LAE DISTRICT 2007 PUPIL ENROLMENT DATA VERIFICATION

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ACRONYMS

ASC	Annual School Census
DEA	District Education Administrator
DoE	Department of Education
EMIS	Education Management and Information System
PED	Provincial Education Division
PEMIS	Provincial Education Management and Information System
PNG	Papua New Guinea
UNESCO	United Nations Educational, Scientific and Cultural Organization

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

Background to the Study

The first Annual School Census (ASC) in Papua New Guinea (PNG) was conducted in 2007. The purpose of the ASC was to collect data on a core set of education indicators in the focus areas of pupil access and participation, efficiency of the education system, quality of education, gender equity and education finance. The data was for the very first time disaggregated into provinces and districts in order to effectively show the progress being made by each province and district towards the achievement of agreed education targets in each of the focus areas. However, the analysis and the reporting of the data revealed serious anomalies, particularly in the pupil access and participation data at the national, provincial and district levels (Drew 2008). The detection of these anomalies cast serious doubt over the validity and the reliability of the entire 2007 ASC data. One of the districts that was affected was Lae District in the Morobe Province.

The 2007 ASC data showed that, apart from other anomalies, the Grades 1–6 pupil retention rate for Lae District was 216.7 percent. It is obvious that this rate was distorted and therefore, is invalid. This anomaly, including others that are contained in the 2007 ASC data point to the need to identify and effectively address the causal factors at the school, district, provincial and national levels to ensure validity and reliability of the data.

Objectives of the Study

The objectives of the study were to:

- identify and describe the factors contributing to the abnormal Grades 1–6 retention rate for Lae District; and
- make appropriate recommendations to assist in the ongoing initiatives to improve the validity and the reliability of ASC data at the national level and also to improve the process of data collection, verification, management, communication and utilisation at the school, district and provincial levels.

Methodology of the Study

Data for this pupil enrolment data verification was collected using a student access and participation form and semi-structured interviews. The student access and participation form was administered to the 20 primary schools in the Lae District. The purpose of the form was to collect data on pupil repeats, number of pupils transferred in and out of schools, and the number of pupils re-enrolled after leaving school. A semi-structured interview was also conducted with the head teacher and the teachers in each school, except the Four-Mile Primary School, which the author was advised against going to, due to security concerns. The purpose of the interviews was to find out and develop an in-depth understanding of the reasons for the inflated pupil retention rate for Grades 1–6 in primary schools.

Principal Findings

Anomalies in the 2007 Pupil Enrolment Data

It was found that there were anomalies in the 2007 ASC student enrolment data for Lae District. There were anomalies in the retention rates for Grades 1–6 and Grades 3–8. This sheds serious doubt on the reliability and the validity of the 2007 student enrolment data. This situation is compounded by the non-availability of up-to-date and accurate data on the population of the school related age, which made it very difficult to accurately calculate and verify the actual number and proportion of children in Lae District who were in basic education, particularly in Grades 1–6, in 2007.

Factors Contributing to the Distortion of Grades 1–6 Retention Rate

The distortion of Grades 1–6 pupil retention rate was due to a number of causal factors:

Transfer-ins

Nearly all primary schools in Lae District encountered an extremely high number of pupils transferring into their schools at the beginning of the 2007 school year. These pupils were not excluded but were added together with the continuing pupils and the total number was entered onto the ASC form by teachers and head teachers. This contributed to the distortion of the retention rate.

Double Reporting

Students who transferred out of the schools were not immediately taken off the school register. Head teachers indicated that pupils normally returned to the school when they did not find a space in the school they wanted to transfer to so there was no immediate need to eliminate their names from the school register. This practice contributed towards the double reporting of pupils hence the inflation of the 2007 Grades 1–6 retention rate.

Repeats

A number of primary schools had pupils repeating Grades 1–6 in 2007. These pupils were included in the calculation of the total number of pupils in the grade hence the misrepresentation of the 2007 Grades 1–6 retention rate.

Re-enrolment

Some schools had re-enrolled children who had left school and then returned to continue their education. These children were counted together with the continuing children and the total number entered onto the ASC form. This contributed towards distorting the Grades 1–6 retention rate.

Ghost Names

Interviews with head teachers revealed that it was a common practice among schools in the Lae District to have on their class roll calls and school registers, names of students who were no longer enrolled in the school. Head teachers further revealed that schools were

engaged in this practice in order to get more, in school subsidies. The practice of having ghost pupil names on the school register was also a major contributing factor to the inflated pupil enrolment data that schools submitted during the ASC and therefore the distortion of Grades 1–6 pupil retention rate.

Over-estimation of Enrolment Figures

The distortion in the school enrolment data was caused by deliberate over-estimation of the enrolment figures by head teachers and teachers. This practice was influenced by the fact that the total amount of school subsidies received by each school was dependent on the reported enrolment figures.

Lack of Data Collection, Analysis and Reporting Capacity

Head teachers, teachers and Provincial Education Division (PED) personnel lacked essential knowledge required for calculating various education indicators, including retention rates. This contributed towards schools and provinces providing incorrect data on many of the education indicators.

RECOMMENDATIONS

Where possible, recommendations are presented targeting the implementing authorities and personnel at the school, district, provincial and national levels. However, generally, for all of these recommendations it will be important to ensure engagement at the national and local levels.

National School Census

That the ASC be conducted in the second, rather than the first quarter of the year or be conducted twice a year to ensure the validity and reliability of enrolment data.

Data Verification and Validation

That Standard Officers, Elementary School Coordinators and District Education Advisers be tasked to verify and endorse all pupil enrolment data from the districts before it is submitted to the PED and the Department of Education (DoE).

Transfer-ins and Transfer-outs

That Standard Officers and Elementary School Coordinators be tasked to ensure that pupils transferring in and out of schools are properly monitored to avoid pupils being double counted at the time of the ASC.

Ghost Names

That Standard Officers and Elementary School Coordinators be tasked to closely monitor pupil enrolment in each school in the district. Where schools are found to have ghost names on their enrolment registers, appropriate action should be taken against them.

Quarterly Returns

That the PED continue to collect and keep up-to-date and accurate data on student enrolment and other education indicators using monthly and quarterly returns or other suitable data collection and management systems.

Provincial Education Management and Information System (PEMIS)

That the DoE collaborate with the PED to establish and resource an effective PEMIS.

Capacity Building

That the DoE conduct capacity building workshops for Standard Officers, Elementary School Coordinators, head teachers, teachers, District Education Administrators (DEAs), the Provincial Education Adviser and the Provincial Education Planner on the collection, analysis and reporting of data on all education indicators.

SECTION 1: INTRODUCTION

1.1   Background to the Study

The Annual School Census (ASC) is a systematic and regular method of collecting data on a variety of education indicators. These indicators, according to UNESCO (1989), help countries learn to what extent their education systems meet perceived educational needs. If the data collected is not treated with caution, it can easily be distorted. According to UNESCO (*ibid.*) there are two prime causes of distortion. First, distortion may be caused by deliberate over-estimation of enrolment figures by head teachers and teachers. Second, it may result from official enrolment returns failing to take account of variations in attendance during the school year.

The first Annual School Census in Papua New Guinea (PNG) was conducted in 2007. The purpose of the ASC was to collect data on a core set of education indicators in the focus areas of pupil access and participation, efficiency of the education system, quality of education, gender equity and education finance. The data was, for the very first time, disaggregated into provinces and districts in order to effectively show the progress being made by each province and district towards the achievement of agreed education targets in each of the focus areas. However, the analysis and the reporting of the data revealed serious anomalies, particularly in the pupil access and participation data at the national, provincial and district levels (Drew 2008). The detection of these anomalies sheds serious doubt over the validity and the reliability of the entire 2007 ASC data. One of the districts affected was Lae District in the Morobe Province.

The 2007 ASC data showed that, apart from other anomalies, the Grades 1–6 pupil retention rate for Lae District was 216.7 percent. It is obvious that this rate was distorted. This is because one would expect that if a cohort began a given grade in a particular year and all pupils in the cohort continued to the next grade without any one of them dropping out, the retention rate would be 100 percent. This is the ideal situation. However, this is very rare because many pupils drop out of school and often do not complete the full cycle of education.

This anomaly and others, contained in the 2007 ASC data, point to the need to identify and effectively address the causal factors at the school, district, provincial and national levels to ensure validity of the data.

1.2   Objectives of the Study

The objectives of the study were to:

- identify and describe the factors contributing to the abnormal Grade 1–6 retention rate for Lae District; and
- make appropriate recommendations to assist in the ongoing initiatives to improve the validity and the reliability of ASC data at the national level, and also to improve the process of data collection, verification, management, communication and utilisation at the school, district and provincial levels.

1.3   Methodology of the Study

The case study research approach was employed in this study to gain an in-depth understanding of the factors contributing to the abnormal Grades 1–6 pupil retention rate in Lae District in 2007. Data was collected using a student enrolment survey form and semi-structured interviews.

Sample

Lae District in the Morobe Province is one of two districts which were selected for participation in this data verification exercise. The other is Abau District in the Central Province. These two districts were selected among the other districts that were identified as having anomalies in their 2007 pupil enrolment data. Moreover, Lae District was selected on the basis that it is an urban district and Abau District was selected because it is a rural district. These two districts will be used as cases in which research will be carried out to enable an in-depth understanding to be developed on the factors that contribute to the distortion of pupil enrolment data in an urban and a rural context.

Data Collection

Data was collected using a pupil enrolment survey form and a semi-structured interview. The provincial quarterly returns were also collected from the PED officers and reviewed.

Pupil Enrolment Survey Form

The pupil enrolment survey form was administered to the 20 primary schools in the Lae District. The purpose of the survey form was to collect data on pupil repeats, number of pupils transferred in and out of schools and the number of pupils re-enrolling after leaving school.

Semi-Structured Interviews

A semi-structured interview was also conducted with the head teacher and the teachers in each school, except the Four-Mile Primary School, which the author was advised against going to, due to security concerns. The purpose of the semi-structured interviews was to find out and develop an in-depth understanding of the reasons for the inflated pupil retention rate for Grades 1–6 for primary schools in Lae District. Interviews were conducted with head teachers in their schools. In addition, copies of the Quarterly Returns were obtained from the Provincial Education Planner. These were used to cross-check the pupil enrolment data for each quarter and with the DoE data, and identify the causal factors for the anomalies in the pupil retention data.

Review of Quarterly Returns

The quarterly returns for 2006, 2007, 2008 and 2009 were collected for the PED officers and reviewed. The purpose of the review was to identify possible causal factors for the distortion of the 2007 Grades 1–6 retention rate.

Data Analysis

Data from the pupil enrolment form was analysed and presented in a tabular form showing the school and the number of pupils who transferred in, the number who repeated a grade and the number who re-enrolled in a grade. The semi-structured interview data, which was recorded in a journal, was analysed using the constant comparative method. Thick descriptive data was then used in describing the factors that contributed to the distortion of the 2007 Grades 1–6 retention rate.

1.4   Lessons Learnt

Fourteen primary schools did not return their survey forms. The reasons for these were not known. However, it reflects the difficulties associated with this method of data collection. Despite this, it is still the best way of collecting the required pupil enrolment data from schools. The collection of qualitative data is best done through interviews with the participants. One-on-one semi-structured interviews with teachers and head teachers is recommended because the chances of getting the required data are greatly increased and confidentiality is assured.

1.5   Organisation of the Report

The report begins by presenting an executive summary. This is followed by the introductory chapter, a profile of Lae District, an analysis of Lae District's 2007 ASC data and the factors contributing to the distortion of Grades 1–6 pupil retention data for Lae District, and the conclusion and policy response. Thick descriptions from the interviews have been used in the report to bring to light, teachers' and head teachers' voices on the ASC and the factors that contribute to the distortion of the 2007 Grades 1–6 retention rate.

SECTION 2: LAE DISTRICT PROFILE

2.1   Location

Lae District is one of nine districts in the Morobe Province. It shares a common border with Markham, Huon-Gulf and Nawaeb Districts. It is situated at the mouth of the Markham River and at the start of the Okuk Highway.

2.2   Population

   The 2000 National Census figures show that out of the total population of 539 804 for Morobe Province, 119 178 lived in Lae District. This was 22 percent of the total population of Morobe Province. The total population of those aged 5–19 years in Lae District in 2000 was 39 304. This was 20 percent of the total 5–9 year-old population of 191 932 living in Morobe Province at the time of the National Census in 2000.

Migration

   The population of Lae District is a microcosm of PNG. Lae continues to experience a very high rate of migration of people to and from the district. People have migrated from the other districts of Morobe Province and also from the other provinces of Papua New Guinea for both economic and social reasons. They migrate to Lae City because of lack of quality basic services in their communities and because of the perception that Lae City has quality services from which they will benefit and which they believe will improve the quality of their lives and those of their children. Many migrate to the city because of job opportunities and opportunities to generate an income through small formal and informal business ventures. The migration of people into the city continues to exert an enormous pressure on the services provided in the city, including education and health.

2.3   Transport

   Lae District has a good road network although it is not always in good condition. It is connected to the Wau-Bulolo, Markham and parts of Huon-Gulf and Nawaeb Districts by road. The Okuk Highway connects it to the five Highlands provinces and Madang Province. Lae District is easily accessed by West New Britain, Milne Bay and East Sepik provinces by water transport. Nadzab Airport, one of the major airports in PNG, serves the transportation needs of the district. The connectivity of Lae District to other districts and provinces by land, air and water transport contributes to the high mobility and migration of people to and from the district.

2.4   Economic Activity

   Lae District is an urban district. It comprises the entire Lae City, which is often referred to as the industrial hub of PNG. Many small to large scale commercial enterprises are operated and run in the city. These include large manufacturing businesses, tourism and hospitality businesses, service industries, recycling industries and retail businesses.

2.5   Health

The Angau Memorial Hospital, together with health centres and aid posts located in each suburb, service the health needs of the residents in the district. There were nine health centres to every 13 242 residents and four aid posts to every 29 279 residents (National Research Institute 2010). There is an obvious gap between the supply and demand for health services in the district.

2.6   Education

Lae District has 56 elementary schools, 20 primary schools, five high and secondary schools, one vocational centre, some tertiary education institutions and a plethora of small government and private educational institutions. The performance of Lae District on the core education indicators is presented in Table 1.

Table 1: Performance of Lae District against core education indicators

Education Indicator	Rate (%)
Net Admission Rate	16.1
Gross Enrolment Rate	68.5
Net Enrolment Rate	57.2
Gender Parity Ratio	0.96

Source: DoE (2007) Student Enrolment Figures.

SECTION 3: ANALYSIS OF LAE DISTRICT'S 2007 PUPIL ENROLMENT DATA

3.1   Population of Related School Age

The population of related school age is defined by the legal age of admission to the cycle of education in question and by its duration in years. For example, the legal age for admission to basic primary education in PNG is six, and because there are eight grades of primary education, the population of related school age is defined as being those children who are 6–14 years of age at the beginning of school year.

The population of related school age is important for calculating access and participation indicators. The absence of this critical data will make it impossible to know the actual number and proportion of children from the population of related school age who are in, or out of school. Thus, it is crucial that up-to-date and correct population of related school age data is available to enable proper calculation of access and participation indicators.

3.2   School Age Population

The 2000 National Census data shows that the total population for Lae District was 119 178. Out of this, 26 495 were between 5–14 years of age, which is the primary school age population. This data will help us to know the actual number and proportion of children in Lae District who are enrolled in primary school. It will also help us to understand how access and participation indicators are calculated as well as identify anomalies in the data.

Table 2: Morobe Province population and school-age populations by district (2000)

District	Total population	5–9 years population	10–14 years population	15–19 years population
Wau-Bulolo	77 232	10 880	9 366	8 089
Finschafen	45 287	6 127	5 598	4 656
Huon Gulf	59 923	8 030	6 704	6 030
Kabwum	41 883	5 680	5 058	4 181
Lae	119 178	14 346	12 149	12 809
Markham	49 369	6 812	5 751	5 081
Menyamya	68 546	11 599	8 542	6 257
Nawaeb	35 059	4 687	4 184	3 554
Tewai/Siassi	43 327	5 926	5 241	4 523
Total	**539 804**	**74 101**	**62 617**	**55 214**

Source: Morobe Division of Education (2007) Morobe Provincial Education Plan 2007–2016, Lae.

3.3   Estimated Population of Related School Age

The 2007 estimated school age population data in Table 3 was used to calculate access and participation indicators. Lae District had an estimated population of basic education related school age of 33 012 in 2007, which was twice the population of all the other districts except the Wau-Bulolo District. Of this total number of school age children, 17 158 were males and 15 853 were females. These figures were used as the basis for calculating the 2007 access and participation indicators for Lae District, including the Grades 1–6 retention rate.

Table 3: Morobe Province estimated school-age population (6–14 years of age) by district (2007)

District	Male	Female	Total
Wau-Bulolo	11 119	10 273	21 393
Finschafen	6 520	6 024	12 544
Huon Gulf	8 570	7 918	16 487
Kabwum	6 030	5 571	11 601
Lae	17 158	15 853	33 012
Markham	7 108	6 567	13 675
Menyamya	9 869	9 118	8 542
Nawaeb	5 048	4 664	9 711
Tewai/Siassi	6 238	5 763	12 001
Total	**77 660**	**71 751**	**149 411**

Source: DoE (2007) Student Enrolment Figures.

3.4   Grades 1–6 Pupil Enrolment

Except for Wau-Bulolo and Huon-Gulf Districts, Lae District had twice the total number of pupils enrolled in Grades 1–6 in 2007, compared with the other six districts in the province. It had a total pupil enrolment of 14 984 which was 20 percent of the total Grades 1–6 pupil enrolment in the province. There were some variations in pupil enrolment from Grades 1–6 as reflected in Table 4. It can be assumed that these variations in pupil enrolment are due to children transferring in and out of the district and children dropping out of school. This suggests that it was impossible to have a cohort retention rate of 100 percent, let alone more than 100 percent.

Table 4: Morobe Province Grades 1–6 pupil enrolment by district (2007)

District	Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Total
Wau-Bulolo	2 189	2 034	1 665	1 365	1 133	1 028	**9 414**
Finschafen	1 338	1 320	1 261	1 236	1 109	979	**7 243**
Huon Gulf	1 877	1 707	1 468	1 205	1 117	1 121	**8 495**
Kabwum	1 430	1 449	1 204	1 259	1 128	952	**7 422**
Lae	2 528	2 500	2 697	2 586	2 406	2 267	**14 984**
Markham	1 611	1 252	1 189	1 001	893	914	**6 860**
Menyamya	1 758	1 461	1 442	944	774	576	**6 955**
Nawaeb	1 037	1 070	1 215	925	919	860	**6 026**
Tewai/Siassi	1 536	1 493	1 249	1 157	902	863	**7 200**
Total	**15 304**	**14 286**	**13 390**	**11 678**	**10 381**	**9 560**	**74 599**

Source: DoE (2007) Student Enrolment Figures.

3.5   Grades 1–6 Gross Enrolment Rate

The 2007 pupil enrolment data shows that Lae District had a gross enrolment rate of 67.2 percent. The male gross enrolment rate was 67.9 percent while the female gross enrolment rate was 66.6 percent. These rates are above the national target of 62 percent gross enrolment rate for primary education. Without the benefit of the Grades 1–6 population of related school age it is not possible to ascertain if the calculation of the gross enrolment rates was properly done. However, the gross enrolment rates can be considered as reflecting the expected rates.

Table 5: Morobe Province Grades 1–6 gross enrolment rate by district (2007)

District	Male (%)	Female (%)	Total (%)
Wau-Bulolo	71.1	58.8	65.2
Finschafen	90.1	80.6	85.5
Huon Gulf	79.3	73.1	76.3
Kabwum	122.3	109.4	116.1
Lae	67.9	66.6	67.2
Markham	81.3	66.8	74.3
Menyamya	67.4	40.0	54.3
Nawaeb	93.8	89.9	91.9
Tewai/Siassi	92.3	85.1	88.9
Total	**80.5**	**70.3**	**75.6**

Source: DoE (2007) Student Enrolment Figures.

3.6   Grades 1–6 Net Enrolment Rate

The net enrolment is a good indicator for monitoring progress towards universal basic education. Table 6 shows that the 2007 net enrolment rate for Grades 1–6 for Lae District was 48 percent. This indicates that Lae District is making slow progress in achieving the national target of 70 percent net enrolment rate. It also means that 52 percent of the population of related school age (7–12 years) was not enrolled in Grades 1–6 in 2007. This figure is disappointing given the fact that comparatively Lae District has a high population of children in the related school age and improved education services compared to the other eight districts.

The non availability of Grades 1–6 population of related school age data made it difficult to ascertain the causal factors. However, the most common factors contributing to low net enrolment rate is the population of pupil enrolment by over-aged children and pupils dropping out of school. The former is due to the admission of over-aged children in elementary prep (Kukari, Paraide and Kippel 2009), students repeating grades and children re-enrolling after they had left school. The data also indicates that Lae District does not have an adequate supply of schools to meet the increasing demand for education. The high demand for education is caused by internal and external migration of children, particularly from the Markham and Huon-Gulf Districts, and the Highlands and Momase Provinces.

Table 6: Morobe Province Grades 1–6 net enrolment rate by district (2007)

District	Male (%)	Female (%)	Total (%)
Wau-Bulolo	35.8	30.9	33.4
Finschafen	43.6	43.3	43.5
Huon Gulf	46.3	45.4	45.9
Kabwum	43.4	40.7	42.1
Lae	47.7	48.3	48.0
Markham	42.7	39.7	41.3
Menyamya	35.0	23.1	29.3
Nawaeb	41.1	45.5	43.2
Tewai/Siassi	48.3	47.9	48.1
Total	**42.7**	**40.3**	**41.5**

Source: DoE (2007) Student Enrolment Figures.

3.7   Grades 1–6 Retention Rate

The 2007 enrolment data shows that Grades 1–6 retention rate for Lae District was 216.7 percent. The male retention rate was 218.8 percent while the female retention rate was 214.4 percent. These rates are a misrepresentation of reality. In an ideal situation, if a cohort begins a given grade in a particular year and all pupils in the cohort continue to the next grade without any of them dropping out, the retention rate will be 100 percent. Normally this is not the case because children drop out of school for a variety of reasons and this affects the retention rate (Guy, Paraide and Kippel 2001; Kippel, *et al*, 2009). There are also other contributing factors such as pupil repetition of grades and pupils transferring in to schools which are often ignored in the calculation of retention rates. These factors contribute to the distortion of retention rates.

Table 7: Morobe Province Grades 1–6 retention rate by district (2007)

District	Male (%)	Female (%)	Total (%)
Wau-Bulolo	79.5	74.6	77.4
Finschafen	114.7	112.5	113.7
Huon Gulf	81.6	80.6	81.2
Kabwum	95.0	78.6	87.3
Lae	218.8	214.4	216.7
Markham	98.8.7	83.3	92.6
Menyamya	61.1	22.3	41.7
Nawaeb	112.6	103.5	108.3
Tewai/Siassi	26.6	25.5	26.2
Total	**83.2**	**73.2**	**78.6**

Source: DoE (2007) Student Enrolment Figures.

SECTION 4: FACTORS CONTRIBUTING TO THE DISTORTION OF GRADES 1–6 RETENTION RATE

4.1   Pupils Transferring in from Other Schools

Table 8 provides the data on children transferring from other schools to the six primary schools which returned their survey forms. Lanakapi was the only community school in the Lae District at the time of the ASC in 2007. It can be seen from the table that, in total, 740 children transferred in from other schools to the six schools. Of this number of children, 567 were in Grades 2–6. This number of children would have been much higher if the other 14 primary schools had furnished their data. However, the data on transfer-ins provided by the six schools is significant and did contribute to the miscalculation of the 2007 retention rate for Grades 1–6 in Lae District.

     Interviews with head teachers of the 20 primary schools in Lae District revealed that large numbers of children transferred to their schools from other schools within the city and other districts and provinces in the first quarter of 2007. One of the head teachers said:

> Children transfer in to my school from especially the Accelerating Christian Education (ACE) and other private schools. Parents send their children to these schools for early childhood education because these schools use English as a medium of instruction and after Grade 2, children are transferred in to do Grade 3 in my school.

The number of pupils who transferred in from other schools was added to the number of continuing pupils in each grade. This figure was then entered onto the 2007 ASC form. It was then used to calculate the retention rate, which led to its distortion. The ASC form does not capture this important data on pupil transfer-ins and hence, contributes towards the miscalculation of the retention rates. This renders the entire 2007 district, provincial and national retention rates invalid.

Table 8: Number of pupils who transferred in to primary schools

School	Gr. 2	Gr.3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Total
Markham Road	0	218	45	35	43	41	36	**418**
Lanakapi	14	7	10	6	10	12	6	**65**
Igam	0	9	9	12	9	8	11	**58**
Huonville	0	20	9	10	14	12	6	**71**
St. Patricks	0	13	19	16	3	9	5	**65**
Bowali	0	5	13	10	8	12	15	**63**
Total	**14**	**272**	**105**	**89**	**87**	**94**	**79**	**740**

4.2   Double Reporting of Pupils

     From interviews with the head teachers of the ten primary schools, it was reported that students who transferred out of the schools were not immediately taken off the school register and class roll books. Head teachers reported that pupils normally returned to the school when they did not find a space in the school they wanted to transfer to. Therefore, there was no immediate need to remove their names from the school register. This is exemplified by the following comment from one of the head teachers:

Many children came to see me at the beginning of 2007 to transfer to other schools in the city. The majority of these children had returned to the school requesting to be re-enrolled. We allow them to re-enroll because it is the Church's philosophy to ensure everyone was treated the same. We normally do not remove their names from our roll calls because from past experiences most of these children will return when they don't find places in other schools.

The re-enrolment and double counting of children was a common practice amongst primary schools in the Lae District. This practice contributed towards the double reporting of pupils which, as a result, affected the analysis of data for all access and participation indicators.

4.3   Repeats

Table 9 shows that out of the six primary schools that filled in the survey form, five had pupils repeating Grades 2–8. From the total of 80 repeaters in 2007, 56 repeated Grades 2–6. The number of repeats was added together with the number of pupils continuing in each grade and the total figure was entered onto the ASC form. This contributed towards the misrepresentation of the 2007 Grades 1–6 retention rate.

Table 9: Number of pupils who repeated Grades 2–8 in primary schools

School	Gr. 2	Gr.3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Total
Markham Road	0	0	0	0	0	0	1	**1**
Lanakapi*	5	2	3	2	3	3	4	**22**
Igam	0	0	0	0	0	2	0	**2**
Huonville	0	0	0	0	0	0	0	**0**
St. Patricks	0	2	5	0	8	0	4	**19**
Bowali	0	11	9	3	3	6	4	**36**
Total	**5**	**15**	**17**	**5**	**14**	**11**	**13**	**80**

*Lanakapi was the only community school in the Lae District in 2007.

4.4   Re-enrolment of Children

Some schools had re-enrolled children who had left school and were returning to continue their education. According to one of the head teachers:

Older children who have left school for a variety of reasons are re-enrolling in primary schools because they now see the benefits of having a good education.

Table 10 shows that a total of 45 children re-enrolled in the six primary schools in 2007. This indicates that children were re-enrolling to continue their education. Schools and education authorities must be cognisant of this phenomenon when dealing with school enrolment data. Its mishandling can easily lead to the miscalculation of pupil access and participation indicators. This was the case in the calculation of the 2007 Grades 1–6 retention rate for the Lae District. The total number of pupils entered on the ASC form comprised both the re-enrolled children and the continuing pupils. This contributed towards inflating the retention rate.

Table 10: Number of pupils re-enrolled in primary schools

School	Gr. 2	Gr.3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Total
Markham Road	0	0	0	0	0	0	0	**0**
Lanakapi*	3	1	0	3	0	4	1	**12**
Igam	0	0	0	0	0	1	0	**1**
Huonville	0	0	0	0	0	0	0	**0**
St. Patricks	0	0	0	0	7	0	3	**10**
Bowali	0	5	4	3	5	4	1	**22**
Total	**3**	**6**	**4**	**6**	**12**	**9**	**5**	**45**

*Lanakapi was the only community school in the Lae District in 2007.

4.5   Ghost Names

Interviews with head teachers revealed that it was common practice amongst schools in the Lae District to have on their class roll calls and school registers names of pupils who were no longer at their schools. Head teachers interviewed further revealed that schools were engaged in this practice in order to get more in school subsidies. This is epitomised by the following statement from one of the head teachers:

> Most schools in the city have a habit of having ghost names on their school enrolment and submit these names during school census in order to get more in school subsidies. Head teachers have worked out that their schools will get more in school subsidies if they have more students.

The practice of having ghost pupil names on the school register was also a major contributing factor to the inflated pupil enrolment data that schools submitted during the ASC in 2007.

4.6   Over-estimation of Enrolment Figures

It was found that the distortion in the school enrolment data was caused by deliberate over-estimation of the enrolment figures by head teachers and teachers. This deliberate over-estimation of enrolment was influenced by the fact that the total amount of school subsidies received by schools was dependent on the reported enrolment figures.

4.7   Lack of Data Collection, Analysis and Reporting Capacity

Head teachers reported that they were not aware of the requirements for calculating various indicators, including retention rates. It was also found that DoE had failed to ensure that the Provincial Education Division (PED) and head teachers were educated on the collection and analysis of data relating to different indicators. Hence, schools and provinces provided incorrect data on many of the indicators, including pupil retention rates.

SECTION 5: SUMMARY AND POLICY RESPONSE

5.1   Measurement of Access and Participation Indicators

Access and participation indicators are defined and used to measure progress in education and the extent of education coverage in a given education context. The data on these indicators are relied upon by education policy makers and planners to make informed decisions on the provision of education. Therefore, it is essential that data on these indicators are effectively and prudently collected, analysed and reported so that they give an accurate picture of the state of education progress. Poor data collection, analysis and reporting can easily lead to the distortion of the indicators and thus, misrepresentation of reality in terms of real progress being made towards improving each of the indicators.

In the case of Lae District, the 2007 pupil enrolment data showed that it had a Grades 1–6 retention rate of 216.7 percent. This figure is a misrepresentation of reality and reflects poor data collection and analysis. It was found that the 2007 Grades 1–6 retention rate was distorted due to the inclusion of the following figures in its calculation.

- number of pupils transferring in from other schools;
- number of pupils repeating Grades 1–6; and
- number of re-enrolled children in Grades 1–6.

The other contributing factors include:

- double reporting of pupils;
- ghost names on school enrolment registers;
- over-estimation of school figures driven by school subsidies; and
- lack of data collection, analysis, management and reporting capacity at the school, district and provincial levels.

The DoE Education Management and Information System (EMIS) officers must work in collaboration with PED, the Standards and Guidance Division, the Elementary School Division and the DEAs using the framework already in place to empower Standard Officers, Elementary School Coordinators and the District Education Advisers to crosscheck and verify pupil enrolment data before it is entered on the ASC form and submitted to the PED and DoE. The engagement of these key officers at the district level in the verification of pupil enrolment data will help to address and eliminate the factors contributing to distortion of data on education indicators.

5.2   Development of Capacity at the Sub-National Levels to Monitor Data Collection, Analysis and Reporting

It was found that there was lack of data collection, analysis and reporting capacity at the school, district and the provincial levels. The absence of critical knowledge among the school, district and provincial officers on the indicators of education and how these are calculated contributed directly to the problems associated with data collection at the school level and its analysis and reporting at the district, provincial and the national levels.

Capacity building workshops should be conducted in the nine districts of Morobe Province to educate teachers, head teachers, Standards Officers, DEAs, Elementary, Primary,

Secondary and Technical and Vocational Education Advisers, the Provincial Education Adviser and the Provincial Education Planners on how to collect and analyse data on each of the education indicators.

5.3   Development of the Capacity of Provinces and Districts to Manage Enrolment Data

Lae District and, for that matter, Morobe Province, does not have an education database in which it can collect and manage its own data on pupil enrolment. It was found that, although quarterly returns were kept, these were incomplete and not up-to-date. This makes it very difficult to know the correct number of pupils enrolled in each school at any one time. The lack of a proper database made it difficult to verify enrolment data given on the ASC forms. Also, the province was not keeping proper records of pupil enrolments and closely monitoring these at the school and district levels, creating a situation conducive for schools to flout national policies on school enrolments and corrupt the ASC by providing manufactured pupil enrolment figures.

Over-estimation of pupil enrolment was a common practice among schools in the Lae District, including the over enrolment of pupils, exceeding many times the required, teacher to pupil ratio. These practices are driven by the formula used to calculate school subsidies; that is, the more pupils a school has, the higher the total school subsidy it receives.

The DoE should work in collaboration with PED to establish and resource an effective and functioning PEMIS that will enable the province to collect, store and manage its own data on the agreed education indicators. The establishment of PEMIS will go a long way in addressing the factors associated with the distortion of the data on each of the education indicators. It will also provide a point for pupil enrolment data and data on all education indicators to be verified. This will improve both the reliability and the validity of data.

5.4   Timing of Annual School Census

Since 2007 the ASC has been carried out once a year — in the first quarter of the year. Although there are genuine reasons to justify ASC being done once a year, its timing contributes to the corruption of the pupil enrolment data. It was found in the Lae District that the data that schools entered on the ASC form was only an estimation of pupil enrolment for the year. Pupil enrolment was estimated because it was difficult for schools to know the exact number of pupils in each class due to the fluidity of pupil enrolment in the first quarter. Hence, pupil enrolments were over-estimated and reported on the ASC form. Pupil enrolment becomes more stable in the second quarter of the year and schools will have in place pupil enrolment data that is more accurate and reliable. This is the data that should be captured on the ASC forms and used to calculate each education indicator.

There is an urgent need to critically examine both the regularity and the timing of the ASC, given the issues raised in this report regarding the reporting of pupil enrolment data and its utilisation to calculate education indicators. The reliability and the validity of the student enrolment data can be greatly improved if the ASC is conducted in the second quarter rather than in the first quarter of the year. Alternatively, it could be conducted at least twice a year.

5.5   Recommendations

National School Census

That the ASC be conducted in the second quarter, rather than the first quarter of the year or alternatively, be conducted twice a year to ensure the validity and the reliability of pupil enrolment data.

Data Verification and Validation

That Standards Officers, Elementary School Coordinators and District Education Advisers be tasked to verify and endorse all pupil enrolment data from the districts before they are submitted to the PED and DoE.

Transfer-Ins and Transfer-Outs

That Standards Officers and Elementary School Coordinators be tasked to ensure that pupils transferring in and out of schools are properly monitored to avoid pupils being double counted at the time of the ASC.

Ghost Names

That Standards Officers and Elementary School Coordinators be tasked to closely monitor pupil enrolment in each school in the district and, where schools are found to be engaged in the practice of having ghost names on their enrolment registers, take appropriate action against them.

Quarterly Returns

That the PED continue to collect and keep up-to-date and accurate data on student enrolment and other education indicators using monthly and quarterly returns or other suitable data collection and management systems.

Provincial Education Management and Information System (PEMIS)

That the DoE work in collaboration with the PED to establish and resource an effective PEMIS.

Capacity Building

That the DoE conduct capacity building workshops for Standards Officers, Elementary School Coordinators, head teachers, teachers, District Education Advisers, the Provincial Education Adviser and the Provincial Education Planner on the collection, analysis and reporting of data on all education indicators.

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ANNEX A

The National Research Institute

Pupil Enrolment Data Verification Project

Pupil Enrolment Survey Form

Name of Primary School: _____

Agency: _____ District: _____

Grade	Number of classes in the grade	Total number of pupils in the grade	Number of pupils repeating grade	Number of pupils transferring in from other schools	Number of pupils transferred out to other schools	Number of pupils re-enrolling after leaving school	Number of pupils who are no longer at the school but still have their names on the roll books
1							
2							
3							
4							
5							
6							
7							
8							

ANNEX B

The National Research Institute

Pupil Enrolment Data Verification Project

Morobe Province Grades 1–6 Pupil Enrolment by District and Gender (2007)

District	Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6			Total
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	
Wau-Bulolo	1 198	991	2 189	1 189	845	2 034	942	723	1 665	813	552	1 365	601	532	1 133	594	434	1 028	**9 414**
Finschafen	722	616	1 338	708	612	1 320	690	571	1 261	667	569	1 236	643	466	1 109	537	442	979	**7 243**
Huon-Gulf	973	904	1 877	906	801	1 707	844	624	1 468	635	570	1 205	606	511	1 117	622	499	1 121	**84 495**
Kabwum	813	617	1 430	769	680	1 449	634	570	1 204	682	577	1 259	621	507	1 128	552	400	952	**7 422**
Lae	1 293	1 235	2 528	1 306	1 194	2 500	1 405	1 292	2 697	1 358	1 228	2 586	1 290	1 116	2 406	1 210	1 057	2 267	**14 984**
Markham	864	747	1 611	708	544	1 252	676	513	1 189	563	438	1 001	531	362	893	556	358	914	**6 860**
Menyamya	1 044	714	1 758	898	563	1 461	951	491	1 442	629	315	944	548	226	774	422	154	576	**6 955**
Nawaeb	515	522	1 037	559	511	1 070	649	566	1 215	606	419	925	492	427	919	475	385	860	**6 026**
Tewai-Siassi	811	725	1 536	802	691	1 493	663	586	1 249	650	507	1 157	493	409	902	469	394	863	**7 200**
Total	**8 233**	**7 071**	**15 304**	**7 845**	**6 441**	**14 286**	**7 454**	**5 936**	**13 390**	**6 503**	**5 175**	**11 678**	**5 825**	**4 556**	**10 381**	**5 437**	**4 123**	**9 560**	**74 599**

Source: DoE (2007) Student Enrolment Figures.