

Education has been acknowledged as one of the ways through which poverty and all other forms of deprivation can be eliminated. According to the World Bank (2005), each year of schooling increases a person's earnings by a worldwide average of about 10 per cent. As a result, governments and policy makers all over the world have been exploring ways through which the promised benefits of education can be harnessed.

One of the ways by which countries across the world and SSA in particular have explored in improving education is through provision of textbooks. It has been the aim of most governments to provide every pupil with a complete set of school books in every subject – a textbook: pupil ratio of 1:1 at least- is the ideal target¹.

In Ghana, to attain the Ministry of Education's Textbook Development and Distribution Policy (MoE, 2003) target of ensuring access to each pupil in a basic school on an individual basis' to three government-designated core textbooks, namely, English, Mathematics, and Science (RECOUP, 2008, p. 43; NESAR, 2010), expenditure on textbooks, for instance, continue to constitute about 85% of the list of the Ministry's procurement transactions since 2007 (MOE, 2009, P.9; NESAR, 2010). This increase in textbook expenditure has contributed to an increase in total education expenditure, as a percentage of GDP, from 6.20 percent in 2003 to 10.1 percent in 2009² (NESAR, 2010:9).

Notwithstanding these huge investments in textbook procurements and the fact that textbooks are essential inputs to achieve intended educational outcomes (World Bank, 2004, p. 43), data on textbook ratio in Ghanaian public primary schools appear fragmentary and sometimes contradictory. On average a Ghanaian child has fewer than 2 textbooks at the primary school level and 2.5 textbooks at the Junior High School level. In northern Ghana, the core textbook ratio is far worse in the deprived areas (NNED, 2006 cited in RECOUP, 2008, p. 44).

It was against this backdrop that the study was undertaken to track possible leakages in the supply and distribution of core textbooks in public primary schools in Ghana to identify the causes and magnitude of leakages in the distribution of core textbooks to the schools and thereby contribute towards improving pupil-core text book ratio in public primary schools in relation to the existing Ghana Textbook Development and Distribution Policy of 1:1 as well as improving the distribution channels of core textbooks to the schools in Ghana.

¹ However this decision has mostly been a highly political issue since it is one of the most visible components of government educational provision whose absence is noted by parents.

² In Ghana, actual education expenditure increased from 5.3% in 2008 to 6.1 % in 2011 after the rebasing of the GDP. The rebasing has given a reality check that Ghana was not after all over-spending on education and has hovered around the UNESCO and the African Union's suggestion that actual education expenditure should be approximately 6% of GDP for a middle income country.

Methodology

The study applied a combination of two main research approaches - secondary and primary data collection methods - to gather relevant information for analysis at the national, district and school levels.

The secondary method involved a review of specific policy documents on education, with particular reference to those on the Ministry of Education (MoE) and Textbook Development and Distribution Policy and documented evidence (i.e. records) of textbooks procurement, delivery and receipts at the national, district and school levels. At the national level, researchers of CDD-Ghana gathered relevant information and documents on textbooks production, procurement, distribution and supply from the MoE, GES and other research consortia on education such as CREATE, RECOUP, EQUAL, QUIPS etc. Most of the national level data were procured from these institutions because of the cordial pre-study consultations and engagements researchers of the Center had with key stakeholders or focal persons in these institutions.

To gather primary data for the survey at the district and school levels, CDD-Ghana's researchers designed six (6) different survey questionnaires targeted at the following stakeholders in the education sector: GES Financial and Logistics Officers; District Directors and Logistics Officers; School Management Committee and Parent Teacher Association executives; Head-teachers and Teachers; publishers and Parents and Guardians. Each instrument had a number of question items tracking information on specific aspects of the MoE Textbook Production and Distribution Policy depending on the target stakeholder. In addition, a Focus Group Discussion (FGD) guide was also developed and used to hold focused discussions with pupils in selected schools.

Thus, two officials at the national level (GES financial controller and, logistics and supply officer) and twelve at the district level (6 District Directors and 6 logistics and supply officers) and three hundred and thirty-nine (339) at the school level (i.e. 31 head-teachers; 62 teachers; 31 SMC executive members; 31 PTA executive members; and 184 parents and guardians) completed the survey. A minimum of 12 pupils from classes 3 to 6 participated in each FGD.

Key Findings

Possible leakages and magnitude of leakages

In general, deprived Districts suffered leakages more than endowed districts.

- ◆ The four districts that reported leakages in mathematics textbooks included all the three deprived districts (i.e. 100%).

Public Expenditure Tracking Survey in Education

- ◆ Comparatively larger proportion of deprived districts also suffered leakages in English textbooks (i.e. 67%) than their endowed counterparts (i.e. 33%).
- ◆ For Science textbooks however, the proportion of deprived and endowed districts that reported leakages turned out to be equal (i.e. 33% each).
- ◆ Similarly, more deprived schools experienced leakages than endowed ones.
- ◆ 10% of the total deprived schools and 5% of the endowed counterparts suffered leakages in Mathematics textbooks' receipts in 2005/06.
- ◆ 20% each of deprived and endowed schools also recorded leakages in English textbook receipts in 2005/06 and 2008/09 academic years.
- ◆ Only 5% of endowed schools recorded leakages science textbook across 2005/06 and 2008/09 academic years.
- ◆ Projected leakages in MoE to DEDs distribution chain for the 13 districts are in the range of 867 to 28,256 copies of core textbooks. The DEDs to Schools for the 1,726 schools is from 748 to 5,983 copies.
- ◆ Using average mean prices calculated from 2005 and 2008 price quotations of various suppliers, the estimated value actual of leakages at the district and school levels are US\$254.51 and US\$56,855.72 respectively.
- ◆ The projected values were much higher (i.e. US\$14,642.81 and US\$123,187.72)
- ◆ On the basis of average mean prices calculated from 2011 price quotations of various suppliers for 2011, the MoE would have spent US\$599.20 and US\$86,677.44 respectively in replace actual leakages, and US\$34,473.97 and US\$187,801.12 to replace projected leakages.

AVAILABILITY AND ACCESS TO TEXTBOOKS IN SCHOOLS

- ◆ From the records of the DEDs, pupil - core textbook ratios in two-thirds or more of the schools (i.e. English, 77% of schools; Mathematics, 70% of schools; Integrated Science, 67% of schools) did not meet the MoE's one textbook per pupil policy.
- ◆ In most of these schools, two pupils share a core textbook. This situation was worse in one school (i.e. Abura Dunkwa Islamic K.G. and Primary) where three pupils according to the DED record, share a core textbook.
- ◆ According to majority of head-teachers, pupils share core textbooks during lessons (i.e. 67%) as well as for studies at home (40%).
- ◆ This opinion was corroborated by majority of teachers (in-school studies, 70% and out-of-school studies, 63%) and parents (in-school studies, 63% and out-of-school studies, 50%).
- ◆ Responses gathered from DEDs indicated that all survey schools (i.e. 100%) have experienced some change over time in pupil -core textbook ratios.

Research Paper No. 20

- ◆ Quite refreshing, in **63%** of the schools, the change recorded in pupil-core textbook ratios for the three core textbooks are improvements.
- ◆ Only in 23% of the schools did the ratios for these books deteriorated.
- ◆ *Payment for textbooks:* In consonance with the dictates of the MoE Textbook Production and Distribution Policy, we found pupils do not pay for textbooks supplied by the MoE.

MAINTENANCE AND STORAGE OF TEXTBOOKS IN SCHOOLS

- ◆ *Storage of textbooks in schools:* Generally all surveyed schools had serious challenges with respect to the storage of textbooks.
- ◆ In almost all the schools, books were kept in locked cupboards in the head-teacher's office and classroom cupboards which often competed with other materials for space. None of these storage facilities could be considered as secured as they do not have metal gates and are not well protected from harsh weather conditions.
- ◆ Nonetheless, majority of head-teachers and teachers (51%), SMC executives (61%) and PTA executives (55%) were of the opinion that the District Education Directors were efficient in demanding accountability from head-teachers on the storage and usage of textbooks, instructional and supplementary materials.

Introduction

Educational quality in developing countries has become a topic of intense interest, primarily because of efforts to maintain quality (or reverse the decline of quality) in the context of quantitative expansion of educational provision. Many countries are simultaneously implementing reforms based on more active approaches to teaching and learning, further challenging education systems and, especially, teachers and the adequacy of teaching and learning materials including text books and supplementary materials.

There is now substantial research evidence which shows that textbooks are one of the most important inputs that have a demonstrable impact on student learning (World Bank, 2001). 'In times of severe budgetary restraint (as is the case in the developing world) ... the most cost effective way of improving educational quality is the increased provision of high quality textbooks... as they hold considerable potential for high school achievements' (Crossley and Murby, 1994, 99). This position has been supported by a number of other studies over the last three decades. Hummel (1998) conclude that textbooks are "primary vehicles for delivering content knowledge and for determining in large measure what goes on in a class" (cited in Lebrun, Lenoir, Laforest, Larose, Roy, Spallanzani & Pearson, 2002), in addition to assessing what students do and do not learn (Freeman & Porter, 1989, cited in Oakes & Saunders, 2004). Similarly, other studies have established that access to and availability of textbooks is a particularly significant factor in predicting academic achievement (Oakes & Saunders, 2004). Studies by Altbach and Kelly (1988), Farrell and Heyneman (1989), Fuller (1987), Fuller and Clarke (1993) and Fuller and Snyder (1991) all underline the potential of textbook projects as key vehicles for the cost-effective improvement of the quality of education in developing countries.

In the poorest countries, where it can counter-balance the problems of poorly trained teachers and the lack of basic facilities in schools, the impact of textbooks is greatest. Bearing in mind how much cheaper it is to provide textbooks compared to trained and motivated teachers, the maintenance of an adequate supply of good quality textbooks in the classroom has been one of the most basic priorities for any Ministry of Education and for Development Partners (DPs) (Read and Treffgarne, 2011).

In Ghana, as in other Sub-Saharan African countries, adequate access to textbooks (i.e. one relevant textbook per pupil) is an important indicator of the quality of education. Consequently, under the Ministry of Education's Textbook Development and Distribution Policy (MoE, 2003), each pupil in a basic school should have access on an individual basis' to at least three government-designated core textbooks, namely, English, Mathematics, and Science (RECOUP, 2008, p. 43; NESAR, 2010). To attain this policy goal, expenditure on textbooks in Ghana continue to constitute about 85% of the list of the Ministry's procurement transactions since 2007 (MOE, 2009, P.9; NESAR, 2010), and thus contributing to the increase in total education expenditure, as a percentage of GDP, from 5.3% in 2008 to 6.1% in 2011, after the rebasing of Ghana's GDP in the last quarter of 2010 (MoE, 2012).

Notwithstanding the huge investments and the fact that textbooks are essential inputs to achieve intended educational outcomes (World Bank, 2004, p. 43), data on textbook ratio in Ghanaian public primary schools appear fragmentary and sometimes contradictory. On average a Ghanaian child has fewer than 2 textbooks at the primary school level and 2.5 textbooks at the Junior High School level when they should have at least three as stated in the policy. In northern Ghana, the core textbook ratio is far worse in the deprived areas (NNED, 2006 cited in RECOUP, 2008, p. 44).

It is in line with this and against the backdrop that any attempt to answer the question as to whether the right quantity of textbooks disbursed from the national level reaches the intended beneficiary district offices and schools, will be of interest not only to policy makers and Development Partners⁴ but also wards, who are direct beneficiaries of these materials. This study was undertaken to track possible leakages in supply and distribution of core textbooks and supplementary materials in public primary schools in Ghana. Again, given the diagnostic nature of PETS/QSDS, education sector stakeholders and policy makers at the Ministry of Education, Ghana Education Service, Parliament, and even at the school and community levels would welcome and implement the interventions and policy recommendations for improvements based on thorough interrogation of the distribution of core textbooks. Development Partners, who contribute a substantial portion of Ghana's Education Sector budget would certainly like to follow-up on the implementation of the research results to ensure that increase in funds devoted to public education can lead to a boost in availability of inputs for achieving quality education outcomes as well as value for money.

RESEARCH OBJECTIVES

The following research objectives were set for an effective interrogation of the issues underpinning the supply and distribution of core textbooks to public primary schools in Ghana:

- ◆ Examine the magnitude of possible leakages in the distribution of core textbooks to schools
- ◆ Assess the mechanisms used by the DEDs for tracking the core textbooks distributed to schools
- ◆ Assess the pupil-textbook ratio in sampled schools with a view to contributing towards improving pupil core textbook ratio in relation to the existing TDDP of 1:1
- ◆ Find out the extent of access to textbooks in the selected Public schools

It is worth stating that these objectives are situated in the long-term objectives of the project which include the following:

⁴ Ghana is also one of the highest recipients of education aid in sub-Saharan Africa (World Bank, 2004 cited in RECOUP, 2008, p. 6; NESAR,2010)

Public Expenditure Tracking Survey in Education

- ◆ Contribute towards improving pupil-core text book ratio in public primary schools in relation to the existing GES policy of 1:1
- ◆ Improve the distribution channel of core textbooks to the Schools
- ◆ Improving pupils' access to core-text books for in and out of school activities in relation to TDDP Guidelines

RESEARCH QUESTIONS

Drawing on the above stated research objectives, the following research questions were deduced from the study:

1. What are the mechanisms for distributing core textbooks and other instructional materials to public primary schools in Ghana?
2. Are there leakages in the distribution channel from MoE via publishers to the Districts and the Districts to the Schools?
3. What is the availability and level of access to core textbooks and other instructional materials in public primary schools in Ghana? *What is the current core textbook ratio?*
4. What measures can be put in place to track and eliminate leakages in the distribution system?

Methodology

The study applied a combination of two main research approaches - secondary and primary data collection methods - to gather relevant information for analysis at the national, district and school levels.

Secondary method: The secondary method involved a review of documents on global policies on education as discussed in international publications of the World Bank, UNESCO, IIEP DFID, USAID, etc. It also reviewed literature on public expenditure tracking studies carried out in the education sector in countries, such as Uganda, Tanzania, Kenya etc. by development partners, academics and civil society organizations (CSOs). Lastly, specific policy documents on education, with particular reference to those on the Ministry of Education (MoE) and the Ghana Education Service (GES) TDDP and documented evidence (i.e. records) of textbooks procurement, delivery and receipts at the national, district and school levels. At the national level, researchers of CDD-Ghana gathered relevant information and documents on textbooks production, procurement, distribution and supply from the MoE, GES and other research consortia on education such as CREATE, RECOUP, EQUAL, QUIPS etc. Most of the national level data were procured easily from these institutions because of the cordial pre-study consultations and engagements researchers of the Center had with key stakeholders or focal persons in these institutions. The secondary data was useful in providing greater details on the state of leakage

as well as usage of textbooks in Ghana and elsewhere critical for corroborating the primary research findings.

Primary method: To gather primary data for the survey at the district and school levels, CDD-Ghana's researchers designed six (6) different survey questionnaires targeted at the following stakeholders in the education sector: GES Financial and Logistics Officers; District Directors and Logistics Officers; School Management Committee and Parent Teacher Association executives; Head-teachers and Teachers; publishers and Parents and Guardians. Each instrument had a number of question items tracking information on specific aspects of the MoE Textbook Development and Distribution Policy depending on the target stakeholder. In addition, a Focus Group Discussion (FGD) guide was also developed and used to hold focused discussions with pupils in selected schools.

The questionnaires for GES, District Education Directorate, schools and SMCs/PTAs were structured into sections which were completed separately by the appropriate stakeholders. For instance, with the questionnaire designed for District Directors and their District Logistics Officers, Section B, questions 1 to 16 were answered by District Directors, questions 17 to 34 by District Logistics and Supply Officers and Section C, questions 35 to 62 also by District Directors, thus, two officials at the national level (GES financial person and logistics and supply officer) and twelve at the district level (6 District Directors and 6 logistics and supply officers) and three hundred and thirty-nine (339) at the school level (i.e. 31 head-teachers; 62 teachers; 31 SMC executive members; 31 PTA executive members; and 184 parents and guardians) completed the survey. A minimum of 12 pupils from classes 3 to 6 participated in each FGD.

The slight deviation of the actual number of respondents at the school level from the expected was as a result of one of the survey schools categorized into A and B which compelled fieldworkers to conduct interviews at both sections under the directives of CDD-Ghana researchers⁵. Again under this situation, the number of parents and guardians which should have been 186 was less by two because of shortfalls in two of the schools (See Table 1).

Table 1: List of Respondents

Category of respondents	Particulars	Quantity	Expected Returns	Actual Returns
GES Financial Officer	1 per national	1 national	1	1
GES Logistics and Supply Officer	1 per national	1 national	1	1
District Director of Education	1 per district	6 districts	6	6
District Logistics and Supply Officer	1 per circuit	6 districts	6	6
Head-teacher	1 per school	30 schools	30	31
Teacher	2 per school	30 schools	60	62
SMC Executive	1 per school	30 schools	30	31
PTA Executive	1 per school	30 schools	30	31
Parent and guardian	6 per school	30 schools	180	184
Pupils Focus Group Discussions	1 per district	6 districts	6 FGDs	6 FGDs

⁵ Mampong Catholic Primary & J.H.S. in Twifo-Hemang-Lower Denkyira District had sections A & B hence the deviation. Again, 11 parents instead of 12 with wards in that school were interviewed. Similarly, Odupongkpehe D/A K.G. & Primary B/D/E in Awutu-Efutu-Senya district had 5 parents instead of 6 with wards in that school completing the survey.

Public Expenditure Tracking Survey in Education

From each of the survey school, aside the head-teachers, chairpersons of the SMC and PTA, six teachers were randomly selected. Also, six pupils were randomly selected as proxies for their parents or guardians. Fieldworkers followed these kids home to either book appointment for interview or interview their parents straightaway giving guardians or parents with the experience of the problem being studied the first opportunity to participate in the research. Lastly, one school per district was chosen randomly and 10 to 15 upper primary (stage 4 to 6) pupils were randomly picked to constitute the focus group.

To gather the primary data for the survey at the district and school levels, fourteen Field Research Assistants⁶ (FRAs) were recruited, trained and deployed to collect data from key officials of District Education Directorates (DEDs), head-teachers and teachers, executives of School Management Committees (SMCs) and Parent Teacher Association (PTAs) and a random sample of pupils in survey districts and schools. They also interviewed a random sample of parents and guardians with wards in survey schools from September 27 to October 21, 2011. The FRAs were also tasked to collect photocopy evidence (i.e. records) of textbooks procurement, delivery and receipts at the district and school levels.

The GES facilitated this process by issuing an authorization letter which was also copied to District Directors and Head-teachers in survey districts and schools. This notwithstanding, fieldworkers encountered a number of challenges (see section on fieldwork challenges).

Sampling of survey districts, circuits and schools: For effective primary research, the CDD-Ghana researchers designed a reasonably representative sample of districts and schools. The basic database used in the sampling process was the Education Management Information System (EMIS) developed and managed by the Ministry of Education, Ghana. The EMIS categorizes the survey region, the Central Region into thirteen (13) districts, six (6) of which are considered deprived and seven (7) endowed⁷.

To ensure effective supervision and monitoring, a number of schools in the districts were also clustered to constitute a circuit. In all, there were one thousand, seven hundred and twenty-six (1,726) public primary schools and one hundred and fourteen (114) circuits in the region. A multi-stage stratified

⁶ The Field Research Supervisors and Assistants are Ms. Maame Gyesiwaa Sam, Ms. Rejoice Selorm Ametepah, Ms. Freda Akua Eminseng, Ms. Pearl Asamoah, Ms. Hilda Sarfo, Ms. Priscilla Ashitey, Ms. Barbara Annan, Ms. Beatrix Quao, Ms. Vida Blay, Mr. Francis Kingsley Mensah, Mr. Phillip Essuman, Mr. Sampson Wireko, Emmanuel Kumadey and Aggrey Charles.

⁷ The education ministry uses three criteria - INPUT CRITERIA (consisting of Seating places per pupil; core textbooks per pupil; % of qualified primary teachers; per student, budget at primary level; PTR at primary level), ACCESS CRITERIA (consisting of Gross Enrolment Rate; % girls enrolled) and ACHIEVEMENT CRITERIA (i.e. Pass Rate in BECE English; Pass Rate in BECE Mathematics) to determine whether a district is deprived or endowed. Districts with overall ranking score of 63.0 or less are considered deprived.

random sampling technique was applied in selecting survey schools to ensure that all these categories were fairly represented in the final sample for the survey.

The first stage in the sampling process involved the determination of the number of districts from where survey schools would be selected. Given the limited resources available and then need to avoid spreading this over a wider area, it was decided that the survey be conducted in six (6) out of the thirteen (13) districts for the study.

Knowing the number of deprived and endowed districts in the region, the researchers worked out the percentage shares of deprived and endowed districts and used these estimates to determine the number of deprived and endowed districts to be surveyed. Thus, per the percentage shares, the planned number of districts targeted for the survey (i.e. 6) was equally shared between the two categories of districts as depicted in Table 2.

Table 2: Determination of number of survey districts per district's characteristics

District Status	No. of Districts	% share in Total	No. of Districts Allocated
Deprived	6	46.2	3
Endowed	7	53.8	3
Total	13	100.0	6

The second stage was to randomly select particular deprived and endowed districts (3 each) from the total of thirteen (13). Prior to this, specific districts - Assin South, a deprived district, Gomoa and Mfantseman, two endowed districts - were excluded from the list to avoid probable challenges arising from respondent fatigue because researchers were privy to another education-related work being carried out by one of CDD-Ghana's partners on education research - the Ghana National Education Campaign Coalition (GNECC) – in these districts.

Left with ten (10) districts (5 deprived and 5 endowed), the districts in each category were assigned random numbers (e.g. 01 to 05) and a simple random sampling technique was applied to select three (3) from each category. Thus, Abura-Asebu-Kwamankese, Ajumako-Enyan-Essiam and Asikuma-Odoben-Brakwa (3 deprived districts) and Awutu-Efutu-Senya, Cape Coast and Twifo-Hemang-Lower Denkyira (3 endowed districts) were selected to constitute the survey districts (see Table 3).

Table 3: Random selection of survey districts

District Status	Random No.	District Name	Status at end of Sampling
Deprived	01	Abura-Asebu-Kwamankese	Selected
Deprived	02	Komenda-Edina-Eguafo-Abirem	Not selected
Deprived	03	Ajumako-Enyan-Essiam	Selected
Deprived	04	Asikuma-Odoben-Brakwa	Selected
Deprived	05	Assin North	Not selected
Deprived	-	Assin South	Excluded in sampling
Endowed	01	Agona	Not selected
Endowed	02	Awutu-Efutu-Senya	Selected
Endowed	03	Cape Coast	Selected
Endowed	-	Gomoa	Excluded in sampling
Endowed	-	Mfantseman	Excluded in sampling
Endowed	04	Twifo-Hemang-Lower Denkyira	Selected
Endowed	05	Upper Denkyira	Not selected

Public Expenditure Tracking Survey in Education

The next stage in the process was the determination of the number of circuits from where to sample schools for the survey. As noted earlier, within each district, schools were grouped into clusters otherwise referred to as circuits. As presented in Table 4, there were forty-nine (49) circuits in all the deprived districts and sixty-five (65) in all endowed districts. These yielded a total of a hundred and fourteen (114) circuits⁸ with percentage shares of 43% for deprived and 57% for endowed districts.

Again, to avoid a situation of schools being widespread, researchers agreed that survey schools be selected from fifteen (15) circuits. The target number of clusters was then distributed across the selected deprived and endowed districts according to their percentage shares in the total number of circuits (i.e. 6 circuits in deprived district and 9 in endowed districts). The number of circuits allocated to the deprived and endowed survey districts was evenly distributed across the number of selected districts in each category (i.e. 2 per deprived district and 3 per endowed district) and specific circuits were selected using simple random sampling approach⁹.

Table 4: Determination of number of survey circuits per district's characteristics

District Status	No. of Circuits	% share in Total	No. of Circuits Allocated
Deprived	49	43.0	6
Endowed	65	57.0	9
Total	114	100.0	15

At the fourth stage of the sampling, a total of 30 public primary schools were targeted for survey. To distribute this figure across the deprived and endowed district divide, the district categories percentage shares in the total number of public primary schools in the region¹⁰ were estimated as shown in Table 5. Using these estimates, ten (10) and twenty (20) schools were allocated to deprived and endowed districts respectively.

⁸ Number of circuits in all districts: Abura-Asebu-Kwamankese, 9; Komenda-Edina-Eguafo-Abirem, 6; Ajumako-Enyan-Essiam, 7; Asikuma-Odoben-Brakwa, 10; Assin North, 10; Assin South, 7; Agona, 11; Awutu-Efutu-Senya, 8; Cape Coast, 6; Gomoa, 13; Mfantseman, 8; Twifo-Hemang-Lower Denkyira, 10; and Agona, 9.

⁹ Selected circuits in sampled districts: Abura-Asebu-Kwamankese (circuit 2 & 6); Ajumako-Enyan-Essiam (circuit 3 & 5); Asikuma-Odoben-Brakwa (circuit 5 & 7); Awutu-Efutu-Senya (circuit 1, 3 & 6); Cape Coast (circuit 2, 4 & 5); and Twifo-Hemang-Lower Denkyira (circuit 1, 3 & 5).

¹⁰ Number of public primary schools in all districts: Abura-Asebu-Kwamankese, 81; Komenda-Edina-Eguafo-Abirem, 94; Ajumako-Enyan-Essiam, 102; Asikuma-Odoben-Brakwa, 114; Assin North, 114; Assin South, 88; Agona, 171; Awutu-Efutu-Senya, 248; Cape Coast, 90; Gomoa, 159; Mfantseman, 145; Twifo-Hemang-Lower Denkyira, 178; and Agona, 142.

Table 5: Determination of number of survey schools per district's characteristics

District Status	No. of Public Primary Schools	% share in Total	No. of Schools Allocated
Deprived	593	34.4	10
Endowed	1133	65.6	20
Total	1726	100.0	30

The pen-ultimate stage in the sampling was the distribution of the allocated number of schools (i.e. 10 in deprived districts and 20 in endowed districts) to be surveyed in each sampled districts to each of the selected circuits. This distribution was done based on each circuit's percentage share in the number of primary schools in all the selected circuits in districts where it belonged (i.e. deprived or endowed) as presented in the last column of Table 6.

Table 6: Determination of number of survey schools to be allocated to each district

	Circuit	No. of Public Prim. Sch.	% share in Total	Distribution of schools
Abura-Asebu-Kwamankese	Circuit 2	18	21.4	2
	Circuit 6	11	13.1	1
Ajumako-Enyan-Essiam	Circuit 3	14	16.7	2
	Circuit 5	15	17.9	2
Asikuma-Odoben-Brakwa	Circuit 5	12	14.3	1
	Circuit 7	14	16.7	2
Total (Deprived Districts)		84	100.0	10
Awutu-Efutu-Senya	Circuit 1	88	41.9	8
	Circuit 3	19	9.0	2
	Circuit 6	13	6.2	1
Cape Coast	Circuit 2	19	9.0	2
	Circuit 4	18	8.6	2
	Circuit 5	9	4.3	1
Twifo-Hemang-Lower Denkyira	Circuit 1	13	6.2	1
	Circuit 3	13	6.2	1
	Circuit 5	18	8.6	2
Total (Endowed Districts)		210	100.0	20

Finally, for each circuit in any selected district, all the public primary schools were assigned unique serial numbers which were used to conduct simple random sampling process to select the thirty (30) schools targeted for the survey (Table 7).

Public Expenditure Tracking Survey in Education

Table 7: Selected primary schools for the survey

Abura-Asebu-Kwamankese [Deprived District]
1. Abura-Dunkwa Islamic K.G./Prim. Sch. (Circuit 2)
2. New Odonase Catholic Prim./Community K.G. (Circuit 2)
3. Brafoyaw A. M.E. Zion Basic School (Circuit 6)
Ajumako-Enyan-Essiam [Deprived District]
1. Ajumako-Gesdi D.A. K.G. Prim./J.H.S. (Circuit 3)
2. Ajumako-Techiman Catholic K.G./ Prim./J.H.S. (Circuit 3)
3. Breman Fawomanye D/A K.G./ Prim. (Circuit 5)
4. Esiam T.L. Ahmadiyya K.G. Prim./J.H.S. (Circuit 5)
Asikuma-Odoben-Brakwa [Deprived District]
1. Odoben A.M.E Zion K.G. & Basic School (Circuit 5)
2. Eyipey Catholic Prim./K.G. (Circuit 7)
3. Kuntanase Meth. K.G./ Prim. School (Circuit 7)
Awutu-Efutu-Senya [Endowed District]
1. Ahenta D/A. A & B Schools (Circuit 1)
2. Akrampa St. Stephen's Anglican K.G. & Prim. (Circuit 1)
3. Awutu St. Peter & Paul Anglican Prim./K.G. (Circuit 1)
4. Odupongkpehe D/A K.G. & Prim. B/D/E (Circuit 1)
5. Adventist K.G. Prim./J.H.S. (Circuit 1)
6. Kasoa Jafar Suadiq Sch. N./K.G./ Prim. (Circuit 1)
7. Kasoa Bethel, K.G. Primary, J.H.S. (Circuit 1)
8. Kasoa Gate of Knowledge & Wisdom School (Circuit 1)
9. Ayiresu D/A K.G. & Prim. (Circuit 3)
10. Kwaman Cath. K.G. Prim. & J.H.S. (Circuit 3)
11. Winneba A.M.E. Zion Prim. 'C' (Circuit 6)
Cape Coast [Endowed District]
1. Aboom A.M.E. Zion Basic School (Circuit 2)
2. Falahiya Islamic Basic School (Circuit 2)
3. Abura English/Arabic Basic School Circuit 4)
4. Ayifua St. Mary's Anglican Basic School Circuit 4)
5. Abakam Cran Presby Basic Schools (Circuit 5)
Twifo-Hemang-Lower Denkyira [Endowed District]
1. Tsimtsimhwe D/A Basic School (Circuit 1)
2. Asensuhu Agave D/A Basic School (Circuit 3)
3. Abeka Nkwanta Basic School (Circuit 5)
4. Mampong Cath. Prim. & J.H.S. (Circuit 5)

DATA ANALYSIS

The study explored for answers to seven (7) research questions. Out of this, six (6) were answered using basic descriptive statistics (e.g. frequencies) from analysis undertaken with Statistical Package for Social Sciences (SPSS) and complemented by the desk review and findings of the FGDs with pupils. The seventh research question which sought to determine whether there are leakages in the distribution of core textbooks (and to some extent supplementary materials) from GES to DEDs and from the latter to schools was answered using documented evidence gathered from the GES, DEDs and schools.

Researchers specifically adopted a comparative approach to analyze data on core textbooks the MoE claimed to have sent to DEDs and what the latter also claimed to have received. A similar approach was adopted to analyse the flow of resources between DEDs and schools. These analyses were carried out with different underlying premises.

FIELDWORK CHALLENGES

Replacement of sampled schools: During fieldwork, four schools in the Awutu-Efutu-Senya district turned up to be private schools. Under the direction of researchers and support of an official at the

district education office, replacement sampling was carried out and four new schools were selected as substitutes¹¹.

Record keeping at District and school levels: Generally, record-keeping was relatively better at the district than the school level. Three-fourths or more (i.e. 75% and 83%) of the Field Research Assistants (FRAs) indicated that DEDs had records of textbooks received from the MoE/GES in 2005/06 and 2008/09 academic years. Again, appreciable numbers of FRAs (75% each) acknowledged that DEDs had records of supplementary materials received from the MoE/GES in 2005/06 and 2008/09. In contrast, less than half of FRAs said schools had records of textbooks (i.e. 39% and 43%) and supplementary materials (25% and 40%) distributed by the DEDs in the two academic years respectively. In fact, the challenge of record-keeping at the school level according to FRAs was compounded by various factors. First, FRAS found that poor infrastructure and storage facilities exposed most textbooks to the vagaries of the weather. In one school for instance, the head-teacher could not provide all information on core textbooks supplied in 2005/06 and 2008/09 academic years because the school lost some documents in a flood that hit the school some years ago.

Secondly, the transfer rate of District Directors, and head-teachers, coupled with the lack of proper handing over notes, including record documents on textbook supply meant serious challenges for both Directors and head-teachers who were new as they had difficulties accounting for textbooks and supplementary materials supplied by the MoE/GES and how much was sent to and received by schools. In one district, for instance, the new Director who had been at post for only ten months had to solicit the help of the Public Relation Officer (PRO) to respond to some questions on textbooks and supplementary materials received from the MoE/GES and distributed to schools. Thirdly, there was poor communication between head-teachers and teachers regarding textbooks sent by DEDs to their schools. It was not surprising that most teachers interviewed seemed to have little knowledge regarding the number and time textbooks were received.

Anxiety and fear among District and School officials: There was general anxiety among some District Directors and head-teachers as they perceived the tracking exercise was an audit of their stewardship. This affected their posturing and responses as they felt reluctant releasing needed information despite assurances from FRAs, including showing them the authorization letter from the GES headquarters in Accra. One District Director who got angry because his assistant was helping in his/her absence collected all information gathered, vetted them and handed over those he/she felt comfortable with to the FRAs. At another school, the head-teacher who suspected he was being

¹¹ *The Adventist K.G./Primary/J.H.S., Kasoa Jafar Suadiq N./K.G./Primary School, Kasoa Bethel, K.G./Primary/J.H.S and Kasoa Gate of Knowledge and Wisdom School were replaced with Awutu DC K.G. / Primary/ J.H.S, Papaase St. Peters Catholic Primary, Ofaakor Primary/J.H.S. and Akweley St. Mary's C &D Primary.*

Public Expenditure Tracking Survey in Education

recorded during the interview asked the FRA to switch of her phone. Even when this was done, he still remained reluctant to discuss issues freely.

Difficult Geographical Terrain: In addition, FRSs and FRAs were confronted with the usual challenge of difficult geographical terrain coupled with poor road networks from the district capitals to survey locations. In some instances, FRSs and FRAs could not get to some schools on time because vehicles ply communities where schools are located only on market days. In order instances, due to the bad roads, passengers, including FRSs and FRAs had to alight from vehicles at some point and continue the rest of the journey on foot.

Brief Context on the Provision of Textbooks in Ghana

Since textbooks and instructional materials have direct impact on what is taught in schools and how it is taught, the Government of Ghana in 1961 introduced the free textbook scheme, in an attempt to supply every school pupil with basic textbooks. This was to be carried out over a five year period.

However, the picture in Ghana before 1965 showed an entire absence of foreign or local publishing houses to meet the demand of the free textbook scheme. As a result, the government depended on the importation of textbooks and instructional materials. To halt this trend against the high cost of importing and challenges in the economy, the government in 1965 established the Ghana Publishing Corporation (GPC) to produce textbooks for supply to schools in the country.

The establishment of the GPC was followed by a number of private publishing firms, and Ghana's publishing industry was further enhanced in 1984 with the establishment of the Publishing Degree Programme at Kwame Nkrumah University of Science and Technology (KNUST), to enable the publishing industry to design and produce all the textbooks and other printed instructional materials for Ghanaian schools.

In 1991, over 10 million dollars in United States aid were allocated for the production and distribution of textbooks to children in primary schools throughout Ghana. Further, under the Book Scheme for Basic Schools, 5 Million Supplementary Readers and four hundred and forty thousand Atlases were supplied to Public Schools between June 1995 and December 1999. The scheme was extended to public Junior Secondary Schools in 1998 as a result of which a total of 1,316,216 supplementary readers were supplied to Junior Secondary Schools. Private Basic Schools and Senior Secondary Schools also had access to government procured and printed textbooks.

Although textbooks had been available in the schools in the 1960's and early 1970's, in the recent past, textbooks and other primary level educational materials were scarce and teachers were left to their own devices in their efforts to help children acquire basic literacy, numeracy, and oral English language proficiency. In 1990-91, base-year figures showed that only 10% of pupils in primary schools had the basic textbooks. This situation was confirmed by Okyere *et al* (1997) following a classroom observation and interview with teachers, head teachers, and Circuit Supervisors that most of the classrooms did not have sufficient textbooks (Okyere *et al*, 1997). Even when textbooks had been supplied on a one textbook to two pupil's ratio however, it was rare for them to be in the hands of children. The tendency was for them to be locked in cupboards while teachers continued their practice of writing on the chalkboard and asking children to read chorally from the board and then copy the words into their exercise books. Interviews as well as classroom observations confirm that the textbook is slowly finding its way into usage by children during daily lessons. When CRIQPEG researchers

began their observations in 1993 and 1994, the modal lesson was teacher directed with only the teacher using the textbook. Children's exposure to print was limited exclusively to letters, words, and sentences written on the chalkboard and then copied into exercise books. In the first half of 1995, textbook ratios in most of the participating schools were at their highest, primarily due to the combined supplies of the GES and CRIQPEG.

Textbook procurement and allocation

In terms of the process for acquiring and distributing textbooks, the current practise in Ghana is collaboration between the public and private sectors. The curricula for the various levels of primary education is developed by the Curriculum Development Division of the MoE who after receiving data from district offices on textbooks requirements, calls for private firms and experts to produce textbooks that meet the minimum requirements of the curricula for evaluation based on a set of criteria. Once a particular textbook has been accepted, local and international publishers are invited and selected through an international competitive bidding process to produce the various textbooks and deliver them to district depots according to the demands of the various district offices in accordance with laid down procedures and allocation criteria. In most cases however, this simple process has always been characterised by a number of problems; delays in the preparation of the relevant curriculum, delays in the release of funds from the Ministry of Finance, changes in government education policies¹², delays in the production of the textbooks as some are actually imported from outside the country among others. Coupled with these issues are problems with leakages and theft, problem with record keeping, utilisation and storage both at the national and district levels. Consequently, this has affected textbook ratios across the country mostly in deprived districts where the supply of textbooks have been very erratic¹³.

¹² For example the change in the number and type of subjects studied in the primary schools. The removal and integration of Religious and Moral education from and with other subjects in the curriculum of the basic schools for instance necessitated a change in the content of textbook that was previously used to teach those courses.

¹³ It is mostly reliant on the performance of the economy to the extent that they are always among the first set of expenditures to be dropped when the country faces any economic crises).

Public Expenditure Tracking Survey in Education

Following the implementation of the 2003-2015 ESP, two major textbooks procurements have been undertaken. The first procurement in 2005 included mathematics, English and science textbooks for all pupils in PPS. In 2008, also under the ESP, procurement was made for largely English, science books and supplementary readers. No new Mathematics books were procured in 2008. The TDDP

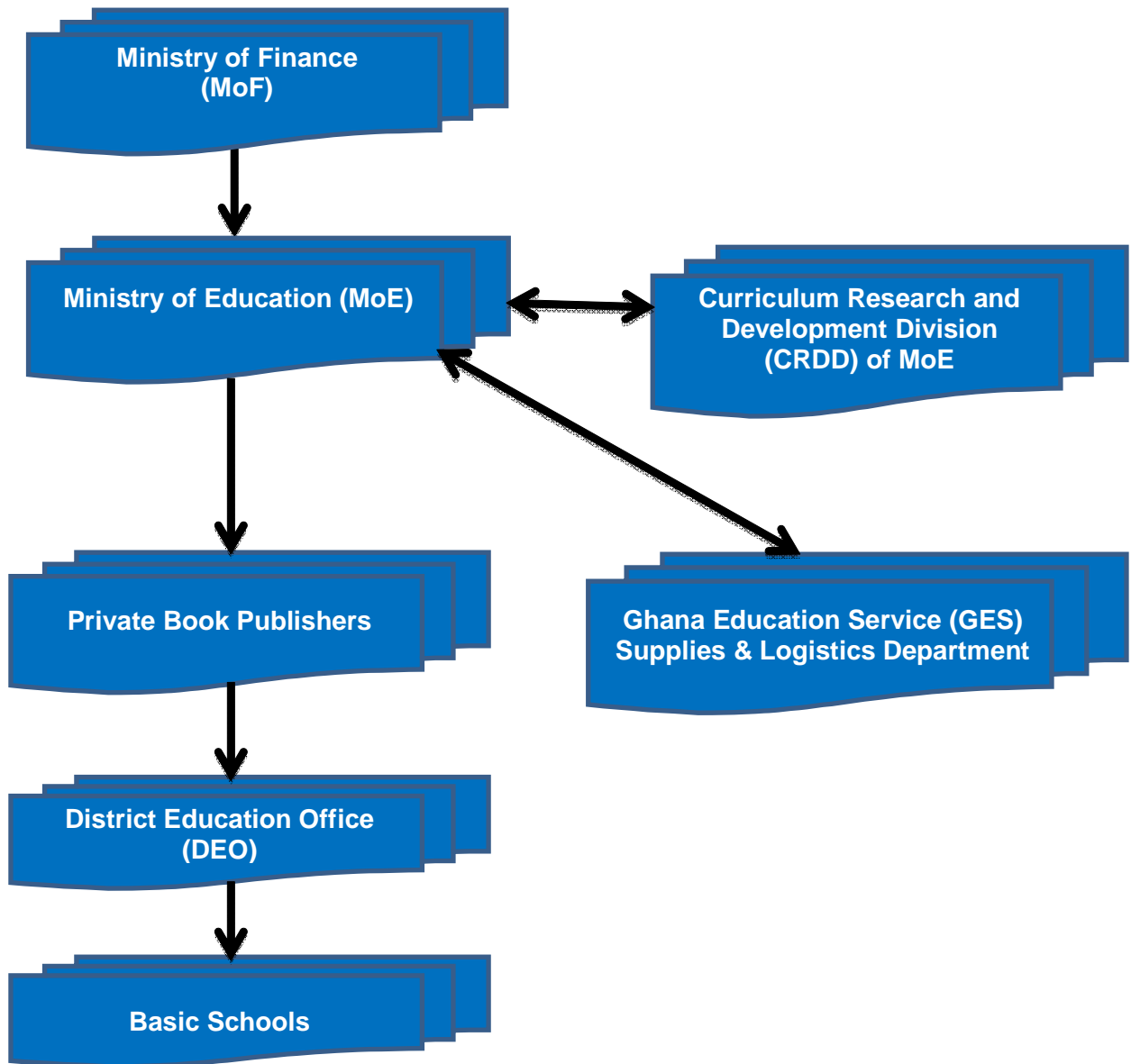
BOX 1: TEXTBOOK DEVELOPMENT AND PROCUREMENT PROCEDURE

1. The Curriculum Research and Development Division of the Ministry of Education develops subject syllabuses for textbooks required by the Ministry of Education.
2. The Ministry sets a department or a relevant body in charge of procurement who advertises in the various newspapers or writes directly to the Ghana Book Publishers Association (GBPA) inviting bids from interested publishers to develop textbooks.
3. After the advertisements, all submitted proposals are subjected to post evaluation testing. The evaluation testing takes place over a period of not two months and it involves not more than three representative schools and not more than 5 units per textbook selected.
4. The evaluation criteria include the extent to which the content of the proposal meets the detailed specifications of the syllabus, suitability of the contents to the interests, experience and educational levels of the users, appropriateness, practicability and all other specified requirements in the invitation to submit proposals advertisement.
5. After the evaluation, the MOE selects at most five textbooks for each subject, grade and language. Every selected textbook must meet a number of criteria including conformity with the 70% requirement of Ghanaian authorship and 60% requirement of Ghanaian participation in printing course materials.
6. Only selected textbooks are purchased by the MOE and development partner funding. Selected textbooks will have the inscription ***Ghana Government Property strictly not for sale*** printed at the bottom of the front cover. ***At the top left corner of the front page will have the flag of Ghana.***
6. Publishers may make selected textbooks available for commercial sale but these commercial editions must not have the inscription mentioned above.

requires textbook procurement are done every five (5) years for P4 to JSS 3 but depending on availability of funds, review of syllabus and the availability or adequacy of books at the schools, procurements can be made every three (3) years especially for books for P1 to P3 in accordance with the policy document. Indeed, from the perspective of the Ghana Book Publishers Association (GBPA), about 40 percent or above of textbooks are wasted or worn-out within one academic year. Discussions with GES officials indicated that although textbooks had to be procured in 2011, resource constraints led to the deferment of the decision.

There are various steps in procurement of textbooks in Ghana and the textbox below details the process for procurement in accordance with the Textbook Development and Distribution Policy (TDDP) (MoE, 2003) and the Operational Annexes to the Textbook Development and Distribution Policy (MoE, 2002).

FIGURE 1: TEXTBOOK PROCUREMENT, SUPPLY AND DISTRIBUTION PROCEDURE



Tracking Possible Leakage in
the Distribution of Core
Textbooks

As indicated in Figure 2 (Textbook Procurement, Supply and Distribution Procedure), the process of textbook procurement, allocation and supply are done by the Ministry of Education (MoE) and its sub-contractors (publishers) who may or may not be members of the Ghana Book Publishers Association (GBPA). It must be emphasized that the GES does not procure textbooks. Indeed, it was only in recent procurements that the MoE mandated the Ghana Education Service (GES) to do the distribution of textbooks. Even in that case, the GES headquarters only prepared the distribution schedules for the publishers to use in distributing procured textbooks to schools.

Distribution of Core Textbooks from National to School levels

In order to identify the causes and magnitude of possible leakages in the distribution of core textbooks to the schools in response to the first research question, researchers explored for possible leakages and sources of leakages as well as the magnitude of the leakages in the distribution of textbooks from MoE via publishers to the District Education Directorates (DEDs) and from the DEDs to the schools.

In determining whether there are leakages in the distribution of core textbooks (mathematics, English and Science) from MoE via publishers to DEDs and from the latter to schools, researchers specifically adopted a comparative approach to analyze data on core textbooks the MoE claimed they had sent to DEDs via a publisher and what the latter also claimed to have received. A similar approach was adopted to analyse the flow of resources between DEDs and schools. These analyses were carried out with different underlying premises.

National to district analyses: First, researchers assessed the general trend in core textbooks distribution from MoE via publishers to DEDs and the latter using the documented evidence gathered from the MoE and the Logistics and Supply Department of the GES headquarters and the District Education Directorates. Table 8^A shows the number of primary 1 to 6 mathematics textbooks distributed by publishers to the survey districts vis-à-vis what the districts received as gleaned from their records for 2005/06 academic year (see Part A). In 2008/09, according to the MoE, no procurement of mathematics books was undertaken (see Part B). However, Asikuma-Odoben-Brakwa provided information relating to primary 2 to 4. These figures could simply be the stock available at the district level during that academic year.

Striking the difference between the quantities of Mathematics textbooks DEDs received from what the MoE distributed via publishers in 2005/06 (see appendix A for Part C of Table 8^A), it was evident

that to a large extent, there were fewer leakages¹⁴ in the region of 100 copies of primary 5 mathematics textbooks in each of the following four districts: Abura-Asebu-Kwamankese; Ajumako-Enyan-Essiam; Asikuma-Odoben-Brakwa; and Awutu-Efutu-Senya. The four districts that reported leakages included all the three deprived survey districts - Abura-Asebu-Kwamankese, Ajumako-Enyan-Essiam and Asikuma-Odoben-Brakwa. In contrast, only 33% of the total endowed districts (i.e. 1 district) suffered leakages. As explained earlier, 2008/09 records on Mathematics textbooks at the DEDs largely supported the assertion of the MoE that no procurement (refer to cells labelled NPD) took place in that academic year (see appendix for Table 8^A).

Confirming one of the fieldwork challenges, researchers found that the GES Logistics and Supply Department (SLD) had records on all English textbooks sent to survey districts in 2005/06 and 2008/09. Again, GES (SLD) provided full records on Science textbooks sent to the districts in 2008/09. Records were also available for primary 4 to 6 Science textbooks distributed by publishers on behalf of the MoE to DEDs in 2005/06. The DEDs similarly had records on only primary 4 to 6 textbooks received from the publishers on behalf of the MoE. This probably could be as a result of non-distribution. However, there were serious deficits in English and Science textbook records provided by DEDs for the two academic years (see appendix for Table 8^B).

In a large part, the extent to which the differences between the quantities of English and Science textbooks received by the districts and those sent by the publishers on behalf of the MoE in both 2005/06 and 2008/09 academic years were leakages or excesses could not be determined (LEI) as a result of unavailability of records from either GES (SLD), DEDs or both (see appendix A for Table, 8^C). However, for the few that researchers were able to estimate, they found leakages ranging from a low of 131 to a high of 3,105 copies of textbooks. In both 2005/05 and 2008/09 academic years, comparatively larger proportion of deprived districts suffered leakages in English (i.e. 67%) than their endowed counterparts (i.e. 33%). For Science textbooks however, the proportion of deprived and endowed districts that reported leakages turned out to be equal (i.e. 33% each). This finding on the leakages suffered in English textbooks, for instance, was consistent with the Ghana National Education Campaign Coalition (GNECC) (2010) tracking study in which English textbooks reportedly sent to the deprived schools were (29%) more than what the schools received.

¹⁴ Probable leakages (or excesses) are calculated as receipts less distribution.

Public Expenditure Tracking Survey in Education

Table 8^C: Leakages in English textbook distribution (MoE/Publishers to DEDs) in 2005/06 and 2008/09

	Leakages in English Textbooks (2005/06)						Leakages in English Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	LEI	-3105	LEI	0	0	0	-2038	-1920	-2174	-1732	-1912	-2000
Ajumako-Enyan-Essiam	0	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Asikuma-Odoben-Brakwa	-2207	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Awutu-Efutu-Senya	0	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Cape Coast	0	0	0	0	0	0	0	-131	-182	-406	-269	-277
Twifo-Hemang-Lower Denkyira	LEI	LEI	0	LEI	LEI	0	LEI	LEI	LEI	LEI	LEI	LEI
	Leakages in Science Textbooks (2005/06)						Leakages in Science Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ajumako-Enyan-Essiam	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Asikuma-Odoben-Brakwa	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	-2397	-2214	-1861
Awutu-Efutu-Senya	LEI	LEI	LEI	1	0	0	0	0	0	0	0	0
Cape Coast	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	-1945	-1772	LEI
Twifo-Hemang-Lower Denkyira	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI

Note: LEI = Leakage or Excess Indeterminate because either supply or receipt data or both are not available.

District to school analyses: Similar to the national-district analyses, researchers compared figures from DEDs and schools to establish possible leakages (or excesses) in the distribution of core textbooks. It further verified whether such probable leakages were pronounced in the distribution to schools in deprived than in endowed districts.

As noted earlier, in general, poor record-keeping at DEDs and schools posed serious challenges to the analysis of core textbooks distribution and receipt flow between DEDs and schools. As depicted in Tables 9^A to 9^F (see appendix A for details), apart from 2008/09 academic year where there was no distribution of Mathematics textbook, the records on the distribution and receipts of Mathematics, English and Science textbooks in many instances were lacking at either the District Education Directorates (DEDs), schools or both for the two academic years (see cells labelled NR). The challenge of lack of records cut across deprived and endowed districts and schools. The problem of poor record keeping at the district and school levels were also encountered by earlier surveys by the National Steering Committee in Ghana that conducted the Ghana Public Expenditure Tracking Surveys in 2007 and the Ghana National Education Campaign Coalition tracking survey in 2010.

In terms of leakages or excesses in the distribution of Mathematics textbooks, apart from 2008/09 where the information supported the assertion of the GES that there was no procurement and distribution, generally, researchers could not determine the presence of leakages or excesses in 2005/06 (see cells labeled LEI in Table 9^G). For the few that could be estimated for the 2005/06 academic year, majority showed that the quantity sent by the districts to the schools matched. However, Ajumako Techiman Catholic K.G./Primary/J.S.S and Aboom A.M.E. Zion Basic School experienced

leakages in the range of 15 to 43 copies of primary 1 to 3 Mathematics textbooks. Ajumako Techiman Catholic K.G./Primary/J.S.S again recorded excesses of 5 copies of primary 5 and 6 Mathematics textbooks (see appendix A for Table 9^G).

Thus, 10% of the total deprived schools and 5% of the endowed counterparts suffered leakages in Mathematics textbooks' receipts in 2005/06. Aside, 10% of the total deprived schools reported excess of receipts over what was distributed by the DED.

This situation was not peculiar to Mathematics textbook distribution only. In fact, it ran through the distribution of English and Science textbooks. For instance, with English textbooks distribution in 2005/06 and 2008/09, out of the few for which the extent of leakages or excesses could be estimated, researchers found leakages ranging from 2 copies of primary 6 English textbook in Awutu DC KG/ Primary/ Junior High School to 35 copies primary 1 English textbook in Esiam T.I. Ahmadiyya K.G. Primary/JSS. Two other schools - Akrampa St. Stephen's Anglican K.G. and Primary and Awutu DC KG/Primary/ Junior High School had excesses of 2 copies each of primary 3 and 4 textbooks respectively. The rest showed quantities distributed by DEDs equalling what schools actually receive (see appendix A for Table 9^H). Whereas 20% each of total deprived and endowed schools recorded some level of leakages in English textbook receipts in the two academic years, 10% of deprived and 15% of endowed schools also had some excess in receipts

With respect to Science textbooks, it was generally a situation of researchers not being able to determine the level of leakages or excesses (LEI) in both 2005/06 and 2008/09. The few that could be estimated revealed limited amount of excess of receipt over distribution ranging from a copy to 21 copies and leakages of 6 to 7 copies respectively (see appendix A for Table 9^I). Thus, 5% and 20% of the total endowed schools recorded leakages and excess in Science textbook receipts across 2005/06 and 2008/09 academic years

The challenge of pronounced leakages in deprived versus endowed districts was corroborated by earlier findings of a GNECC study in 2010 which revealed that core textbooks received by the deprived schools were generally lower than what the DEOs reportedly dispatched to the schools. It is worth stating that as in the current study, GNECC in its (2010) report found that P3 English, P2 science and P3 mathematics textbooks recorded the biggest discrepancies in supplies and receipts.

Outcomes on extent of leakages in the distribution of core textbooks

The comparative analysis of core textbooks supplied by the MoE to DEDs via publishers and from DEDs to school levels highlighted six major outcomes. The first four were no leakage or excess, leakage, excess and leakage or excess indeterminate. The last two - no procurement/distribution and recorded data questionable related more to Mathematics textbook supplies and receipts in 2008/09 academic year. To answer the question of the level of pervasiveness of each of the first four outcomes at the MoE via publishers to DEDs and DEDs to schools, researchers adopted a sort of case analysis approach. The number of times each outcome occurred in the two academic years for each core textbook across primary 1 to 6 was computed and used in deriving the percentage share

Public Expenditure Tracking Survey in Education

of each outcome in the total outcomes for the MoE via publishers to district distribution and receipts flow (Table 12, Part A) and the districts to schools flow (Table 12, Part B).

Table 12: Case analysis of leakages or excesses in core textbooks distribution (in 2005/06 and 2008/09)

	Case Analysis of Leakages (2005/06)						Case Analysis of Leakages (2008/09)					
Part A: MoE/Publishers to Districts	MATH S	Share in total	ENG.	Share in total	SCI.	Share in total	MATH S	Share in total	ENG.	Share in total	SCI.	Share in total
No leakage or Excess	32	89%	27	75%	11	31%	0	0%	1	3%	6	17%
Leakage	4	11%	2	6%	0	0%	0	0%	6	17%	5	14%
Excess	0	0%	0	0%	1	3%	0	0%	0	0%	0	0%
leakage or Excess Indeterminate	0	0%	7	19%	24	67%	0	0%	29	81%	25	69%
No Procurement & Distribution	0	0%	0	0%	0	0%	33	92%	0	0%	0	0%
Recorded Data Questionable	0	0%	0	0%	0	0%	3	8%	0	0%	0	0%
Total	36	100%	36	100%	36	100%	36	100%	36	100%	36	100%
	Case Analysis of Leakages (2005/06)						Case Analysis of Leakages (2008/09)					
Part B: Districts to schools	MATH S	Share in total	ENG.	Share in total	SCI.	Share in total	MATH S	Share in total	ENG.	Share in total	SCI.	Share in total
No leakage or Excess	44	24%	43	24%	8	4%	0	0%	17	9%	14	8%
Leakage	3	2%	7	4%	2	1%	0	0%	1	1%	0	0%
Excess	2	1%	4	2%	2	1%	0	0%	0	0%	4	2%
leakage or Excess Indeterminate	131	73%	126	70%	168	93%	0	0%	162	90%	162	90%
No Procurement & Distribution	0	0%	0	0%	0	0%	132	73%	0	0%	0	0%
Recorded Data Questionable	0	0%	0	0%	0	0%	48	27%	0	0%	0	0%
Total	180	100%	180	100%	180	100%	180	100%	180	100%	180	100%

The outcomes were then ranked and scored in a descending order (i.e. score of 3 for first ranked, 2 for the second ranked, 1 for the third ranked and none for the last ranked). Next, the average of the scores for the four outcomes across both primary 1 to 6 and the two academic years were computed as depicted in Table 13^A.

Table 13^A: Score analysis of leakages or excesses in core textbooks distribution (in 2005/06 and 2008/09)

Part A: GES to Districts	Rank Score [2005/06]			Rank Score [2008/09]			Across Both Years
	MATHS	ENG	SCI.	MATHS	ENG	SCI.	Mean score
No leakage or Excess	3	3	2	0	1	2	1.83
Leakage	2	1	0	0	2	1	1.00
Excess	0	0	1	0	0	0	0.17
leakage or Excess Indeterminate	0	2	3	0	3	3	1.83
Part B: Districts to schools	Rank Score [2005/06]			Rank Score [2008/09]			Across Both Years
	MATHS	ENG	SCI.	MATHS	ENG	SCI.	MATHS
No leakage or Excess	2	2	2	0	2	2	1.67
Leakage	1	1	1	0	1	0	0.67
Excess	0	0	1	0	0	1	0.33
leakage or Excess Indeterminate	3	3	3	0	3	3	2.50

The computed mean scores highlighted the problem of poor record-keeping that was alluded to under the section on challenges of fieldwork. Clearly, the outcome captioned “leakage or excess indeterminate” came top with respect to both the flow between the MoE via publishers and DEDs and DEDs and schools. This was followed by the outcomes “no leakage or excess” which represent situations where quantities supplied equalled what was received and “leakages” implying receipts less what was supplied.

Overall leakage analysis

The level of poor record keeping notwithstanding, researchers found that given the total quantity of core textbooks the MoE claimed to have distributed to the six districts for which data was available, **0.27% to 9.59%** leaked out of the system. The smallest percentage leakage of **0.27%** was for mathematics textbooks distributed in 2005/06 academic year and the largest of **9.59%** was for English textbooks in 2008/09 academic year. Similarly, the leakages found in the DED to School distribution chain also ranged from **0.04% and 2.28%** of English textbooks distribution in 2008/09 and 2005/06 academic years for which there are full records (see Table 13^B).

Table 13^B: Leakages as percentage share of available total distribution

	MoE to DEDs			DEDs to SCHs		
	MoE Distn. to 6 DEDs	Total Leakages	Leakages as % of MoE Distn.	DEDs Distn. to 30 SCHs.	Total Leakages	Leakages as % of DEDs Distn.
Mathematics Textbook Distribution, 2005	147,866	400	0.27	4,325	83	1.92
Mathematics Textbook Distribution, 2008	--	--	--	--	--	--
English Textbook Distribution, 2005	131,817	5,312	4.03	4,559	104	2.28
English Textbook Distribution, 2008	136,052	13,041	9.59	4,681	2	0.04
Science Textbook Distribution, 2005	--	--	--	710	13	1.83
Science Textbook Distribution, 2008	128,537	10,189	7.93	--	--	--

Public Expenditure Tracking Survey in Education

Table 13^C: Project leakages across the total districts and schools in Central region

	MoE to DEDs		DEDs to SCHs	
	Average Leakages	Projected Leakages across 13 DEDs	Average Leakages	Projected Leakages across 1,726 Schools
Mathematics Textbook Distribution, 2005	67	867	2.8	4,775
Mathematics Textbook Distribution, 2008	--	--	--	--
English Textbook Distribution, 2005	885	11,509	3.5	5,983
English Textbook Distribution, 2008	2,174	28,256	0.1	115
Science Textbook Distribution, 2005	--	--	0.4	748
Science Textbook Distribution, 2008	1,698	22,076	--	--

Note: Average leakages in MoE to DEDs distribution chain is calculated as the ratio of the total leakage to the number of districts surveyed. Similarly, that for the DEDs to school distribution is the ratio of the total leakage to the number of primary schools surveyed.

Based on the total leakages in Mathematics, English and Science textbooks for the two academic years as presented in the third and sixth columns of Table 13^B, given that six districts and thirty primary schools were surveyed, researchers computed the average leakages across the survey districts and schools for each specific textbook for a given academic year (see the second and fourth columns of Table 13^B).

Conjecturing that each of the districts and public primary schools in the Central region at least experience leakages equal to the MoE via publishers to DEDs and DEDs to schools averages respectively, the projected leakages across the 13 districts in the region would be in the range of 867 Mathematics textbook in 2005/06 to 28,256 English textbook in 2008/09. At the DEDs to school level, the projected leakages across the 1,726 public primary schools ranged from 115 to 5,983 English textbook in 2008/09 and 2005/06 respectively (see the third and fifth columns of Table 13^C).

Table 13^D: Total monetary valued of actual and projected leakages in 2005 and 2008 prices

	Estimated Price [US\$]	MoE to DEDs		DEDs to SCHs	
		Value of Actual Leakages [US\$]	Value of Projected Leakages [US\$]	Value of Actual Leakages [US\$]	Value of Projected Leakages [US\$]
Mathematics Textbook Distribution, 2005	1.28	512.00	1,109.33	106.24	6,112.34
Mathematics Textbook Distribution, 2008	--	--	--	--	--
English Textbook Distribution, 2005	1.22	6,480.64	14,041.39	126.88	7,299.83
English Textbook Distribution, 2008	2.05	26,734.05	57,923.78	4.10	235.89
Science Textbook Distribution, 2005	1.33	--	--	17.29	994.75
Science Textbook Distribution, 2008	2.27	23,129.03	50,112.90	--	--
Total		56,855.72	123,187.39	254.51	14,642.81

The scale of leakages as indicated in this report is consistent with the findings of the Ghana PETS conducted by the MoE/GES in 2007 that indicated that generally DEDs supplied more core textbooks to schools than the primary schools reported receiving. On average, 2.2 % of primary school textbooks reportedly dispatched by the DEOs did not get to the intended targeted schools. According to Meier and Griffin, (2005), leakages in the distribution of education resources within developing countries were widespread due to limited capacities of education authorities to track the implementation of government policies (Meier and Griffin, 2005).

Financial implications of the leakage

The question researchers might be interested in is *“What is the financial implication of these leakages to the Ministry of Education and by implication the Ministry’s budget?”* To determine this, researchers sought for actual contract prices for Mathematics, English and Science textbooks procured in 2005/06 and 2008/09 academic years from the MoE. Unfortunately, the records made available to the research team did not have prices for all three core textbooks procured in 2005/06. However, with the exception of Mathematics books which were not purchased for 2008/09 academic year, dollar-denominated prices for English and Science textbooks purchased from different suppliers were available in the records of the MoE procurement contract documents. Furthermore, the research team also had information regarding price quotations for English and science textbooks the MoE in consultation with the GES had planned to order in the 2012/2013 academic year. To obtain fair cost of leakages, the average prices and the means of average prices for core textbooks for primary one to six and the means of 2008 and 2011 prices were computed¹⁵. It was observed that the average mean of 2011 price quotations for Science and English textbooks were roughly 40% over that of 2008 actual contract prices. Researchers therefore estimated the average mean prices of these books in 2005 to be 40% lower than the 2008 average mean prices (i.e. English, US\$1.22 and Science, US\$1.33). For the price of Mathematics textbooks, since there was no procurement in 2008, the computed average of the estimated prices for Science and English textbooks were used (i.e. Mathematics, US\$1.28).

On the basis of these prices, the estimated total value of actual leakages in the MoE via publishers to DED distribution chain stood at **US\$ 56,855.72** while that observed in DEDs to schools’ distribution chain was **US\$ 254.51**¹⁶. Using the projected leakages across 13 districts and 1,726 schools as depicted in Table 13^D, relatively higher values of leakages were estimated (i.e. MoE/publishers to DEDs, **US\$ 123,187.39** and DEDs to schools, **US\$ 14,642.81**).

¹⁵ See Appendix for price quotations provided by the GES

¹⁶ As indicated, the very poor records between DEDs and schools resulted in the researchers largely inability to establish actual leakages

Public Expenditure Tracking Survey in Education

Working on the assumption that these leakages were to be replaced by the MoE at 2011 price quotations, Table 13^E shows the huge cost outlay that the MoE would have to incur. In terms of the actual leakages, the cost of replacement would be **US\$ 86,677.44** for leakages in the MoE to DEDs distribution chain and **US\$ 599.20** for the lower level leakage. For the projected, MoE would be bound to pay **US\$ 187,801.12** and **US\$ 34,473.97** for the replacement of leakages at the two levels (districts and schools) respectively.

Table 13^F: Total cost of replacing actual and projected leaked textbooks in 2011 prices

	Average Price Quotation [US\$]	MoE to DEDs		DEDs to SCHs	
		Cost of Replacing Actual Leakages	Cost of Replacing Projected Leakages	Cost of Replacing Actual Leakages	Cost of Replacing Projected Leakages
Mathematics Textbook Distribution, 2005	3.04	1,216.00	2,634.67	252.32	14,516.81
Mathematics Textbook Distribution, 2008	--	--	--	--	--
English Textbook Distribution, 2005	2.88	15,298.56	33,146.88	299.52	17,232.38
English Textbook Distribution, 2008	2.88	37,558.08	81,375.84	5.76	331.39
Science Textbook Distribution, 2005	3.20	--	--	41.60	2,393.39
Science Textbook Distribution, 2008	3.20	32,604.80	70,643.73	--	--
Total		86,677.44	187,801.12	599.20	34,473.97

Reasons underpinning leakages of core textbooks

In trying to assess the magnitude of the leakage, researchers also sought to understand the causes of the leakages and reasons underpinning such wastage in public resources. While there were no direct questions targeting the causes of leakages, respondents' proffered various probable causes and reasons that might explain the problem.

For instance, the creation of new administrative districts without corresponding changes in the DED structures has meant that the depots of the logistics and supply divisions at the district levels now receive materials for more than what is meant for one district at a time. The poor record-keeping, poor and inadequate storage among other problems at these depots sometimes leave book stocks at the mercy of the weather and thieves. Besides, at times allocations are received without adequate paper work. Also, instances where publishers sometimes under-supply materials to the districts and district officials are unable to undertake due diligence in ensuring that the right quantities are supplied also, came up. These difficulties sometimes led to shortfalls or leakages in the MoE via publisher to DEDs distribution chain.

At the district to school level, a number of factors were also highlighted as accounting for the leakages. First was the absence of transport facilities to transport the books from the district depots to the schools. School authorities indicated that they do not have dedicated budgets to transport their schools' allocation of books from the district depots. Officers of the district book depots and school authorities were also alleged to engage in unauthorized sale of government approved books and hence resulting in the leakages in the textbook supply and distribution¹⁷.

¹⁷ **Note:** At a validation with the GES, officials indicated that not all "Not for Sale" textbooks on the market were siphoned from the distribution chain because there are instances where publishers print more than their allocation and therefore have no option than to sell the leftover on the open market. This assertion however, is a clear violation of the guideline that demands that publishers may make selected textbooks available for commercial sale but these commercial editions must not have the inscription mentioned above.

Role of school level support structures in controlling leakages: Given that some schools recorded leakages, the question was whether the active roles played by SMCs and PTAs minimized leakages in the textbook distribution chain. To answer this question, researchers first developed an average of means scores for each study school using the question-items which captured information on the following: (a) the presence of SMCs and PTAs in the various schools; (b) the regularity of SMCs and PTAs meetings; and (c) the efficiency of SMCs and PTAs in demanding accountability from school heads on how textbooks and other instructional materials were stored and used¹⁸.

On the basis of the average mean scores, researchers found both SMCs and PTAs in half of the study schools (50%) to be active. In 10% of the schools, only PTAs were found to be active while for 7% of the schools only SMCs were active. A third of the schools (33%) lacked active SMCs and PTAs.

Again, the core-textbooks tracking study also revealed that SMCs and PTAs were moderating factors where control of leakages are concerned. The study found that generally, in schools where SMCs and PTAs are active, the likelihood is that leakages are largely controlled.

Having identified schools with active and inactive SMCs and PTAs respectively, these were juxtaposed against schools where leakages in core-textbooks were recorded. Based on this comparison, the following six categories of schools with varied characteristics were created: active SMCs without leakages; active SMCs with leakages; inactive SMCs with leakages; inactive SMCs without leakages; active PTAs without

leakages; active PTAs with leakages; and inactive PTAs with leakages; and inactive PTAs without leakages. Each category was assigned specific scores which were used to conduct various hypothesis tests using paired-samples t-test to determine whether there were significant differences between pairs of the six categories of schools above.

As depicted in Table 13^F, at the 95% confidence level, the test results established significant differences between paired schools with the following characteristics: active SMCs without leakages and inactive SMCs with leakages (p-value = 0.012); active PTAs without leakages and active PTAs with leakages (p-value = 0.014); and active PTAs without leakages and inactive PTAs with leakages (p-value = 0.007). The finding clearly showed that active SMCs and PTAs in public primary schools were able to moderate experiences with leakages.

¹⁸ **Note:** The Head-teacher/teacher questionnaire had no questions regarding the regularity of SMCs and PTAs meetings. Likewise, the SMC/PTA questionnaire did not ask about the presence or otherwise of SMCs and PTAs in schools. Large majorities of SMC/PTA executives (65% and 73% respectively) claimed SMCs and PTAs meet regularly. While over half of head-teachers/teachers (i.e. 56%) perceived both SMCs and PTAs to be inefficient in demanding accountability from head teachers on how textbooks and other instructional materials are stored and used, on average, about half of SMC/PTA executives (50% and 48% respectively) thought the SMCs and PTAs were efficient in this function.

Public Expenditure Tracking Survey in Education

Table 13^F: Paired-samples t-test of active SMCs and PTAs influence on leakages

	Mean	Std. Dev	Std. Error	95% C. I.		t	df	p-value
				Lower	Upper			
Active SMCs without leakages – Active SMCs with leakages	0.412	0.939	0.228	-0.071	0.895	1.807	16	0.090
Active SMCs without leakages – Inactive SMCs with leakages	0.538	0.660	0.183	0.139	0.937	2.941	12	0.012
Active PTAs without leakages – Active PTAs with leakages	0.556	0.856	0.202	0.130	0.981	2.755	17	0.014
Active PTAs without leakages – Inactive PTAs with leakages	0.500	0.522	0.151	0.168	0.832	3.317	11	0.007

Time schedule for delivery of textbooks from publishers to districts

Researchers were interested in the time schedule for the delivery of textbooks to districts given the fact that supplying of books on time could impact learning outcomes, since access to textbooks is influenced in part by its availability which is also determined by the time lag for the distribution of the textbooks.

In terms of the time schedules for the delivery of textbooks to districts, 83% of the DEDs indicated that textbooks are regularly supplied by the publishers in the middle of the academic year. Specifically, *60% of DEDs indicated that it received its allocation of mathematics, English and integrated science books at the beginning of the next academic year in 2005. In 2008, while 40% of DEDs indicated that they received their allocation of mathematics books at the beginning of the academic year due largely to the fact that old stocks were just being supplied; English textbooks were received at the middle of the academic year.*

Time schedule for delivery of textbooks from districts to schools

In terms of distribution of textbooks by the district authorities to the schools in their respective districts, a majority of DEDs indicated that most of the core textbooks (particularly mathematics and science) were distributed at the beginning of the next academic year. Only English textbooks, according to 50% of DEDs, were distributed at the middle of the 2005 academic year. In 2008, more than half of the DEDs indicated that the three core textbooks were distributed at the beginning of the academic year. *Only less than 4 in 10 head teachers and teachers indicated that their schools received its share of textbooks and supplementary material (32% for Maths, 35% for English, 34% for Science) in the middle of the 2005/06 academic year. The greater majority indicated receipt of textbooks at the beginning of the next academic year contrary to the views of the DEDs.*

Majority (83%) of DEDs indicated that school authorities were informed in time about their textbooks delivery to ensure early collection of allocations. Schools were however not aware of the exact number of textbooks allocated to them. This situation could potentially set the platform for pilfering of books at the district books stores and under-delivery by publishers, all to the detriment of pupils.

The late receipt of core textbooks as gleaned from the responses provided by head teachers, teachers, appeared to have largely influenced the inability of schools to also make these materials available to pupils¹⁹ on time and also gives an indication that the policy of getting teaching and learning materials to schools before the academic year commences was largely not being adhered to by the MoE/GES, its publishers and district authorities. The obvious delays in the receipt and distribution of textbooks in schools as indicated in this study were consistent with the findings of GNECC (2010). The findings on the delay in book delivery to schools was earlier articulated by Read (1992) who found in his studies of some district offices in Ghana that they often lacked the funds to pay forwarders, sometimes because the money had not been provided, and other times because they had never accounted properly for the previous year's advance for that purpose. Packaging and storage were often inadequate to protect the books against water, insects, mould, and vermin. In one instance during the rainy season in 1984, new books were delivered to a regional store in Ghana that had no roof; within days the books were soaked and useless (Read 1992, 314). Searle's (1985) point about efficient, economical distribution was further impeded by a lack of adequate information from schools. In his view, depot storekeepers were untrained in inventory control and maintenance. A combination of delays, from development through to distribution, could result in books being delivered a year, or even three years, behind schedule.

"From the perspectives of the DEDs, given the absence of dedicated budgets for transportation of textbooks, DEDs subsequently have asked head teachers to come for the books or the DED hires trucks out of their limited resources and with the assistance of circuit supervisors distribute the books to the various schools. The distribution of books in the view of all DEDs is the responsibility of the DSLOs in the districts."

¹⁹ See the section under access

Availability and Access to
Textbooks in Schools

Adequate access to textbooks (i.e. one relevant textbook per student) is an important indicator of the quality of education the world over. Due to this recognition, governments in Ghana both past and present have consistently tried to make textbooks accessible to all pupils especially at the basic level to enhance teaching and learning. To answer the question on the **availability and level of access to core textbooks and other instructional materials in public primary schools in Ghana**, the study sought to assess the availability and adequacy of textbooks and the extent to which textbooks were made accessible to all pupils for both in and out of school use.

Analysis of Pupil-Core Textbook Ratios: The pupil-textbook ratio has been an important indicator of textbooks access in public primary schools. Given the crucial role textbooks play in educational quality and outcomes therefore, researchers sought information on the current pupil-core textbook ratio in each of the survey schools in different ways. Researchers were interested in assessing MOE/ GES efforts at attaining its Textbook Development and Distribution Policy *“target ratio of 1:1 (one pupil for one English, Mathematics and Integrated Science textbooks) for all grades from September 2002”*. The analysis of the information on the current core textbooks – pupil ratio gathered from DEDs as presented in Table 14^A showed that on average, two pupils share each of the core-textbooks in the survey schools (i.e. English, 0.54; Mathematics, 0.56; and Science, 0.57). In fact, in 77% of the survey schools, pupils share English textbooks. Similarly, Mathematics and Science textbooks are shared by pupils in 70% and 67% of the survey schools, respectively. Less than a third of the schools had one pupil to one core-textbook target being met (i.e. English, 16%; Mathematics, 23%; and Science, 26%). Thus, most of the schools are yet to meet the MoE’s policy objective of one core-textbook per pupil (1:1). In Abura Dunkwa Islamic primary School, researchers found a ratio of one core-textbook to three pupils.

Table 14^A: Current core textbook – pupil ratio in schools as provided by districts

	English Textbooks		Mathematics Textbook		Science Textbook	
	No. of Pupils	No. of Books Assigned	No. of Pupils	No. of Books Assigned	No. of Pupils	No. of Books Assigned
Abura-Dunkwa Islamic K.G./Primary Sch.	3	1	3	1	3	1
New Odonase Catholic Primary/Community K.G.	NRPT R	NRPT R	NRPT R	NRPT R	NRPT R	NRPT R
Brafoyaw A. M.E. Zion Basic School	NRPT R	NRPT R	NRPT R	NRPT R	NRPT R	NRPT R
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	2	1	2	1	2	1
Ajumako-Techiman Catholic K.G./Primary/J.S.S	2	1	2	1	2	1
Breman Fawomanye D/A K.G./Primary	2	1	2	1	2	1
Esiam T.I. Ahmadiyya K.G. Primary/JSS	2	1	2	1	2	1
Odoben A.M.E Zion K.G. Basic	2	1	2	1	1	1
Eyipey Catholic Primary/K.G.	1	1	1	1	1	1
Kuntanase Meth. K.G. Primary School	1	1	1	1	1	1
Ahenta D/A A & B Schools	2	1	2	1	2	1
Akrampa St. Stephen's Anglican K.G. & Prim.	2	1	2	1	2	1
Awutu DC KG/Primary/ Junior High School	2	1	2	1	2	1
Awutu St. Peter & Paul Anglican Primary/K.G.	2	1	2	1	2	1
Odupongkpehe D/A K.G. & Prim. B/D/E	2	1	2	1	2	1
Papaase St. Peters Catholic Primary	2	1	2	1	2	1
Ofaakor Primay/Junior High School.	2	1	2	1	2	1
Akweley St. Mary School	2	1	2	1	2	1
Ayiresu D/A K.G. & Primary	2	1	2	1	2	1
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	2	1	2	1	2	1
Winneba A.M.E. Zion Primary 'C'	2	1	2	1	2	1
Aboom A.M.E. Zion Basic School	2	1	1	1	1	1
Falahiya Islamic Basic School	2	1	2	1	2	1
Abura English/Arabic Basic Sch.	1	1	1	1	1	1
Ayifua St. Mary's Anglican Basic Schools	2	1	2	1	2	1
Abakam Cran Presby Basic Schools	2	1	1	1	1	1
Tsimtsimhwe D/A Basic School	2	1	2	1	2	1
Asensuhu - Agave D/A Basic School	2	1	2	1	2	1
Abeka Nkwanta Basic School	1	1	1	1	1	1
Mamong Catholic Primary & J.S.S. A&B	1	1	1	1	1	1
Total (Pupils and Books shared)	52	28	50	28	49	28
Pupil per book ratio (Average for 28 schools)	0.54		0.56		0.57	
Number of schools where pupils share textbooks	23 (77%)		21 (70%)		20 (67%)	
Number of schools where pupils do not share textbooks	5 (16%)		7 (23%)		8 (26%)	
Number of schools with missing information	2 (7%)		2 (7%)		2 (7%)	

Note: NRPT = No Record on pupil - core textbook ratio.

The low pupil-textbooks ratio in the sampled schools and districts are encapsulated in the views of pupils who participated in the focus group discussions following:

[We are not allowed to take most of the textbooks home. We are only given textbooks when we are given homework... Sometimes we have to share the books depending on who you stay closer to. That is if one pupil lives in your area, you are allowed to share a book.... Not all of us are brilliant so when we share, a pupil who is good tends to grasp what we are doing fast, leaving us behind. ...other times, too, when we are reading, I have to wait for my sharing partner to also finish reading before we can turn to the next page...Sharing a book is difficult since everyone would like to use the book by him/herself and this sometimes leads to quarrel over who has right to control the textbook..]-Pupils

Public Expenditure Tracking Survey in Education

At the school level, researchers posed different questions to head-teachers, teachers and parents all aimed at assessing pupils' access to core textbooks. Heads of schools and teachers were asked whether each pupil gets a copy of core textbook during lessons and for out-of-school studies at home respectively. With regards to parents, researchers similarly asked about the modalities adopted by their wards' schools in issuing core textbooks for lessons at school and studies at home respectively.

From the analysis of the responses as presented in Table 14^B (see summaries in last four rows), according to majority of head-teachers, pupils shared core textbooks during lessons (i.e. 67%) as well as for studies at home (40%). This opinion was corroborated by majority of teachers (in-school studies, 70% and out-of-school studies, 63%) and parents (in-school studies, 63% and out-of-school studies, 50%). Across the three categories of respondents, only 7% to 30% claimed pupils got a copy each for both in-school and out-of-school studies. Thus, the responses confirmed information from DEDs which indicated that most schools were lagging behind the one textbook per pupil policy of the MoE.

In addition to these assessments, researchers also asked DEDs about the general trends in pupil-core textbook ratios for English, Mathematics and Science textbooks in the survey schools. Notwithstanding the fact that these ratios were below the policy objective of one textbook per pupil, responses gathered from DEDs indicated that all survey schools (i.e. 100%) had experienced some change over time in pupil core textbook ratios. Quite refreshingly, in 63% of the schools, the change recorded in the ratios of the three core textbooks were improvements. Only in 23% of the schools had the ratios for these books actually deteriorated probably due to textbook damage, increased enrolment, or factors other than and /or not limited to textbooks distribution.

These conclusions were equally validated by participants at the district validation workshops. In the view of some of the respondents, textbook to pupil ratio is one textbook to four pupils and not 1:2. Increased enrolment since the last distribution of books in 2008 has worsened the ratio...At times however, many pupils in a neighbourhood share one or two textbooks- A teacher

Adequacy of available textbooks, teacher's guides and supplementary materials in schools:

Most of the schools as already indicated lacked core textbooks and accompanying teacher's guides as well as supplementary materials in adequate quantities for all subjects for primary 1 to 6 for a one pupil to one core textbook use. To a large extent, head teachers/teachers (86%) Parent-Teacher Association (PTA) executives (84%) and School Management Committee (SMC) executives (61%) interviewed claimed that core textbooks were "not available" in adequate quantities in the schools. Similarly, 60% of head-teachers and teachers, 52% of PTA executives and 48% of SMC executives alluded to the inadequacy of teacher's guides and supplementary materials.

The unavailability (or inadequacy) of core-textbooks in the study schools was not surprising especially when almost all the stakeholders interviewed and pupils who took part in the focus group discussions confirmed the sale of government procured "Not for Sale" textbooks in the open market. In fact, key officials at various levels in the education sector (e.g. national and district officials of the GES,

Table 14^B: Opinions on pupils' access to core textbooks for in-school and out-of-school academic work

	HEAD-TEACHERS				TEACHERS				PARENTS/GUARDIANS			
	Copy each [Sch. Studies]		Copy each [Home Studies]		Copy each [Sch. Studies]		Copy each [Home Studies]		Copy each [Sch. Studies]		Copy each [Home Studies]	
	No	Yes	No	Yes	No	Yes	No	Yes	Share copy	Copy/pupil	Share copy	Copy/pupil
Abura Dunkwa Islamic KG / Prim. School	100%				50%	50%	50%		50%	33%		17%
New Odonase Catholic Primary/Community K.G.	100%				50%	50%	50%		50%		33%	
Brafoyaw A. M.E. Zion Basic School		100%			100%		50%		83%	17%	67%	
Ajumako-Gesdi D.A. K.G. Primary/J.H.S.	100%		100%		100%		50%		50%	17%	17%	17%
Ajumako-Techiman Catholic K.G./Primary/J.H.S.	100%		100%		100%		100%		67%	17%	33%	17%
Breman Fawomanye D/A K.G./Primary	100%		100%		100%		50%	50%	50%		67%	
Esiam T.I. Ahmadiyya K.G. Primary/J.H.S.	100%			100%	50%	50%	100%		33%	17%	50%	17%
Odoben A.M.E Zion K.G. & Basic School		100%			100%		100%			17%		
Eyipey Catholic Primary/K.G.		100%	100%		50%	50%	50%	50%	17%	33%	67%	
Kuntanase Meth. K.G./ Primary School	100%				50%	50%	50%	50%	40%			
Ahenta D/A A & B Schools	100%		100%		100%		100%		33%		33%	17%
Akrampa St. Stephen's Anglican K.G. & Primary		100%		100%	100%		50%			67%		50%
Awutu D/C K.G. / Primary / J.H.S	100%			100%	100%					17%		
Awutu St. Peter & Paul Anglican Primary K.G.	100%				100%							
Odupongkpehe D/A K.G. & Primary B/D/E		100%	100%		100%							
Papaase St. Peters Catholic Primary	100%				100%		100%		33%			
Ofaakor Primary / J.H.S.	100%		100%		100%				33%		17%	
Akweley St. Mary's Primary C & D	100%				100%		50%		67%		33%	
Ayiresu D/A K.G. & Primary		100%			50%	50%			17%	33%		17%
Kwaman Catholic K.G. Primary & D.A./ J.H.S.	100%					100%		50%		17%		17%
Winneba A.M.E. Zion Primary 'C'	100%				50%	50%				17%		
Aboom A.M.E. Zion Basic School		100%	100%		100%		100%		67%	33%	17%	50%
Falahiya Islamic Basic School	100%		100%		100%		50%		33%	33%	50%	33%
Abura English/Arabic Basic School		100%		100%		100%		50%	50%	17%	33%	17%
Ayifua St. Mary's Anglican Basic School		100%			50%		50%		67%	17%		
Abakam Cran Presby Basic Schools	100%				100%		50%		67%		17%	
Tsimtsimhwe D/A Basic School	100%		100%		100%		100%		67%		67%	
Asensuhu - Agave D/A Basic School	100%		100%		100%		100%		17%		17%	
Abeka Nkwanta Basic School	100%		100%		100%		100%		17%	50%		
Mampong Catholic Primary & J.H.S. A & B	50%	50%	50%	50%	100%		100%		55%	18%	45%	9%
No. of schools with high % of shared textbooks	20 (67%)		12 (40%)		21 (70%)		19 (63%)		19 (63%)		15 (50%)	
No. of schools with high % of copy per pupil	9 (30%)		4 (13%)		2 (7%)		2 (7%)		8 (27%)		5 (17%)	
No. of schools with equal %	1 (3%)		1 (3%)		7 (23%)		3 (10%)		1 (3%)		1 (3%)	
No. of schools with blanks	0 (0%)		13 (43%)		0 (0%)		6 (20%)		2 (7%)		9 (30%)	

Note: Blanks are due to Non-response, Not Applicable due to 'No' response to previously linked questions or 'Don't know' answers

Public Expenditure Tracking Survey in Education

storekeepers, head-teachers and teachers) as well as textbook producers and suppliers contracted by the GES were accused as being behind the sale of the “Not for Sale” textbooks in the open market²⁰.

With regards to teacher’s guides for core textbooks and supplementary materials, 60% of head teachers/ teachers said they were “not adequate”, and 40% of head teachers/teachers expressed contrasting opinions. Forty-four percent of parents also held the view that core textbooks and supplementary materials were not adequate in the schools.

A logistics officer participating in the validation event indicated that ... since the textbooks supplied to the DED for distribution to schools are not enough, they try to share it amongst all the schools and hence the inadequacy of books for pupils and teachers. Due to unavailability of textbooks, teachers have to write long passages on the chalk board which is time consuming; hence more textbooks should be supplied, especially for the languages -A participant at the validation workshop

This phenomenon of inadequate textbooks in classrooms was corroborated by earlier research revealed by Okyere *et al* (1997) which concluded following classroom observations and interviews with teachers, head teachers, and Circuit Supervisors, that most of the classrooms did not have sufficient textbooks and other instructional materials.

Access and use of textbooks: Analysis of the findings of the study revealed that in general, access to core textbooks in schools was mostly limited to school lesson use only. Indeed, (68% and 80%) of head teachers and teachers respectively alluded to this situation. Over 90% of SMC and PTA executives and about 7 in 10 (i.e. 69%) parents also posited that pupils did get access to core textbooks during lessons albeit on a 1:2 (urban schools) or sometimes 1:3 (rural schools) basis as the survey reveal a clear inadequacy in the availability of core textbooks.

Access to core textbooks for outside school work as already pointed out was not very common even though some school officials indicated that they did allow pupils to take textbooks home. Indeed, while 55% of head teachers reported that pupils were allowed to take textbooks home, a similar percentage of teachers (50%) disagreed. Indeed, majority of parents agreed with the teachers assertions, claiming pupils were not given core textbooks (58%) for out of school use, given that the implementation of these policy measures are left to the discretion of teachers and school authorities.

This practice of issuing out books to pupils for out of school use which seemed largely informal and discretionary was consistent with proposals of the Ghana Book Publishers Association that “books should be given out to learners in economically disadvantaged areas to be taken home for after school hours learning... as due to low incomes in deprived areas, most parents are unable to buy textbooks for use by their wards at home in addition to complete absence of book resources including bookshops in such areas”. It is worth stressing that the current practice of not issuing books freely to pupils for out of school use contravenes the MoE TDDP (2003) which encourages pupils to carry books to and from school in a bag and to keep them safe from dust and rain damage.

²⁰ Refer to GES’ comment on the sale of “Not for Sale” textbooks in the open market in footnote numbered 17.

MOE Guidelines on Textbook Use in the Classroom

Taking Care of Books

Books must be looked after if they are to last. This will ensure that children will be issued with books that are in good condition. It will also ensure that students in succeeding classes also will be able to have the benefit of textbooks. If textbooks last well, it is easier for government to afford to pay for them.

The following simple precautions will help books to last longer and stay in good condition:

- *Clean hands before using books.*
- *Do not turn down the page corners or fold pages to keep your place in the book.*
- *Do not use stones, sticks, leaves or food to mark your place or to keep the book open.*
- *Do not write, draw or scribble in your textbook. Someone has to use it after you.*
- *Do not cut your textbooks or pull out pages.*
- *Turn pages carefully to avoid tearing them.*
- *Do not sit or sleep on your textbooks.*
- *Do not throw textbooks or use them as weapons.*
- *Do not put food or liquids on books.*
- *Carry books to and from school in a bag to keep them safe from dust and rain damage.*
- *Use a bag that is big enough for your books. Forcing books into a bag that is too small will damage your textbooks.*
- *Do not force a book to stay open because this will damage the binding.*
- *Do not bend your textbooks.*

The finding of this study with respect to textbooks access and use was consistent with earlier researches' on textbook access and use. Okyere et al (1997) for instance reported that in 1993, most Ghanaian classrooms had insufficient textbooks and that, even when textbooks had been supplied on a 1:2 textbook-to-pupil ratio, teachers tended to lock books in cupboards and to write on the chalkboard. Children would then read chorally from the board and copy the words into their exercise books (1997). In another study, Owen et al (2005) reported that differences in the availability of textbooks and pupil's access depending on the location of the school in Ghana. According to the report, schools closer to the District Education Office (DEO) were more likely to receive books than those in remote areas. Other studies undertaken in Tanzania as cited by Read and Treffgarne (2011) showed that as part of the Pilot Project for Publishing in Tanzania, there were huge

discrepancies between the availability of good class sets of textbooks in schools and their use in the classroom. Similarly, a national survey in Tanzania undertaken by SIDA in 1999 revealed that although almost 40% of schools surveyed had class sets of textbooks, only 4% of schools were actually using textbooks in the classroom (Read and Treffgarne, 2011). In trying to explain the causes of these access problems in schools and classrooms, Montagnes (2001) for instance, as cited in Opoku-Amankwa (2010) argued that school authorities may keep the books locked up in order not to fall prey to official regulations which warn that teachers would be surcharged for lost and damaged books. Alternatively, teachers might be reluctant to use textbooks because their interests and experiences, and those of their students, are not reflected in the content. Still other teachers might feel threatened by new textbooks. In such situations, the books may be available but the pupils have no access to them.

Payment for textbooks: In all the schools in this study, researchers found that pupils did not pay before they were given access to government supplied core textbooks in consonance with the dictates of the MoE Textbook Development and Distribution Policy (TDDP). Due to the fact that the supply of the textbooks to public primary schools is part of the Free Compulsory Universal Basic Education program (FCUBE) and government's commitment to the provision of at least a free core textbooks

Public Expenditure Tracking Survey in Education

per pupil, pupils did not have to pay for textbooks to access them. Indeed, all GES officials at the national and DED level (100% each) and almost all head teachers (94 percent) and teachers (95 percent) interviewed unanimously agreed that pupils in their respective schools did not pay before they are given access to the textbooks. This assertion was corroborated by the responses from SMC and PTA executives as well as parents/guardians who confirmed that most schools were adhering to the free textbook policy of not asking pupils to pay for government supplied textbooks. Absolute majorities of the executives of SMC (97%) and PTA (90%) said pupils did not pay for core textbooks. Similarly, a strong majority of parents also posited that their wards' schools never asked for payment for core textbooks (86%) and supplementary materials (83%) respectively (Table 15). Thus, the general trend was one of compliance with and an understanding of the provisions of the textbook policy which states that pupils do not have to pay for access and use of textbooks supplied to their schools. This position was very consistent with experiences in similar countries where government supplied textbooks were made available to pupils without charges.

Table 15: Payment for Access to Core textbooks

	No	Yes	Don't know / Missing
GES	100%	-	-
DED	100%	-	-
Head teacher	94%	6%	-
Teacher	95%	5%	-
PTA	90%	3%	7%
SMC	97%	3%	-
Parents	86%	3%	11%

Source: Field Survey, October 2011

Notwithstanding the above responses that pupils have free access to government supplied core textbooks and supplementary readers, government stamped core textbooks have been freely available on the market for sale, albeit illegally.

Maintenance and Storage of
Textbooks in Schools

Textbook selection committees in schools: The type of textbook or textbook series that a school wishes to use according to the National Textbook Policy is the responsibility of each school to decide as part of the larger process of education sector decentralisation. However, the policy demands that each school should have a Textbook Selection Committee (TSC) comprising teachers and elected representatives of parents who will select appropriate textbooks from a list of up to five competing textbooks submitted by the textbook Evaluation Coordinating Committee (ECC) at the end of the evaluation process. *In general, Textbook Selection Committees are non-existent in the schools.* Quite surprisingly, all the head-teachers of 30 study schools (100%) unanimously conceded that there were no TSC in their schools. Also, over 9 in every 10 teachers interviewed (93%) and 7 in every 10 PTA (74%) and SMC (72%) executives corroborated the position of the head-teachers on this issue. Thus, the schools actually had no input in the decision pertaining to the choice of textbooks they received from the MoE via the publishers in 2005/06 and 2008/09 academic years.

Storage of textbooks in schools: The management, conservation and storage of textbooks is

General Principles for Textbook Management

- *Schools' bookstores must be kept clean at all times. Dust and dirt cause damage to textbooks. Books should be dusted and cleaned regularly. Termite trails should be broken and sprayed as soon as possible. All wooden shelves and roof beams should receive anti-termite treatment.*
- *Schools' bookstores should be regularly fumigated to prevent termites and other vermin from destroying books.*
- *Parent-Teacher Associations (PTAs) and School Management Committees (SMCs) should ensure that classrooms and storerooms are maintained weather proof and secure.*
- *Schools' bookstores must be kept secure at all times, with locks and padlocks on doors. Windows and doors should have burglar bars. All windows and doors should be securely locked when no member of staff is present.*
- *Schools' bookstores should be equipped with strong shelving sufficient for the quantity of books required by schools.*
- *Books and book boxes should not be placed directly on the floor of the store. Ideally they should be placed on wooden pallets two inches above floor level to prevent damage from dampness and water. Cardboard spread on the floor under the books or cartons provides some protection from dampness until books can be unpacked onto shelves. Loose books should never be left on the floor of the store. They should be placed always on bookshelves or pallets.*

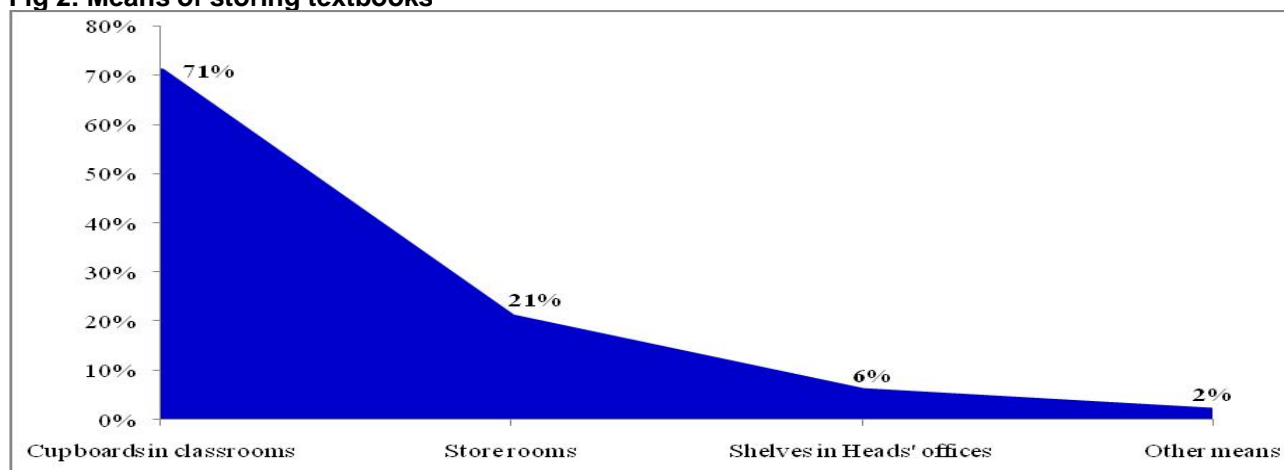
acknowledged by the TDDP as one key practice to enhance the life span of government supplied core textbooks and, by implication, improve pupils' access to textbooks. Annexes 14 and 17 of the Operational Annexes of the MoE Textbook Development and Distribution Policy (2002) detail the modalities and practices that need to be considered by schools and District Education Directorates in the management, care and storage of textbooks (see adjacent text box for the general principles for textbooks management at DED and school levels).

Serious challenges with storage of textbooks exist in all the study schools.

Almost all of the schools lacked proper storage rooms (e.g. stores) contrary to the provisions of the Textbook Development and Distribution Policy (TDDP) of the MoE. As depicted in Figure 1, most of the schools, according to head-teachers and teachers mainly kept book stocks

in cupboards in various classrooms (71%) which often competed with other materials for space. Others also stored them in the school store rooms (21%), and on shelves in head-teachers' offices (6%). These findings were corroborated by the parents and executives of PTAs and SMCs interviewed. Even those which were kept in the offices of head-teachers or in cupboards in various classrooms did not follow the provisions of the textbooks management and storage policy which advocates for a well-secured store room for textbook storage. Indeed, some of the schools had developed other means (2% in Figure 2) that they found useful for storing textbooks and other Teaching and Learning Materials (TLMs) because of these difficulties. For instance in one school, textbooks and TLMs were stored in the residence of a member of the School Management Committee (SMC) since the offices of head-teachers and the various classrooms were not well secured. This of arrangement was not at all surprising as none of the facilities enumerated were found to be secure as demanded by the TDDP. In fact, while the stores in the schools lacked well secured burglar bars, the cupboards and head-teachers' offices which had shelves for storing books also lacked adequate protection from the vagaries of the weather (e.g. leaking roofs). Again, stakeholders further enumerated a host of other closely linked problems in the management of textbooks in schools.

Fig 2: Means of storing textbooks



Among these were the following: (a) the lack of appropriate storage facilities (preferably well-secured spacious store rooms) to probably curb the use of shelves and cupboards; (b) destruction of books by rain water (probably those kept on shelves) as a result of leakages in roofs; (c) destruction of books by rodents; and (d) loss of textbooks and supplementary materials through theft by pupils and persons in the communities probably because classrooms and head-teachers' offices are poorly secured. In addition, some teachers also alluded to challenges emanating from the use of classrooms for religious and social functions which results in constant movement of cupboards from one position to another. This state of affairs reinforces Read's observation during the rainy season in 1984, that as a result of the absence of proper storage facilities, new books delivered to a regional store of the Ministry of Education in Ghana got soaked and destroyed (Read 1992, 314).

Public Expenditure Tracking Survey in Education

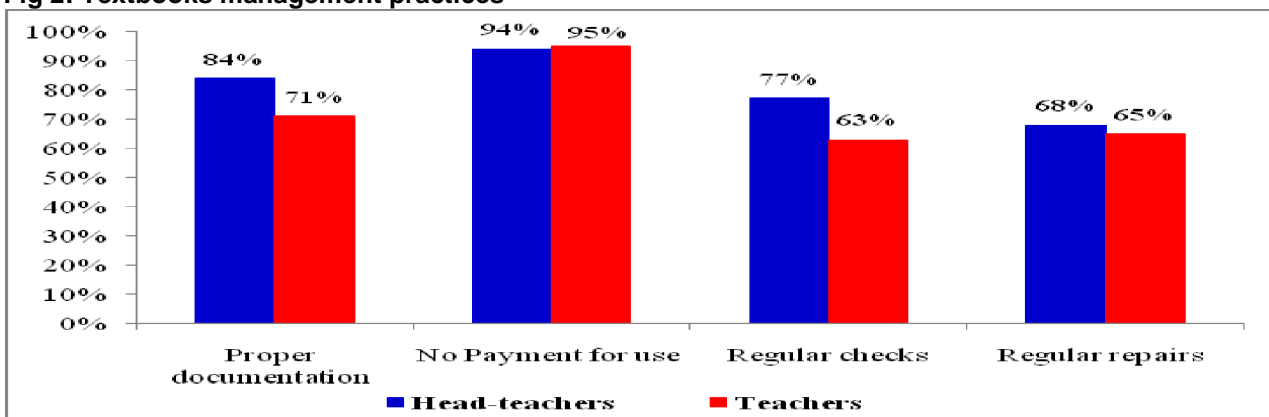
SMC and PTA executives identified head-teachers as key officials to assume oversight responsibility for maintenance and storage of textbooks. However head-teachers and teachers appear to be interested in sharing this oversight responsibility.

Again, schools appeared to have clear policies for management of textbooks, including regular repairs to ensure good conditioned textbooks. However, most of the schools do not have earmarked funds for maintaining or replacing worn-out textbooks. They mainly fall on the already meagre Capitation Grant with at times little supplement from the PTAs.

Management and maintenance of textbooks in schools: Head-teachers stood out as key persons expected to have oversight responsibility for textbook storage and maintenance. While SMC/PTA executives (58%) believed head-teachers should be solely responsible, the number of head-teachers and teachers who supported this opinion was 15 percentage points lower (i.e. 43%). In fact, just a quarter of head-teachers and teachers (i.e. 25%) thought that responsibility should be borne solely by head-teachers. Another 25% of head-teachers and teachers also thought both should share that responsibility.

According to school authorities, there were clear practices for managing core textbooks received from the DEDs. Majorities of head-teachers (84%) and teachers (71%) concurred that schools had proper documentation for textbooks issued out to pupils. Again, absolute majorities (head-teachers, 95% and teachers, 94%) claimed pupils did not pay for these allocations as required by the TDDP. Moreover, 77% of head-teachers and 63% of teachers were also unanimous in their claim that they undertook regular checks aimed at curtailing theft and loss of core textbooks. Besides, they (head-teachers, 68% and teachers, 65%) indicated that they had instituted regular refurbishment in schools to keep textbooks in good condition (Figure 2).

Fig 2: Textbooks management practices



Quite surprisingly, the study observed that maintenance and replacement of textbooks was a challenge in most of the schools. To a large extent, the study schools did not have any earmarked funds for maintaining worn-out textbooks. This opinion was expressed by 81% of SMC executives, 76% of teachers, 73% of PTA executives and 65% of head-teachers. However, the few (head-teachers, 35%; teachers, 23%; PTA executives, 20%; and SMC executives, 19%) that surprisingly claimed such funds exist in their schools reference point was the Capitation Grant and some supplementary support funds from the PTAs.

Sanctioning loss or damage to textbooks: It appears school managers are much more likely to apply sanctions for loss of or damage to textbooks when the culprit is a pupil. Whilst most of the head-teachers (68%) and teachers (57%) indicated that there were sanctions for pupils who misplaced or damaged core textbooks, similar majorities (head-teachers, 71%; and teachers, 63%) no said sanction existed for teachers who damaged books. In fact, only 29% and 31% of head-teachers and teachers respectively agreed that there were sanctions for teachers as well.

In general, these sanctions, which involved physical replacement or paying for the current market price or three times the cost of the misplaced or damaged textbook were known to the SMCs and their parents (in the case of pupils) and to SMCs and teachers (in the case of teachers). Although this penalty was in contrast to the dictates of the TDDP, head-teachers and teachers believed that such a tough sanction would help curb the problem of theft and misuse of the textbooks and consequently prolong their life to improve access.

Surprisingly, these sanctions did not seem to have the support of parents and teachers who were likely to bear the impact. Over six in every ten head-teachers and teachers (i.e. 67% and 65% respectively) said parents were unwilling to bear the responsibility of paying for damaged or lost textbook. About equal percentages (i.e. 61% head-teachers and 65% teachers) also said teachers were also not willing to accept such responsibilities.

Monitoring distribution, storage and use of textbooks in schools: Regular monitoring visits by MoE/GES' officials at national and district levels to schools was one sure way of ensuring compliance with policy guidelines in the various schools. *Sadly, the study found that these officials rarely paid monitoring visits to the schools.* As depicted in Table 1, according to 72% of head-teachers and teachers, GES never or rarely visited schools to monitor the distribution, storage and usage of textbooks in schools. Another 60% did not see the officials of the DED also performing this function. Moreover, 77% claimed the DED officials also did not visit schools to monitor the involvement of SMCs and PTAs in the management and usage of textbooks. Though SMC and PTA executives expressed similar sentiments, the figures were relatively lower than those of head-teachers and teachers (i.e. 39% for GES officials; 32% for DED officials; and 61% for DEDs to check involvement of SMC/PTAs).

Table 1: Monitoring visits by GES and DED officials to schools

	GES monitoring distribution, storage & usage	DEDs monitoring distribution, storage & usage	DED monitoring involvement of PTAs & SMCs
Part A: Head-teachers & teachers			
Never, once and twice	72%	60%	77%
Several times, many times and always	28%	31%	13%
Don't know	13%	9%	10%
Part B: SMC & PTA executives			
Never, once and twice	39%	31%	61%
Several times, many times and always	15%	39%	26%
Don't know	39%	24%	13%

Public Expenditure Tracking Survey in Education

Despite the discouraging rates of monitoring visits, DED officials indicated that there are elaborate plan for ensuring that head-teachers and teachers account for every copy of textbooks supplied to them. First, they insist on publisher providing written evidence signed by school heads as proof of distribution to various schools. Secondly, end of year audits are conducted by circuit supervisors assigned to the various schools. At the school level, head-teachers and teachers at times conduct end-of-term and/or impromptu checks on all the textbooks issued to pupils and punish those found to have mishandled, soiled or torn any part of textbooks allocated to them.

To the DEDs, these are enough measures to ensure that textbooks reached their final destination because of possible sanctions such as publishers risking not being paid outstanding bills and head-teachers being surcharge for any lost books in conformity with the operational annexes of the MOE/ GES Textbook Production and Distribution Policy.

Effectiveness of monitoring visits: Since between 13% to 39% of head-teachers and teachers as well as SMC/PTA executives concurred that the GES and DEDs pay monitoring visits several times, many times or always to schools, it was fair to ask school administrators and leadership of school level support structures what they think regarding the efficiency of monitoring agents in demanding accountability from heads of schools.

While the DEDs were generally perceived by head-teachers and teachers (62%) as well as SMC/PTA executives (58%) to be efficient in demanding accountability from head-teachers on how they store and use textbooks, there was some disagreement with respect to the effectiveness of SMCs and PTAs demand for accountability. Whereas 56% each of head-teachers and teachers said SMCs and PTAs were inefficient in demanding accountability, half of SMC and PTA executives (i.e. 50% and 52% respectively) expressed contrary opinion regarding the efficiency of SMCs and PTAs. In fact, the SMC and PTA executives claimed they demanded regular reports from head-teachers and paid monitoring visits to the schools as means of ensuring accountability on the part of head-teachers.

Conclusion

- ◆ The study revealed an issue of poor record keeping at both the district and school levels and hence hampering very detailed analysis on leakage of textbooks. This notwithstanding, the study revealed some amount of leakage in textbook supply and distribution which could become a serious impediment on the path to achieving MDG 2 and 3 in Ghana
- ◆ Management of the textbook distribution system is characterized by poor record keeping on supplies at the school and district levels
- ◆ Delays in distribution and supply of textbooks were still prevalent as some schools did not receive their full share of textbooks procured in 2005/06 and 2008/09 even at the tail end of the 2nd term of those academic years
- ◆ Again the records were in different formats and mostly not computerized. Such confusion created loopholes in the distribution channels. To the extent that even if there were no incentives to divert textbooks for resale, the efficiency of distributing the right numbers of textbooks from DEDs to schools was greatly quite questionable
- ◆ Additionally, late delivery of textbooks to both deprived (particularly) and endowed schools also posed a challenge to quality education delivery. It appeared that the bottlenecks for on-time delivery of textbooks were largely persistent and there appeared to be no punishment or sanctions for delays caused by publishers in delivery of books to district depots
- ◆ The difference between the official position and that of the teachers on textbook use, care and maintenance showed that teachers tended to interpret and implement the policy differently from the ways in which it was intended
- ◆ In terms of storage, the basic infrastructure in all the survey schools was in poor condition. The MOE-owned district stores that were available were in poor condition and were often not weatherproof or secure

Recommendations

To improve school governance and make the authorities more accountable to parents and children, we suggest the following:

Leakage and Record keeping

- ◆ Establishing adequate information and monitoring systems to track flows of textbooks from the printing house down to the schools and even the pupils

Research Paper No. 20

- ◆ Providing recent and accurate information about present and future enrollments by school, grade, and subject and about present textbook stocks to ensure efficient allocation
- ◆ Establishing Textbook management information systems in the MOEs for tracking needs, procurements, deliveries, and inventories. Installation of the management information systems is accompanied by training for MOE staff at all appropriate levels
- ◆ The need to institutionalize School Textbooks Selection Committees to increase school level actors involvement in the choice of books used in their schools
- ◆ The need to institute measures to improve record keeping regarding core textbooks procurement, supply, allocation, and distribution especially at the DED and school levels
- ◆ All store keepers and logistics officers should be tasked to furnish all district offices and schools with the total allocation and actual textbooks sent to each district and schools. All school heads should then be mandated to paste this information on the school notice boards for easy access to STCs and SMCs
- ◆ Provide regular training on textbooks management for districts and school levels officials and /or sanction school authorities who fail to keep proper records to ensure transparency and accountability in the management of educational resources
- ◆ Also, all classrooms should be equipped with well secured cupboards to provide spaces for storage of textbooks for in-school use of textbooks
- ◆ Sensitization of parents, particularly members of the SMCs and executive members of the PTAs on their rights and roles in school management so they can participate more actively in school governance
- ◆ Provide more training for SMC members in basic planning and financial management so they can track the application of school resources to reduce leakages and corruption
- ◆ SMC and PTA members or representatives should be encouraged to be present when books are unpacked and counted at the various schools
- ◆ Provide *channels for enquiries and complaints and publicize a system of penalties for non-compliance*, both for staff and other stakeholders such as school administrators, inspectors, parents, pupils, suppliers and contractors. Complaints should be dealt with promptly; disseminated and remedial action should be taken

Adequacy and Availability:

- ◆ The Education Ministry, through the GES should by the textbook policy ensure that schools at any point in time have adequate stocks of core-textbooks (and accompanying teacher's manuals) and supplementary materials
- ◆ The current policy of conducting audit of textbooks and other teaching and learning materials distributed to schools should be evaluated and reviewed where necessary to make it much

Public Expenditure Tracking Survey in Education

more regular and effective in demanding accountability from officials at the national, district and school levels who are key actors in the distribution chain

- ◆ Education sector stakeholder and publishers must take pragmatic steps to identify the actual culprits behind the sale of government procured “*Not for Sale*” textbooks in the open market and sanction them accordingly to serve as deterrent to others
- ◆ School authorities should be monitored to ensure that pupils get access to these books for in-school or out-of-school studies in accordance with what the GES’ textbook policy guideline stipulates

Storage and Conservation:

- ◆ Train teachers in the use and care of textbooks and instructional materials
- ◆ Each school has a secure room with shelves that is large enough to store the school’s supply of textbooks when they are not in use
- ◆ Classrooms have storage cupboards or containers for books in daily use, located suitably for protection from weather and other hazards
- ◆ Student desks have space for storing books and other learning materials
- ◆ Students are taught to protect the books with covers of durable paper or other materials
- ◆ Each book received is marked with the name of the school, date of receipt, and a unique serial number
- ◆ Classroom teachers record the name of the student receiving each textbook and ensure its return at the end of the day or term
- ◆ Teachers, students, and the local community are sensitized to the value of textbooks and the need for care in their use
- ◆ Teachers are given detailed manuals for the management of textbooks
- ◆ Students are responsible for any copies lost or damaged beyond use
- ◆ Adequate provision should be made for delivery by public means to remote schools that the private sector cannot reach economically
- ◆ When textbooks are sold through commercial channels, provision should be made to serve rural areas where no bookshops exist
- ◆ The MoE should ensure that adequate storage space for textbooks exist at all necessary administrative levels, down to the school. The improvement of existing facilities could be a subject for cooperation with other donors and CSOs
- ◆ The school bookstore should be equipped with strong shelving sufficient for the quantity of books required by schools

Research Paper No. 20

- ◆ The MoE should continue its efforts to instill good practices in book storage and maintenance. Stock keepers, teachers, and students must be provided with detailed instructions and trained in the care and management of books to preserve stock and ensure its efficient use
- ◆ Every school bookstore should contain a copy of the school bookstore regulations plus a copy of the MOE catalogue of selected and recommended books. The catalogue of selected and recommended books should be made available to all teachers as required
- ◆ The school bookstore must be kept secure at all times, with locks and padlocks on doors. Windows and doors should have burglar bars. All windows and doors should be securely locked when no member of staff is present
- ◆ PTAs and School Management Committees should ensure that classrooms and storerooms are maintained weatherproof and secure

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Public Expenditure Tracking Survey in Education

APPENDIX

Table 8^A: Mathematics textbook distribution (MoE to DEDs) in 2005/06 and 2008/09

Part A	Mathematics Textbooks Distributed by GES (2005/06)						Mathematics Textbooks Received by DED (2005/06)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	5829	6426	6094	5827	5416	4990	5829	6426	6094	5827	5316	4990
Ajumako-Enyan-Essiam	3031	3114	2917	2817	2955	2559	3031	3114	2917	2817	2855	2559
Asikuma-Odoben-Brakwa	4007	4053	3602	3502	3256	2721	4007	4053	3602	3502	3156	2721
Awutu-Efutu-Senya	4992	5000	5070	4970	5066	4810	4992	5000	5070	4970	4966	4810
Cape Coast	3529	3471	3597	3582	3747	3329	3529	3471	3597	3582	3747	3329
Twifo-Hemang-Lower Denkyira	3547	4297	4184	4141	4071	3347	3547	4297	4184	4141	4071	3347
Part B	Mathematics Textbooks Distributed by GES (2008/09)						Mathematics Textbooks Received by DED (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D
Ajumako-Enyan-Essiam	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D
Asikuma-Odoben-Brakwa	NP D	NP D	NP D	NP D	NP D	NP D	NP D	572	589	554	NP D	NP D
Awutu-Efutu-Senya	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D
Cape Coast	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D
Twifo-Hemang-Lower Denkyira	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D	NP D
Part C	Leakages in Mathematics Textbooks (2005/06)						Leakages in Mathematics Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	0	0	0	0	-100	0	NPD	NPD	NPD	NPD	NPD	NPD
Ajumako-Enyan-Essiam	0	0	0	0	-100	0	NPD	NPD	NPD	NPD	NPD	NPD
Asikuma-Odoben-Brakwa	0	0	0	0	-100	0	NPD	RDQ	RDQ	RDQ	NPD	NPD
Awutu-Efutu-Senya	0	0	0	0	-100	0	NPD	NPD	NPD	NPD	NPD	NPD
Cape Coast	0	0	0	0	0	0	NPD	NPD	NPD	NPD	NPD	NPD
Twifo-Hemang-Lower Denkyira	0	0	0	0	0	0	NPD	NPD	NPD	NPD	NPD	NPD

Note: NPD = No Procurement and Distribution and RDQ = Recorded Data Questionable because no procurement or distribution took place.

Research Paper No. 20

Table 8^B: English textbook distribution (MoE to DEDs) in 2005/06 and 2008/09

Part A	English Textbooks Distributed by GES (2005/06)						English Textbooks Received by DED (2005/06)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	3334	3213	3097	2930	2708	2295	NR	108	NR	2930	2708	2295
Ajumako-Enyan-Essiam	3231	3114	3017	2930	2955	2359	3231	3114	3017	2930	2955	2359
Asikuma-Odoben-Brakwa	4207	4053	3702	3304	3256	2521	2000	4053	3702	3304	3256	2521
Awutu-Efutu-Senya	5192	5000	5170	5124	5066	4610	5192	5000	5170	5124	5066	4610
Cape Coast	3602	3471	3597	3582	3747	3129	3602	3471	3597	3582	3747	3129
Twifo-Hemang-Lower Denkyira	4461	4297	4184	4141	4071	3147	NR	NR	4184	NR	NR	NR
Part B	English Textbooks Distributed by GES (2008/09)						English Textbooks Received by DED (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	5121	4748	4697	4222	3884	3776	3083	2828	2523	2490	1972	1776
Ajumako-Enyan-Essiam	3331	2796	2770	2744	2600	2601	NR	NR	NR	NR	NR	NR
Asikuma-Odoben-Brakwa	4537	4362	3956	3476	3265	2846	NR	NR	NR	NR	NR	NR
Awutu-Efutu-Senya	5752	5328	4954	4977	4689	4362	NR	NR	NR	NR	NR	NR
Cape Coast	3495	2923	2933	2932	2790	2767	3495	2792	2751	2526	2521	2490
Twifo-Hemang-Lower Denkyira	4466	3955	3828	3702	3466	3001	NR	NR	NR	NR	NR	NR
Part C	Science Textbooks Distributed by GES (2005/06)						Science Textbooks Received by DED (2005/06)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	NR	NR	NR	2930	2708	2695	NR	NR	NR	NR	NR	NR
Ajumako-Enyan-Essiam	NR	NR	NR	2930	2955	2759	NR	NR	NR	NR	NR	NR
Asikuma-Odoben-Brakwa	NR	NR	NR	3304	3256	2921	NR	NR	NR	3304	3256	2921
Awutu-Efutu-Senya	NR	NR	NR	5124	5066	5010	NR	NR	NR	5125	5066	5010
Cape Coast	NR	NR	NR	3582	3747	3529	NR	NR	NR	3582	3747	3529
Twifo-Hemang-Lower Denkyira	NR	NR	NR	4141	4071	3547	NR	NR	NR	4141	4071	3547
Part D	Science Textbooks Distributed by GES (2008/09)						Science Textbooks Received by DED (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	3233	3230	2970	2870	2380	2250	NR	NR	NR	NR	NR	NR
Ajumako-Enyan-Essiam	3481	2946	2870	2744	2600	2601	NR	NR	NR	NR	NR	NR
Asikuma-Odoben-Brakwa	4687	4512	4056	3476	3265	2846	NR	NR	NR	1079	1051	985
Awutu-Efutu-Senya	5902	5478	5054	4977	4689	4362	5902	5478	5054	4977	4689	4362
Cape Coast	3645	3073	3033	2932	2790	2767	NR	NR	NR	987	1018	NR
Twifo-Hemang-Lower Denkyira	4616	4105	3928	3702	3466	3001	NR	NR	NR	NR	NR	NR

Note: NR = No Record of distribution or receipt.

Table 8^C: Leakages in English textbook distribution (MoE to DEDs) in 2005/06 and 2008/09

	Leakages in English Textbooks (2005/06)						Leakages in English Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	LEI	-3105	LEI	0	0	0	-2038	-1920	-2174	-1732	-1912	-2000
Ajumako-Enyan-Essiam	0	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Asikuma-Odoben-Brakwa	-2207	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Awutu-Efutu-Senya	0	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Cape Coast	0	0	0	0	0	0	0	-131	-182	-406	-269	-277
Twifo-Hemang-Lower Denkyira	LEI	LEI	0	LEI	LEI	0	LEI	LEI	LEI	LEI	LEI	LEI
	Leakages in Science Textbooks (2005/06)						Leakages in Science Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Asebu-Kwamankese	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ajumako-Enyan-Essiam	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Asikuma-Odoben-Brakwa	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	-2397	-2214	-1861
Awutu-Efutu-Senya	LEI	LEI	LEI	1	0	0	0	0	0	0	0	0
Cape Coast	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	-1945	-1772	LEI
Twifo-Hemang-Lower Denkyira	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI

Note: LEI = Leakage or Excess Indeterminate because either supply or receipt data or both are not available.

Public Expenditure Tracking Survey in Education

Table 9^A: Mathematics textbook distribution (DEDs to schools) in 2005/06

	Mathematics Textbooks Distributed by DEDs (2005/06)						Mathematics Textbooks Received by Schools (2005/06)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	NR	NR	NR	NR	NR	NR	65	40	64	46	40	29
New Odonase Catholic Primary/Community K.G.	NR	NR	NR	NR	NR	NR	50	35	32	60	50	60
Brafoyaw A. M.E. Zion Basic School	NR	NR	NR	NR	NR	NR	40	NR	50	47	44	42
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	60	64	70	60	60	57	60	64	70	60	60	57
Ajumako-Techiman Catholic K.G./Primary/J.S.S	48	38	45	44	38	30	5	NR	NR	NR	43	35
Breman Fawomanye D/A K.G./Primary	38	38	30	26	30	10	38	38	30	26	30	10
Esiam T.I. Ahmadiyya K.G. Primary/JSS	40	36	36	33	33	32	40	36	36	33	33	32
Odoben A.M.E Zion K.G. Basic	NR	NR	NR	NR	NR	NR	54	55	56	43	35	24
Eyipey Catholic Primary/K.G.	NR	NR	NR	NR	NR	NR	50	49	49	45	41	29
Kuntanase Meth. K.G. Primary School	NR	NR	NR	NR	NR	NR	54	50	47	41	21	23
Ahentia D/A A & B Schools	50	36	42	58	68	47	NR	NR	NR	NR	NR	NR
Akrampa St. Stephen's Anglican K.G. & Prim.	14	10	23	13	12	15	14	10	23	13	12	15
Awutu DC KG/Primary/ Junior High School	27	19	28	32	31	45	27	19	28	32	31	45
Awutu St. Peter & Paul Anglican Primary/K.G.	15	11	11	32	25	33	NR	NR	NR	NR	NR	NR
Odupongkpehe D/A K.G. & Prim. B/D/E	50	36	40	80	71	91	NR	NR	NR	NR	NR	NR
Papaase St. Peters Catholic Primary	60	42	38	52	52	38	NR	NR	NR	NR	NR	NR
Ofaakor Primary/Junior High School	45	32	31	38	47	51	NR	NR	NR	NR	NR	NR
Akweley St Mary's	84	60	96	91	99	105	NR	NR	NR	NR	NR	NR
Ayiresu D/A K.G. & Primary	28	20	21	19	21	30	NR	NR	NR	NR	NR	NR
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	28	20	19	12	28	15	NR	NR	NR	NR	NR	NR
Winneba A.M.E. Zion Primary 'C'	41	29	35	34	40	32	NR	NR	NR	NR	NR	NR
Aboom A.M.E. Zion Basic School	41	39	46	NR	NR	NR	41	24	21	34	21	26
Falahiya Islamic Basic School	16	17	18	26	28	26	NR	NR	NR	NR	NR	NR
Abura English/Arabic Basic Sch.	35	43	45	NR	NR	37	NR	43	45	42	40	37
Ayifua St. Mary's Anglican Basic Schools	64	57	51	NR	NR	50	64	57	51	60	57	50
Abakam Cran Presby Basic Schools	21	23	24	25	25	24	21	23	24	25	25	24
Tsimtsimhwe D/A Basic School	NR	NR	NR	NR	NR	NR	NR	17	13	13	NR	10
Asensuhu - Agave D/A Basic School	NR	NR	NR	NR	NR	NR	22	NR	31	36	29	32
Abeka Nkwanta Basic School	NR	NR	NR	NR	NR	NR	12	18	42	34	25	7
Mampong Catholic Primary A & B	NR	NR	NR	NR	NR	NR	32	76	46	40	45	35

Note: NR = No Record of distribution or receipt.

Table 9^B: Mathematics textbook distribution (DEDs to schools) in 2008/09

	Mathematics Textbooks Distributed by DEDs (2008/09)						Mathematics Textbooks Received by Schools (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
New Odonase Catholic Primary/Community K.G.	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Brafoyaw A. M.E. Zion Basic School	NPD	NPD	NPD	NPD	NPD	NPD	30	20	58	20	20	20
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Ajumako-Techiman Catholic K.G./Primary/J.S.S	NPD	NPD	NPD	NPD	NPD	NPD	41	47	34	34	42	32
Breman Fawomanye D/A K.G./Primary	NPD	NPD	NPD	NPD	NPD	NPD	NPD	5	5	5	NPD	NPD
Esiam T.I. Ahmadiyya K.G. Primary/JSS	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Odoben A.M.E Zion K.G. Basic	NPD	NPD	NPD	NPD	NPD	NPD	5	5	NPD	5	NPD	NPD
Eyipey Catholic Primary/K.G.	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Kuntanase Meth. K.G. Primary School	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Ahentia D/A A & B Schools	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Akrampa St. Stephen's Anglican K.G. & Prim.	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Awutu DC KG/Primary/ Junior High School	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Awutu St. Peter & Paul Anglican Primary/K.G.	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Odupongkpehe D/A K.G. & Prim. B/D/E	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Papaase St. Peters Catholic Primary	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Ofaakor Primary/Junior High School	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Akweley St Mary's	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Ayiresu D/A K.G. & Primary	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Winneba A.M.E. Zion Primary 'C'	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Aboom A.M.E. Zion Basic School	NPD	NPD	NPD	NPD	NPD	NPD	20	20	10	10	10	10
Falahiya Islamic Basic School	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Abura English/Arabic Basic Sch.	NPD	NPD	NPD	NPD	NPD	NPD	20	20	10	10	10	10
Ayifua St. Mary's Anglican Basic Schools	NPD	NPD	NPD	NPD	NPD	NPD	20	20	10	10	10	10
Abakam Cran Presby Basic Schools	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
Tsimtsimhwe D/A Basic School	NPD	NPD	NPD	NPD	NPD	NPD	10	NPD	NPD	NPD	NPD	NPD
Asensuhu - Agave D/A Basic School	NPD	NPD	NPD	NPD	NPD	NPD	10	NPD	NPD	NPD	NPD	NPD
Abeka Nkwanta Basic School	NPD	NPD	NPD	NPD	NPD	NPD	NPD	17	13	13	10	NPD
Mampong Catholic Primary A & B	NPD	NPD	NPD	NPD	NPD	NPD	20	34	26	26	20	20

Note: NPD = No Procurement and Distribution.

Public Expenditure Tracking Survey in Education

Table 9^C: English textbook distribution (DEDs to schools) in 2005/06

	English Textbooks Distributed by DEDs (2005/06)						English Textbooks Received by Schools (2005/06)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	NR	NR	NR	NR	NR	NR	43	40	32	25	20	15
New Odonase Catholic Primary/Community K.G.	NR	NR	NR	NR	NR	NR	43	24	28	30	28	30
Brafoyaw A. M.E. Zion Basic School	NR	NR	NR	NR	NR	NR	44	56	50	NR	46	42
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	64	65	65	55	60	50	64	65	65	55	60	50
Ajumako-Techiman Catholic K.G./Primary/J.S.S	50	38	43	36	38	25	50	38	43	36	38	25
Breman Fawomanye D/A K.G./Primary	21	35	20	20	20	29	21	35	20	20	20	20
Esiam T.I. Ahmadiyya K.G. Primary/JSS	40	40	40	30	30	20	5	NR	NR	30	30	29
Odoben A.M.E Zion K.G. Basic	NR	NR	NR	NR	NR	NR	57	55	57	41	35	22
Eyipey Catholic Primary/K.G.	NR	NR	NR	NR	NR	NR	52	49	50	43	41	27
Kuntanase Meth. K.G. Primary School	NR	NR	NR	NR	NR	NR	57	50	48	39	21	21
Ahentia D/A A & B Schools	50	36	42	58	68	47	NR	NR	NR	58	NR	NR
Akrampa St. Stephen's Anglican K.G. & Prim.	14	10	23	13	12	15	14	10	23	15	12	15
Awutu DC KG/Primary/ Junior High School	27	19	28	32	31	45	27	19	30	NR	NR	NR
Awutu St. Peter & Paul Anglican Primary/K.G.	15	11	11	32	25	33	NR	NR	NR	NR	NR	NR
Odupongkpehe D/A K.G. & Prim. B/D/E	50	36	40	80	71	91	NR	NR	NR	NR	NR	NR
Papaase St. Peters Catholic Primary	60	42	38	52	52	38	NR	NR	NR	NR	NR	NR
Ofaakor Primary/Junior High School	45	32	31	38	47	51	NR	NR	NR	NR	NR	NR
Akweley St Mary's	84	60	96	91	99	105	NR	NR	NR	NR	NR	NR
Ayiresu D/A K.G. & Primary	28	20	21	19	21	30	NR	NR	NR	NR	NR	NR
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	28	20	19	12	28	15	NR	NR	NR	NR	NR	NR
Winneba A.M.E. Zion Primary 'C'	91	29	35	34	40	32	NR	NR	NR	NR	NR	NR
Aboom A.M.E. Zion Basic School	41	30	46	NR	37	32	41	34	21	34	30	26
Falahiya Islamic Basic School	16	11	18	26	15	27	NR	NR	NR	NR	NR	NR
Abura English/Arabic Basic Sch.	35	43	45	42	40	37	35	25	45	42	40	37
Ayifua St. Mary's Anglican Basic Schools	64	49	51	64	55	45	64	49	51	60	55	45
Abakam Cran Presby Basic Schools	21	16	24	NR	24	23	21	16	24	25	24	23
Tsimtsimhwe D/A Basic School	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Asensuhu - Agave D/A Basic School	NR	NR	NR	NR	NR	NR	NR	NR	31	NR	NR	NR
Abeka Nkwanta Basic School	NR	NR	NR	NR	NR	NR	25	NR	56	34	25	19
Mampong Catholic Primary A & B	NR	NR	NR	NR	NR	NR	78	70	40	83	89	88

Note: NR = No Record of distribution or receipt.

Table 9^D: English textbook distribution (DEDs to schools) in 2008/09

	English Textbooks Distributed by DEDs (2008/09)						English Textbooks Received by Schools (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	NR	NR	NR	NR	NR	NR	36	36	25	23	20	15
New Odonase Catholic Primary/Community K.G.	NR	NR	NR	NR	NR	NR	53	45	43	30	30	35
Brafoyaw A. M.E. Zion Basic School	NR	NR	NR	NR	NR	NR	89	73	70	64	80	43
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	NR	NR	NR	NR	NR	NR	79	67	66	60	65	65
Ajumako-Techiman Catholic K.G./Primary/J.S.S	NR	NR	NR	NR	NR	NR	44	40	35	32	35	35
Breman Fawomanye D/A K.G./Primary	NR	NR	NR	NR	NR	NR	26	35	35	35	25	25
Esiam T.I. Ahmadiyya K.G. Primary/JSS	NR	NR	NR	NR	NR	NR	44	30	30	30	25	25
Odoben A.M.E Zion K.G. Basic	NR	NR	NR	NR	NR	NR	53	43	59	41	33	18
Eyipey Catholic Primary/K.G.	NR	NR	NR	NR	NR	NR	50	60	62	51	47	26
Kuntanase Meth. K.G. Primary School	NR	NR	NR	NR	NR	NR	71	64	48	46	26	30
Ahentia D/A A & B Schools	48	62	65	49	49	52	NR	NR	NR	NR	NR	NR
Akrampa St. Stephen's Anglican K.G. & Prim.	18	18	25	22	13	14	NR	NR	NR	NR	NR	NR
Awutu DC KG/Primary/ Junior High School	35	43	46	39	44	16	35	43	46	39	44	14
Awutu St. Peter & Paul Anglican Primary/K.G.	20	20	22	25	33	32	NR	NR	NR	NR	NR	NR
Odupongkpehe D/A K.G. & Prim. B/D/E	90	100	100	90	100	100	NR	NR	NR	NR	NR	NR
Papaase St. Peters Catholic Primary*	45	74	70	60	70	70	45	74	70	60	70	70
Ofaakor Primary/Junior High School	60	60	72	70	70	90	NR	NR	NR	NR	NR	NR
Akweley St Mary's	110	130	150	180	200	200	NR	NR	NR	NR	NR	NR
Ayiresu D/A K.G. & Primary	27	27	35	30	30	17	NR	NR	NR	NR	NR	NR
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	21	32	24	26	23	16	NR	NR	NR	NR	NR	NR
Winneba A.M.E. Zion Primary 'C'	46	55	32	46	35	34	NR	NR	NR	NR	NR	NR
Aboom A.M.E. Zion Basic School	29	24	27	33	25	33	NR	NR	NR	NR	NR	NR
Falahiya Islamic Basic School	14	14	19	22	27	29	NR	NR	NR	NR	NR	NR
Abura English/Arabic Basic Sch.	32	27	30	34	37	38	NR	NR	NR	NR	NR	NR
Ayifua St. Mary's Anglican Basic Schools	53	61	63	56	47	56	53	61	63	56	47	56
Abakam Cran Presby Basic Schools	22	19	21	21	18	23	NR	NR	NR	NR	NR	NR
Tsimtsimhwe D/A Basic School	NR	NR	NR	NR	NR	NR	48	29	17	35	27	17
Asensuhu - Agave D/A Basic School	NR	NR	NR	NR	NR	NR	52	30	37	38	22	19
Abeka Nkwanta Basic School	NR	NR	NR	NR	NR	NR	27	22	24	32	23	20
Mampong Catholic Primary A & B	NR	NR	NR	NR	NR	NR	82	63	68	61	71	68

Note: NR = No Record of distribution or receipt.

Public Expenditure Tracking Survey in Education

Table 9^F: Science textbook distribution (DEDs to schools) in 2005/06

	Science Textbooks Distributed by DEDs (2005/06)						Science Textbooks Received by Schools (2005/06)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	NR	NR	NR	NR	NR	NR	NR	NR	38	NR	NR	NR
New Odonase Catholic Primary/Community K.G.	NR	NR	NR	NR	NR	NR	NR	NR	14	14	14	NR
Brafoyaw A. M.E. Zion Basic School	NR	NR	NR	NR	NR	NR	45	60	51	96	90	84
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	NR	NR	NR	NR	NR	NR	NR	NR	NR	61	NR	NR
Ajumako-Techiman Catholic K.G./Primary/J.S.S	NR	NR	NR	NR	NR	NR	NR	NR	NR	40	38	30
Breman Fawomanye D/A K.G./Primary	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	25	25
Esiam T.I. Ahmadiyya K.G. Primary/JSS	NR	NR	NR	NR	NR	NR	NR	NR	NR	36	33	32
Odoben A.M.E Zion K.G. Basic	NR	NR	NR	NR	NR	NR	NR	NR	NR	41	35	26
Eyipey Catholic Primary/K.G.	NR	NR	NR	NR	NR	NR	NR	NR	NR	43	41	31
Kuntanase Meth. K.G. Primary School	NR	NR	NR	NR	NR	NR	NR	NR	NR	39	21	24
Ahentia D/A A & B Schools	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Akrampa St. Stephen's Anglican K.G. & Prim.	NR	NR	NR	NR	NR	NR	NR	NR	NR	13	12	15
Awutu DC KG/Primary/ Junior High School	NR	NR	NR	32	31	45	NR	NR	NR	32	31	45
Awutu St. Peter & Paul Anglican Primary/K.G.	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Odupongkpehe D/A K.G. & Prim. B/D/E	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Papaase St. Peters Catholic Primary	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ofaakor Primary/Junior High School	NR	NR	NR	25	17	20	NR	NR	NR	NR	NR	NR
Akweley St Mary's	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ayiresu D/A K.G. & Primary	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	NR	NR	NR	12	28	15	NR	NR	NR	NR	NR	NR
Winneba A.M.E. Zion Primary 'C'	NR	NR	NR	34	40	32	NR	NR	NR	NR	NR	NR
Aboom A.M.E. Zion Basic School	NR	NR	NR	30	37	32	NR	NR	NR	34	30	26
Falahiya Islamic Basic School	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Abura English/Arabic Basic Sch.	NR	NR	NR	42	40	37	NR	NR	NR	42	40	37
Ayifua St. Mary's Anglican Basic Schools	NR	NR	NR	60	51	50	NR	NR	NR	60	57	50
Abakam Cran Presby Basic Schools	NR	NR	NR	NR	NR	NR	NR	NR	NR	25	25	24
Tsimtsimhwe D/A Basic School	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Asensuhu - Agave D/A Basic School	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Abeka Nkwanta Basic School	NR	NR	NR	NR	NR	NR	NR	NR	NR	34	25	19
Mampong Catholic Primary A & B	NR	NR	NR	NR	NR	NR	NR	NR	NR	40	45	35

Note: NR = No Record of distribution or receipt.

Table 9^F: Science textbook distribution (DEDs to schools) in 2008/09

	Science Textbooks Distributed by DEDs (2008/09)						Science Textbooks Received by Schools (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	NR	NR	NR	NR	NR	NR	23	23	20	NR	NR	NR
New Odonase Catholic Primary/Community K.G.	NR	NR	NR	NR	NR	NR	39	33	44	NR	NR	NR
Brafoyaw A. M.E. Zion Basic School	NR	NR	NR	NR	NR	NR	64	66	63	64	51	53
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	NR	NR	NR	NR	NR	NR	79	76	76	70	75	74
Ajumako-Techiman Catholic K.G./Primary/J.S.S	NR	NR	NR	NR	NR	NR	44	36	36	30	42	32
Breman Fawomanye D/A K.G./Primary	NR	NR	NR	NR	NR	NR	26	30	30	18	25	22
Esiam T.I. Ahmadiyya K.G. Primary/JSS	NR	NR	NR	NR	NR	NR	44	37	30	9	9	9
Odoben A.M.E Zion K.G. Basic	NR	NR	NR	NR	NR	NR	59	47	63	66	57	45
Eyipey Catholic Primary/K.G.	NR	NR	NR	NR	NR	NR	56	64	66	56	51	35
Kuntanase Meth. K.G. Primary School	NR	NR	NR	NR	NR	NR	77	68	52	51	30	40
Ahentia D/A A & B Schools	NR	NR	NR	49	49	52	48	62	65	49	49	52
Akrampa St. Stephen's Anglican K.G. & Prim	NR	NR	NR	22	13	14	18	18	25	22	13	14
Awutu DC KG/Primary/ Junior High School	NR	NR	NR	NR	NR	NR	35	43	46	39	44	16
Awutu St. Peter & Paul Anglican Primary/K.G.	NR	NR	NR	25	33	32	NR	NR	NR	NR	NR	NR
Odupongkpehe D/A K.G. & Prim. B/D/E	NR	NR	NR	125	145	131	NR	NR	NR	NR	NR	NR
Papaase St. Peters Catholic Primary	NR	NR	NR	79	97	83	45	74	86	79	97	83
Ofaakor Primary/Junior High School	NR	NR	NR	96	93	112	NR	NR	NR	NR	NR	NR
Akweley St Mary's	NR	NR	NR	192	249	224	NR	NR	NR	NR	NR	NR
Ayiresu D/A K.G. & Primary	NR	NR	NR	32	35	17	NR	NR	NR	NR	NR	NR
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	NR	NR	NR	26	23	16	21	32	24	26	23	16
Winneba A.M.E. Zion Primary 'C'	NR	NR	NR	45	35	34	46	55	32	46	35	34
Aboom A.M.E. Zion Basic School	NR	NR	NR	NR	24	NR	42	42	40	41	39	37
Falahiya Islamic Basic School	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Abura English/Arabic Basic Sch.	NR	NR	NR	NR	28	NR	NR	NR	NR	35	46	59
Ayifua St. Mary's Anglican Basic Schools	NR	NR	NR	NR	35	NR	53	64	68	66	56	77
Abakam Cran Presby Basic Schools	NR	NR	NR	NR	24	NR	NR	NR	NR	NR	NR	NR
Tsimtsimhwe D/A Basic School	NR	NR	NR	NR	NR	NR	24	16	13	45	48	47
Asensuhu - Agave D/A Basic School	NR	NR	NR	NR	NR	NR	30	19	35	35	41	33
Abeka Nkwanta Basic School	NR	NR	NR	NR	NR	NR	37	32	24	40	46	32
Mampong Catholic Primary A & B	NR	NR	NR	NR	NR	NR	88	80	76	77	102	85

Note: NR = No Record of distribution or receipt.

Public Expenditure Tracking Survey in Education

Table 9^c: Leakages in Mathematics textbook distribution (DEDs to schools) in 2005/06 and 2008/09

	Leakages in Mathematics Textbooks (2005/06)						Leakages in Mathematics Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
New Odonase Catholic Primary/Community K.G.	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Brafoyaw A. M.E. Zion Basic School	LEI	LEI	LEI	LEI	LEI	LEI	RDQ	RDQ	RDQ	RDQ	RDQ	RDQ
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	0	0	0	0	0	0	NPD	NPD	NPD	NPD	NPD	NPD
Ajumako-Techiman Catholic K.G./Primary/J.S.S	-43	LEI	LEI	LEI	5	5	RDQ	RDQ	RDQ	RDQ	RDQ	RDQ
Breman Fawomanye D/A K.G./Primary	0	0	0	0	0	0	NPD	RDQ	RDQ	RDQ	NPD	NPD
Esiam T.I. Ahmadiyya K.G. Primary/JSS	0	0	0	0	0	0	NPD	NPD	NPD	NPD	NPD	NPD
Odoben A.M.E Zion K.G. Basic	LEI	LEI	LEI	LEI	LEI	LEI	RDQ	RDQ	NPD	RDQ	NPD	NPD
Eyipey Catholic Primary/K.G.	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Kuntanase Meth. K.G. Primary School	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Ahentia D/A A & B Schools	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Akrampa St. Stephen's Anglican K.G. & Prim.	0	0	0	0	0	0	NPD	NPD	NPD	NPD	NPD	NPD
Awutu DC KG/Primary/ Junior High School	0	0	0	0	0	0	NPD	NPD	NPD	NPD	NPD	NPD
Awutu St. Peter & Paul Anglican Primary/K.G.	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Odupongkpehe D/A K.G. & Prim. B/D/E	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Papaase St. Peters Catholic Primary	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Ofaakor Primary/Junior High School	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Akweley St Mary's	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Ayiresu D/A K.G. & Primary	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Winneba A.M.E. Zion Primary 'C'	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Aboom A.M.E. Zion Basic School	0	-15	-25	LEI	LEI	LEI	RDQ	RDQ	RDQ	RDQ	RDQ	RDQ
Falahiya Islamic Basic School	LEI	LEI	LEI	LEI	LEI	LEI	NPD	NPD	NPD	NPD	NPD	NPD
Abura English/Arabic Basic Sch.	LEI	0	0	LEI	LEI	0	RDQ	RDQ	RDQ	RDQ	RDQ	RDQ
Ayifua St. Mary's Anglican Basic Schools	0	0	0	LEI	LEI	0	RDQ	RDQ	RDQ	RDQ	RDQ	RDQ
Abakam Cran Presby Basic Schools	0	0	0	0	0	0	NPD	NPD	NPD	NPD	NPD	NPD
Tsimtsimhwe D/A Basic School	LEI	LEI	LEI	LEI	LEI	LEI	RDQ	NPD	NPD	NPD	NPD	NPD
Asensuhu - Agave D/A Basic School	LEI	LEI	LEI	LEI	LEI	LEI	RDQ	NPD	NPD	NPD	NPD	NPD
Abeka Nkwanta Basic School	LEI	LEI	LEI	LEI	LEI	LEI	NPD	RDQ	RDQ	RDQ	RDQ	NPD
Mampong Catholic Primary A & B	LEI	LEI	LEI	LEI	LEI	LEI	RDQ	RDQ	RDQ	RDQ	RDQ	RDQ

Note: NPD = No Procurement and Distribution; LEI = Leakage or Excess indeterminate because either supply or receipt data or both are not available; and RDQ = Recorded Data Questionable because no procurement or distribution took place.

Table 9^H: Leakages in English textbook distribution (DEDs to schools) in 2005/06 and 2008/09

	Leakages in English Textbooks (2005/06)						Leakages in English Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
New Odonase Catholic Primary/Community K.G.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Brafoyaw A. M.E. Zion Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	0	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Ajumako-Techiman Catholic K.G./Primary/J.S.S	0	0	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Breman Fawomanye D/A K.G./Primary	0	0	0	0	0	-9	LEI	LEI	LEI	LEI	LEI	LEI
Esiam T.I. Ahmadiyya K.G. Primary/JSS	-35	LEI	LEI	0	0	9	LEI	LEI	LEI	LEI	LEI	LEI
Odoben A.M.E Zion K.G. Basic	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Eyipey Catholic Primary/K.G.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Kuntanase Meth. K.G. Primary School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ahentia D/A A & B Schools	LEI	LEI	LEI	0	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Akrampa St. Stephen's Anglican K.G. & Prim.	0	0	0	2	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Awutu DC KG/Primary/ Junior High School	0	0	2	LEI	LEI	LEI	0	0	0	0	0	-2
Awutu St. Peter & Paul Anglican Primary/K.G.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Odupongkpehe D/A K.G. & Prim. B/D/E	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Papaase St. Peters Catholic Primary	LEI	LEI	LEI	LEI	LEI	LEI	0	0	0	0	0	0
Ofaakor Primary/Junior High School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Akweley St Mary's	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ayiresu D/A K.G. & Primary	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Winneba A.M.E. Zion Primary 'C'	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Aboom A.M.E. Zion Basic School	0	4	-25	LEI	-7	-6	LEI	LEI	LEI	LEI	LEI	LEI
Falahiya Islamic Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Abura English/Arabic Basic Sch.	0	-18	0	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Ayifua St. Mary's Anglican Basic Schools	0	0	0	-4	0	0	0	0	0	0	0	0
Abakam Cran Presby Basic Schools	0	0	0	LEI	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Tsimtsimhwe D/A Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Asensuhu - Agave D/A Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Abeka Nkwanta Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Mampong Catholic Primary A & B	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI

Note: LEI = Leakage or Excess indeterminate because either supply or receipt data or both are not available.

Public Expenditure Tracking Survey in Education

Table 9¹: Leakages in Science textbook distribution (DEDs to schools) in 2005/06 and 2008/09

	Leakages in Science Textbooks (2005/06)						Leakages in Science Textbooks (2008/09)					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Abura-Dunkwa Islamic K.G./Primary Sch.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
New Odonase Catholic Primary/Community K.G.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Brafoyaw A. M.E. Zion Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ajumako Gesdi D.A. K.G. Primary/J.S.S.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ajumako-Techiman Catholic K.G./Primary/J.S.S	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Breman Fawomanye D/A K.G./Primary	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Esiam T.I. Ahmadiyya K.G. Primary/JSS	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Odoben A.M.E Zion K.G. Basic	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Eyipey Catholic Primary/K.G.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Kuntanase Meth. K.G. Primary School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ahentia D/A A & B Schools	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	0	0	0
Akrampa St. Stephen's Anglican K.G. & Prim.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	0	0	0
Awutu DC KG/Primary/ Junior High School	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	LEI	LEI	LEI
Awutu St. Peter & Paul Anglican Primary/K.G.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Odupongkpehe D/A K.G. & Prim. B/D/E	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Papaase St. Peters Catholic Primary	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	0	0	0
Ofaakor Primary/Junior High School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Akweley St Mary's	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Ayiresu D/A K.G. & Primary	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Kwaman Catholic K.G. Primary & D.A./ J.S.S.	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	0	0	0
Winneba A.M.E. Zion Primary 'C'	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	1	0	0
Aboom A.M.E. Zion Basic School	LEI	LEI	LEI	4	-7	-6	LEI	LEI	LEI	LEI	15	LEI
Falahiya Islamic Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Abura English/Arabic Basic Sch.	LEI	LEI	LEI	0	0	0	LEI	LEI	LEI	LEI	18	LEI
Ayifua St. Mary's Anglican Basic Schools	LEI	LEI	LEI	0	6	0	LEI	LEI	LEI	LEI	21	LEI
Abakam Cran Presby Basic Schools	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Tsimtsimhwe D/A Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Asensuhu - Agave D/A Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Abeka Nkwanta Basic School	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI
Mampong Catholic Primary A & B	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI	LEI

Note: LEI = Leakage or Excess indeterminate because either supply or receipt data or both are not available.

Table 10: Knowledge and time of receipt of textbooks and other materials by schools

	Knowledge of Receipt						Time of Receipt			
	[2005/2006]			[2008/2009]			[2005/2006]		[2008/2009]	
	No	Yes	Don't know	No	Yes	Don't know	Start of year	Mid-End of year	Start of year	Mid-End of year
Core textbooks										
Head teachers/teachers	1%	56%	43%	-	84%	16%	18%	34%	38%	37%
SMC Executives	13%	61%	26%	10%	61%	29%	26%	29%	29%	26%
PTA Executive	-	55%	45%	-	52%	45%	16%	29%	19%	32%
Parent/Guardian	8%	28%	63%	9%	35%	56%	9%	14%	15%	12%
Instructional materials										
Head teachers/teachers	2%	53%	44%	-	84%	16%	16%	25%	33%	38%
SMC Executives	13%	52%	35%	10%	51%	39%	16%	29%	26%	29%
PTA Executive	-	39%	61%	-	45%	52%	10%	21%	10%	32%
Parent/Guardian	9%	21%	69%	10%	23%	67%	8%	13%	10%	12%
Supplementary readers										
Head teachers/teachers	5%	50%	45%	-	80%	20%	11%	26%	24%	40%
SMC Executives	16%	48%	36%	13%	55%	32%	16%	29%	26%	29%
PTA Executive	3%	39%	58%	-	45%	52%	7%	26%	13%	32%
Parent/Guardian	10%	21%	68%	10%	23%	66%	9%	11%	12%	9%

REGION	DISTRICT	ENROLLMENT				SCHOOLS				
		PUBLIC				PUBLIC				
		Year	Total	Female	% F	Schools Total	Textbook Core No.	Textbook Core Per Pupil	Textbook Other No.	Textbook Other Per Pupil
Central	Abura-Asebu-Kwamankese	2009 / 2010	16,576	7,817	0.47	70	24,245	1.5	24,853	1.5
Central	Ajumako-Enyan-Essiam	2009 / 2010	19,170	9,082	0.47	91	30,496	1.6	35,262	1.8
Central	Asikuma-Odoben-Brakwa	2009 / 2010	21,230	10,211	0.48	97	33,622	1.6	45,460	2.1
Central	Awutu-Efutu-Senya	2009 / 2010	30,945	15,386	0.50	100	41,086	1.3	56,890	1.8
Central	Cape Coast	2009 / 2010	16,801	8,616	0.51	67	29,537	1.8	29,658	1.8
Central	Fo-Hemang-Lower Denkyira	2009 / 2010	22,890	11,113	0.49	136	33,561	1.5	33,382	1.5