



What Will It Cost? - Tool

G2G Education Toolkit

A Tool to Assess the Financial Cost of a Sustained Early Grade Reading Program: *What Will It Cost?*

USAID government-to-government (G2G) implementation seeks to catalyze institutional reform necessary to improve early grade reading. A critical and necessary element of that reform is improved financing and management. The **Tool: *What Will It Cost?*** provides a guide to estimate the annual recurrent public expenditures per pupil necessary to develop, support, and sustain early grade reading and learning.

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FOREWORD

Government-to-government Education Toolkit

In line with the compelling policy guidance of USAID Forward, Agency education officers are currently exploring, developing and implementing new government-to-government (G2G) modalities in education projects. An immediate need exists for tools and training materials that will assist Education Teams as they design, implement, and monitor G2G activities to achieve USAID Education Strategy Goals.

Under the leadership of the Bureau for Economic Growth, Education and Environment's (E3) Education Office, the **G2G Education Toolkit** has been developed to provide this support. The Toolkit includes a literature review; an analysis of lessons learned and best practice; an analytic framework and roadmap; operational tools; and case studies. Additionally, sample G2G operational documents from Missions currently undertaking government-to-government activities will be available to guide field staff.

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I. Introduction

Why Analyze Public Education Financing and Expenditures?

Many countries that have undergone rapid expansion of primary education have been unable to keep pace with the financing needed to maintain quality. The first casualty of a budget squeeze is typically the non-wage recurrent budget for books and materials, professional development, supervision, monitoring and evaluation, and management. A second gap generally is manifest as a shortage of schools and classroom space. Furthermore, by not keeping pace with expanding enrolments, the shortage of funds for teacher wages leads to very large class sizes especially in lower grades and a sharp increase in the proportion of untrained and ‘contract’ teachers used in classrooms. Plus delays in salary increases lead to a decline in wages in real terms relative to inflation. All of these factors result in an under-trained, under-resourced, underpaid, and demoralized teaching force. Further complications arise when the budget process is decentralized to the district level since decisions about recurrent expenditures at that level tend to undervalue early grades and non-wage expenditures.¹

These conditions are apparent in most of the countries where USAID is pursuing Goal I of improving early grade reading. The technical interventions and reforms for improvement of curriculum, instructional materials, teacher training and professional development, monitoring and evaluation, and management/supervisory practices to increase time on task (for reading) require adequate reforms in the level and structure of financing for primary education to ensure sustainability. The transformation of teacher behavior and classroom conditions necessary to support early grade reading requires that:

- Class sizes are reasonable (not in excess of 50 pupils).
- Teachers are paid a living wage which acts as an incentive.
- Teachers engage in professional development and receive appropriate supervision.
- Instructional materials for pupils and teachers are adequate and relevant.
- A system of regular pupil assessment and feedback is in place, guiding pupils, the teachers and schools.
- School management practices are in place, assuring that teachers show up in classrooms and teach a curriculum that supports reading.

All of these conditions require annual, recurrent financing. The financing does not assure reform, but no sustained improvements in teaching and learning will take place without it.

¹ Winkler and Yeo (2007) ‘Does Decentralization Affect Educational Quality?’ EQUIP2, <http://www.equip123.net/docs/e2>

USAID government-to-government (G2G) implementation seeks to strengthen partner-country institutions ultimately leading to sufficient resources and capacity to provide quality primary education for all children. Thus, a critical step in the design of G2G modalities and USAID education programs is an analysis of the relationship of G2G to other far larger flows of external and domestic financing to the Ministry of Education (MOE) and specifically to primary education. This *What Will It Cost?* tool provides a step-by-step process to estimate the annual recurrent per pupil cost necessary for an education system to provide the conditions necessary for sustained early grade reading and learning.²

The *What Will It Cost?* Tool includes:

- 1) The process to estimate project costs to undertake an early grade reading assessment (EGRA).
- 2) The process to estimate project costs for the development and implementation of a pilot early grade reading (EGR) project and policy dialogue for a national reading program.
- 3) A step-by-step process for the analysis of an existing MoE recurrent budget for primary education. This will lead to an estimation of the financing required to support and sustain a national system which meets the MDG goals of access and completion and supports achievement of reading and other basic education competencies.

In the final section of the tool, implications for use by USAID Missions as a G2G strategy to stimulate reform of financing and management will be examined.

II. Costs for EGRA, Piloting an Early Grade Reading Program and Policy Dialogue

As quoted in the Paris Declaration, at the heart of AID Forward is *'the commitment to help developing-country governments formulate and implement their own national development plans, according to their own national priorities, using, wherever possible, their own planning and implementation systems.'*³

If counties' education policies and leadership have previously highlighted early primary grade reading as a priority in sector plans and programs, a case could be made that most pupils

² This tool does not attempt to develop requirements and cost specifications for school and classroom construction and furnishing for which ample guidance already exists. See UNESCO: IIEP for excellent guidance on school facilities (Beynon, J. 1997). This document focuses on the critically underfunded elements of recurrent budgets as noted above.

³ See <http://www.oecd.org/dataoecd/11/41/34428351.pdf> for the full text of the Paris Declaration (2005) and the Accra Agenda for Action (2008).

world-wide by grade two would have learned to read already! Yet, in many countries where USAID is working, sector plans have not put emphasis or resources into quality of early primary education nor are indicators or targets in place to measure early grade reading achievement. Fundamental to the success of a national early grade reading program is government acknowledgement of the need for reform and then taking the lead in the management of the reform process.

In countries where USAID has initiated the assessment of early grade reading, observers have generally noted that national policy leaders, education officials, teachers, and parents take serious note of data that illustrate poor reading achievement of children. Additionally, they recognize the consequences of this failure on educational, social, and economic development. Pilot early grade reading projects have also been widely used to generate insights, research data, and experiences on which to build nationally-scaled programs. USAID has effectively supported policy fora and sector working groups that draw on evidence from these assessments, country-based and regional research, and piloted early grade reading projects to shape Ministry policy and program decisions.

However, what is really known about the costs of the design, implementation, and utilization of early grade reading assessments and the piloting of early grade projects that will contribute to policy dialogue? In the estimation of costs for a USAID Mission to design and implement early reading assessments and pilot programs, the following factors should be considered:

Table 1: Check List of Factors Influencing Costs for EGRA, Pilot Projects, and Policy Dialogue

FACTORS	AN ISSUE? YES/NO	NOTES/CONSIDERATIONS
What are the components of the assessment and the pilot? For example, will they include just reading, reading and mathematics, science, etc.?		
Can the assessment and pilot design be easily adapted from existing experience?		
How many different languages will be used in the assessment, in the pilot?		
How many grade levels are to be included?		
What is the estimated size of the sample and of the pilot (e.g. districts, schools, teachers, pupils)?		
For how many years will the pilot run?		

FACTORS	AN ISSUE? YES/NO	NOTES/CONSIDERATIONS
To what degree can staff of the Ministry of Education be trained and used for field work as a part of their official responsibilities?		
What logistical challenges exist to reach schools?		
What level of effort will be needed for policy dialogue (e.g. fora, publications, seminars, use of media)?		

The following summary table presents information from five countries to illustrate estimation of total costs, per pupil unit costs for EGRA, and for piloting of an early grade reading program.

Table 2: Illustrative Costs for EGRA, Piloting Early Grade Reading, and Policy Dialogue⁴

Cost Element	Liberia	Jordan	Egypt	Kenya	Malawi
EGRA Design and Implementation	New design: grades 2 and 3; English	New design; Grades 1, 2, 3; math and reading. Arabic; SSME ⁵	New design; grades 2, 3 and 4. Arabic	Grades 1 and 2; math, reading, English and Kiswahili; SSME	Grades 1,2,3; math and reading, English and Chichewa
Est. sample size	2,825	11,000	35,900	13,258	264,900
EGRA Design Cost	\$19,820	\$97,500	\$274,469	\$72,800	\$139,306
EGRA Implementation Cost	\$59,459	\$170,000	\$391,147	\$127,800	\$467,530
EGRA Implementation pupil unit cost	\$20	\$15	\$11	\$7.65	\$1.80
Pilot: Number of Pupils	2,825	11,000	35,900	219,648	264,900
Total Cost	\$2,080,244	\$1,297,500	\$4,388,756	\$3,075,579	\$2,765,226
EGR Implementation per pupil cost	\$736	\$118	\$125	\$15	\$10

⁴ This data is based on analysis provided by RTI through EdData II.

⁵ SSME (Snapshot of School Management Effectiveness) is an assessment of school and community conditions.

Note should be taken that data in this table are based on complex projects. In addition to early grade reading, the projects have multiple activities, changing parameters over multiple years and donors, and different levels of government engagement and cost-share. Complexity of projects points out the extraordinary difficulty to estimate costs post-hoc for specific EGRA and EGR activities, emphasizing the need to track specific project costs during project implementation.

These points noted, a number of useful insights arise from the analysis of the data:

- Per pupil unit costs to carry out an EGRA, even in conjunction with a mathematics assessment and a school conditions survey, are relatively small and are significantly reduced with large sample sizes.
- Significant variation exists in unit costs for implementation of an EGRA. Even greater variation is seen in the implementation of an early grade reading pilot, from over \$700 per pupil in Liberia to only \$10 in Malawi.⁶
- The variation in unit costs for implementation of an early grade reading pilot is closely related to the size of the pupil population, with large numbers of participants in Kenya and Malawi reducing per pupil unit costs to under \$20.
- A significant factor in unit costs is the degree to which Ministry of Education staffs at central, regional and district levels manage and/or participate in the field research teams. Where MoE personnel play a major role, as in Malawi, costs are much reduced.⁷

While the information presented in Table 2 is useful to show a range of costs in different contexts, the data should be taken as illustrative, not definitive. These costs include the technical design, management, and evaluation of EGRA and pilots as well as costs of policy dialogue, including meetings, fora, technical papers and the use of media. Finally, each of the cases shows contracted project costs. These do not include other donor and Ministry of Education costs which in some cases are significant. Thus, they do not provide a firm foundation for projecting the cost of EGR scaled up to a national level.

⁶ The high cost for the Liberian case was due to its intentional research design encompassing a small population, a new EGR design, and heavy technical input and management of a randomized control trial with three levels of intervention, each of which were assessed three times.

⁷ To further emphasize this point is Senegal where the Ministry of Education's Education Research and Assessment unit (NEADE) is managing annual pre- and post-tests based on EGRA design and sampling. Mathematics is included in the assessment. In this case, 10 schools are sampled from each of 56 districts and 45 pupils (15 at grades 1, 2 and 3) are drawn from each school. Therefore, the total sample size is 560 schools and 25,200 pupils. The total estimated cost for one round of testing is estimated at \$127,000, or about \$5 per pupil.

III. Steps for Analysis: Financing a National Program in Support of Early Grade Reading

The costs for EGRA and an early grade reading pilot project and policy dialogue are typically financed largely by USAID, in some cases in conjunction with other donors and some level of government contribution. Projects however do not typically address what are, in fact, the largest drivers of costs of inputs needed for improvement and sustainability of a national program of early grade reading, teacher wages and non-wage costs required for effective management, replenishment of materials, supervision, and monitoring. Thus, when an early grade reading project is to go to national scale, the ultimate ‘goal’ of all USAID Goal I programs, assessment of the cost to the government to sustain the program is crucial. Two questions are necessary:

- What are the overall costs to the public sector to finance conditions in primary schools that support improved reading and other quality learning outcomes?
- What strategic role can G2G play in the overall reform and financing for primary education?

The focus in this tool therefore is on annual per pupil recurrent expenditures. The tool does not address the capital or development budgets necessary for infrastructure and facilities. This is not to deny the importance of having adequate numbers of classrooms and quality school infrastructure, but rather to emphasize what government recurrent budgets cover, since inputs from the government are at the heart of sustaining quality in teaching and learning. Therefore, the core annual financing necessary for long-term provision of management and supervision, teachers, training, and instructional materials needs to be determined.

This tool builds on two sources of information and analysis. On one hand, the Institute for International Education (IIEP) at UNESCO has, over the past fifteen years, developed models to assist governments to project costs in national education sector plans that aim to meet EFA/MDG goals. IIEP has gained considerable experience in the analysis of the factors and costs contributing to expansion of access and quality in primary education. The Agency has initiated the Inter-agency Network on Education Simulation Models (INESM) where models, country cost projection, and analysis are shared

A second source is a World Bank analysis of primary education per-pupil costs for lower income countries which have made good progress in expansion of access and completion rates.⁸ That study examined the resource factors that distinguished successful countries from

⁸ Bruns, B., Mingat, A. and Rakatomalala, R. (2003). *Achieving Universal Primary Education by 2015: A Chance for Every Child*. The World Bank.

lower-achieving countries and found critical explanatory variables: a) the proportion of the GDP/per capita expended per pupil; b) the wage bill for teachers; c) the pupil-teacher ratio; and d) the percentage of the budget allocated to non-wage recurrent expenditures (books, training, supervision and management).

These models and the guidance they provide do not, at this stage, provide research evidence on overall recurrent costs from low-income countries implementing nation-wide early grade reading programs since these do not yet exist. They do provide a financing framework which supports increased promotion and completion and reduced dropout rates during overall expansion. These outcomes are linked not only to expanded facilities and numbers of teachers but also to adequate salaries, instructional materials, professional development and supervision, and monitoring and evaluation. They therefore can provide reasonable estimates of costs necessary for sustainability of a national program of early grade reading and learning.

The provision of adequate recurrent financing for primary schools is a necessary but NOT a sufficient condition for achievement of better learning outcome. As critical as financing is, effective management and utilization of resources to support teachers and pupils is equally important. Those who have worked in lower-income countries' education systems are quite aware that teachers do not always show up at school nor do they always teach a scheduled period when they do show up.⁹ Books delivered to schools are not necessarily used and teacher training does not necessarily lead to transformed classroom performance. All of these examples reflect challenges of management, not just of resources. That being acknowledged, without financing and resources, system reforms will not happen.

This *What Will It Cost?* Tool works through **ten steps** to analyze existing per pupil costs and then compares that figure with estimated costs needed to achieve conditions that support early grade reading. The analysis uses national level data but should be modified if project focus is on specific underserved regions or areas with large inequalities. In these cases, estimates of local per pupil costs will be necessary.

Ten Steps to estimate per pupil recurrent costs.

A. Data Collection

The first five steps require the following data:

- I. Estimation of the national GDP per capita over a two to three year period.¹⁰

⁹ See Gilles, J. and Quijada, J. (2008) *Opportunity to Learn: A high impact strategy for improving educational outcomes in developing countries*. USAID: EQUIP2

¹⁰ A reliable source for this is the CIE Factbook which draws information from the International Monetary Fund.

2. Total enrolments for public primary education for each year of that two-three year period.¹¹
3. The total recurrent budget for primary education over that same period.
4. The total primary education wage bill.¹²
5. Estimation of the total number of teachers (on the public wage bill).^{13 14}

Analysis

The next five steps use the data from the five steps above to derive values for key indicators. These indicators are highlighted in bold print.

6. For a given year, divide the total recurrent budget by the public primary school enrollment to arrive at an overall estimate of the **average recurrent cost per pupil**.
7. Divide the average recurrent cost per pupil by the GDP/per capita to determine the **percentage of GDP/per capita spent on primary pupils**.
8. Estimate the average teacher wage by dividing the total teacher wage budget by the number of teachers. Then divide that by the GDP/per capita to calculate the average **teacher wage as a multiple of GDP/per capita**.¹⁵
9. Estimate the national (average) **pupil/teacher ratio** for primary schools by dividing total enrolments in public schools by the total number of teachers on the public wage bill.¹⁶

¹¹ These figures should be available from the national education information system (EMIS). Private school student enrollment figures should be excluded.

¹² The total wage bill in national budgets is typically composed of both teacher wages and other education personnel, including district, regional and national officers. If possible, separation of teachers' wages from other education personnel wages should be done.

¹³ **Note 1:** If a large gap exists between the approved budget and actual expenditures, the analysis should use the best information available on expenditures over the past few years and either take average values or project forward based on the trend.

¹⁴ **Note 2:** As is the case with many government education sector budgets, if a category of 'administration' expenditure appears but is not allocated to specific sub-sectors (e.g. to primary education), then an appropriate proportion of these administrative expenditures will need to be set aside for primary education. Totaling all sub-sector budgets (primary, secondary, and tertiary) and dividing this total into the primary sub-sector budget will determine a proportion to allocate as an administrative budget for primary education.

¹⁵ If teacher wages are not provided separately from the total wage bill, then one must obtain the salary scales and use these and the number of teachers for each category to calculate this indicator. Significant differences may exist between average teacher wages in urban and rural areas due to the fact that qualified, experienced teachers generally prefer postings to urban areas. If an education project targets underserved, rural areas, then the national average wage will need to be adjusted downward to take into consideration actual teacher qualifications and wages in less-affluent areas.

¹⁶ Early grades of primary schools almost always have much larger class sizes and pupil/teacher ratios than in later grades. The national primary pupil/teacher ratio should be adjusted upward based on estimates from actual and reliable field studies if these are available.

- 10.** Divide the total wage bill by the total recurrent budget times 100 to determine the percentage spent on wages; then subtract that from 100 percent to determine **the percentage for non-wage expenditures.**

An illustration of these ten steps in a simulated, rather typical case of the country *Nontopia* is given here.

Table 3: Ten Steps for Analysis of Nontopia Primary Pupil Recurrent Unit Costs

DATA	2012	2013
1. National GDP/per capita in \$	\$850	\$900
2. Total enrolments in public primary schools	3,500,000	3,700,000
3. Total recurrent budget for primary school in \$	\$245 mill	\$255mill
4. Total wage bill (teachers and other staff)	\$223 mill	\$226 mill
5. Number of teachers	68,627	74,000
ANALYSIS		
6. Average per pupil recurrent cost	\$70	\$69
7. % GDP/per capita for primary pupil recurrent cost	8.2%	7.7%
8. Average teacher salary as multiple of GDP/pc	3.8	3.37
9. Pupil/teacher ratio	51:1	50:1
10. Per cent recurrent budget for non-wage expenditures	9%	12%

B. But What Will It Really Cost?

The following table, extracted from models and country financing plans for primary education on the INESM website along with average values from the World Bank study, presents a mapping of ranges for these factors from actual cases.

Table 4: Comparative Recurrent Unit Costs and Cost Factors for Primary Education

UNIT COSTS	UNESCO Case 1	UNESCO Case 2: Asia	IIEP Case 3	UNESCO: Asia Case 4	World Bank Research
GDP/Per Capita	\$ 571	\$756	\$739	\$1,257	\$1,000
Pupil Unit Cost	\$86	\$91	\$118	\$235	\$ 120
Pupil UC % of GDP/Cap	15%	12%	16%	18%	12%
FACTORS					

UNIT COSTS	UNESCO Case 1	UNESCO Case 2: Asia	IIEP Case 3	UNESCO: Asia Case 4	World Bank Research
Pupil/Teacher Ratio	40:1	26:1	40:1	34:1	40:1
Teacher Wage X GDP/Cap	4.5	2.3	4.5	3.2	3.5
Total Wage Bill as % of Recurrent¹⁷	66%	62%	63%	72%	70%
Non-Wage Bill as % of Recurrent Budget	34%	38%	37%	28%	30%

The findings (below) from the World Bank study present average values for critical indicators in those low-income countries which showed progress in increasing access to and completion of primary schooling. They provide a guide to the minimum level of resources a country needs to support quality basic education.¹⁸

Indicators and Values from the World Bank (2003) study:

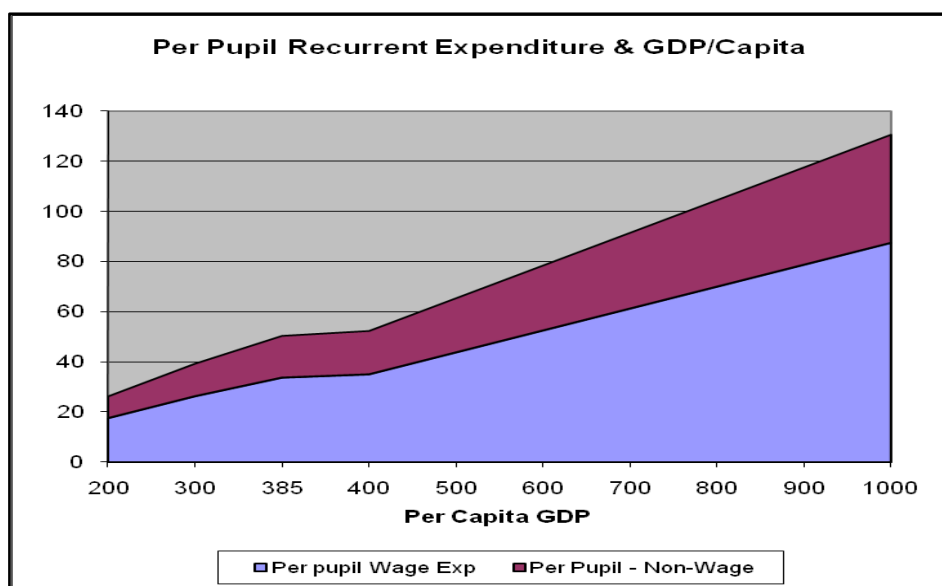
- Teacher wage average of 3.3 * GDP per capita
- Pupil/teacher ratio 40:1
- Non-wage expenditure: 30% of total recurrent expenditure

No claim is made that these values are appropriate in all country contexts. They do however provide an evidence-based starting point for policy dialogue on the financial needs of primary education among governments, donors, and civil society. These values result in a per pupil unit cost of approximately 12% of GDP per capita. The application of these indicators and values in a graph shows the relationship between per-pupil recurrent expenditures and GDP per capita.

Figure 1: Relationship of GDP/Capita and Primary Unit Costs

¹⁷ Note that the wage bill includes both teachers and education staff including district and national managers and supervisors (These typically consume approximately 20% of the total wage bill).

¹⁸ The parameters from the World Bank study (2003) have been slightly adjusted for simplicity.



Thus, for a country with a GDP/per capita of \$800, per pupil recurrent expenditures should be at a minimum, roughly \$96 of which \$63 will be for wages and \$33 for non-wage expenditures. As illustrated by the *Nontopia* example, which has values quite typical of a large number of lower-income countries, per pupil expenditures are significantly below what the model projects. The next example projects what *Nontopia* would look like if the country wanted to become a *Utopia* with adequate reforms and financing necessary to support quality primary education.

Table 5: Projection for Transforming *Nontopia* to *Utopia*

	<i>Nontopia</i>		<i>Utopia</i>
DATA	2012	2013	PLANS
National GDP/per capita in \$	\$850	\$900	\$1000
Total enrolments in public primary schools	3,500,000	3,700,000	4,000,000
Total recurrent budget for primary school in \$	\$245 mill	\$255mill	\$480mil
Budget for teacher & staff wages	\$223 mill	\$226 mill	\$360mil
Number of teachers	68,627	74,000	100,000
ANALYSIS			
Average per pupil recurrent cost	\$70	\$69	\$120
% GDP/pc for primary pupil recurrent cost	8.2%	7.7%	12%
Average teacher salary as multiple of GDP/pc	3.8	3.37	3.3
Pupil/teacher ratio	51:1	50:1	40:1
% recurrent budget for non-wage expenditures	9%	12%	25%

Legend: Figures in **bold** are planned indicator targets. Figures in *italics* are projected estimates. Highlighted figures are derived from the projected estimates and the planned targets

As noted, these values are derived from the analysis of national primary education systems which have demonstrated sustained capacity for decreasing dropouts, increasing promotion and completion while expanding access. Two notable differences exist between these values and those of many of the lower-income countries where USAID has education projects:

- Primary school per pupil annual recurrent unit costs are generally significantly below the figure of 12 percent of GDP per capita, and
- Non-wage costs for ongoing professional development, supervision, instructional materials and monitoring and evaluation are generally far below the 30 percent indicated. Additionally, the bulk of these costs are often provided episodically by multiple donors.

These are critical sector policy financing and reform issues that must be addressed if early grade reading programs are to be sustained beyond the life of externally-financed projects. The increased costs for curriculum revisions which require new instructional materials for reading, the training and support to teachers to adopt new pedagogies, and systems of regular monitoring and evaluation of these inputs and student learning outcomes will be well served by increased non-wage budgets accompanied by effective management.

Additionally, serious shortages in numbers of classrooms, furnishings and school infrastructure would have to be addressed as an integral element in an overall basic education sector plan.

IV. G2G Strategy for USAID Missions

The implications of this tool on USAID Goal I programs in consideration with G2G implementation are:

- Unless adequate financing is forthcoming to support at least minimum quality conditions for technical interventions in early primary grades, such as curriculum reforms, teacher training, instructional materials, monitoring and evaluation, and management training, G2g efforts will have little systemic, sustainable impact on literacy and learning.
- Assessment of financing in place for early primary education and determination of the gap between the current level and the level of funding needed for sustained early grade reading is crucial. Although G2G may address only a small proportion of that gap, it can catalyze a policy dialogue with the Ministry of Finance, Ministry of Education, and donors to provide budgetary support leading to an increase in the percentage of sector financing allocated to the non-wage recurrent budget.

In a number of countries, USAID is taking the technical lead among donors for increased primary education quality, with the focus on measurable improvement in pupils' reading and learning. This leadership, particularly when supported by G2G financing, provides USAID a seat at sector policy and budget consultations. This position can lead to a significant leverage of other donor funds and government education sector budgets (as in Senegal and Ethiopia) toward sustainable financing as calculated by this *What Will It Cost* Tool.

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