



EdData II

Information for Education Policy, Planning, and Management: Summary of the Data Capacity Assessments Conducted in the Philippines, Ghana, and Mozambique

September 2011

**EdData II Technical and Managerial Assistance, Task Number 11
Contract Number EHC-E-11-04-00004
Strategic Objective 3
RTI Project No. 0209354.011
28 September 2011**

This publication was produced for review by the United States Agency for International Development. It was prepared by RTI International.

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Prepared for
United States Agency for International Development

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RTI International is a trade name of Research Triangle Institute.

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Table of Contents

List of Tables	iv
1. Introduction	1
2. The Data Capacity Assessments.....	2
2.1 Purpose and Objectives	2
2.2 Framework	3
3. Findings	4
3.1 Context and Priorities.....	4
3.2 The Data Capacities of the Three Countries	7
Measuring Learning Outcomes Early Enough in the Primary Cycle	10
Quantifying and Addressing Inequities	11
Evaluating Costs, Effectiveness, and Cost-Effectiveness.....	12
3.3 Country Data Systems and USAID’s Data Needs	14
4. The Data Capacity Assessment Methodology.....	15
5. List of Task 11 Data Capacity Assessment Reports.....	17

List of Tables

Table 1.	Country-based comparison of population and education indicators	4
Table 2.	Summary of data availability and use, by country	7

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1. Introduction

Information management has long been recognized as a critical component of a well-run education system. Sector planning and budgeting require data on how many schools to build, teachers to hire, and books to purchase. Measuring year-to-year progress toward education goals requires data on intake, enrollment, and completion. In almost all cases, key indicators are tracked and reported on as countries evaluate progress in achieving the universally accepted goals embodied in the declaration of Education for All (EFA).

However, the information demands of education systems are changing. No longer are we asking simply whether students are enrolled in school. We now want evidence that enrolling in school leads to learning. Developing countries themselves and their funding agency partners want to be able to measure whether efforts to improve education result in better learning outcomes. Increasingly, projects are seen as investments that need to be evaluated in terms of their performance and impact: whether they produce value—i.e., learning—for money.

The U.S. Agency for International Development (USAID) has clearly stated its commitment to data-based planning and measurement of impact in its new Education Strategy, its Evaluation Policy, and its USAID Forward Initiative. Country strategies and programs need to be data-driven and evidence-based. Program and project designs need to contain provisions for performance monitoring and impact evaluation—including even randomized controlled trials to evaluate the effectiveness of potentially “game changing” innovations. In line with the 2005 Paris Declaration and 2008 Accra Agenda for Action, greater emphasis is being placed on working in partnership with recipient countries; and relying increasingly on host-country capacity for planning, implementation, and monitoring and evaluation. Increased demand for more, better, and different data is occurring at the same moment that USAID intends to support countries developing their own capacity to provide that information.

The Omnibus Appropriations Act of 2009 made funds available to USAID “for a pilot program in three countries to develop and evaluate the effectiveness and implementation of a 5-year basic education strategic plan.” USAID’s education strategic plan in any country is seen as tied to and based on that country’s own education sector plan and strategies. Therefore, the data capacity assessments called for under Task 11 of the EdData II project were designed to help the Agency fulfill Congress’s wishes by evaluating how well a country’s own data systems can:

- Inform and support the development and implementation of education sector policies, plans, and strategies;
- Provide the basis for coordinating and aligning external assistance in support of the education sector;
- Underpin the development of USAID’s five-year country strategy, sector-specific programs, and projects; and
- Generate data to evaluate and report on the performance, outcomes, and impact of USAID (and other) investments.

Furthermore, the assessments were to be conducted on a pilot basis so that, in addition to evaluating the country’s data systems, USAID could also determine whether a standardized approach to such assessments can be made into an easily replicable tool.

This report summarizes the purpose of the data capacity assessments (section 2), presents a summary of the three pilot data capacity assessments (section 3), and reflects on the methodology used, as well as recommendations for its applicability and replicability (section 4).

2. The Data Capacity Assessments

2.1 Purpose and Objectives

The data capacity assessments had four distinct objectives.

- **First**, the assessments evaluated the data needs of each country, as well as the capacity of each country’s data systems to produce the information necessary to develop, implement, and evaluate the progress of education sector plans. This included issues related to data supply, demand, and use.
- **Second**, the assessments examined the extent to which data systems in each country can (or do) inform USAID’s development of a five-year strategy. More specifically, the assessments examined whether those data systems can support the Agency’s development, management, and evaluation of the outcomes and impact of its education sector programs and projects. This also included an evaluation of how well existing data systems can serve USAID’s reporting requirements.
- **Third**, the assessments produced a “country profile” for each of the pilot countries.
- **Fourth**, the framework, methodology, and process for conducting the data capacity assessments was tested, refined, and documented as an adaptable tool that can then be used in other countries.

Three countries were selected as pilots for the data capacity assessment. Ghana represented a stable, well-performing country. Mozambique represented a high-need,

least-developed setting. The Philippines, with the continued instability in Mindanao, represented a conflict-affected environment. The initial assumption was that these contextual differences would matter substantially in terms of both the quality of their data systems and the nature of the assessment methodology. That assumption, as discussed in the final section of the report, proved erroneous.

2.2 Framework

The framework around which the data capacity assessment methodology was developed was set forth in an internal project document, *EdData II Data Capacity Assessment Framework*. The framework consisted of three parts. It began with an approach to analyzing how (and how well) data are used during high-level aspects of education sector decision making. These include setting priorities; formulating policy and developing plans; allocating and aligning resources to priorities and plans; managing and monitoring implementation; and reviewing and reporting on progress. The second feature of the framework assessed the degree to which production and use of data are systematized features of sector management. The third part of the framework identified the kinds of information that are (or are not) available from the different data systems in the country. The assessments examined the sources, timeliness, disaggregation, decentralization, and overall availability and use of data in relation to such education issues as access, quality, equity, internal efficiency, external efficiency, finance, and governance.

These data capacity assessments emphasized how data are used—in relation to (1) internal policy and planning processes and (2) external assistance strategy and program/project development. This is in contrast to other approaches, such as the Data Quality Assessment Framework (DQAF) developed by the World Bank and the UNESCO Institute of Statistics (UIS). The DQAF focuses on the supply of information. It delves much further into the quality of a country's education statistics, examining five dimensions of data quality—integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility.¹

Given the particular orientation of this assessment approach—toward use of data in support of the policy and planning processes of governments and their funding agency partners—some aspects of in-country information systems received greater attention than others. For example, our analyses included the points of view of various stakeholders in each country with respect to the reliability of education system data, and referred to any existing evaluations of data accuracy, but did not include independent verifications of the accuracy of education sector data. Also, these assessments extended beyond examination of the education management information system (EMIS) to include other data systems in the education sector—such as those related to testing and evaluation, materials, personnel, and finance. And they identified and considered the availability and use of

¹ See, for example: World Bank Development Data Group and UNESCO Institute of Statistics. (2003). *A Framework for Assessing the Quality of Education Statistics*. Washington, DC: World Bank and UIS. Available from <http://unstats.un.org/unsd/dnss/docs-nqaf/WB-UNESCO-DQAF%20for%20education%20statistics.pdf>.

sources of information such as household surveys, labor market surveys, and census data. A true EMIS would enable education decision-makers to draw on all these various other sources of information, but in most countries, the EMIS is circumscribed to mean the database constructed from the annual school census and maintained by the statistics unit within the ministry or department of education. The intention of these data capacity assessments was not to appraise just this limited notion of a country's EMIS, but rather to get a full picture of what data are or can be drawn upon to inform decision making and to measure progress in the education sector.

3. Findings

3.1 Context and Priorities

The Philippines, Ghana, and Mozambique are dramatically different countries, as evident in Table 1. The Philippines is a large country of over 93 million people spread out across several thousand islands, with an average per capita income of US\$2,060. Ghana and Mozambique are much smaller than the Philippines, each with about 24 million people. Ghana's per capita income (\$1,230) is just over half that of the Philippines. Mozambique has the lowest average income of the three countries, at US\$440 per capita.²

Table 1. Country-based comparison of population and education indicators

Indicator	Country		
	Philippines	Ghana	Mozambique
Population	93,260,798	24,391,823	23,390,765
Gross national income (GNI) per capita	US\$2,060	US\$1,230	US\$440
Total primary enrollment (grades 1–6)	12,318,505	3,001,942	5,189,601
Primary gross enrollment rate (GER)	110	105	114
Primary net enrollment rate (NER)	92	76	92
Gender parity ratio (primary)	98	99	90
Primary completion rate	94	83	61
Secondary GER	74	55	21
Secondary NER	61	46	16

² Figures are from the World Bank database at <http://data.worldbank.org/country>.

Indicator	Country		
Gender parity ratio (secondary)	109	89	82
% of gross domestic product (GDP) spent on education	2.8	5.5	5.0
% of education expenditures on basic education	51	31	58

Source: Data are from World Bank, the UNESCO Institute of Statistics, and the 2011 UNESCO EFA Global Monitoring Report (<http://unesdoc.unesco.org/images/0019/001907/190743e.pdf>).

The Philippines has recently experienced high rates of economic growth, but still not enough to significantly raise real incomes and reduce poverty. Forty percent of the population is estimated to live on less than US\$2.00 per day. The poorest areas of the Philippines are concentrated on the southern island of Mindanao, where as much of 70% of the population lives in poverty. Armed conflict, violent crime, and clan-based feuds in Mindanao exacerbate the disadvantages confronting that area of the country. Education overall in the Philippines has been underfunded, especially when compared to other countries in Southeast Asia. Progress toward Education for All has been steady and access to elementary and secondary schooling is near universal. However, the average scores on the National Achievement Test (NAT) for both elementary and secondary students fall well below what is defined as mastery of subject matter. Urban–rural and regional disparities in access, dropout, completion, and learning outcomes are pronounced. Areas of Mindanao are among the lowest performing on all of these indicators.

Ghana is perhaps one of the most stable countries in sub-Saharan Africa and is seen as a model for political and economic reform in the region. The discovery of major offshore oil reserves promises a potentially significant economic windfall, and has already helped move Ghana from low- to lower-middle income status. Ghana has made steady progress toward universal primary access, but net primary enrollment rates are still below 90% and dropout rates in primary remain unacceptably high. Economic and social development continues to be uneven, with the northern parts of the country behind on all economic and social indicators, including access to and outcomes from education.³

Mozambique has emerged from a long period of conflict to log more than a decade of economic growth at a rate of over 8% per year. In the past 10 years, more than three million Mozambicans have been lifted out of poverty. However, overall income remains low, and 90% of the population survives on the equivalent of less than US\$2.00 per day. Heroic efforts have been put forth to build schools and to hire and train teachers in order to expand access to primary school. Gross and net enrollment rates are now near

³ Ghana general information taken from the World Bank database and the 2011 UNESCO EFA Global Monitoring Report.

universal, an outstanding accomplishment for a country at Mozambique's level of income. Adequate investments in quality (for example, hiring sufficient numbers of teachers) remain constrained by the lack of sufficient resources. Rural areas are particularly disadvantaged in terms of poverty and access to education of reasonable quality.

As different as they are, however, the Philippines, Ghana, and Mozambique share many common concerns as regards the most pertinent information needed to promote the development of their education systems. Countries striving to improve their education systems need data that allow them to measure learning outcomes, identify and quantify inequities, and appraise the cost-effectiveness of the interventions they implement.

In each of the three countries studied, access to basic education is near universal, but concern for quality is of growing importance. As is happening in all countries, the education systems in the Philippines, Ghana, and Mozambique are or need to be increasingly concerned with how best to evaluate whether they are producing the desired learning outcomes. USAID has staked out its position on this issue. It is concerned with measuring the acquisition of literacy early on, both during and at the end of primary school. Countries like these three are also recognizing the need to have data that can tell them about student performance well before the end of primary school (a point at which students in many education systems traditionally sit for formal, standardized exams). Therefore, the EdData II data capacity assessments evaluated the availability and use of learning outcomes data, especially early on in the primary cycle.

In addition to concerns about quality, the Philippines, Ghana, and Mozambique, like most countries, also share concerns about equity. Equity has long been and continues to be a priority for USAID. These data capacity assessments therefore paid close attention to whether information is available and is used to assess and quantify inequities in the education sector, and then used to target investments and inputs so as to redress those imbalances that are uncovered. For example, the policies and practices governing hiring, deployment, and use of teachers; those determining where and when schools are built; and those shaping how learning materials are procured and distributed all impact how equitably education is provided. Therefore, the data capacity assessments gave close consideration to the degree to which equity is explicitly addressed in the data used to inform those policies and practices.

Lastly, all developing countries (and developed countries these days) are working to improve their education systems in resource-constrained environments. Concern for how to measure the effectiveness and cost-effectiveness of different interventions therefore becomes paramount. USAID places a premium on being able to measure the performance and impact of its programs and projects in this way. These pilot data capacity assessments reflected this priority and examined the extent to which available data, data systems, and the institutional environment of the education sector lend themselves to systematic appraisal of the effectiveness, costs, and cost effectiveness of different interventions and innovations.

3.2 The Data Capacities of the Three Countries

Table 2 below highlights some of the main findings of the data capacity assessments regarding the availability and use of data in each country, with respect to five key decision-making points in the policy and planning cycle. Overall, data availability was not an issue in these countries, although some shortcomings are noted. The quality of data and the efficiency of data collection could be improved in all three countries. Of greatest concern, given the purpose of this study, is whether the available data are put to maximum use—for example, whether those data are analyzed in ways that inform some of the higher priority performance monitoring and reporting priorities of USAID.

Table 2. Summary of data availability and use, by country

Policy/Planning Decision Points		Availability and Use of Data
Setting priorities	Philippines	A wealth of data is used to guide decision making, priority setting, resource allocation, and planning. In basic education, these are limited by the overarching sector development framework, not data availability.
	Ghana	Information-rich sector analysis supported the policy decisions of the 2008 Education Act and the elaboration of Ghana's current Education Strategic Plan, and data are used annually to revise and set priorities.
	Mozambique	Education targets in the poverty reduction strategy and education sector plan are prioritized using indicators that are tracked annually. Data from EMIS are used extensively for targeting priorities.
Formulating policies and developing strategic plans	Philippines	Basic education information system (BEIS) data are used to produce projections of additional teachers, classrooms, and furniture needed to achieve EFA goals.
	Ghana	The development of the education strategic plan included extensive use of EMIS data as well as commissioned studies, SWOT analysis (strengths, weaknesses, opportunities, threats), detailed cost projections, and simulations.
	Mozambique	EMIS data are the cornerstone of the annual sector plan. The annual budget cycle has clearly drafted priorities based on input, quality, expenditure, and outcome indicators. EMIS data also animate the annual sector report.
Allocating and aligning resources	Philippines	The Department of Education (DepEd) relies on estimates of standard inputs to calculate its budget requirements, using administrative data in the BEIS. Additionally, special projects receive DepEd or external funding "off budget."
	Ghana	The education strategic and annual operational plans employ EMIS and other information provided through the annual review

Policy/Planning Decision Points	Availability and Use of Data
	process. They also make use of budget allocation formulae and medium-term expenditures projections built from historical budget information and subsector estimates. These plans orient the use of external assistance as well as national resources; development partners participate actively in the annual review process.
Mozambique	Budgets are drafted with cost inputs drawn from a well-developed government financial accounting system. Cost projections for plan rollout are facilitated by use of a costing and planning model.
Philippines	National and regional DepEds produce annual reports on implementation. Quality of regional reports varies considerably.
Managing and monitoring implementation	Ghana EMIS data are not deemed reliable or timely enough by many sector managers to inform operational decisions regarding teacher and deployment, school capitation grants, or materials distribution. Individual departments have to request data from districts, resulting in multiple, unsystematic, and often divergent data sets at the central level. Locally, districts also collect school process and performance information that are analyzed and reported back to schools via school report cards.
Mozambique	Infrastructure, deployment of teachers, and distribution of materials are monitored as part of the annual planning and review process.
Philippines	Annual reviews use a standardized set of indicators related to each of the EFA objectives. Additional reviews are based on NAT scores. Highest performing divisions, regions, and schools are identified within comparison “clusters.”
Reviewing and reporting on progress	Ghana Annual reviews use a set of key indicators and include trend analysis of some national-level indicators drawn from the EMIS. National Educational Assessment (NEA) results (available every two years) are used to examine the performance of primary education as a whole and to compare the relative performance of regions.
Mozambique	Annual reviews, in the context of the sector-wide approach (SWAp), use a set of mutually agreed indicators. No treatment of learning outcomes.

One strength of the existing information systems in each of the three countries is the supply of basic information for setting sector priorities and developing plans. Data such as access indicators that rely on population census figures and projections are problematic in all three countries, especially at the lowest levels of disaggregation, where errors and distortions in basic data are greatest. Overreliance on enrollment figures exclusively often leads to an inflated sense of access. Household surveys that ask about school attendance

may in fact provide more accurate pictures of how regularly students attend school, not just whether or not they are enrolled; but such surveys are rarely used to inform planning and investment decisions in education. Despite these drawbacks, basic enrollment and population data are used to determine the existing level of access, to model scenarios for continuing to expand access in order to meet specific targets (in all three cases, the defining planning framework for basic education is the pursuit of the EFA objectives by 2015), and to draw up specific plans—schools to build, teachers to hire/deploy, materials to procure, and project funding requirements. These projections form the basis for budget submissions, but not necessarily for in-depth analyses of resource allocation options. Extensive analysis of the likely impact of different resource allocation decisions is not evident in any of the cases, although individual impact studies exist and offer useful models for this kind of analysis.⁴ Data are not used to evaluate the trade-offs among different investment strategies. Annual input allocations are targeted based on identified inequities as mentioned above, but in none of the countries is there evidence of an attempt to evaluate systematically over time whether such targeting is leading to significant and sustainable improvements.

Data for managing and monitoring implementation in all three countries are used to construct indicators linked to each country's national education plan, which, in all three cases, is dominated by attention to achieving EFA objectives and is strongly tied to an annual review process undertaken by the education authorities and the country's main technical and financial partners active in the education sector. Implementation reviews in each of the countries have an external component (demonstrating to funders/partners that resources are well managed and progress is being made), as well as internal components that involve reporting to political authorities (in the case of the Philippines) or evaluating performance across ministry structures or geographic units (in the case of Ghana). Progress in each of the cases tends to be measured in relation to overall sector goals, such as improving access and completion (given the hegemony of the EFA agenda). Periodic data on learning outcomes, when available (as in the case of Ghana and the Philippines, but not in Mozambique), are not systematically presented in formal reviews of overall sector progress, nor do they contribute to planning and policy decisions. However, the Philippines does look at trends over time in student outcomes as one measure of whether education is improving or not. Department of Education officials, politicians, and civil society organizations openly discuss and use these trends to advocate for change. Similarly, Ghana publishes and compares National Education Assessment outcomes over time to determine whether educational quality appears to be improving. However, there is little evidence in either country to indicate that these sources of information are being used systematically or directly to inform sector policy decisions.

⁴ For example, the Teaching Community Assistant Initiative program being conducted by Innovations for Poverty Action in Ghana.

Considerably more details on the data systems and data use in each of the pilot countries are available in each of the individual country data capacity assessment reports.⁵ Further discussion of data capacity in this report focuses on the extent to which the existing systems in the Philippines, Ghana, and Mozambique permit these countries, and with them USAID, to adequately measure and therefore address learning outcomes, inequities, and cost-effectiveness.

Measuring Learning Outcomes Early Enough in the Primary Cycle

All the countries show a commitment to measuring learning outcomes and using assessment results to monitor quality in the education system. However, all three systems also face limitations in how assessments are currently applied and their results used.

The National Achievement Test in the Philippines is a norm-referenced, curriculum based, multiple-choice test that is nationally administered in grades 3 and 6 and in the second year of secondary (grade 8). All public school students take the NAT in grade 3. The test covers science, math, English, and Filipino. Each subject area is subdivided into specific competencies. Raw scores and percentile ranks are reported for each student and subject. The percentage of correct responses is also computed for each subject and, within those, for each learning competency. These scores are aligned to seven levels of mastery ranging from “absolutely no mastery” (< 5% correct) to “mastered” (> 95% correct). In addition to the NAT, an Informal Reading Inventory (referred to as Phil IRI) is used to evaluate student reading proficiency in both English and Filipino in grades 1 through 6. The inventory evaluates oral and silent reading and comprehension of grade-level passages. Implementation of the test is left up to teachers’ discretion, and many teachers do not regularly administer it. When they do use it, its application is not standardized nor are its results compiled and analyzed.

Ghana’s National Education Assessment takes place every two years (since 2005). The NEA uses a clustered representative national sample of children in primary grades 3 and 6, and permits an estimation of the number of children who meet “minimum competency” and “proficiency” levels in English and mathematics subjects. The test results can only be analyzed at national and regional levels. Additionally, Ghana implements a School Educational Assessment (SEA) of all students in primary grades 2 and 4 in all elementary schools every other year. The SEA has the advantage of being comprehensive (i.e., given to all students), while the NEA is sample-based. This assessment, unlike the NEA, is managed and proctored locally and its results are intended solely for local formative evaluation and performance review; thus, analysis at the central level is not recommended.

Mozambique conducts annual national examinations in grades 5, 7, 10, and 12, but these tests are invigilated (proctored) and marked at the school level. The validity, reliability, and utility of these assessment data are therefore questionable. Students in these and all other grades also sit for end-of-year exams that are prepared by their teachers for each

⁵ See list at end of this report.

subject. The results of these tests are collected centrally. However, these tests are not systematically comparable across schools since they are administered by individual teachers without any standardization in development, proctoring, and marking or scoring.

Quantifying and Addressing Inequities

All the countries quantify inequities by presenting basic student indicators such as intake, enrollment, and completion ratios at regional and subregional levels. Each country has the data to compare basic input ratios across regions or districts—e.g., identifying areas where pupil–teacher ratios are highest. Gender disaggregation is standard practice in all three countries. These three do not, however, develop indicators of inequity, apart from the gender parity index that is a standard EFA indicator. The lack of standardized ways to quantify inequality in inputs, outputs, and outcomes is common to most developing country education systems. This is one area where the usefulness of data could be dramatically improved by the introduction of some standard statistical comparisons, such as benefit incidence analysis, Gini coefficients, or other measures of inequality. The data available in these countries from the education information systems, as well as those from household surveys and other sources, do provide in-depth pictures of the inequities across income levels, urban and rural areas, and other geographic distinctions, but such measures are not systematically reported on, nor are they employed in the planning and budgeting processes.

The Philippines produces maps to identify and color-code divisions according to the degrees of projected shortages of in each main input area—teachers, classrooms, and furniture—so that allocations can be appropriately targeted. Additionally, the Department of Education ranks divisions in the country according to enrollment, completion, dropout, and NAT scores, in order to identify the lowest performing, and therefore highest priority, locations. Resources are ostensibly targeted to these areas. However, no analysis is available that evaluates the extent to which targeting is indeed effective. The existence of the color-coded divisions implies that the data are available to determine the extent to which targeting over time alleviates shortages in certain geographic areas. Such an analysis is not done.

In addition to national government allocations for education, each local government generates earmarked revenue through the Special Education Fund (SEF). This tax is levied, collected, and managed locally. The Department of Education has data on SEF receipts, but no data on how these funds are expended at the local level. Localities with high property values and higher concentrations of businesses generate more revenue from SEF, allowing them to have higher levels of education expenditure. This is a great source of inequity in the Philippine system, yet data are neither available nor used in a way to quantify and therefore address this problem.

In Ghana, the Ghana Education Service (GES) Finance Department uses resource allocation formulas to set funding ceilings for services, administration, and investment for all districts. Districts then allocate resources to schools. Among other things, the

allocation formulas incorporate “deprivation criteria” that identify the most deprived of the 170 districts in Ghana. During the period 2006–2011, these “deprived districts” were entitled to supplementary funding through a pilot program. With the program ending in 2011, all districts will be re-ranked according to their degree of deprivation to determine whether rankings have changed, and in particular, whether the 61 districts identified as deprived in 2006 have improved in status. At present, the districts identified as deprived in 2006 continue to show poor resource levels and performance relative to national averages, despite the supplemental funding received. Going forward, deprivation criteria will be recalculated annually as part of the resource allocation formula, along with other criteria.

At the same time, despite Ghana’s concern for deprived districts, and even though the data to analyze disparities across districts exist, public presentation and analysis of inter-district disparities is a sensitive subject, and therefore does not take place. EMIS reports present information on each district, even each school, but do not routinely provide reports showing direct comparisons between entities at the same level. The education sector plan’s list of indicators has none that address equity across districts.

In Mozambique, inequality in provinces’ poverty levels and education access and attainment are addressed in the education sector plan, and targets are set for eliminating these access and attainment inequalities. However, the sector strategy and planning documents do not include analyses of the longitudinal data that would demonstrate the extent to which inter-provincial inequities across these various indicators are (or are not) improving. These data are available, and in general there is some ad-hoc and ex-post analysis of reductions in inequalities (e.g., in the Mozambique’s recent Fast Track Initiative [FTI] funding application), but the country does not demonstrate a systematic, explicit approach to inequality targeting. There is no evidence of the use of simple and transparent funding or allocation formulas based on measured inequality, or the targeting of areas based on poverty.

Evaluating Costs, Effectiveness, and Cost-Effectiveness

The Philippines, Ghana, and Mozambique are no different from most other countries in that they lack systematic analysis of the costs and cost-effectiveness of different education improvement strategies and interventions. This area is where data systems in these three countries were judged to be the least developed: There is little systematic data available on the costs, let alone cost effectiveness, of various interventions.

In the Philippines, setting of policy priorities and development of plans for basic education are essentially driven by simple, administrative calculations of what it will take to reach EFA goals—how many schools will need to be built, how many teachers hired, etc. Allocations are driven for the most part by routine operations—paying staff, operating and maintaining buildings, purchasing materials and equipment, etc.—with little ability to direct resources based on maximizing cost effectiveness or obtaining the highest return on investment. No rigorous analysis of the costs or the effectiveness of

different policies and strategies is conducted. No informed consideration of the cost-benefit trade-offs associated with different approaches to managing system expansion and improvement is apparent. The Department of Education itself has limited capacity to do research and policy analysis. Analyses of program or project implementation, comparative measures of program or project effectiveness or cost-efficiency, and analyses of resource use are not available on a regular basis. Large components of the education budget are opaque, either because their end use is not fully accounted for (e.g., the training budget and the maintenance and other operating expenditure line item) or because the funds are generated and spent locally (e.g., the Special Education Fund). The Department of Education has commissioned some analyses of certain aspects of sector financing and management (e.g., a study of education services contracting), but usually as a one-off study and not as a regular feature of sector management. And independent organizations—for example, the Philippines Institute for Development Studies—do conduct analyses that often provide insight into the relationships between educational attainment and different education inputs and investments. High-quality studies are therefore available, but the extent to which those are used to inform policy decision making or to guide sector priorities, plans, and resource allocations is not apparent.

Likewise, in Ghana, cost-effectiveness analysis and tracking of funding and expenditures are also relatively absent from the research and analysis that have informed the plan and policies of the past 10 years. Decisions such as the one to start an ambitious kindergarten program would benefit from careful review of their cost implications. More systematic tracking of private as well as public funding sources and expenditures in the education sector would provide a more complete picture of the sector's potential financial resources, and of the efficiency with which resources are being used. Household contributions, the Ghana School Feeding Program (Ministry of Local Government) funds, and some sources of development partner funding are not included among the resources being tracked and evaluated for effectiveness by the education sector.

While Ministry of Education departments in Ghana have carried out “in-house” studies, it has proved difficult for the Ministry to lead high-quality research, due to the nature of research and competing job responsibilities of Ministry staff, Ministry capacity relative to that of entities designed to do research, and the requirements of objectivity. A productive and diverse education and social science research community exists in Ghana, with universities, private firms, and consortia producing useful and relevant research, including public sector finance analyses and rigorous controlled studies. However, such efforts do not appear to be carried out as part of a larger, planned research agenda intended to inform policy or guide management decisions.

In Mozambique, similar issues are evident. Data exist that would enable some analysis of costs and cost-effectiveness, but they are not used in that way. For example, data to monitor the extent to which resources are optimally utilized and whether specific expenditures are (or are not) associated with improving performance are collected by the Ministry of Education. From these data it would be possible to conduct cost effectiveness

analyses. As an example, one notable study was conducted in 2004 by the Improving Education Management in African Countries initiative (IEMAC/AGEPA). Using secondary data available from the EMIS and from expenditure reports, the study probed the relationship between education outputs and per pupil spending. It is interesting, however, that more such studies are not being done. They would seem pertinent to the whole issue of quality, which has gained prominence in Mozambique in recent years.

3.3 Country Data Systems and USAID's Data Needs

In the three pilot countries, the education information systems are capable of producing large quantities of data that can be used to both inform country strategy development and monitor and report on progress, albeit with certain limitations. Data on standard education indicators in each country are systemically collected and reported each year in the context of a broad, sector-wide agreement among each country's government and most of its financial and technical partners as to what indicators should be tracked. These indicators tend to be those that relate to standard input and output measures: student-to-teacher ratios, textbook-to-student ratios, expenditure levels, gross and net enrollment rates, repetition, dropout and completion rates, etc. In fact, one criticism evident in each of the cases is that many of these indicators are in fact duplicative—i.e., they measure the same or essentially the same thing (i.e., several different ways of quantifying access). Also, many of these data, if analyzed differently, could provide insight that currently is not evident in these places.⁶ Furthermore, some of the resources and energy that go into collecting mounds of data that tell slightly different versions of the same story could conceivably be redirected productively to measuring some of the things that these education systems do not presently address well.

The weakest aspects of data capacity in each of the countries relate to the three priority areas mentioned above: learning outcomes, inequities, and cost-effectiveness. In some instances, data related to these priority issues are available, but are neither analyzed appropriately nor used adequately to monitor performance and measure impact. Since these areas are of paramount concern to USAID as it rolls out its new education strategy, attention needs to be focused on how to improve data capacity specifically related to systematic, regular, and standardized measurement of learning outcomes, especially in early grade reading. Ghana and the Philippines implement national assessments, but in neither case do those assessments measure reading proficiency at the end of grade 2. The individual reading inventory in the Philippines is not administered in such a way as to produce systematic data. Ghana's NEA is administered at the end of grade 3, but only every other year. Mozambique does not have a nationally standardized, systematic assessment of learning outcomes. In each of these cases, additional work will need to be done to make sure that USAID can report on progress in any of these countries toward meeting Goal 1 of the Education Strategy—namely, increasing the number of children

⁶ See, for example, the illustration of value-added analysis of access data contained in the Mozambique data capacity assessment country report.

able to read after two years of primary school. And the Agency will need to find an appropriate balance between its interest in tracking improvements in reading and a country's interests and priorities. If USAID wants to rely increasingly on countries' own systems, then the potential divergence between USAID's and a country's priorities is even more of a concern.

The other two areas where data capacity will need to be improved concern (1) identifying inequities, evaluating resource targeting based on inequities, and tracking over time how those inequities are (or are not) rebalanced; and (2) measuring the effectiveness of specific allocations, programs, and interventions, as well as computing their relative cost-effectiveness. There is a common starting point for considering how to address data capacity in these two areas among the pilot countries. The Philippines, Ghana, and Mozambique have sources of data outside the education system that make available information that could be used much more purposefully in analyzing the education sector and, in particular, monitoring progress. Household surveys, labor market studies, poverty-related studies, independent analyses of public sector financing, and numerous other sources of information are present in each country. These kinds of data need to be more systematically used for assessing the education sector (e.g., considering incidence analysis of education expenditures) and for measuring improvements over time (e.g., analyzing changes in education outcomes in areas or for populations previously identified as disadvantaged—e.g., rural, poor girls).

4. The Data Capacity Assessment Methodology

As noted, USAID requested that the EdData II project develop a methodology for data capacity assessment and pilot test it in three distinct settings. The initial assumption was that the differences in those contexts would matter, in terms of both the capacity of in-country data systems and their ability to meet the strategy development; program and project design; and monitoring, reporting, and evaluation requirements of the Agency. The most surprising finding, then, happens to be that those differences in context hardly mattered at all. The assessment teams found more similarities than differences among the three countries. For example: All three have large amounts of data that are available to inform education sector policy and planning. All three fail to get maximum value from those data. And all three, in different ways, lack adequate information to deal with what we have identified as three priority monitoring and evaluation issues: learning outcomes, inequity, and cost-effectiveness.

With respect to learning outcomes, the existing data systems fall short in terms of the systematic reliability and year-to-year comparability of assessment data and the absence of standardized measures of early grade reading. Regarding measuring inequity, existing data are not analyzed and tracked sufficiently. Systematic attention to cost effectiveness will require improving data on actual expenditures and the development of rigorous

methodologies (such as those advocated by the Abdul Latif Jameel Poverty Action Lab at the Massachusetts Institute of Technology).⁷

In the Philippines, where ongoing conflict seriously impedes both daily life and public sector functions in several administrative regions of the country, national-level data systems are not affected. In fact, the national systems are what the conflict-affected areas of Mindanao rely on for information. And the national information systems, in the education sector and more broadly, do quite a good job documenting the situation in Mindanao, even highlighting the disadvantages experienced in these conflict-affected parts of the country.

Ghana, a stable and growing democracy, has information systems and an information culture that serve the education system's strategic functions reasonably well. However, as summarized above and detailed in the Ghana report, the use of data to fully inform decision making in education is still less than ideal. Inadequacies in data quality, efficiency, accessibility, and depth of analysis need to be addressed. Greater systematic attention to the production of relevant, timely, high-quality studies of effectiveness, impact, and cost, is called for.

Mozambique, a least developed but growing country, actually has information systems that provide most of the data needed to set priorities for, plan, and manage the development of its education system. The constraints it faces are similar to those in both Ghana and Philippines: lack of adequate data on certain key issues and poor capacity within the ministry to analyze and make optimal use of data that are available.

Surprisingly, the less developed countries, Ghana and Mozambique, actually have more sophisticated education management information systems than the Philippines (although the Philippines is modernizing its basic education information system). And all three countries, despite the differences in their contexts, have a rich variety of other information sources, outside of the education sector, that could be better used (both by the countries themselves and by USAID) to illuminate issues and track the impact of interventions in the education sector.

The methodology piloted in these data capacity assessments proved thorough and appropriate for the task at hand. However, application of the methodology in each country differed considerably.

In the Philippines, the approach not only needed to accommodate consideration of a particular area of the country, but also had to cover both technical and vocational education and training as well as higher education. In Ghana and Mozambique, decentralized data capacity was a more important issue than in the Philippines, but in

⁷ See, for example: Iqbal Dhaliwal, Esther Duflo, Rachel Glennerster, and Caitlin Tulloch. (2011). *Comparative Cost-Effectiveness Analysis to Inform Policy in Developing Countries: A General Framework with Applications for Education*. Cambridge, Massachusetts: Abdul Latif Jameel Poverty Action Lab, Massachusetts Institute of Technology (MIT). Available from <http://econ-www.mit.edu/files/6959>.

both those cases the assessments only addressed the data requirements and systems related to basic education.

Whatever the scope that the research teams were asked to address, all three pilot cases applied a similar starting point: the existing policies, plans, and priorities in education. Since these were quite similar across the cases, the same issues recurrently surfaced in all three assessments. This is in part a testament to the pervasiveness of the EFA agenda, and in part an indictment of it—that is, perhaps too much of the policy and planning agenda in education systems is dominated by the drive to achieve EFA goals, thus limiting the ways in which data are used. Data serve to quantify and map a strategy for achieving EFA, not to help countries arbitrate among different ways to make use of scarce resources.

Upon reflection, the main drawback of the methodology used to assess data capacity in these three countries is that it attempted to be too comprehensive. It was necessary to review the management information systems, personnel systems, budget and expenditure tracking systems, materials management systems, etc., in order to identify the main shortfalls in each of these countries' data systems. On the other hand, it was not necessary to document each piece of data they do or do not collect.

A more targeted capacity assessment might provide more value for effort for USAID going forward in most contexts (the exceptions may be severely underdeveloped countries, such as South Sudan; or conflict-embroiled ones, such as Afghanistan). As highlighted in the Mozambique data capacity assessment, at issue is an optimal vs. maximal solution. These countries err on the side of maximum data collection (without maximum data use) and could benefit from pursuit of optimal data—in terms of both quantity and the type of information provided. Similarly, USAID should seek an optimal rather than maximal approach to assessing data capacity. A more deliberately parsimonious approach to assessing data capacity would focus on the three priorities elaborated in this report, and only concern itself with the full range of data issues when it became apparent that any major deficiencies existed. Also, issues of data quality and reliability are not trivial, especially as USAID takes on the challenge of tracking improvements in learning outcomes over time. USAID should encourage countries to make use of techniques that provide a rigorous framework for assessing data quality—such as the Data Quality Assessment Framework developed by UNESCO and the World Bank (referred to earlier in this report).

5. List of Task 11 Data Capacity Assessment Reports

Crouch, Luis. (2011). *Task Order 11: Gap Analysis: Education Information and Education Policy and Planning in Mozambique—Final Report*. Prepared for

USAID under the EdData II project, Task Order No. EHC-E-11-04-00004.
Research Triangle Park, NC: RTI International.

DeStefano, Joseph, Victor Levine, and Abhijit Nimbalkar. (2011). *Task Order 11: Information for Education Policy, Planning, and Management in the Philippines*. Prepared for USAID under the EdData II project, Task Order No. EHC-E-11-04-00004. Research Triangle Park, NC: RTI International. Available from <https://www.eddataglobal.org/data/index.cfm?fuseaction=pubDetail&ID=338>

Spratt, Jennifer E., Chris Cummiskey, Amy Mulcahy-Dunn, and Helen Perry. (2011). *Information for Education Policy, Planning, Management, and Accountability in Ghana: Report of Findings of the Data Capacity Assessment of Ghana's Education Sector, June 2011*. Prepared for USAID under the EdData II project, Task Order No. EHC-E-11-04-00004. Research Triangle Park, NC: RTI International. Available from <https://www.eddataglobal.org/capacity/index.cfm?fuseaction=pubDetail&id=341>