania	$816	$17	$48.3	$358.0	$392.1 (48%)	$358.0	100%
Uganda	$756	$133	$170.1	$286.3	$167.5 (22%)	$286.3	100%
Zambia	$507	$83	$105.8	$276.7	$41.1 (8%)	$276.7	100%
Total	**$9,514**	**$3,268**	**$590.6**	**$3,295.3**	**$2,360.6 (25%)**	**$3,295.8**	**100%**
DALY Share							
Botswana	$354	$354	$0.0	$0.0	None	$87.0	0%
Côte d'Ivoire	$177	$37	$0.8	$119.1	$19.2 (11%)	$119.1	100%
Ethiopia	$855	$70	$101.6	$291.3	$392.1 (46%)	$291.3	100%
Kenya	$1,054	$159	$26.1	$548.1	$320.3 (30%)	$548.1	100%
Mozambique	$574	$179	$20.3	$269.1	$106.3 (19%)	$269.1	100%
Namibia	$275	$205	$0.0	$70.0	None	$102.6	68%
Nigeria	$879	$293	$61.4	$459.2	$65.3 (7%)	$459.2	100%
Rwanda	$263	$29	$37.6	$131.4	$64.5 (25%)	$131.4	100%
South Africa	$3,005	$3,005	$0.0	$0.0	None	$367.0	0%
Tanzania	$816	$221	$48.3	$358.0	$188.4 (23%)	$358.0	100%
Uganda	$756	$84	$170.1	$286.3	$215.6 (29%)	$286.3	100%
Zambia	$507	$256	$105.8	$144.7	None	$276.7	52%
Total	**$9,514**	**$4,894**	**$572.0**	**$2,677.2**	**$1,371.7 (14%)**	**$3,295.8**	**81%**
Max							
Botswana	$354	$354	$0.0	$0.0	None	$87.0	0%
Côte d'Ivoire	$177	$108	$0.8	$67.7	None	$119.1	57%
Ethiopia	$855	$101	$101.6	$291.3	$361.1 (42%)	$291.3	100%
Kenya	$1,054	$456	$26.1	$548.1	$23.4 (2%)	$548.1	100%
Mozambique	$574	$186	$20.3	$269.1	$99 (17%)	$269.1	100%
Namibia	$275	$241	$0.0	$33.6	None	$102.6	33%
Nigeria	$879	$579	$61.4	$238.6	None	$459.2	52%
Rwanda	$263	$29	$37.6	$131.4	$64.5 (25%)	$131.4	100%
South Africa	$3,005	$3,005	$0.0	$0.0	None	$367.0	0%
Tanzania	$816	$222	$48.3	$358.0	$187.1 (23%)	$358.0	100%
Uganda	$756	$133	$170.1	$286.3	$167.5 (22%)	$286.3	100%
Zambia	$507	$256	$105.8	$144.7	None	$276.7	52%
Total	**$9,514**	**$5,671**	**$572.0**	**$2,368.7**	**$902.5 (9%)**	**$3,295.8**	**72%**

Domestic share was calculated using four scenarios for growth in government AIDS expenditure. Gaps calculated were based on flat PEPFAR funding at 2010 levels, current Global Fund grants, and program resource needs estimates from national strategic plans.

Nigeria account for 54%, 25%, and 11%, respectively. Eight countries would have gaps exceeding 25% of national RNE, and the overall gap for all 11 countries with gaps would be 36% of RNE.

Combined with expected economic trends, meeting the DALY share target would almost triple domestic AIDS spending in the 12 countries to US$4.89 billion. Much of this additional money would come from a reallocation of funds currently being spent on other non-AIDS health priorities. There would be 8 countries with persisting gaps, but only 4 would have gaps exceeding 25% of RNE, and the overall gap would be just 14%. Gaps would be eliminated in the three upper-middle-income countries (Botswana, Namibia, and South Africa), where AIDS' share of DALYs exceeds 40% and Government Health Expenditure (GHE) is high. The gap in Zambia would also be eliminated. As a result, PEPFAR's level of support overall could be reduced to 81% of the current level if no reallocations across countries took place.

Under the maximal effort scenario—defined as meeting both the Abuja and the DALY share targets, GAE would quadruple relative to current levels to US$5.67 billion. Resource gaps would remain in only 6 countries (Ethiopia, Kenya, Mozambique, Rwanda, Tanzania, and Uganda), and only two of these (Ethiopia, Rwanda) would have a gap exceeding 25% of national RNE[3]. If PEPFAR savings in the countries without gaps (US$1.07 billion) were taken off the table and not reallocated, overall PEPFAR spending would decline to 72% of its current level. If these savings were reallocated, they would just cover all remaining gaps in other countries.

Another way to look at the impact of these scenarios for expanding domestic support of AIDS programs is to consider the ratio of PEPFAR spending to domestic spending. Under the four strategies for bolstering domestic AIDS funding, PEPFAR's implied 'fund matching' — the number of PEPFAR dollars contributed per dollar of domestic financing — would decline significantly, from US$1.6 currently to US$0.4 (Table 6). Relying on economic trends alone, PEPFAR would spend as much as US$35 for every US$1 of domestic spending on AIDS (Mozambique) and above US$5 in 5 countries. However, if countries undertook the maximal effort (scenario 4), PEPFAR spending could be reduced to a maximum of US$4.50 per domestic dollar spent on AIDS (in Rwanda). In this scenario, two countries would be self-sufficient (Botswana and South Africa), and four others would be paying more than PEPFAR (PEPFAR-to-Domestic spending ratio of less than 1), in Côte d'Ivoire, Namibia, Nigeria, and Zambia).

VII.C. Results from the UNAIDS Investment Framework Scenario

We did this analysis in the same manner as the one in the previous section. The only aspect of this scenario that differs from the previous one is that the RNE projected by UNAIDS tends to be lower than the NSP RNE, and thus the corresponding gaps as a result of increasing domestic effort tend to be smaller and potential reductions in PEPFAR support are larger. Results are shown in Table 7.

In this scenario, economic trends alone are expected to erase gaps in 7 countries, assuming that PEPFAR financing remains constant at current levels. Côte d'Ivoire, Mozambique, Tanzania, South Africa, and Nigeria would still face a

Table 6: PEPFAR Matching of Government AIDS Spending

Country	Economic Trends	Economic Trends + Abuja	Economic Trends + DALY Share	Max
Botswana	0.3	0.3	—	—
Côte d'Ivoire	10.0	3.4	3.2	0.6
Ethiopia	6.1	4.2	4.1	2.9
Kenya	3.9	1.4	3.4	1.2
Mozambique	35.0	33.6	1.5	1.4
Namibia	0.9	0.8	0.3	0.1
Nigeria	3.9	2.0	1.6	0.4
Rwanda	6.8	6.8	4.5	4.5
South Africa	0.3	0.2	—	—
Tanzania	20.7	20.6	1.6	1.6
Uganda	3.4	2.2	3.4	2.2
Zambia	3.3	3.3	0.6	0.6
Total	**1.5**	**1.0**	**0.5**	**0.4**

Values shown are the dollars of PEPFAR support per dollar of GAE for 4 strategies under the Extended NSP scenario

[3]Note, Ethiopia is a country with an outlier NSP RNE per PLHIV compared to its peers, so the gap is in large part due to the particularly high RNE claim.

Table 7: Annualized Amounts of Financing by Source and Residual Gaps for 2012–2016 (US$ Millions)

Country	UNAIDS Investment Framework	Domestic Share	Global Fund Share	PEPFAR Share	Residual Gap	PEPFAR Max	Fraction of Max Req'd
Economic Trends Only							
Botswana	$205	$205	$0.0	$0	None	$87.0	0%
Côte d'Ivoire	$301	$12	$0.8	$119.1	$169.5 (56%)	$119.1	100%
Ethiopia	$421	$48	$101.6	$271.3	None	$291.3	93%
Kenya	$670	$141	$26.1	$503.7	None	$548.1	92%
Mozambique	$500	$8	$20.3	$269.1	$203.2 (41%)	$269.1	100%
Namibia	$132	$111	$0.0	$20.5	None	$102.6	20%
Nigeria	$987	$118	$61.4	$459.2	$348.3 (35%)	$459.2	100%
Rwanda	$127	$19	$37.6	$70.3	None	$131.4	53%
South Africa	$2,759	$1,297	$18.6	$367.0	$1,076.3 (39%)	$367.0	100%
Tanzania	$495	$17	$48.3	$358.0	$71.4 (14%)	$358.0	100%
Uganda	$402	$84	$170.1	$147.2	None	$286.3	51%
Zambia	$367	$83	$105.8	$177.7	None	$276.7	64%
TOTAL	**$7,365**	**$2,143**	**$590.6**	**$2,763.1**	**$1,868.7 (25%)**	**$3,295.8**	**84%**
Abuja							
Botswana	$205	$205	$0.0	$0	None	$87.0	0%
Côte d'Ivoire	$301	$35	$0.8	$119.1	$146.9 (49%)	$119.1	100%
Ethiopia	$421	$69	$101.6	$250.2	None	$291.3	86%
Kenya	$670	$403	$26.1	$241.8	None	$548.1	44%
Mozambique	$500	$8	$20.3	$269.1	$202.9 (41%)	$269.1	100%
Namibia	$132	$131	$0.0	$0.7	None	$102.6	1%
Nigeria	$987	$233	$61.4	$459.2	$233.2 (24%)	$459.2	100%
Rwanda	$127	$19	$37.6	$70.3	None	$131.4	53%
South Africa	$2,759	$1,870	$18.6	$367.0	$503.7(18%)	$367.0	100%
Tanzania	$495	$17	$48.3	$358.0	$71.3 (14%)	$358.0	100%
Uganda	$402	$133	$170.1	$99.0	None	$286.3	35%
Zambia	$367	$83	$105.8	$177.7	None	$276.7	64%
TOTAL	**$7,365**	**$3,205**	**$590.6**	**$2,412.1**	**$1,158 (16%)**	**$3,295.8**	**73%**
DALY Share							
Botswana	$205	$205	$0.0	$0.0	None	$87.0	0%
Côte d'Ivoire	$301	$37	$0.8	$119.1	$144.0 (48%)	$119.1	100%
Ethiopia	$421	$70	$101.6	$248.9	None	$291.3	85%
Kenya	$670	$159	$26.1	$484.9	None	$548.1	88%
Mozambique	$500	$179	$20.3	$269.1	$32.4 (6%)	$269.1	100%
Namibia	$132	$132	$0.0	$0.0	None	$102.6	0%
Nigeria	$987	$293	$61.4	$459.2	$173.4 (18%)	$459.2	100%
Rwanda	$127	$29	$37.6	$60.3	None	$131.4	46%
South Africa	$2,759	$2,759	$0.0	$0.0	None	$367.0	0%
Tanzania	$495	$221	$48.3	$225.5	None	$358.0	63%
Uganda	$402	$84	$170.1	$147.2	None	$286.3	51%
Zambia	$367	$256	$105.8	$4.5	None	$276.7	2%
Total	**$7,365**	**$4,425**	**$572.0**	**$2,018.7**	**$349.8 (5%)**	**$3,295.8**	**61%**
Max							
Botswana	$205	$205	$0.0	$0.0	None	$87.0	0%
Côte d'Ivoire	$301	$108	$0.8	$119.1	$73.5 (24%)	$119.1	100%
Ethiopia	$421	$101	$101.6	$217.9	None	$291.3	75%
Kenya	$670	$456	$26.1	$188.0	None	$548.1	34%
Mozambique	$500	$186	$20.3	$269.1	$25.0 (5%)	$269.1	100%
Namibia	$132	$132	$0.0	$0.0	None	$102.6	0%
Nigeria	$987	$579	$61.4	$346.6	None	$459.2	75%
Rwanda	$127	$29	$37.6	$60.3	None	$131.4	46%
South Africa	$2,759	$2,759	$0.0	$0.0	None	$367.0	0%
Tanzania	$495	$222	$48.3	$224.2	None	$358.0	63%
Uganda	$402	$133	$170.1	$99.0	None	$286.3	35%
Zambia	$367	$256	$105.8	$4.5	None	$276.7	2%
Total	**$7,365**	**$5,166**	**$572.0**	**$1,528.8**	**$98.5 (1%)**	**$3,295.8**	**46%**

Domestic share was calculated using four scenarios for growth in government AIDS expenditure. Gaps calculated were based on flat PEPFAR funding at 2010 levels, current Global Fund grants, and program resource needs estimates from national strategic plans.

resource gap. The country level gap exceeds 25% of RNE for all those countries except Tanzania, with the total gap representing 25% of the total RNE for the 12 countries. PEPFAR's entire contribution could drop by 16% (US$2.76 billion annually compared to the 2010 level of US$3.3 billion). PEPFAR would still be covering 38% of all national AIDS spending.

Combined with expected economic trends, if all countries met the Abuja targets, no additional country gaps would be eliminated, but the combined shortfall would be reduced to just under US$1.2 billion, and only two countries would have gaps persisting above 25% of their national RNE. PEPFAR's contribution would fall by about 27% from 2010 level.

Combined with expected economic trends, meeting the DALY share target would eliminate gaps for South Africa and Tanzania and reduce the combined value of the country shortfalls to just 5% of the total RNE for the 12 countries. PEPFAR's contribution would be 39% lower than it is at present. National governments would be paying for 60% of AIDS spending in the 12 countries.

Under the maximal effort strategy, only Côte d'Ivoire and Mozambique would have funding gaps, and both would be less than 25% of national RNE. PEPFAR would be supporting only 21% of the overall AIDS requirements of the 12 countries, and the cost to PEPFAR would be less than half of its 2010 level, even if it reallocated some savings to fill the remaining gaps (totaling only US$98 million) in Côte d'Ivoire and Mozambique.

VIII. Conclusions

Over the past few years, PEPFAR has been working hard to integrate its support for national AIDS programs in high HIV prevalence countries through a series of measures under the Partnership Frameworks and PFIPs. In the financial arena, underlying goals have been to ensure that:

- overall, national AIDS plans are well developed, contain high priority and high impact activities, and are backed up by a solid financing plan supported by governments and other donors, as well as PEPFAR;
- governments do their 'fair share' of the overall funding of these national AIDS efforts, reducing PEPFAR financial support where feasible to do so; and
- where financial shortfalls may still occur in certain countries, that PEPFAR 'savings' might be reallocated to these needy countries or that other sources of financing might be mobilized to cover the shortfalls.

To operationalize these goals, it is vitally important that PEPFAR and national governments have the systems and processes to generate and use good quality financial data on AIDS spending. This includes retrospective figures on actual AIDS expenditure and prospective data on national AIDS financial requirements, and the planned and budgeted amounts that might come from different complementary sources including governments, PEPFAR, and others.

Our review of the current state of play in this area, as shown in this cross-cutting analysis and in the 12 separate country profiles that form a part of this report, leads us to a series of broad preliminary conclusions.

While much effort has been made recently, data on past AIDS expenditures remains inadequate. Much of our analysis of past and current domestic financial performance depends on data from NHAs and NASAs. Some are of high quality, but there is anecdotal evidence to suggest that domestic figures may not be that accurate, and they are not produced in time to be used for high level policy dialogue. PFIPs may be able to stimulate the collection of better and more timely data collection and reporting. The same issue exists for PEPFAR and other donor funding. On the PEPFAR expenditures, all agree that COPs give an imperfect picture of what is actually being spent from US government funds. The new Expenditure Analysis tracking tool being rolled out by PEPFAR could help a great deal.

For forward-looking analysis of AIDS financing in the high prevalence countries, the resource needs estimates (RNEs) are not standardized across countries and produce a range of numbers that make it challenging to assess gaps and project fair financial burden sharing among the key parties. There will always be honest disagreements about how much money countries need to mount a strong response to their AIDS epidemics. However, National Strategic Plans (NSPs) have in-built upward biases in most countries, since they are used to advocate for funds from national finance ministries and donors. The kinds of projections done by UNAIDS and by independent expert groups such as aids2031 may be more politically neutral, but do not always reflect local priorities.

For purposes of calculating financial commitments in five-year projections contained in the PFIPs, a mix of NSP and UNAIDS Investment Framework estimates can be used, as has been done in Nigeria, South Africa, and elsewhere. In the meantime, further improvements to these RNEs should be pursued by governments and donors.

Analysis of current AIDS expenditures across countries suggests that total spending, spending by PEPFAR, and national government spending are not yet fully aligned with the burden of illness, as measured, for example, in persons living with HIV, or with the countries' ability to pay, as expressed in GNI per capita. It is worth investigating further how PEPFAR currently allocates its funds and whether there are appropriate ways to align

PEPFAR's relative allocation per PLHIV (and thus the total amount per country) more closely with each country's GNI per PLHIV, a composite measure of the two variables.

Fiscal space analysis suggests that all 12 countries could be doing more to contribute to their national AIDS responses. This is especially true if one accepts that domestic spending on AIDS can, and should be boosted through a combination of overall revenue effort (for countries collecting a smaller share of GDP as revenue), health spending as a share of GDP (with the Abuja benchmark of 15% as the norm), and share of health spending for AIDS proportional to AIDS' share of all DALYs lost. Compared to the 2009 baseline of actual AIDS spending, the 12 countries reviewed in this report would have increased their domestic spending by two-thirds if all the measures to create more fiscal space were adopted simultaneously. In that case, domestic spending in 2009 would have been US$3 billion — as compared to the US$1.8 billion estimated to have been spent by the 12 governments that year — and would have covered almost three quarters of the amount UNAIDS estimated the 12 countries needed in 2009 to fully fund their AIDS responses. In that case, the US$3.3 billion that PEPFAR reports to have spent in the 12 countries would have more than covered the remaining external gap.

At the individual country level, the countries making the least domestic fiscal effort for AIDS, including Côte d'Ivoire, Mozambique, and Tanzania, could increase their domestic allocations to AIDS by 9-25 fold, as compared to their 2009 levels, adjusted for economic growth and projected fiscal trends. Even the largest spenders, such as Namibia and South Africa, could still expand their domestic contributions and shares of overall AIDS expenditure.

Fiscal space analysis also shows that the 12 countries could be mobilizing significantly more domestic resources for AIDS, but overall spending needs will also rise. The implications for PEPFAR will vary from country to country and will depend on which future funding estimate is used and on the fiscal measures adopted by the countries to generate more domestic financing. Under the different Resource Needs Estimates that were analyzed as part of this review, the AIDS financing needs of the 12 countries are expected to rise about 30% in the coming 5 years from US$6.1–US$8.2 billion in 2012 to US$8.0–US$10.4 billion in 2016. Longer term projections by aids2031 [15], UNAIDS [16], and others [17] all show that these costs will continue to rise beyond 2016. Provided that government AIDS expenditure (GAE) grows in proportion to overall government expenditure, economic trends alone should help to generate about US$1.1 billion in additional domestic financial resources for AIDS during the 2012-16 period, but this will not keep pace with the increase in total funding required by the 12 countries. If countries adopt some combination of the two strategies analyzed here — increased health spending as a share of the national budget (in line with Abuja goals), and AIDS spending from the health budget in proportion to the share of overall DALYs lost due to AIDS — the 12 countries together could increase annual domestic contributions from US$2.1 billion annually to US$3.3-5.7 billion a year, covering 33-70% of AIDS resource needs.

In the best case scenario (UNAIDS resource estimates and adoption of both measures to enhance domestic allocations for AIDS), the annualized external funding requirement could drop to US$2.0 billion, of which PEPFAR's share would be US$1.5 billion, well below the current amount of PEPAR financing. Still, even in this most optimistic case, PEPFAR would need to sustain at least partial support amounting to more than half what it is currently spending. In the worst case (NSP resource estimates, economic trends only and no additional domestic fiscal effort for AIDS), the external funding need could rise to US$7.2 billion, nearly double what PEPFAR has been allocating to the 12 countries. This pessimistic scenario underscores the importance of PEPFAR and other external partners like the Global Fund working with the 12 countries, through PFIPs and other instruments, to ensure that domestic financing for national AIDS programs grows substantially in the coming years.

The tools used in this report could be deployed by PEPFAR in developing its overall financing plans and its allocations to individual countries. In that sense, the tools can be used in a variety of ways that could strengthen PEPFAR's financing requests, its distribution of funds to individual countries, and its dialogue and negotiations with country governments (as in the PFIP) and other donors. PEPFAR's total budget requests, for example, could draw on projections of total RNEs and the shortfalls that emerge when fair and sustainable domestic funding and other expected donor contributions are taken into account.

If a limited amount of PEPFAR funding is available, a series of variables, including burden of HIV disease and country ability to pay (as expressed through gross national income [GNI] per capita), can be used to develop indicative shares of PEPFAR funding for each country. This is where a composite measure like GNI per PLHIV could be used as one tool, among many, to help allocate scarce PEPFAR monies. In any country, the impact of rapid changes in PEPFAR funding levels on health systems and capacity to maintain necessary services must be carefully considered.

Finally, the fiscal space analysis done here can point the way to estimating what might be the maximum fair and sustainable financial effort that national governments could make to their AIDS programs. This could set a target for domestic financing in the PFIPs and help in defining the remaining gap that PEPFAR and other external sources could strive to fill, within their financial means and taking into account relative priorities across different countries.

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