

# Basic Primer for Costing PRS Interventions

May 4, 2007

Maude Svensson

## Table of Contents

INTRODUCTION .....	2
PART I:.....	4
1. COSTING POVERTY REDUCTION STRATEGIES.....	4
1.1 Objectives of costing.....	4
1.2 Financial sustainability .....	5
1.2.1 <i>Increasing the financial envelope</i> .....	6
1.2.2 <i>Improving efficiency and reallocating to higher priorities</i> .....	6
1.2.3 <i>Mobilizing external aid - the role of a financing strategy.</i> .....	7
1.3 Absorptive capacity .....	8
2. COSTING METHODS.....	10
2.1 Top-down macro approaches.....	10
2.2 Bottom-up approaches .....	11
2.3 Estimation by analogy.....	12
3. BOTTOM-UP COSTING AS A PROCESS.....	13
3.1 Costing links the country’s vision, PRS, annual budgets and MTEFs .....	13
3.2 Integrating capacity development in the costing process ..... <b>Error! Bookmark not defined.</b>	
4. SELECTED KEY ISSUES .....	16
4.1 Prioritization .....	17
4.2 Cross-sectoral linkages: synergies and complementarities.....	17
4.3 Decentralization .....	19
4.4 Financially unconstrained costing.....	19
4.5 Full accounting.....	20
5. GUIDELINES ON HOW TO DO IT.....	21
5.1 The role of costing teams and the focal costing person(s).....	21
5.2 Long-term targets and milestones form the basis for intervention lists.....	22
5.3 Scope of costing.....	23
5.4 Guiding principles.....	24
5.5 Incremental or total cost approaches?.....	25
5.6 Baseline statistics and unit costs .....	26
5.6.1 <i>Baseline statistics</i> .....	27
5.6.2 <i>Unit costs</i> .....	28
5.7 Check results – rules of thumb.....	29
5.8 Consolidation .....	31
5.9 Translating cost estimates into a simplified GFS classification .....	31
5.10 Financing strategy.....	33
6. SIMPLE COSTING MODELS AND REFERENCES.....	<a href="#">35</a>
APPENDICES: .....	35
Appendix A1. Rwanda: Checklists for Costing and Consistency .....	35
Appendix A2. Sudan: Current status and trends for MDGs .....	35
Appendix A3. Liberia: Result Matrix.....	35
Appendix A4. Malawi: Guiding principles for costing.....	35
Appendix A5. Somalia: Unit costs .....	35
Appendix A6. The Millennium Development Goals.....	35

## INTRODUCTION

Developing countries have adopted Poverty Reduction Strategies (PRSs) as part of their fight against poverty. PRSs are aligned to country specific sector strategies and increasingly to the Millennium Development Goals (MDGs)<sup>1</sup>. They identify specific and necessary interventions and actions to attain a set of overall and sectoral targets. Thus in all sectors, there should be well-specified SMART<sup>2</sup> targets and agreement on what to achieve and how to do it. Within this context, costing is an essential policy tool for quantifying the human resources, infrastructure, and financial resources required to meet annual and medium-term targets.

*Objectives of costing.* Costing is necessary for the operationalization of development strategies, providing a crucial link between PRS objectives and medium-term expenditure frameworks (MTEFs) and budgets. It demonstrates the resources required to provide the interventions that are necessary for targets to be fulfilled. By considering binding constraints, such as financial and absorptive capacity, and strategies for how to release them, realism is built into the costing process.

*Objectives of the primer.* The primer aims to provide a practical approach to complex processes. It gives an overview of the main issues to consider when costing PRSs, with reference to country experience. It also consolidates existing information that is spread over a number of manuals and needs assessments. The primer concentrates on simple models, since experience demonstrates that resulting estimates do not differ greatly from those generated by more comprehensive and sophisticated models, even if there is some trade-off in accuracy.

Simple models and guidelines have other advantages:

- They can be introduced early in the PRS process, thereby guiding decisions on prioritization.
- Since they are easier to understand, they facilitate institutional memory in organizations with fast turn-over of staff, which is the case in many developing countries' ministries.
- They are relatively undemanding on time and capacity, while still providing a basis for budget negotiations within ministries and between line ministries and the Ministry of Finance.
- They have a better chance of succeeding as capacity building instruments.

---

<sup>1</sup> See Appendix A6 for a summary of the MDGs.

<sup>2</sup> Development targets are intended to help governments focus their resources and hold them accountable for subsequent actions. To serve these purposes, targets must be SMART; that is, they must be Specific, Measurable, Ambitious, Realistic, and Time-bound.

*Use of examples.* Country cases have been used to demonstrate practical solutions to the challenges. The Ethiopia example illustrates how costing can take place within a framework of strong donor participation. The Rwanda case focuses on costing in a country where aid is rapidly being scaled up. Sudan's experience illustrates how costing can be conducted in an environment deeply affected by conflict. The Tanzania case is used to characterize costing under strong PRS ownership and participation.

*Target audience.* This basic primer is written primarily for stakeholders in Ministries of Finance and Line Ministries in developing countries as a guide to costing poverty reduction strategies. It is targeted toward low income countries, including conflict-affected countries.

*Methodological considerations and scope.* While recognizing the important complementary role of top-down models and costing by analogy, the primer focuses a bottom-up approach to costing. It describes the bottom-up costing method and provides examples of how different countries have costed their development strategies and sectoral targets. It discusses two main constraints – lack of capacity and financial resources – and provides insights into how countries have overcome these constraints through capacity development and financial strategies.

*Main limitations of the primer.* The primer focuses on the links between costing and financial planning and budgeting as reflected in the government accounts. It is not concerned with estimating non-financial costs (such as environmental costs or other negative externalities) that may be important in many countries.

Since the primer aims to be simple, there are a few trade-offs with more sophisticated models:

- As simple approaches concentrate on the big cost items, there is loss in detail (both with regard to the cost of interventions and budget classification codes).
- The simple approach depends on a strong core costing team, and close cooperation between sectoral costing teams, to estimate trade-offs between and within sectors.
- Analysis of cross-cutting issues, synergies, complementarities and overlaps will also require close cooperation (workshops, training, etc) and strong leadership.

Readers who are interested in more detailed cost models should consult the reference list as well as the more sophisticated models in Part II of the primer.

*Structure of the primer.* The primer has two parts. The objective of Part I is to: (i) familiarize analysts in ministries of finance and budget departments of line ministries with the main approaches used for costing, with a particular focus on bottom up costing; (ii) provide a simple way to translate PRS costing of programs into the line item format of government budgets and a simplified Government Finance Statistics (GFS) budget classification system; (iii) describe the basic elements of a financing strategy; (iv)

highlight the capacity building aspects of the costing process based on selected country examples.

Part II of the primer presents a few simplified models to cost for specific PRS relevant goals and targets in the education and health sector under a budget constraint. The models are based on easy to use Excel spreadsheets and are meant to provide rough estimates of the annual costs of achieving a particular goal such as basic education for all. The models are accompanied by a guidance note and which also makes reference to more sophisticated approaches in the relevant sector. While lacking the technical sophistication of more complex models used, for example, by the Millennium Project, WHO, UNDP, or UNESCO, they can be employed relatively easily by government staff with limited technical skills in costing (especially in fragile states). These models enable the calculation of ballpark estimates for up to three scenarios and are anchored in, and constrained by, annual estimates of available resources. This part of the primer is meant to become a “living” web-based document, where new sectors and sources/references to emerging work can be added over time.

To support both parts of the primer, a comprehensive list of references to literature and websites is provided.

## **PART I:**

### **1. COSTING POVERTY REDUCTION STRATEGIES**

This chapter gives an overview of the framework within which the costing of PRSs may be undertaken. The main objectives and constraints are highlighted, as well as strategies to release absorptive and financial constraints.

#### **1.1 Objectives of costing**

Costing has at least four broad objectives:

First, it should contribute to transforming PRSs and sectoral strategies into operationalized and monitorable action plans and budgets.

Second, it should demonstrate how much financing would be required every year to pay for the human resources and infrastructure to meet development targets.

Third, it should provide important guidance on implementation to policy makers, especially about how to sequence and prioritize program interventions (allowing for potential bottlenecks) to increase the efficiency of budget allocations.

Fourth, by comparing cost estimates with current domestic and external revenue (including an assessment of the potential for reallocating and/or enhancing efficiency of current expenditure), it should pave the way for an appropriate financing strategy.

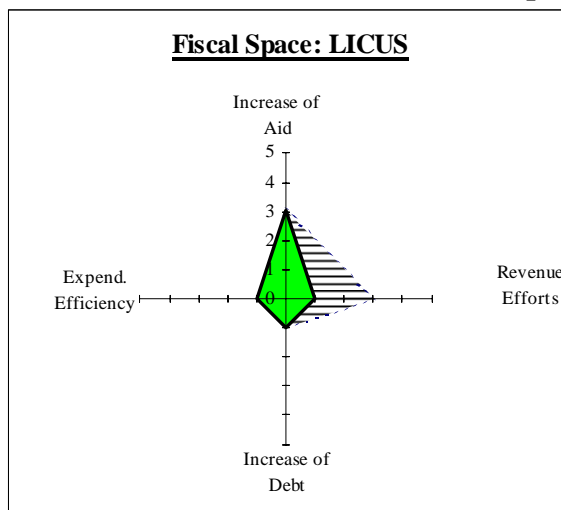
## 1.2 Financial sustainability

All countries operate under fiscal constraints, and must therefore prioritize all activities in order to make budget proposals credible and financially sustainable. As the budget represents a comprehensive expression of a country's priorities during a given year, it will contain pro-poor PRS spending but also other necessary spending that falls outside of the framework of the PRS.

Countries vary in terms of which expenditures they include in their PRS and government budget. For instance, donors' projects are normally included and costed in PRSs but are not always included in budgets. Military expenditure, on the contrary, is included in most governments' budgets, but falls outside the PRS. Other categories, such as sport, culture, administration and higher education are part of some countries' PRS, whereas they fall outside of the PRS in other countries. The fiscal space to increase PRS-related expenditure must therefore be seen in relation to the whole budget, including non-PRS expenses.

Governments can increase their fiscal maneuver room not only through increased revenue (or borrowing), but also through reallocations within the budget, and through enhanced efficiency of budget expenditure. Initial fiscal conditions in a country – the revenue effort and growth potential, the level and efficiency of existing expenditure, access to foreign finance and ability to access borrowing from financial markets – determine the scope for creating further room for pro-poor PRS spending. The ease and cost of raising resources through any of these means will vary, depending on structural and institutional features of the economy.

**Figure 1. Fiscal maneuver room for PRS spending in LICUS countries**



Various scenarios can be developed for different types of countries. To illustrate the idea of fiscal space, we use the example of a typical Low Income Country Under Stress (LICUS) (Figure 1), emerging from a period of civil or military unrest with depleted institutional capacity, limited infrastructure, and low economic activity. Under these

conditions, limited scope exists in the short run for expenditure efficiency gains or substantial revenue increase. Fiscal space will initially be based on external grant aid, or prudent concessional borrowing. But as growth picks up and the security situation stabilizes, sources of potential revenue, reallocation of expenditure, and external flows (borrowing, FDI, aid) are likely to open up.

### ***1.2.1 Increasing the financial envelope***

Governments can create funding for more pro-poor spending through increased revenue, either from domestic or external sources, including: increased economic growth and a resulting increase in its tax base; improved tax or non-tax instruments; scaled up foreign aid; and borrowing.

A joint World Bank/Fund report concluded that increasing general revenue is an under-used source of fiscal space.<sup>3</sup> It showed that, on average, Low Income Countries collect less than 20% of GDP in revenue and few have managed to improve revenue mobilization significantly over the past twenty years (Table 1 shows how revenue ratios tend to increase with higher per capita income). Moreover, many existing tax systems are not efficient and harm long-term growth prospects. Thus, revenue increases that are the result of efficient tax reforms, encompassing improved tax administrations and reduced reliance on distortionary taxes or tax exemptions, could be an effective means of relaxing fiscal constraints.

**Table 1. Tax to GDP ratio in relation to income**

GDP per capita	Tax to GDP ratio (1997-2001)
<US\$1,000	14.5%
US\$1,000-5000	21.3%
US\$5,000-10.000	22.8%
>US\$10,000	32.4%

*Source: World Development Indicators*

Although revenue increases pose challenges for many low-income countries, conflict-affected LICUS countries stand out as those that have even fewer options to increase domestic revenue in the short to medium-term. A low revenue base and lack of tax collection capacity limits the scope for rapidly increasing domestic revenue. Limited functions and experiences of running governments in peacetime offer little scope for fiscal savings through improvements in efficiency. In addition, LICUS countries frequently have little capacity to attract loans. Predictable and untied external grant aid in combination with reallocating budgets away from military expenses therefore often offer a reasonable alternative in the short to medium-term.

### ***1.2.2 Improving efficiency and reallocating to higher priorities***

<sup>3</sup> See “Fiscal Policy for Growth and Development: an Interim Report”, IMF/World Bank, 2006.

It is crucial to consider both efficiency of public spending and the possibility of reallocation when costing PRS interventions. Studies have found that a typical country in Sub-Saharan Africa could improve health outcomes by 40 percent if resources were reallocated to the most cost-effective intervention mix.<sup>4</sup> The World Development Report 2004 showed that due to large variations of public spending effectiveness in different countries, the outcome impact of an increase in spending on education and health varied tremendously. The example of Uganda, where only 13 percent of allocations intended for district schools reached their destination in the early 1990s, is an illustration of weak linkages between spending and outcomes.<sup>5</sup> If resources do not reach the targeted beneficiaries, it is not surprising that development targets are not fulfilled. And, if institutional weaknesses and problems of governance that cause poor outcomes are not addressed, even spending on potentially high return programs will have little impact.

Public Expenditure Reviews (PERs) reveal that few governments systematically review spending with a view to reducing low returns and identifying resources for re-allocation.<sup>6</sup> While this may be due in part to lack of technical capacity, political considerations also play a major role for allocations within the budget. Public expenditure, especially non-discretionary expenditure, therefore needs to be revisited with a view to efficiency enhancement. Identifying where spending is most inefficient and where it can be reallocated is a difficult and time-consuming technical task. But this in itself can open considerable fiscal space for pro-poor PRS activities to take place within constrained financial resources. PERs and Public Expenditure Tracking Surveys (PETS) can be used as a basis for helping to identify low productivity programs and fiscal savings for reallocation.

**Box 1. Rwanda used models for linking costs with targets**

The Rwanda resident costing team suggested a practical way to improve efficiency and reallocation of budget expenditure. Costing models were developed to link resources with targets and provide insights into the development impact of a reallocation of resources. Policymakers could thus easily see how changes in budget allocations within sectors would affect targets. For instance, it demonstrated that a reallocation of 10% of the primary education budget to tertiary education would prolong the time take to reach the MDG target on basic education by a certain number of years.

***1.2.3 Mobilizing external aid - the role of a financing strategy.***

<sup>4</sup> See for example Murray, C., J. Kreuser, and W. Whang. "Cost-effectiveness analysis and policy choices: investing in health systems." Bulletin of the World Health Organization 74, 1994.

<sup>5</sup> See Ablo, E. and Reinikka. R. "Do Budgets Really Matter? Evidence from Public Spending on Education and Health in Uganda." Working Paper 1926. World Bank, 1998.

<sup>6</sup> See Fund/Bank Development Committee: "Fiscal Policy for Growth and Development: An Interim Report", April 2006.

Although donors have promised to scale up aid to help reach the MDGs, they must be reassured those funds are used effectively. The credibility and transparency of governments' and donors' stated commitments to pro-poor spending can be enhanced by a financing strategy. This should include strategies to increase funding from taxation, from domestic and foreign borrowing, from external grants (including debt cancellation), and from reallocation of budget spending. The financing strategy will give a clear picture of the government's own commitments (through tax and non-tax instruments, reallocations, efficiency reforms) as well as of donors' commitments (foreign aid and loans). Financing strategies can thereby increase the credibility of the stated PRS goals and the probability of scaled up assistance.

Transparency and credibility can be further explored by elaborating different costing scenarios: one realistic, one optimistic (financially unconstrained), and possibly also one which is pessimistic. To avoid the risk that an optimistic scenario is interpreted as a "wish-list" which lacks priorities, it must be presented together with other (more realistic) alternatives. The use of different scenarios is also a useful tool for advocacy since it can clearly show how scaling up or down of financial resources can impact the fulfillment of a target.

Countries that have presented financing strategies have often committed themselves to increasing pro-poor spending as a share of the budget, increasing their own revenue-raising efforts and reallocating government spending. The predictability of donor commitments is critically important. Budget support or debt relief are examples of aid modalities that are easily complemented with domestic or other sources of financing, but the effective use of funds is often undermined by lack of predictability.

**Box 2. The financing strategy in Sudan JAM**

The financing strategy finalized in the Sudan Joint Assessment Mission (JAM) was an important follow up to the costing exercise. A thorough analysis and negotiation with the Sudanese authorities took place before the parties asked for external finance. Two main regional strategies and budgets were developed: one concerning the national government and one for southern Sudan. The national government committed to financing 72% of pro-poor interventions within its area, and the government of Southern Sudan committed to financing about 60% of its pro-poor interventions. For both parties, this implied large increases in donor commitments as well.

In Southern Sudan, where no public budget existed, the financing strategy included a rough estimation of a budget. The government of Southern Sudan committed to financing their part through increased revenue, mainly from oil production and transfers from the national government. Containing military spending was also critical to meeting targets for pro-poor expenditure and realizing JAM-defined objectives.

**1.3 Absorptive capacity**

Absorptive capacity is a measure of administrative strength and technical skills to implement programs and deliver services. Adequate absorptive capacity would give a government the flexibility to procure, disburse, coordinate, control, and monitor increased public spending. It requires both vertical coordination (between central and

local government) and horizontal coordination (among central and line ministries at any given level). For instance, it may be that capacity skills at the central level are sufficient, while there are large gaps at the local level or among implementing agencies (NGOs, private sector, public sector service providers, etc.).

The costing exercise should try to address some key questions concerning scarce capacity. First, are interventions realistic given current absorptive capacity? Second, is there a need to integrate capacity building initiatives and/or wage incentives in order to increase sustainability? Third, in high priority sectors can additional expenditures be absorbed by the relevant line ministries and other agencies without loss of control, increased leakage, and/or poorer quality of service delivery?

Although absorptive capacity is difficult to measure, there are indicators that provide a signal of gaps. One way is to look at the execution rate of programs in past budgets (actual expenditures as a percentage of approved budgets). Large gaps between actual and planned interventions are indicators of low capacity in certain sectors or ministries (although it can also be a sign of over-optimistic planning). Also, comparing the planned real absolute changes in public expenditure of a given sector or ministry over a three-year period with a recent time trend on actual spending gives an indication of the quantity of resources which can be absorbed. If the required increase in real spending to meet PRS targets exceeds this trend by a significant margin, doubts may be raised about the absorptive sustainability of the planned expenditure path. Other, more comprehensive and long-term instruments for analyzing absorptive capacity are regular studies such as PETS and PERs.

Absorptive capacity is not fixed, even in the short-term. Reforms to develop capacity and build institutions can relax absorptive constraints. Reorganization or better planning can release existing capacity to be used for higher priority tasks. And sometimes, intangible factors such as management style play important roles in stimulating personal energy and releasing capacity that was not fully used.

The costing process must encompass cost estimates for capacity development where capacity constraints are binding. An in-depth analysis might show that some PRS

### **Box 3. Capacity constraints considerations while costing Tanzania's MUKUKUTA**

While costing health interventions within the Tanzania MUKUKUTA (the National Strategy for Growth and Reduction of Poverty), the team analyzed the human resources situation. Capacity constraints emerged as a major problem, especially in health administration. As a result of these concerns, some desired interventions were postponed and others deleted from the list of interventions to be costed. A gradual scaling up of interventions to strengthen administrative capacity was proposed. Another capacity constraint concerned the inadequate number of health practitioners. Tanzania had witnessed a steady decline in the size and in the per capita availability of its health workforce. Whereas lower level health staff would be possible to hire after some minor training activities, there was a serious shortage of more skilled cadres, especially of doctors, specialists and nurses.

The MKUKUTA health costing therefore included several interventions to relax these capacity constraints. Strengthening of public training institutions, salary incentives, and in-service training was proposed for increasing the number of health workers and middle cadre graduates. The team recognized that it would take time to remove capacity bottlenecks, especially concerning the lack of doctors. Scaling up of complementary interventions in other sectors (e.g. the education sector) was therefore necessary. (Even with increases in training output, however, it is difficult to predict how many of those trained would eventually be willing and able to accept a government job if offered. Civil service reform, including increases in pay rates, may be necessary to realize benefits from increased training output.)

interventions need to be postponed while capacity is being built up. In Sudan, where the long war had severely constrained human capacity (especially in the South), a special program for capacity and institutional building was costed. It was recognized that lack of professional staff would require population movements within the country, as well as temporary regional consultants and incentives to attract the well-educated diaspora to return.

## 2. COSTING METHODS

There are several approaches to costing PRS targets and activities, but no single method can be applied to all situations. Different objectives and different sectors/programs call for different processes and methods depending on sector specifics, the stage of project cycles, and the sophistication of budgets. Various methods may also complement each other, for example by providing both macro and micro perspectives. This part provides a short description of the three most common methods: (i) top-down approaches, (ii) bottom-up costing, and (iii) estimating by analogy. All three methods have their pros and cons and a single costing process may draw on elements of each. However, the focus here is on simple bottom-up approaches. For a fuller description of the top-down and analogy methods, please see the World Bank website on Costing and Prioritization.<sup>7</sup> See also the UNDP website for a comprehensive description of bottom-up approaches and other methods.<sup>8</sup>

### 2.1. Top-down macro approaches

Top-down macro costing often builds on econometric models that are extensions of the Harrod-Domar model, used for calculating the investments that will be needed in order to reach a target growth rate.<sup>9</sup> The resulting financing gap between required investment and available resources is often assumed to be filled with foreign aid. A top-down model would often be based on a given incremental capital output ratio (ICOR), which is a broad measure of the productivity of investments in each country. It would result in yearly aggregate estimates of investment costs, which in turn could be disaggregated into budget classification codes used in planning and accounting systems. More often, however, investment costs generated by top-down econometric models are used as overall estimates of total costs, which in turn are used as checks against more detailed cost estimates.

This model has been extended in several ways. One of the most important extensions adjusts for the costs of meeting the MDG on poverty reduction. This requires the addition of assumptions re: poverty elasticities, etc., to the model's standard assumptions of countries' ICORs.

---

<sup>7</sup> <http://go.worldbank.org/RYKUQBAJ20>

<sup>8</sup> <http://www.undp.org/poverty/tools.htm>

<sup>9</sup> See Burnside, Craig and David Dollar, "Aid, Policies, and Growth," World Bank mimeo, November 1996.

In Rwanda, the government has used a top-down econometric model to calculate how much aid and investment will be needed annually in order to reach the development goals as outlined in the “Vision2020”. Each line ministry has negotiated a detailed plan of investments with the Ministry of Finance. The Ministry of Finance has summarized all investment plans and ensured that total investment is in line with targets in “Vision2020” (based on assumptions of economic growth, ICOR and population).<sup>10</sup> The Long-Term Investment Plan is one of the key inputs when elaborating the country’s new PRS “Economic Development and Poverty Reduction Strategy” (EDPRS), finalized in 2007.

## **2.2 Bottom-up approaches**

Bottom-up costing builds on thorough sector and sub-sector knowledge and involves sectoral experts. It necessitates field trips, detailed analysis and projections of baseline statistics, as well as country-specific, disaggregated unit costs. Such an approach was used in the Sudan Joint Assessment Mission (carried out from April 2004 to February 2005), building on the Millennium Project methodology.<sup>11</sup> It comprised five main steps (see Figure 2):

1. Cluster teams identified and defined ambitious but realistic long-term development goals. In some cases, these were identical to the global MDGs; in other cases, the MDGs were adjusted to fit the situation in different regions of Sudan. In addition, there were specific development goals outside of the MDGs, but within the country’s vision for poverty reduction. All proposed goals had been carefully assessed and prioritized, based on participatory methods and recent baseline statistics (see Appendix A2 for trend lines).
2. To monitor progress and operationalize development goals further, they were decomposed into annual targets and based on pro-poor policies and interventions. These annual targets were divided into shorter-term monitorable input indicators. For example, in order to reach the target of universal primary education, input indicators included numbers of teachers and classrooms, the pupil-teacher-ratios (PTRs), teaching materials, etc. To facilitate costings, a list of prioritized interventions in each sector and sub-sector was developed. This list included also interventions needed for progressively removing absorptive capacity constraints.
3. Each sector team estimated the recurrent and capital costs of each intervention, using country-specific disaggregated unit costs, baseline statistics, and transparent and simple cost models. Field trips and interactions with Sudanese stakeholders on the ground provided realistic unit costs for each area, and results were widely discussed and disseminated before final conclusions were presented. The education sector team, for example, used a model for estimating education costs that was tailor-made for Sudan and disaggregated into three main regions. Other sector teams, in particular those that costed interventions for building up capacity and systems, based cost estimates on a programmatic analysis including detailed and consistent unit costing.

---

<sup>10</sup> See Government of Rwanda: “Rwanda: A Long-Term Investment Framework”, September 2006.

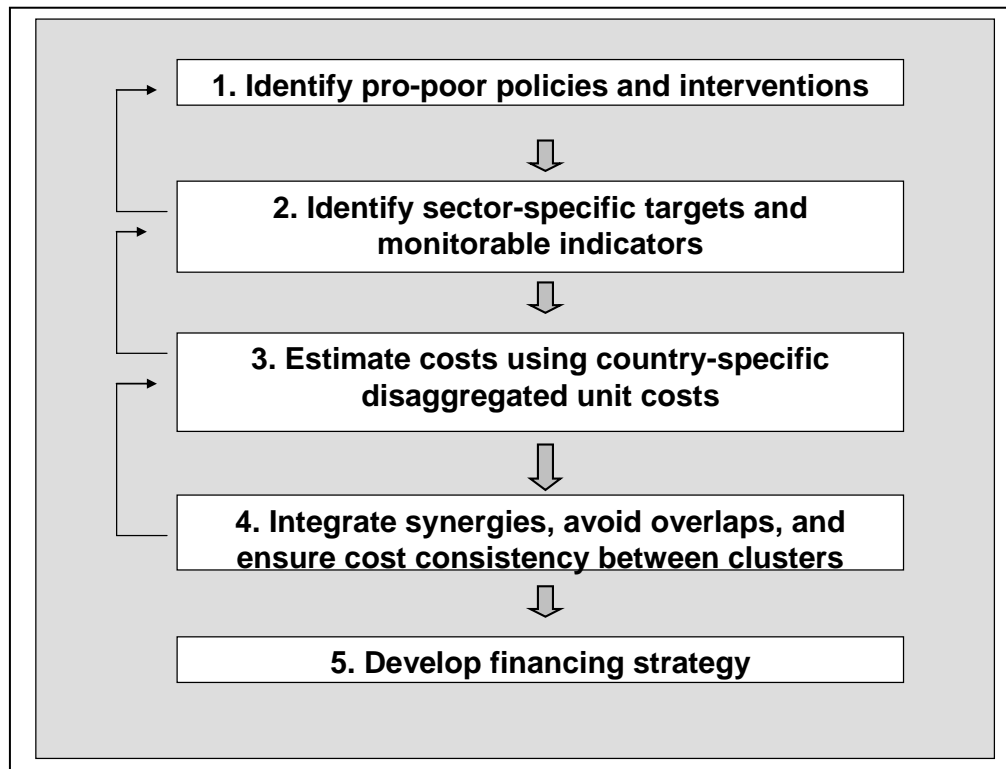
<sup>11</sup> <http://www.undp.org/poverty/tools.htm>

4. In parallel with the sector work on costing, a core team took responsibility for leading an iterative process to identify synergies, avoid duplications, and ensure cross-sector consistency, resulting in further refinement of cost estimates.
5. A financing strategy was developed by matching the estimated costs with available domestic resources (See Box 2 above).

The five step approach in Sudan was an iterative process, which contained elements of prioritization and negotiation in each step. Teams had to revisit previous prioritizations in line with new information. The final stage of prioritization occurred once a realistic financing strategy was negotiated. At the same time, the Sudan JAM cost approach was also used as an instrument for building capacity for budgeting, especially in the South. JAM cost estimates were linked to a simplified GFS budget classification, and could therefore easily be merged into the national budget when it was prepared.

Finally, the JAM costing method provided incentives for use of local rather than international staff and materials. Templates that the sector teams received from the core team differentiated between costs for international and national consultants, and sector teams were also required to be explicit about local purchases.

**Figure 2: The Five Steps in the Sudan JAM Costing Approach**



### 2.3 Estimation by analogy

A related approach to the bottom-up method is to estimate by analogy. With this approach, an analyst selects a system that is similar or related to the system undergoing the cost analysis and makes adjustments for the differences between the two systems. In practice, this method is often used when estimating incremental costs based on line ministries' current budget lines. This approach works well for derivative or evolutionary improvements. Its main advantage over the bottom-up approach is that only the changes or differences must be estimated, thus saving time.

However, a detailed and robust baseline must exist to apply the method successfully. Thus, it requires fairly sophisticated and robust budget data, preferably permitting functional classification. In addition, estimating costs by analogy would require that existing systems are producing outcomes in an effective manner, or that only minor changes are needed to achieve specified targets. For example, if a country striving to fulfill the goal of education for all has a high enrolment rate and an effective primary education system, but would need to lower the PTR in order to reduce the drop-out rate, cost estimates can be based on a multiple of the current payroll budget for primary teachers (assuming that qualified teachers are available). If, however, a country would need to change its policy on teachers' salaries before any improvements in enrolment rates could take place, the method for estimating costs would require more analysis. For radical policy changes or new technologies, the bottom-up approach is therefore a better choice.

### **3. BOTTOM-UP COSTING AS A PROCESS**

This chapter is about the process nature of costing and emphasizes that it is not only a technical exercise. By anchoring long-term development targets in operational annual financial plans, costing increases the likelihood that countries' visions will be implemented. The first part of the chapter discusses how costing translates long-term targets such as the MDGs into annual and medium-term budgets. The second part of the chapter is about using the opportunity to integrate capacity development in the costing process, as well as assigning costs for it.

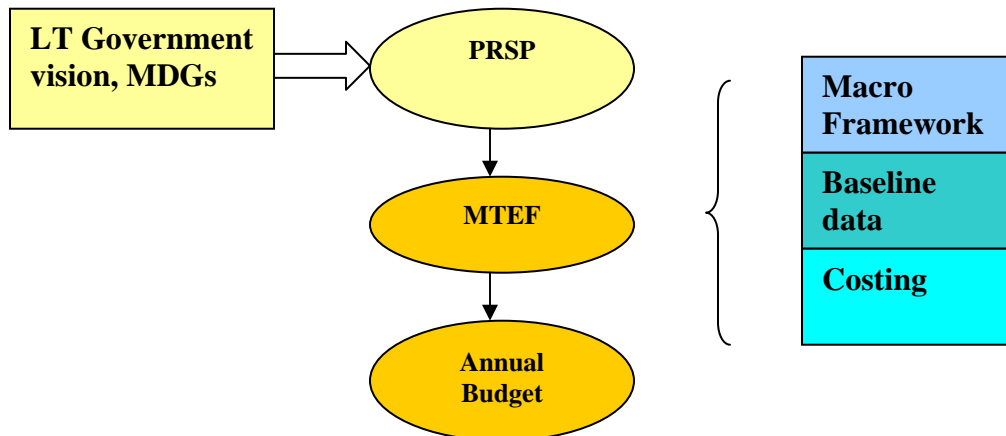
#### **3.1 Costing links the country's vision, PRS, annual budgets and MTEFs**

Basic strategies for linking PRS costing with budget processes are described below.

*Linking long-term plans* such as a government's vision with other existing short-term planning and budgeting instruments requires the integration of different time perspectives. This could lead to better predictability of policies, which is crucial to enhancing the credibility of the government's expenditure plans and budgets. Improving predictability of budget allocations provides a necessary but not sufficient condition for ministries, departments, and agencies to practice fiscal discipline, live within their sector spending ceilings, and avoid generating arrears. If it is necessary to reduce expenditure during budget implementation for macroeconomic reasons, costing helps to protect budget priorities and to clarify the rules for changing allocations.

*Establishing medium-term cost implications.* Limiting the focus to annual budget processes that include only one-year macroeconomic outlooks frequently leads to poor policy choices. Many decisions that are taken in the current fiscal year have significant cost implications later on that need to be accounted for. Decisions that are taken about long-term goals imply strategies that will have short-term requirements as prerequisites for future spending. Moreover, the future impact of prior policy decisions, particularly in light of demographic changes, must be thoroughly analyzed in order to avoid fiscal imbalances.

**Figure 3. Links between costing, planning and budgeting**



*Using the same macroeconomic framework and baseline statistics* is important to translate a government vision into resource allocations. If the budget and the PRS are based on different macroeconomic assumptions for the same time period, both will lack credibility.<sup>12</sup> A suitable macro-framework and baseline statistics should be synchronized with the costing exercise, which in turn should be the basis for planning, programming, and budgeting. The costing exercise should therefore be included at an appropriate point in time in the government’s budget cycle, preferably prior to (or simultaneously with) sector or PRS reviews. Figure 3 shows the calendar links between Rwanda’s annual budget cycle, the EDPRS, and the Vision2020. All these instruments are linked to the macro-framework and consistent baseline data. Cost estimations require regular updating based on feedback mechanisms between costing, the budget, the PRS and the long-term vision.

<sup>12</sup> Similarly, if the PRSP/PRSP were based on assumptions of higher population growth than the budget, the two documents would yield different results.

**Table 2. Rwanda budget calendar**

	Annual Budget	EDPRS	costing	Vision 2020
Jan	Macroeconomic Review			Reports on Annual Action Plans implementation
Feb				High-level government retreat
Mar	Budget Execution report on previous year	Joint Sector Reviews & update of strategies		
Apr	Budget Call Circular			
May	Strategic Issues Papers and provisional MTEFs	1 <sup>st</sup> draft PRS APR		
Jun	Budget Consultations			
Jul	Budget Framework Paper	Final PRS APR		
Aug	Cabinet discussions			
Sep- Oct				
Nov	Vote in Parliament			Annual Action Plans submitted to PM's office
Dec				

*Using consistent budget classification.* PRS programs and activities need to be allocated proper budget classification codes, which should also be consistent with those used in the accounting system. The linking of expenditure from the policy framework (PRS and government’s vision), through the budget, the accounting system and finally the government’s monitoring and evaluation (M&E) system, should enable the government and other stakeholders to determine how much was spent, on what, and crucially what was achieved with the expenditure from a policy priority perspective. Thus consistent classification is crucial for accountability.

A well-planned and performed costing exercise will also advance the movement towards results based monitoring. Objectives and inputs should be linked to sector performance targets and plans, enabling the PRS to inform discussions on inter and intra sector allocations for the budget, based on their impacts on poverty and growth outcomes.

*Breaking multi-year programs into annual increments.* Since bottom-up costing calculates the total costs of a program over the period of implementation, costs will need to be separated into annual increments, in order to reconcile them with the budget.

*Ensuring realism.* In order analyze the sensitivity of underlying assumptions, costing can encompass different scenarios: one basic (realistic) alternative and one or two other scenarios (optimistic and pessimistic). The use of different scenarios can enhance transparency and realism. Cost estimates can also be presented as points on a continuum of possibilities, sometimes expressed as a range rather than a single figure. There are many possible sources of error that should be identified and noted for ongoing reexamination during an iterative costing process.

### 3.2 Integrating capacity development in the costing process

The costing process is a good opportunity to build capacity for linking planning, programming, and budgeting. It can help to address the problem of institutional fragmentation that is common in many developing countries – i.e. planning processes take place separately from programming and budget processes. By involving stakeholders as much as possible and providing opportunities for training, countries will build up their capacities for realistic planning, programming, and budgeting.

One way to integrate capacity building into the costing exercise is through a consultative process, where responsibilities lie with resident sectoral experts (sometimes in collaboration with international experts), supervised by a core costing team. The core costing team assists with baseline statistics, costing methods, unit costs, advice, etc. Upon request, the core costing team will also provide training and arrange workshops.

Box 4 below provides three examples of how countries have built capacity while costing and highlights that the specific course of action will vary according to countries' needs.

#### **Box 4. Costing processes with integrated capacity building in Tanzania, Sudan, and Rwanda**

*In Tanzania*, capacity was built up through a series of workshops and consultations in connection with costing the MKUKUTA. Sector teams for costing were established for each main sector within MKUKUTA, supervised and facilitated by a core costing team consisting of one international and one local expert. Sectoral teams were responsible for a series of sectoral workshops as well as individual and group consultations. In this process, relevant synergies and crosscutting issues were identified. The sector costing team for health, for example, arranged a number of individual and group consultations as well as workshops for discussions with a broad range of stakeholders. The first workshop laid the ground for identification of the interventions, the synergetic relationships, and costing methodology. Two subsequent workshops brought in a broader group of stakeholders to provide feedback on these issues, which was incorporated into the final costing report.

*In Sudan*, the costing exercise included an introductory workshop for a large number of stakeholders who agreed on a costing methodology. A core team was responsible for the overall coordination and capacity building, while the actual costing was conducted by cluster teams, based on sectors and regions. One person was appointed to lead the costing exercise in each sector, and was also responsible for requesting capacity building. This meant that in many clusters, the Sudanese themselves did the actual costing, and requested either hands-on help, costing workshops or other training from the core team. This led to a series of workshops that was tailor-made to fit each team's request. After the Needs Assessment in Sudan was finished, capacity building for budgeting and planning continued.

*In Rwanda*, a permanent resident team of four costing experts works full time to assist and train the sector representatives in developing models and methods, tailor-made to Rwanda circumstances. The UN Millennium Project and UNDP are assisting with training of trainers and capacity building, via workshops, video conferences and hands-on training in Kigali. This has helped the resident costing team to provide guidance to their sector colleagues, and to develop templates for logical frameworks that will be used as a basis for costing in each sector. The goal is for every sector to develop a draft costing model that will be used and refined also for budget and planning purposes beyond the time span of the EDPRS.

## 4. SELECTED KEY ISSUES

This chapter aims to highlight some technical and political issues of concerns. It first discusses prioritization, demonstrating that it should be guided by multiple criteria,

including cost efficiency. It then addresses cross-sectoral issues, decentralization, and financially unconstrained costing. Finally, it considers full accounting (that is, costing both the start-up and maintenance of an intervention).

#### **4.1 Prioritization**

Prioritization is essential to producing a credible and implementable PRS. It concerns both the allocation of resources and the sequencing of interventions between and within sectors. Prioritization is a technical and a political process bearing the possibility for conflicts and often requires the assessment of tradeoffs among alternatives. Cost effectiveness considerations can help in this process.

Recent research demonstrates the importance of a multi-criteria approach to priority setting, with an emphasis on transparent and participatory processes.<sup>13</sup> Use of a ranking system (which rates each target according to the extent that it meets a criteria) can prove helpful. In Ghana, criteria were identified through a series of group discussions with policy makers, and included “cost-effectiveness,” “poverty reduction,” “age,” “severity of illness,” “budget impact” and “burden of disease.” Intervention scores on those criteria were based on poverty profiles, burden of disease and cost-effectiveness analysis. The work in Ghana showed that policymakers gave high value to interventions that were cost-effective, reduced poverty, targeted the young, or targeted severe diseases, such as the prevention of mother to child transmission in HIV/AIDS and treatment of childhood pneumonia and diarrhea. In Swaziland, the following criteria were set for the prioritization of activities in the National AIDS Strategy: (i) will activities have an immediate impact on the epidemic; (ii) does the government have the capacity to implement these activities; and (iii) are they fundable (do we have or can we get the resources)?

When starting the process of costing, one difficult question is how many activities should be costed in every sector. Using a priority ranking system (e.g. ranking the extent to which each activity meets a specific criteria on a scale of 1 to 3) an overall score is given to all possible activities. This makes it possible to limit costing to activities that rank near the top of the possible ranking.

#### **4.2 Cross-sectoral linkages: synergies and complementarities**

Because development is multi-dimensional, synergies and complementarities between and within sectors occur all the time. Fighting malaria and reducing child mortality requires not only health interventions but also a range of interventions in other sectors – such as improved water and sanitation, gender equality and maternal education.

Synergies and complementarities may result in cost saving either through reductions in the population in need (e.g. increased use of insecticide-treated bed nets will reduce the

---

<sup>13</sup> See for example Baltussen R. and Niessen, L.W, “Priority setting of health interventions: The need for multi-criteria decision analysis”, *Cost Effectiveness and Resource Allocation* 2006, 4:14.

number of malaria patients) or lowering of unit costs (e.g. improved rural roads will reduce the cost of providing essential services in rural areas).

In order to produce greater precision in cost estimates, interactions, synergies, and complementarities must be identified. This is a complicated task that countries often handle close inter-sectoral cooperation and coordination between teams in a bottom-up costing exercise. A core costing team can also be helpful in guiding this process, developing a clear methodology and supporting coordination efforts.

Box 5 provides examples of how inter-sectoral linkages have been identified in practice.

**Box 5. Approaches for identifying cross-sectoral linkages: examples from Tanzania and Rwanda**

When costing the road sub-sector for *Tanzania* MKUKUTA, stakeholders from all sectors were invited for a two-day consultative workshop in order to identify inter-sectoral linkages and crosscutting issues. These were analyzed, and clearly sorted into headlines of the sub-sectors where most interventions would take place. A consistent exercise took place at all other sectors, and lists were exchanged and discussed before costing interventions.

This approach was also taken in *Rwanda*, although it was not done in a workshop forum. The Sector Working groups for the EDPRS undertook a sector mapping exercise to identify inter-linkages between the various sectors. Such inter-linkages and crosscutting issues are feeding into the development of log frames, where the specificity of the linkages will be developed further.

### 4.3 Decentralization

The process of administrative and political decentralization may significantly affect cost estimates. If responsibility for public service delivery passes from central to local governments, this will likely impact unit costs and efficiency. If a decentralization reform is being implemented or is in the pipeline, sectoral costing teams (including local government representatives) ought to show how costs are assumed to change. They might consider changes in unit costs, and/or changes in classification of costs, especially if fiscal decentralization is thought to embrace increasing intergovernmental fiscal transfers and/or changes in assigned tasks.

Full account has to be taken of the impact of decentralization upon the ability of local governments to fully execute the intended PRS programs. Fiscal decentralization might create a shock in the system and in the short-term implementation capacity may actually be reduced. This further highlights the importance of ensuring that capacity building efforts are undertaken.

### 4.4 Financially unconstrained costing

Financially unconstrained costing is useful to present as one scenario among others in order for stakeholders to get a sense of the magnitudes of financial resources that are required for scaling up. It is not based on current, past or expected availability of resources but purely on the need for attainment of the targets, with absorptive capacity as the only constraint. Hence, it reflects the full resource requirements needed to maintain current pro-poor spending plus additional spending required to meet the development goals, taking into consideration binding capacity constraints only.

The main aim of the exercise is to calculate a financial gap, which will give an estimate of the required size of scaling up necessary for a country to reach its development targets. For instance, the UN Millennium Project used financially unconstrained costing to highlight the steps that the international community must take to mobilize, allocate, and

deliver much higher aggregate aid volumes in support of the efforts of developing countries to reach the MDGs (See [www.unmillenniumproject.org](http://www.unmillenniumproject.org)).

Especially if it is presented as the only option, unconstrained costing risks being interpreted as the government's "wish-list". If financial gaps turn out to be extremely large and if there is no attempt to present a realistic strategy for how to fill those gaps, the exercise can lose credibility. The macro effects of large inflows of foreign exchange and/or high budget deficits tend also to be neglected in financially unconstrained models (See Box 6).

Another problem with this approach is that it tends to neglect short to medium-term capacity constraints. While it argues that capacity constraints can be relaxed with full financing, bottlenecks in the form of weak governance and institutions take a long time to release, even once financing constraints are lifted.

**Box 6. The case of Ethiopia: obtaining more realistic financially unconstrained costing as a basis for PRS macro scenarios**

The Ethiopian government started the process of an MDG Needs Assessment in partnership with donors in 2004. The sectoral needs assessments were mostly based on the Millennium Project methodology of financially unconstrained costing. Overall, nine sectors were assessed: rural development and food security; urban development; water and sanitation; education; health; private sector/trade; HIV/AIDS; gender and population. The initial estimates appeared to be on the high side, due to conceptual and practical problems (for example inclusion of non-MDG related targets and double counting). Revised sectoral estimates (identified as upper bound estimates of the cost of reaching the MDGs) were used to construct economy wide simulations with the MAMS model (the MAquette for MDGs Simulations), tailored to the Ethiopian economy. The World Bank relied on this model in order to integrate the costing in a coherent macro-framework, though there were disagreements in the donor community on whether such an exercise would implicitly constrain the estimates, thereby changing the nature of the exercise.

The results of MAMS provided lower bound estimates of the cost of reaching the MDGs, amounting to roughly  $\frac{3}{4}$  of the upper bound estimates. The difference in magnitude emerged as MAMS offered the opportunity to refine the unconstrained estimates to take into account synergies and complementarities between various interventions as well as introduce implicit constraints such as those posed by labor market effects. Finally, the model allowed the consideration of macro conditions such as the growth effect, exchange rate impacts of an influx of aid, and the dynamic effects of investing in increased capacity in the public sector. The comparison of the lower and upper bound estimates were used to highlight "how the overall macroeconomic impact of pursuing the MDGs is affected by the size of the intervention package adopted" (Ethiopia Ministry of Finance 2005, *Ethiopia: the Millennium Development Goals (MDGs) Needs Assessment Synthesis Report*, p. 46).

#### 4.5 Full accounting

To avoid implementation failure due to lack of funds for recurrent costs, the costing exercise has to take account of all costs associated with a particular intervention.

This requires a complete picture of investment and recurrent costs, which proves difficult for a number of reasons. First, institutional fragmentation often leads to the preparation of capital and recurrent budgets by different parts of the administrations. Second, donors often prefer to finance only capital costs of projects, such as investments in hospital buildings, construction of roads and technical advice. As a result, associated recurrent

costs such as civil servant salaries, road maintenance, costs for delivering textbooks, etc., have often been neglected.

Frequently, a lack of sustained funding for operating expenses leads to infrastructure degradation and discontinuation of services. To avoid this, costing teams must always analyze recurrent cost implications (and seek assurances that the needed financing of such recurrent costs will be available). A standard checklist for all teams should include recurrent cost implications of interventions proposed.

## **5. GUIDELINES ON HOW TO DO IT**

This chapter starts by describing the roles and responsibilities of costing teams. It moves on to more technical aspects, including: the links between long-term targets and interventions; the scope of costing; guiding principles; baseline statistics; and unit costs. Section 5.9 discusses a way to translate costings into budgets by using a simplified GFS system that separates budget items into functional and economic classifications. Finally, Section 5.10 discusses a financing strategy as an important way to link the technical and political levels and promote accountability, transparency and credibility of PRS implementation.

### **5.1 The role of costing teams and the focal costing person(s)**

Responsibilities for PRS costing should be divided between different teams.

*A core team including an appointed focal person for costing* would have the main responsibility for consistency between all sector and sub-sector costing. The core team should function as a service and control unit for sectoral costing teams, overseeing and advising them. One person in the core team could assume responsibility for agreeing with sector costing teams on the most recently updated unit costs and baseline statistics to be used. The focal costing person must take responsibility for checking that all sector teams use the same baseline statistics and unit costs for the same or similar activities. This person would also advise teams on overlaps and (s)he would have the overall responsibility for consistency checks and producing a consolidated draft summary budget and financing strategy.

*Each sector or sub-sector should also appoint a costing team* including one lead person. These teams will do all the sectoral costing and provide their estimates to the focal costing person in the core team. The sector teams should have close cooperation with the core team, and ask it for advice, training, missing statistics, etc. The sectoral costing teams would be responsible for developing a list of interventions, linked to annual and long-term targets and with clear, sequenced priorities. When developing the list of prioritized interventions, sector teams also need to consider capacity building constraints, crosscutting issues, and synergies between sectors and sub-sectors. For this, sector teams should refer to sectoral strategies and MTEFs, which are usually revised or updated on an annual basis.

The actual costing will be done on the basis of the intervention list, using simple models in Excel spreadsheets. Costings would be structured around programs or sub-programs, specifying the main input categories in terms of recurrent and investment expenditures arranged in accordance with a simplified GFS classification or the country's current budget classification. Although the sector teams are responsible for costing interventions within their sectors, they need to follow the "rules of the game" to ensure that the costing methodology, unit costs and baseline statistics are consistent. In Rwanda, two different sets of costing checklists helped to promote consistence (see Annex A1).

Sector teams must also provide information on the number of required personnel, such as teachers, health workers and other civil servants, to ensure that the sum of all sectors' requirements is not inconsistent with nationwide totals or any planned civil service reform. The estimated total number of professional staff needs to be reviewed and revised as necessary based on any public sector reform strategy.

## **5.2 Long-term targets and milestones form the basis for intervention lists**

As the MDGs are long-term (2015), they are key for integrating longer term planning and target setting into PRSs, which typically cover only 3-5 years. At the same time, because the MDGs are global in nature, they need to be country-specific, disaggregated and sequenced into yearly targets/milestones. Here, sectoral costing teams play an important role in establishing annual milestones. For example, in order to reach the target of universal primary education, annual milestones include input indicators such as numbers of teachers and classrooms, enrolment rates, and PTRs.<sup>14</sup> Sector teams will need to take stock of the current situation and consider what can be realistically achieved. In many countries, this has been done graphically by establishing the current status of sectoral MDGs, drawing a trend line to the point in time when long-term targets are supposed to be fulfilled, and comparing the trend with historical data. See Annex A2 on examples from the Sudan JAM.

In many cases, countries have already elaborated plans and strategies for how to reach sector targets, which can form the basis of intervention lists. Such lists need to be comprehensive but not too detailed.

As the intensity and duration of efforts varies markedly between different MDGs, all interventions should not be equally weighted. In most instances, intervention lists will include inputs and activities that are not explicitly related to the terms in which MDGs are expressed. Improved infrastructure for transport and energy, for example, are necessary input interventions for aspiring to reach most MDGs, but they are not explicitly mentioned in any. Countries have solved this balancing act by imposing rules and regulations for what a list of interventions may contain. See Box 7 for an example of the rules guiding the health costing team in Tanzania.

---

<sup>14</sup> Please see [www.unmillenniumproject.org](http://www.unmillenniumproject.org) for examples of intervention lists.

#### **Box 7. Rules for balancing the list of health interventions in Tanzania MKUKUTA**

When costing Tanzania's MKUKUTA, each sector costing team derived a list of sector interventions that were necessary for achieving the agreed development goals and annual targets. Lists were scaled down according to consistent rules. The health sector costing team, for example, started with deducting from the list all interventions that did not add costs. And, interventions related to the introduction of new procedures, to the reorganization of practices or to organizational change were likewise taken out from the list because their costs were minor. Second, all interventions whose consideration would lead to double counting of costs were eliminated. Third, the remaining interventions were classified either as strengthening the health system or as disease-specific health services provided by the health system. Fourth, most interventions and health services were further broken down into specific activities that could be associated with cost components. In order to build absorptive capacity, in-service training and educational components were added to the list of interventions. The list also took into account that technological change had major implications for the health sector. For health facilities, it was assumed that equipment had to be renewed after a certain number of years.

In Rwanda, the intervention list took the form of log frames developed within each sector team. In Sudan and Liberia (Appendix A3), it took the form of result matrices.

### **5.3 Scope of costing**

The scope of costing concerns: which pro-poor interventions to include; the time frame (number of years); regional coverage (if there should be separate costing for different regions); incremental or total costs; and on and off-budget items. Governments may also want to consider widening the scope of costing to encompass non-financial costs such as environmental costs and other negative externalities, although this is beyond the scope of this primer.

The scope of costing will differ from country to country. In Tanzania, for example, the total needs (needs to maintain current service levels as well as increments and new interventions) in terms of financial resources for reaching the MKUKUTA targets and the MDGs was estimated using the interventions identified in MKUKUTA and sector strategies. The costing covered nine fiscal years, starting with 2006/07 and ending with 2014/15. The estimated financial cost reflected human resource, infrastructure, and goods and services needs. The scope of costing extended to identifying synergies and crosscutting issues.

In the Sudan JAM, the scope of costing was defined as:

- *Detailed* cost estimates for the Phase I of the JAM (2005-2007) and *indicative* cost estimates for Phase II (2008-2011). Political and technical situation rendered it extremely difficult to project developments, which made cost estimates less reliable the longer the time horizon they covered. A detailed monitoring process was therefore foreseen, which would include continuous updating of result matrices and cost estimates.

- Cost estimates were presented separately for the main regions, which were defined in accordance with the Power Sharing Agreement (part of the Comprehensive Peace Agreement). This encompassed separate regional assessments, including baseline statistics, result matrices, and unit costs.
- The costing teams presented costs estimates in broad budget classifications within recurrent and capital expenditures.

#### 5.4 Guiding principles

It is important to decide on a set of rules at the outset that will guide the costing. Below is a list of useful principles:

- *Keep it simple.* The number one and most important guiding principle is to strive for simplicity.<sup>15</sup> Cost estimates should be bottom-up, based on simple and practical models and unit costs. More advanced models or top-down econometric models should be used to complement the simple models in a later stage.
- *Use a consistent statistics.* This may not be as straightforward as it sounds, as many countries lack recent and reliable statistics about population and migration, for example. Also, projections of important developments (for example economic growth, returning IDPs or refugees) might be controversial issues. So as not to delay the costing process, an agreement on a consistent use of a set of baseline statistics and assumptions must be reached as soon as possible. Once the exercise is underway, all costs must be expressed in the same currency and use of the same exchange rate. Moreover, costs should ideally be expressed in and based on fixed prices in order to derive real expenditure trends.
- *Remember to budget for recurrent costs.* The estimation of costs should also be limited to those for which future funding of the full operational recurrent costs can be reasonably expected. This is particularly important when costing infrastructure interventions, since international experience has shown that operating costs for maintaining investments have often been neglected, resulting in failure to sustain programs. In several priority areas of a PRS, such as education and health, wage costs make up a large proportion of recurrent costs. Consequently, it is extremely important to be explicit and transparent about the assumptions made regarding public sector wages—and about the potential impact of understaffing or overstaffing of facilities on calculations of unit costs.
- *Differentiate between average and marginal costs.* Use the agreed unit costs, but calculate and use marginal costs where possible as the most accurate parameter in estimations of scaling up. In the long run, this will save time, since it is easier to revise costs at the margin rather than reviewing the whole costing exercise. A feasible approach may be to disaggregate target populations based on relative unit costs (such as urban and rural populations, smallholder farmers and pastoralists, infants and

---

<sup>15</sup> It is recognized that in emphasizing simplicity, one sacrifices some precision, theoretical soundness, and insights to be gained from more complex modeling. However, if not oversimplified (potentially generating misleading data), ease of use represents a major advantage of the simple approach.

adults) so that average unit costs will change if there are any revisions in coverage of target groups.

- *Stick with a cash budget.* All cost estimates should be expressed in cash terms, unless the country is very advanced in accrual budgeting. Cost estimates should not include estimates of opportunity or shadow costs, since such costs do not correspond to budgetary classification.
- *Be realistic in terms of capacity.* Absorptive capacity must be considered in determining the timing and pace of disbursements and capacity building programs. This might prove to be very tricky, especially in conflict-affected countries, that lack both human and institutional capacity. Lists of interventions or log frames ought to consider the estimated time for passing required regulations or legislation for strengthening institutions, where appropriate.
- *Emphasize use of local resources.* It is important to consider possibilities to employ local resources as much as possible. As a reminder and incentive for sector costing teams to “think local,” the core team may provide explicit unit cost comparisons for local vs. international consultant fees and/or goods and services.
- *Take country context into account.* There is a need for flexibility in the face of country, region, or sector-specific circumstances. Developing countries face various limitations in terms of missing data and over-stretched analytical capacity. Far from being reasons to not initiate costing exercises, these limitations provide compelling motivations to ensure that any strategy is crafted to be in-line with local constraints, with the potential to scale up efforts as capacity grows.

See Annex A4 for an example of guiding principles used while costing Malawi’s PRS.

### **5.5 Incremental or total cost approaches?**

There is no clear-cut answer to the question of whether to cost incremental interventions that require additional financing (including only new interventions and not those that have already been accounted for in the government’s budget), or whether to cost the total of all interventions needed for meeting development targets. There are good arguments both for and against either approach. And, depending on differences in the quality and capacity for service delivery and budgeting in different sectors, a PRS can use incremental cost approaches in one sector and total cost approaches in another.

*Incremental costing.* This approach would cost all interventions that require fresh financing (including the costs of sustaining current programs if not included in budgets). Clear definitions are required: does incremental costing include interventions which are not accounted for in the medium-term budget, or only the annual budget; does it include all donor interventions, or only budget and sector support?

Incremental cost approaches tend to treat current expenditure as fixed. This requires an assessment of expenditure efficiency and the possibilities to improve it in the short to medium-term. On the one hand, incremental cost approaches might be better in countries

that meet appropriate governance standards. On the other hand, in countries that do not meet these standards, and in particular in LICUS countries, incremental costing might be necessary at least in the short-term.

*Total costing.* This approach can be used at least in two ways: 1) Estimating the cost for total interventions with a single method that includes both new interventions and interventions needed for sustaining current service coverage and infrastructure. 2) Estimating the costs of new interventions (incremental costs) and current interventions separately. The UN Millennium Project takes the first approach, and assumes that all investments and service delivery for the MDGs will proceed according to best practice. As a result, estimates of resources required to maintain current service and investment levels may differ from actual expenditure. For example, if current government expenditure is inefficient in some dimension, unit costs may be lower than current expenditure would suggest.

The second alternative, which includes costing new and current interventions separately, is the most comprehensive approach, aiming at improving budget processes and identifying bottlenecks. This is therefore a recommended process for the long run, but as this is a huge operation in both time and resources, it is outside the scope of this basic primer. Costing current interventions separately would involve program evaluation and a costing process to identify the costs and results of existing programs against sector goals and targets. PERs, PETs, and citizens reports cards would provide important information in this regard.

## **5.6 Baseline statistics and unit costs**

The bottom-up approach uses simple models and unit costs as much as possible, but there are also more sophisticated models that can be used (also based on unit cost concepts), including the UNDP's HIV/AIDS model, WHO's Choice model, UNESCO's AnPro model, and the World Bank's MMB model.

Simple models often strive for adding narrowly defined (preferably marginal, but more often average) unit costs. Taking the case of interventions in education, the example below shows how a variety of unit costs are multiplied by the target population to derive an estimate of the total cost:

[Population size] x [percent of population reached] x [number of interventions per person] x [unit cost of the intervention].

The simple model for costing the target of education for all in Part II includes:

Costs for teachers (recurrent salary) = [Population size] x [percent of population in relevant age groups] x [target enrolment ratio] x [PTR] x [unit cost teachers' salary]

Costs for textbooks (recurrent goods) = [Population size] x [percent of population in relevant age groups] x [target ratio of textbooks] x [unit cost of textbooks and material]

Costs for school feeding program (recurrent services) = [Population size] x [percent of population in relevant age groups] x [target ratio of school feeding program] x [unit cost of meals]

Costs for rehabilitating classrooms (recurrent maintenance) = [Number of teachers] x [target ratio of teacher-per-classroom] x [rehabilitation ratio of classrooms] x [unit cost of rehabilitation]

Costs for constructing classrooms (investment buildings) = [Number of teachers] x [target ratio of teacher-per-classroom] x [construction ratio of classrooms] x [unit cost of construction]

In addition, there will be system costs of the intervention. These include overhead costs (administration and management), system maintenance (annual upkeep of schools furniture, rehabilitation of classrooms, etc), and system improvements (teacher training, curricula development, etc.).

### ***5.6.1 Baseline statistics***

Costing teams will base their estimations on baseline statistics that should be agreed upon already at an early stage. It often helps to have one person in charge of providing all teams with such data once it has been established.

Examples of such baseline data and annual projections are:

- All main revenue and expenditure budget posts for the base year (taxes, non-tax revenue, external budgetary grants, education, health, roads, etc.).
- The nominal GDP for the base year and projected annual GDP growth rates.
- Total population in the base year (ideally disaggregated into relevant age groups and regions) and expected population growth rates each year.
- Number of IDPs and refugees in the base year (ideally disaggregated into relevant age groups and region of origin) and expected number of returnees each year.
- Currency exchange rates.
- Deflators.

Relevant sources of information include:

*The national census.* The size of both the current as well as future population, disaggregated into target groups (often based on age, region and/or income group), strongly influence the demand for services in health, education, transport, energy, water and sanitation, etc. The national census provides basic demographic information and is used to calculate many important statistics—the per capita income, the maternal mortality ratio, the share of people with or without access to specific services, the quality of those services, and so on. Censuses can be the only source of information that disaggregates by small geographical or administrative units. War-affected countries may complement the National Census with other sources on expected population movements initiated by IDPs, refugees or the diaspora.

*The national accounts and budgets.* The ministry of finance or an independent agency normally provides projections of economic variables. It is important to always use realistic projections – experience has shown that projections of economic growth, for example, tend to be overoptimistic in many countries. If there are independent sources providing economic projections, those should be considered alongside projections from the ministry of finance.

*IMF economic projections, other surveys and studies* (households, enterprises, agricultural production, etc.) In addition to studies from domestic sources—national and regional government agencies, academic institutions, and civil society organizations—most developing countries have participated in one or more internationally supported household survey, such as the Demographic and Health Surveys (DHS), the Living Standards and Measurement Surveys (LSMS), and the Multiple Indicator Cluster Surveys (MICS).

### **5.6.2 Unit costs**

The concept of unit costing is used as much as possible in the bottom-up approach. Even so, the concept can be quite vague and differ depending on how unit costs have been derived. Here, two principal categories are differentiated:

*An average unit cost* is derived from the total cost of a specific activity divided by a denominator. Depending on the denominator used, the average unit cost can be expressed as (i) per person, (ii) per person served, or (iii) per service produced. The average unit cost of primary education per student is an example of a fairly broad definition, whereas average salary per teacher is narrower.

*A marginal unit cost* is the extra cost of producing one more unit. It is therefore the preferred unit cost when estimating incremental costs and (especially) when estimating the costs of large programmed increases in services. Like average unit costs, marginal unit costs can be widely or narrowly defined, depending on the intended use. Admittedly, marginal unit costs are very hard to derive, since they are likely to evolve over time and with broader coverage, and because they are only possible to verify after services have been provided. Because of these uncertainties, it is important to frequently review and modify marginal unit costs based on new information. Another way to minimize the uncertainty over future marginal costs is to disaggregate target populations so that average unit costs will change with the coverage mix as interventions are scaled up. One interesting initiative is gender disaggregated analysis of budgets, for example.

Intuition may suggest that marginal unit costs will rise with increasing coverage as services are delivered to more difficult-to-reach populations, and this indeed appears to be the case in many sectors, such as education. Marginal unit costs for attracting girls to schools in LICUS countries are often higher than average unit costs, due to security demands, for example. But in some instances, when there are technological changes or economies of scale, marginal unit costs may be lower than average unit costs. For example, improved technologies, modified standards, and other learning effects have led

to a 50 percent reduction in the cost of providing access to electricity to rural households in South Africa.<sup>16</sup> Changes in delivery systems will also add to uncertainties. Decentralization reform, for example, could temporarily increase unit costs before capacity at local levels has been built up.

The relationship between average and marginal unit costs may also vary. It is usually the case that marginal unit costs are lower than average unit costs in the provision of health services where facilities are understaffed. If health facilities instead are overstaffed, marginal unit costs are higher than average unit costs. Improving the quality of services delivered increases both average and marginal costs, all other things equal. On balance, it can be difficult to predict the direction of change for both average and marginal unit costs—let alone their magnitude—as coverage increases, service delivery systems change, or quality improves. It is therefore important to reassess and update unit costs as the interventions are implemented.

Sector costing teams have are responsible for identifying and verifying unit costs, applicable to their sector or sub-sectors. But as there will be many reoccurring, common interventions within all sectors, the core team should provide sectors with consistent unit costs for workshops, training, vehicles, buildings (construction and rehabilitation), and civil servant salaries.

Possible sources of information for unit costs include:

- Existing national planning documents and tenders.
- Government, donor, and nongovernmental organization project budgets.
- National expenditure reviews.
- Consumer price data.
- Salary scales for the public and private sectors.

When local unit costs are not available, costing teams may chose to use unit costs that have been collected for similar interventions (for example, the cost of delivering immunizations can be used to estimate the cost of delivering medicines) or similar countries (costs of delivering the same intervention in a neighboring country or region). These costs must be refined and updated as services are rolled out and more accurate information on actual spending becomes available.

But sector teams may also conduct their own surveys to find out unit costs. They may collect data on private sector wages from a number of local businesses or visit local markets and auctions to inquire about prices (livestock auctions, for example, are a very useful source of information on not only prices of livestock but also licenses and taxes).

See Appendix A5 for an example of unit costs that were used for costing in Somalia.

## **5.7 Check results – rules of thumb**

---

<sup>16</sup> See Millennium Project: “Preparing National Strategies to Achieve the Millennium Development Goals: A Handbook”, 2005.

When sector costing teams have finished estimating costs, they should review the results to make sure that they are realistic (i.e. whether the absorptive capacity will be sufficient to the administrative/management task at every step). After making such verification, costing teams should hand over their results to the core team, which will further analyze the realism of results and check the consistency of the use of unit costs, baseline statistics, and underlying assumptions and projections. Hence, an iterative process between the sector costing and core teams commences.

When checking the results, costing teams can use rules of thumb and results from similar interventions in similar countries as broad references. UNESCO's *Statistical Yearbook*, for instance, indicates that absolute expenditure on education varies widely across countries. When expressed in absolute dollar figures, industrialized countries spend about 40-50 times more per student than low-income countries. But when expressed as a percentage of national income, the range narrows considerably with most countries spending between 3 and 6 percent of national income on education.<sup>17</sup>

Another approach is to compare the results with absolute cost estimates. The World Health Organization Commission on Macroeconomics and Health, for example, has estimated that public health spending would be at least \$30–40 per capita per year to guarantee (full-coverage) basic health care.<sup>18</sup> However, in health, as in education, the principal cost item for service delivery is labor, whose cost is closely related to the level of economic development of the country. Salaries for most employees, such as health workers and teachers, vary enormously across national borders because they relate to the level of national income. Admittedly, there are other cost items that should be expressed in absolute terms, especially imported goods and services such as vehicles, international consultants' fees, drugs, computers, etc. But for those sectors and sub-sectors where local costs take up the main share of expenses, a relative rule of thumb is a better norm than a fixed amount.

Sector teams should refer to different sources for suitable rule of thumb norms. One of the most important sources is the UN Millennium Project, which has carried out needs assessments in several countries. The UN Millennium Project's *Handbook*, Step 3, provides a range of useful rules of thumbs for a number of relevant interventions. Needs assessments in Bangladesh, Cambodia, Ghana, Tanzania, and Uganda estimate that total MDG investment amount at \$70–80 per capita in 2006, rising to \$120–160 in 2015. For comparison, countries can translate these figures into their own currency and factor in inflation.

The UN Millennium Project *Handbook* also provides a range of sector benchmarks/rules of thumbs that costing teams should find interesting. For example, the annual cost of running quality institutions of higher learning in low-income countries is approximately \$500 per student. The handbook reports similar per capita MDG investment needs for rural development across countries, with costs of agricultural productivity and rural

---

<sup>17</sup> See Vandemoortele, J. and Rathin, R. "Making Sense of MDG Costing", UNDP, 2004.

<sup>18</sup> See World Health Organization "Macroeconomics and Health: Investing in Health for Economic Development", The Commission on Macroeconomics and Health, 2001.

income generation at about \$2–4 per capita for 2006 (rising to \$8–14 per capita per year by 2015), and rural water supply and sanitation costs at about \$0.50–\$1.50 per capita for 2006 (rising to \$2–4 per capita by 2015). Preliminary estimates suggest that investments in rural transport infrastructure may be around \$10 per capita in 2006 (rising to \$20–30 per capita by 2015 in countries with poor infrastructure).

Guirra and Gershberg present some benchmarks on service delivery and resource mobilization for a range of African countries and “Hi EFA achievers”:<sup>19</sup>

**Table 3. Some benchmarks on education**

Policy Variables	Range in African Countries	Hi EFA Achievers
Pupil-Teacher Ratio	24-79	40
Teacher salaries/per capita GDP	1.5-9.6	3.6
% recurrent spending on non-teacher inputs	4-45	26
% repeaters	1-36	10
Government revenue-to-GDP	8-26	21
% Government revenue for education	4-33	19
% pupils in privately-financed schools	0-36	5

*Source: Guirra, M. and Gershberg, A.I., “Costing the Education MDGs: A Review of the Leading Methodologies”, World Bank, 2005.*

## 5.8 Consolidation

After sectoral costing teams have checked their results carefully and ensured their prioritizations one more time, they must hand over their work to the core team. This is a very intensive work period for the core team which re-checks the consistency and realism in the use of baseline statistics and unit costs before consolidating the costings from all sector teams.

While consolidating all sectoral costings into a single coherent table, the focal costing person will also take the opportunity to re-check for synergies and complementarities. Duplications or omissions between or within sectors are identified in this process, and the focal costing person will get back to the sectoral teams to find solutions and resolve any conflicts between proposed interventions. For example, transport interventions may overlap between the infrastructure and agriculture teams if both have proposed interventions for feeder roads. Checks for realism also need to take into account human resource requirements across all sectors, to ensure that stated needs are consistent with available personnel, civil service reform programs, and macro-frameworks.

## 5.9 Translating cost estimates into a simplified GFS classification

In order to link costings with budgets and operationalize PRSs, cost estimates should be classified into the budget classification used in the country and/or into a simplified version of the GFS (Government Finance Statistics) Framework.<sup>20</sup> If countries’ budgets

<sup>19</sup> See Guirra, M. and Gershberg, A.I., “Costing the Education MDGs: A Review of the Leading Methodologies”, World Bank, 2005.

<sup>20</sup> See IMF, “Government Finance Statistics Manual”, IMF, 2001.

already use a complete GFS classification, cost estimates should be integrated into that system. By translating and integrating cost estimates into the national budget, the technical level meets the political at the highest level – the parliament – thereby strengthening democratic processes and the likelihood of successful implementation of poverty reduction strategies.

The GFS system is a quantitative tool that supports fiscal and macroeconomic analysis, harmonized with international systems and statistics. Basic concepts, definitions, and conventions are the same all over the world, and the GFS can be used in a flexible way to fit all countries regardless of political systems or sophistication in public accounting. While a full GFS system demands quite a lot of the accounting system, a simplified, cash based version can be implemented relatively easily. Concentrating on cash revenue and expenditure has the advantage of focusing the government’s attention on its financing constraint, which is traditionally development countries’ most binding priority. In order to keep track of past-due obligations, such as arrears of debt principal, interest payments, or payments for goods and services that would not be part of a cash basis recording, the government can capture these in a separate book.

Most developing countries’ budgets are already using the economic classification, but for effective analysis and follow-up of PRS activities, it ought to be combined with a functional classification, which provides information on the purpose or socioeconomic objective for which an expense was incurred. The GFS provides a simple method for separating budget items into economic and functional classifications. Table 4 below represents an attempt to visualize the connection between functional and economic classifications in a simplified GFS system. Column 1 represents the GFS classification codes for the functional classification. Column 2 shows some of the main functional classifications. Codes are used to distinguish items and can be used for different levels of functions. Education, for example, can be disaggregated into pre-primary and primary, secondary and tertiary. Each of the functional classifications can also be expressed in economic classification (columns 3-7). Costs for pre-primary and primary education, for example, can be disaggregated into wages and salaries, goods and services, other recurrent, and investments. The third column would give the total expense (adding wages and salaries, goods and services, other recurrent, and investments) for a particular functional item. Full details about the GFS can be found in the IMF Manual at [www.imf.org](http://www.imf.org).

**Table 4. Functional and economic budget classification**

Code	Outlay	Total Expense	Wages and Salaries	Goods and Services	Other recurrent	Investment
7	Total outlays					
701	General Public Services					
7011	Executive and legislative organs					
7018	Transfers between different levels of government					
702	Defense					

7021	Military defense					
7022	Civil defense					
703	<i>Public Order and Safety</i>					
704	<i>Economic Affairs</i>					
705	<i>Environmental Protection</i>					
706	<i>Housing and Community Amenities</i>					
707	<i>Health</i>					
7072	Outpatient services					
7073	Hospital services					
7074	Public health services					
7075	R&D Health					
708	<i>Recreation, culture, and Religion</i>					
709	<i>Education</i>					
7091	Pre-primary and primary education					
7092	Secondary education					
7094	Tertiary education					
7098	Education n.e.c.					
710	<i>Social Protection</i>					
7101	Sickness and disability					
7102	Old age					
7104	Family and children					

## 5.10 Financing strategy

A very important part of the costing exercise is to produce a draft financing strategy that must be discussed and negotiated at the political level, including with donors. Stakeholders show their commitment to implementing the PRS through agreement on a financing plan (based on realistic objectives and costing) that includes increases in domestic and foreign finances, as well as reallocation of public expenditure from lower to higher priorities, and increased efficiency (see section 1.2.3). A realistic financing strategy can thus hence boost accountability, transparency and the credibility of the PRS.

A detailed review of the government budget, encompassing both revenue and expenditure is necessary. To take advantage of capacity building opportunities in budgeting and planning, technical experts at the ministry of finance should be involved together with civil servants at line ministries and the core costing team. This may lead to the development of a more comprehensive program for building capacity later on.

In order to produce a draft financing strategy, the whole budget (encompassing total revenue and expenditure) must be compared with the estimates for PRS costs (classified as budget items). In broad terms, three categories of expenditure must be identified: 1) current pro-poor expenditure that is included in PRS costings, 2) incremental and new expenditure for PRS interventions, 3) expenditure outside of the PRS. Priorities must be clear, and lower priority expenditure that can be reallocated to higher priorities should be identified.

A review of efficiency in current spending is needed to propose reallocations or improvements. If a comprehensive review of public expenditure efficiency has been done, it should be used for identifying expenditure with more direct links to results than others. If no review exists, teams should make a simple budget analysis to identify bottlenecks in budget execution. If, for instance, a particular sector constantly underperforms in budget execution this is often a signal of inefficiencies (or lack of demand for the services, which could be perceived as comparatively low quality). If teams can also establish links between outcome and input in the particular sector, they will get a broad idea about efficiency. Teams can also identify budget items that seem to be “outliers” when compared to other countries’ budget allocation efforts. If, for instance, the ratio between higher education and basic education is unexpectedly high, a brief assessment of the links between input and outcomes might show that most of the education budget is devoted to activities that have little or no connection with the country’s long-term development goals for education.

After opportunities for cutting public expenditures devoted to lower-priority areas, increasing efficiency and mobilizing domestic revenue have been thoroughly examined, opportunities for increasing foreign aid must be explored. Table 5 provides an example of how a simplified financing strategy can be structured. It is expressed in percentage of GDP and provides a good overview of the key issues to discuss and agree upon at a political level. Details should be provided to specify each item in the table and how proposed changes can take place.

**Table 5. Overview of financing strategy, % of GDP**

	Base year X	Year X+1	Year X+2	Year X+3	Year X+4
<b>Total financing</b>	<b>21</b>	<b>23</b>	<b>27</b>	<b>32</b>	<b>37</b>
Domestic revenue	14	15	16	17	18
Current level	14	14	15	16	17
<i>Committed increases</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Foreign aid	7	8	11	15	19
Current level	7	7	8	11	15
<i>Committed increases</i>		<i>1</i>	<i>3</i>	<i>4</i>	<i>4</i>
<b>Total spending</b>	<b>25</b>	<b>27</b>	<b>29</b>	<b>34</b>	<b>39</b>
PRS expenditure		11.5	16	23	28
Current level	8	8	11.5	16	23
<i>Increases</i>	<i>0</i>	<i>3.5</i>	<i>4.5</i>	<i>7</i>	<i>5</i>
Other priorities	17	15.5	13	11	11
Military	7	6	4	3	2
Administration	7	6.5	6	5	5
Other	3	3	3	3	4
<b>Deficit</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2</b>
Increased fiscal space	0	3.5	6.5	7	5
<i>Reallocation</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>0</i>

<i>Efficiency gains</i>	0	0.5	0.5	1	0
<i>Domestic revenue</i>	0	1	1	1	1
<i>Aid</i>	0	1	3	4	4
Memo: GDP growth	3	3	4	4	5
CPI	8	5	5	5	5

## 6.0 Simple costing models and references

For more references on costing methods, country examples and other relevant information please see

<http://intranet.worldbank.org/WBSITE/INTRANET/SECTORS/INTPOVERTY/INTPRS1/0,,contentMDK:21629943~isCURL:Y~menuPK:383615~pagePK:210082~piPK:254376~theSitePK:383607,00.html>

Simple excel based models for costing in health and education can be found at :

Simplified Education Sector Costing Models

[Education Sector Costing Guidance Note](#) by Maude Svensson (54kb PDF)

[Education Sector Costing Model](#) (98kb XLS)

Simplified Health Sector Costing Model

[A Simple Costing Model for a Proposed Program in Health in a Poverty Reduction Strategy](#) by Alan Fairbank (79kb PDF)

[Health Sector Costing Model](#) (327kb XLS)

## APPENDICES:

[Appendix A1.Rwanda: Checklists for Costing and Consistency](#)

[Appendix A2. Sudan: Current Status and Trends for MDGs](#)

[Appendix A3.Liberia: Result Matrix](#)

[Appendix A4.Malawi: Guiding Principles for Costing](#)

[Appendix A5.Somalia: Unit Costs](#)

[Appendix A6.The Millennium Development Goals](#)