Educational Statistics
Capacity Building Programme
in support to The Republic of Nigeria

Diagnostic Report
on the Collection, Production and Use of
Education Statistics Data

Undertaken by
UNESCO Institute for Statistics
with support from the World Bank via its Development Grant Facility

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INTRODUCTION

Sound policy and good planning require reliable and timely data. The demand for quality and timely data on education is ever increasing nowadays. Also at the international level, this demand has been driven by the needs to monitor progress towards Education For All (EFA) goals and education targets at the Millennium Development Goals (MDGs).

In this respect, statistical units in the Education Ministry as well as other Ministries and Institutions, which provide the educational related data play an important role. To respond and cater the demand of today’s dynamic society, the need to strengthen the national capacity of them is becoming essential. In Nigeria, this demand is specific because it is a federal country with 36 states and the Federal Capital Territory (FCT). In the primary and secondary education sub-sectors, the broad understanding behind the constitution is that the federal government’s main role is to determine national policy, set standards and monitor performance, while the role of the states is to design, develop and deliver the services, including data collection.

The total population of Nigeria as reported in 1991 census was 88,992,220. Using a growth rate of 2.83% per annum, the National Population Commission estimates the current population of Nigeria (2003) to be about 126 million. Of this figure, children below 18 years of age make up approximately 51%. The large proportion of children in the population presents a big challenge to government in the provision of basic education and health services.

There are two sources of school-based data: first, that collected for 1991-1998 by the Education Data Bank and released by the Statistics Division of the Ministry and, second, that collected through the school census in February 2002, which covers 1999-2002. As the discussion makes clear, the obvious anomalies in the time series data for several states suggest that the aggregate numbers for the 1991-1998 time series must be regarded with caution. A similar, though less strongly held, conclusion is reached as regards some of the initial estimates produced through the School Census.

Hence, several criticisms have been made concerning the non-availability of accurate school-based statistics in Nigeria needed for proper planning and program implementation. For example, the Universal Basic Education guidelines (2000) note the following as some of the problems hampering the availability of accurate data:

First, national population census have always been over-politicize and so it has not been easy to extrapolate school age population figures from published population census data. Secondly, there is a great deal of imperfection and lapses in (existing) published educational statistics, with the result that they cannot be of use in planning. Third, the technical capacity for data collection and analysis (in terms of appropriate type of equipment and appropriate know-how) still leaves much to be desired. Fourth, there is the whole issue of lack of data awareness: the need for efficient record keeping at all levels and a lack of awareness of the importance of data in planning and decision making. Fifth, educational statistics in Nigeria come from a variety of sources with a wide variety of approaches as well as of focus. The situation has given rise to the phenomenon of discordant data. All these factors make planning difficult. Even “guestimates” as the statistical basis for any reasoned guessing is not there.
The capacity to conduct analytical work which is the foundation of policy and strategy formulation, and the capacity to carry out education planning that is more than the counting of pupils, teachers and classrooms, is very limited in the educational system in Nigeria. Planning Research and Statistics (PRS) departments are under-staffed and under-resourced.

In October 2004, a first mission was carried out by the Statistical Capacity Building program from UIS in order to develop a better understanding of the situation in Nigeria with respect to production and use of education statistics, including needs at national and state levels for information, capacities at national and state levels for collection, production, and use of information. At the end of this mission, the Honorable Minister of Education of Nigeria and UIS signed an aide memoire under which it was agreed that the UIS would carry out a Diagnostic/ Needs Assessment study, examining the state of production and use of education data and Education Management Information System in Nigeria, with a view that the study findings would help to inform the preparation of a realistic and effective strategy for EMIS development and implementation and capacity building at Federal, State, Local Government levels. The aide memoire expressed the desire on the part of the Federal Ministry of Education for a more permanent presence of UIS, to provide technical assistance in capacity building and EMIS.

As part of the Statistical Capacity Building program of UIS, the initial phase of the work includes an in-depth diagnostic of the state of the production and the use of education statistics, in relation to the needs for information to manage the education system, and to monitor progress towards national and international education goals. In January - February 2005, a three-week mission was organized. During this mission, interviews were held with national authorities at federal and state levels – Niger, Kano, Lagos, Immo, Oyo and FCT - in order to assess the strengths and weakness of the current system and identify priority areas in need of strengthening in order to produce reliable, complete and timely data.

This document highlights the main findings concerning the state of EMIS at Federal, State and Local levels in Nigeria. All dimensions of capacity needs have been reviewed, including ways in which UIS might help to build capacity in EMIS, and in the collection, production and use of information for education planning and for policy monitoring and evaluation purposes. This includes investigation of the feasibility of a donor funded project, integrated with the education sector developmental plan, similar to those being carried out by the UIS in other countries.

I. THE UIS APPROACH AND METHODOLOGY ON STATISTICAL CAPACITY BUILDING

It is recognized that measures to improve the capacities of existing education statistical services need to be country specific. Even within the country, levels of development as well as available resources of various units concerning education statistics may differ among the education levels and the concerned divisions and ministries. Therefore, a system-wide diagnostic is an essential part of the national capacity building process to identify the capacity gaps and to develop appropriate activities and actions to address weaknesses. The UIS approach includes:
• The setting up of a National Technical Committee which manages the project, or use of an existing committee. The Committee needs to be embedded within or closely linked to structures for education sector development in the country. The main responsibility of the committee is to facilitate and ensure the smooth and successful implementation of the sector-wide capacity building activities. In the case of Nigeria, there are two federal EMIS committees, one for policy issues and another for technical issues, which might play such a role. The UIS briefed the Technical EMIS committee on its work during both its missions.

• The carrying out of a full diagnostic study of the production and use of education statistics in order to: (i) identify the areas that need strengthening, (ii) develop a national action plan building on and around the existing capacities and initiatives.

• The implementation of the action plan, in collaboration and partnership with in-country developmental agencies and other stakeholders who play a critical role in building national capacities.

The characteristics of the UIS approach, methodologies and tools are based on (i) needs approach, (ii) a systemic approach which means that the collection, production and dissemination of data in a coherent fashion across all educational levels, from pre-primary to higher education and non-formal education, so as to be able to understand the educational system as a whole, (iii) a multi-annual approach: where data from several academic years are entered into a single database so as to facilitate consistency checks thus improving data quality, and to permit longitudinal analyses of the data, examining trends over time (iv) an emphasis on capacity building at institutional, technical, and human resource levels, so that there is ownership by national authorities. It is only through emphasis on capacity building that sustainability is possible. Because of its institutional presence, and its mandate for international data on education and for statistical capacity building, UIS will be available to countries for “after-project” support as required on an occasional basis to help avert crises situations.

II. THE EDUCATIONAL SYSTEM IN NIGERIA

2.1 Organization of the educational system

Nigeria has a “6-3-3-4” educational system. Primary education begins at the age of six for the majority of Nigerians. Students are required to enter secondary school after spending a minimum of six years of Primary Education and after passing a prescribed National Common Entrance Examination. The National Policy on Education (1998) describes pre-primary education as the education given in an educational institution to children aged 3 to 5 plus prior to their entering the primary school. Pre-primary education remains a voluntary element in the educational system.

Students spend six years in Secondary School (general or technical). At the end of three years, they take the Junior Secondary School exam which is a qualifying exam for Senior Secondary School. By Senior Secondary School, students are taking the General Certificate of Education (GCE) levels exam, which is not mandatory, but most students take it to prepare for the Senior Secondary School Exam. The Senior Secondary School Exam is taken in the last year of high school (SS3).
The General Certificate of Education Examination (GCE) was replaced by the Senior Secondary Certificate Examination (SSCE). The SSCE is conducted at the end of the Secondary School studies in May/June. The GCE is conducted in October/November as a supplement for those students who did not get the required credits from their SSCE results. The standards of the two examinations are basically the same. A body called the West African Examination Council (WAEC) conducts both the SSCE and GCE. A maximum of nine and a minimum of seven subjects are registered for the examination by each student with Mathematics and English Language taking as compulsory.

The duration of the tertiary level is 3-4 years for first qualifications. These levels comprise the university, polytechnic, college of education and the advanced technical college.

The Universal Basic Education embraces the first nine years of schooling, but pre-primary education remains a voluntary element in the educational system. Non-formal programs consist of functional literacy, remedial, continuing, vocational, aesthetic, and cultural, political and environmental education for youths and adults outside the formal school system.

### 2.2 Management of the Educational System

The organizational structure of the education sector is complex. At the top is a Federal Ministry of Education (FME), 36 State Ministries of Education (SME), and a Ministry of Education for the Federal Capital Territory. In addition there is a Universal Basic Education Commission (UBEC) and 37 State Primary Education Boards (SPEBs), 774 Local Government Education Authorities (LGEAs) operating as departments of Local Government Authorities (LGAs), 20 parastatals under the FME, and innumerable parastatals within the states, including those for many tertiary institutions.

The structure and management of the education system in Nigeria is based upon the provisions made by the current 1999 Constitution in addition to other relevant Federal and State laws. The constitution articulates and regulates the shared responsibilities for education with the three tiers of the government of the country (Federal, State and Local).

#### Table of responsibility between levels defined in the 1999’s Constitution

<table>
<thead>
<tr>
<th>Level</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Ministry of Education (FME)</td>
<td>Policy formulation, coordination, and quality control. In addition, it also has established tertiary education and a small number of secondary schools under its direct control.</td>
</tr>
<tr>
<td>State</td>
<td>Management of secondary education, and a large proportion of the tertiary institutions.</td>
</tr>
<tr>
<td>Local Government</td>
<td>Management of primary education, under the guidance of higher levels of government.</td>
</tr>
</tbody>
</table>
The constitution does not define clearly the role of each level, but allows each to define its own role. But, over time, the power and responsibilities of the various levels of government have changed with changes in the constitution and perceived abilities of each government to undertake the financial and managerial responsibilities assigned. Thus, no single tier of government has absolute responsibility for any sub-sector; rather there are varying degrees of overlap. The three levels of government (Federal, State and Local government) have responsibilities with regards to basic education.

2.2.1 Federal Ministry of Education

The Federal Ministry of Education (FME) is structured into 8 departments. Of these, three are common services departments, namely:

1) The Planning Research and Statistics (PRS) department is in charge of collecting a series of data on enrolment and facilities and conducts a census of teachers.
2) The Administration and Supply department is responsible for personnel matters and office and stores management.
3) The Finance and Accounts department manages the budget of the Ministry.

There are five operational departments:

1) The Primary and Secondary department is responsible for primary and secondary education matters nation-wide in accordance with the provision of the ministry and in particular the management of the Federal Government Colleges.
2) The Higher Education department supervises tertiary institutions in collaboration with the relevant parastatals. It strives to promote an environment which facilitates learning, scholarship and crisis-free tertiary education.
3) The Technology and Science Education department is responsible for pre-vocational and vocational education as well as primary and secondary science education. It is also responsible for establishing and managing federal science and technical colleges.
4) The Educational Support Services department gives support services to all the departments of the Ministry in areas that cut across departmental responsibilities. It evaluates qualifications; disseminates information on accredited institutions and courses in Nigeria and overseas; co-ordinates international co-operation in education; and adopts strategies that would lead to the reduction of HIV prevalence.
5) The Federal Inspectorate Services department is the quality control unit of the ministry and monitors the quality of primary and secondary education nation-wide.

The Planning Research and Statistics department (PRS) is responsible for production of statistical reports and analysis of data. The PRS department is also in charge of research but it seems that there is a capacity gap here as very few staff in these departments have been trained to plan or conduct research. The ability to conduct analytical work is limited and the lack of a culture for data use could also be a factor.

2.2.2 State Ministries of Education

The State Ministries of Education have similar structures to those of the Federal Ministry of Education, for example having the three services departments, although the operations of departments vary according to the needs of the various states. The State Primary Education
Board (SPEB) retains an important managerial role for primary education. The SPEBs were formed by the states, and theoretically they report both to UBEC and to the state governments, but in practice they are not within the authority structure of the states. The chairmen of SPEBs are not members of the State Executive Councils and are not reporting to the Councils through the state ministries of education, or through any other organization. They report only to UBEC, which is a federal organization (see below).

2.2.3 Local Government Education Authorities

The Local Government Education Authorities (LGEAs) manage public primary schools, with help from the State Primary Education Boards (SPEBs).

Other than assigning the formulation of national policy and standards to the federal government, and the running of primary education system to the states, the constitution does not further detail responsibilities among the three tiers of government. Most functions are defined by it as concurrent, meaning that each can, but does not have to, be involved. As a result, the primary education sub-sector is highly fragmented. Each tier, each organization, is doing something in almost every functional area, but without full accountability. The various functional areas suffer from lack of leadership and direction. They have no integrated approach – no coherent conceptual framework, policy or strategy. All organizations in all tiers of government are involved in them – each doing something. However, this is done with little coordination and much bureaucracy (World Bank, 2004).

Moreover, there are several parallel structures (parastatals) which deal with the education sector, creating confusion and duplication in terms of action.

2.2.4 Universal Basic Education Commission (UBEC)

In 1999, President Obasanjo launched the Universal Basic Education program (UBEC) in order to accelerate the progress towards Education For All. Its main mandate is to provide free and compulsory basic education to all Nigerian children ages 6-15. The UBEC has a fully-fledged Monitoring & Evaluation department, responsible for monitoring all aspects of the primary education programs. Monitoring officers at these zones visit the SPEBs as well as the primary schools.

The UBEC is working with states to develop plans and funding proposals for state universal basic education implementation. The issues of adequate teacher supply and teacher quality in most States, against the background of increasing enrolments in primary and junior secondary schools, is a cause of concern.

III. THE EDUCATION MANAGEMENT INFORMATION SYSTEM

3.1 Background

The production and use of education statistics have not in the past received as much attention by government as they should. As a matter of fact, agencies and processes for producing, using and maintaining statistics as a basis for policy making and monitoring have been severely eroded and over the years, policy making became increasingly ad hoc, and
monitoring of policy outcomes completely absent. Over the years, there was little demand within government for good statistics and overtime funding for production and maintenance of statistics dwindled to almost nothing. At the same time, capacity fell drastically.

From 1991 to 1998 data was collected by the education Data Bank and released by the Statistics Division of the Ministry. The regular school censuses were not undertaken after 1998. In February 2002, the practice was revived and a census was held with two sets of questionnaires, one for 2002 and the other for 1999-2001. A set of results was prepared but then withdrawn as it became apparent from the verification exercise and checks on the accuracy of data entry that it contained significant errors, mainly for primary enrollment. Authorized data are now being released.

Moreover, data from private schools and secondary schools are poorly captured. The poor data coverage on private and secondary schools causes two major problems: (i) there is no accurate information on the size and characteristics of the private sector and secondary level; (ii) the enrollment rates are significantly underestimated. These problems directly affect the monitoring of the private school performance and of the implementation of the universal basic education.

Within the past year, considerable progress has been made in consolidating Federal level EMIS development with support from development partners. In this framework, an EMIS specialist has been appointed in 2004 by DFID to assist the Federal Ministry of Education to (i) redesign a census form, (ii) to formulate and implement a strategy reconciling school census data for 2003 with states and with the design of a 2003 school census publication, (iii) to design interfaces, reports, database, rollout of EMIS software for Nigeria.

At this time, data collection is organized at a central level through the Education Data Bank. But some states have their own processes to collect data. In fact, during the UIS mission in January 2005, three states – Kano, Lagos and FCT – also had their own questionnaire and process of data collection and production.

### 3.2 Data collection at Federal level

#### 3.2.1 Chain of production of statistics

The data collection forms are initiated and distributed from the central level. Within the Planning Division, it is the Education Data Bank, which organizes the annual school census and processes the raw data obtained. The Education Data Bank mandate is to produce data for primary and secondary education.

For the school year 2004/2005 a new form has been designed by the Education data bank with support of the DFID consultant. This new form includes questions concerning enrollment for school year 2003/2004 because no data has been collected for that year.

The schema below describes the process of data collection for primary education.
The 2004/05 school census was scheduled to start in February 2005; with 9th February, 2005 is chosen as census day all over the country. For each school, three copies of questionnaires are distributed. One set of questionnaires is returned to the Education Data Bank/FME at the central level. The state keeps one copy and the last copy is kept at a school for its reference and use.

Schools are expected to return the questionnaires in two weeks, before the 20th February. School principals return the completed questionnaires to the LGEA. Once the schools return the completed questionnaires, the LGEA verify completeness and accuracy of the information and forwards them to the State SPEBs, who forward them to the Education Data Bank.

Data capture will be done at central level at the Education Data Bank during one month with 40 computers. They plan to recruit people and to train them. New software has been developed concerning data capture with the EMIS specialist appointed by DFID and four national application developers. They will use Local Area Network but in January 2005, data capture has not yet been tested in the network environment.
For this year (2004/2005), data from private schools should be integrated in the process but it appears that nothing has been done in order to involve them. Moreover, there is not a clear definition of private schools. So, important efforts should be undertaken by the government in order to define what a private school is and how to capture its data.

**Note**
The UIS team has the opportunity to be in Nigeria at the same time as the official Census day for the 2005 Federal School Census and to observe it in Oyo and Lagos States.

In Oyo, given its importance, the Census was delayed a week to 16\textsuperscript{th} February to allow sufficient time for on the ground planning and training. Forms had arrived Friday afternoon 4\textsuperscript{th} February, with insufficient lead time for adopting 9\textsuperscript{th} February as Census day. The following alternate schedule was planned:

- LGA’s being trained on 11\textsuperscript{th} February
- Distribution of forms to schools on 13\textsuperscript{th}
- Meeting with Association of private schools on 15\textsuperscript{th}
- Radio Announcement on 15\textsuperscript{th} Feb
- Census day on the 16\textsuperscript{th}
- Forms to be returned from schools on 18\textsuperscript{th}

In Lagos, the decision had also been taken to delay the Federal school census by a week. But the state census forms had already been distributed and the Headmasters received one day of training in completion of the state form. This training is given each year.

### 3.2.2 Analysis of data collection instruments (Annual school census forms)

The school census questionnaires (pre primary and primary education) collect the much-needed information for policy formulation and planning.

The form includes 17 pages including 4 pages of notes on completion of the form. The form is completed by the Head-Teacher/Principal who is fully responsible for the accuracy of the information supplied on this form. The questionnaire is structured in nine main parts. Following are comments on each section.

#### A. School Information

The information requested is basic. However, it is important to note that for the 2004/05 Census, a school code will be attributed to each school by the Education Databank. Hence, a list has been circulated to all State Ministries of Education in a directory that contains the name of the school. The head teacher must enter the school code which represents a unique identification for his school. If the school is missing from the list, he/she should report to the State Ministry of Education and a code will be assigned through the State Ministry to the school.
B. Basic school information

The sociological aspects of the school environment are strictly limited to the Urban/Rural items, but many items are available to characterize the school status. The classification into Urban or Rural School is done by the State on the basis of purely administrative criteria (a school is Urban if it resides in a population centre of more than 20,000 people or is the capitol of a Local Government or has been so designated by the state government in an official release).

In the current questionnaire, there is no information on the school’s economic, social and cultural environment that could foster a better understanding of the school’s environment. Such data would be a rich source of information for the preparation of the educational mapping as a micro-planning tool.

C. Pupil information

All the data required for computation of the principal coverage indicators, outputs and flows are collected from Kindergarten, Nursery School and primary school. The data are not collected according to pedagogical group but are rather combined according to the year of study: the number of the pupils is gathered by year of study, sex and age.

Information concerning pupil flows is collected as follows: (i) repeaters, (ii) withdrawals, which refers to pupils who are no longer in attendance in the school and left with or without a transfer certificate during the reference school year, (iii) deaths and (iv) new admissions, which refers to pupils who were not in the school at the start of the school year but were later admitted.

In this section, information on pupil attendance for the month of January and pupil attendance on census day in 2005 is requested.

There is also a specific table concerning data on special pupils. Enrollments are collected by gender, year of study and type of handicap.

Information on pupils who have lost one or both parents during the last 12 months is requested.

<table>
<thead>
<tr>
<th>Children losing parents</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of children who have lost one or both parents during the last 12 months?</td>
<td>Number of Students</td>
</tr>
<tr>
<td></td>
<td>Illness</td>
</tr>
<tr>
<td></td>
<td>Male</td>
</tr>
</tbody>
</table>

In summary this section is quite comprehensive. One gap is that no information is collected on the distances traveled by the pupils to go to the school. These data are helpful for school mapping and micro-planning of needs for new schools.

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1 A pedagogical group refers to the group of students in one classroom at a given level of education.
D. PTA and management committees

In this part, the information requested is very complete and concerns essentially: (i) is there a PTA and a school committee management in the school, (ii) PTA resources, (iii) school fees and other costs.

E. Facilities

The information requested is very complete and concerns (i) water, (ii) electricity, (iii) security environment, (iv) recreation facilities, (v) health including question on HIV/Aids training for staff, (vi) number of streams and total seating capacity, (vii) staff and pupil rooms, (viii) toilet facilities and (ix) condition of grounds.

F. Miscellaneous

Several types of question are requested in this part such as: (i) assessment, (ii) inspection, (iii) boarders, (iv) other school uses.

G. Physical structures

Data requested is very complete

<table>
<thead>
<tr>
<th>Block Number</th>
<th>Number of Rooms in each block</th>
<th>ROOMS IN USE</th>
<th>ROOMS NOT IN USE</th>
<th>ROOMS BEING USED AS CLASSROOMS</th>
<th>Main material used to construct the block</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The total should equal number of rooms in each block.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Number in good condition</td>
<td>B. Number needing minor repair</td>
<td>C. Number needing major repair</td>
<td>D. Number of unused Rooms (Not included in A, B or C)</td>
<td>Number of classrooms being used as classrooms in each block</td>
</tr>
</tbody>
</table>

The instructional notes to complete this table are clear and try to limit the subjective answers.

- **Number Needing Minor Repair**: This includes all repairs that are not considered a Major Repair

- **Number Needing Major Repair**: This includes classrooms that need walls, floors or roofs fully replaced.

H. Staff information

The data from teachers and non-teaching staff are very complete. However, there is not a unique identifier concerning teachers. It means that data are not easy to use and it is not possible to link it with pupil enrollment by class.
The table concerns information on teacher.

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Sex</th>
<th>Number of years of experience as a teacher</th>
<th>Number of Years with the School</th>
<th>Highest Qualification Code</th>
<th>Grade Level</th>
<th>Year of Birth</th>
<th>Weekly Teaching Load (hours)</th>
<th>Tick if teacher was present for the 2004 School year</th>
<th>Tick if teacher was present for the 2005 School year</th>
<th>Tick if teacher was present for the 2006 School year</th>
<th>Tick if teacher was present for other years</th>
</tr>
</thead>
</table>

I. Pupils and teachers’ books

The number of teacher and pupils books available for each subject is requested by level and data are complete.

In summary, the pre primary and primary form is well designed and information requested is very complete. However, there is no possibility to link data from different sections to one another.

At the end of the form, the executive member of Parents Teachers Association or chairman has to verify data recorded.

At the date of the UIS mission (January – February 2005) it was impossible to undertake the analysis of the data base linked to this form because data was not yet filled by schools and this is the first year that this form is used.

3.2.3 Review of data processing

Data from 1999 to 2003 has been migrating into a single data store from Access to SQL by the consultant working under the DFID.

1/ A brief analysis of the Access database structure follows.

The data to which the analysis related are those of the school census 2002-2003 (there was no federal school census in 2003-2004). These data are gathered in an Access database made up of 15 tables.
- **Data structure and data integrity**

There is a separate school census database for each year. There is a duplication of data and risks of errors from one year to another one. The principal interest to have a multi-annual database is to carry out longitudinal analysis. Moreover, many tables have too many fields. They could benefit from restructuring in order to simplify their use.

For example, the table “enrolment-age” which classifies the pupil distribution data according to age and grade, is badly structured and it is therefore not easy to build a simple query such as “how many girls between 7 and 10 years old are enrolled in grade 2?” In fact, given the complexity of the data structure, responding to such a query would require a computer scientist to write a programme, which shows the limitations of this structure. With a better data structure, facilities could be designed for user friendly query of the database would be possible by non-technicians.

In addition, the conceptual documentation of the database does not exist.

- **Software tools**

The software tools available to carry out the data capture have been developed in VBA Access. One limitation is that there are no controls on the coherency of data entry. For example, a number repeaters number higher than the total number of students (cf. screenshot below) could be entered and accepted by the system.

![](image)

2/ Analysis of the SQL server database

A new structure using Microsoft SQL server was developed at Federal level. This environment is clearly more reliable than Access and creates a database allowing for multiple users.

The new model has implemented a complete new data structure with some major key points:
- Taking into account a multi-annual structure for the data
- Systematic use of naming conventions
- No duplication of information (except for one table)
- A good documentation on the conceptual model (database design, report design, programming convention, interface design)
More precisely, specific key prefixes are used for all tables

<table>
<thead>
<tr>
<th>TblBse_</th>
<th>For Base Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>TblExt_</td>
<td>For External Data</td>
</tr>
<tr>
<td>TblMdt_</td>
<td>For Metadata Tables</td>
</tr>
<tr>
<td>TblSys_</td>
<td>For System Tables</td>
</tr>
<tr>
<td>TblVar_</td>
<td>For Variable Tables</td>
</tr>
</tbody>
</table>

- **Data migration**

Data from 1999 to 2003 has been migrated into a single database from Access to SQL by Education Data Bank’s programmers. A brief analysis carried out by UIS of the data shows that there are many discrepancies between SQL and Access data.

The following graphs show i) the differences concerning enrolments by grade ii) the incoherencies between two years.
Moreover, it seems that there is a little harmonization of data collection and production of Education data in Nigeria between Federal and State levels. According the technical committee on EMIS in charge of promoting census data and making the data acceptable, reports generated from Baseline data 1999-2002 have been collated, verified at a Federal forum and later at a States forum on 25th October 2004 for consensus building. In fact, several states did not agree with data produced. Most of discrepancies are based on the number of schools at state level. The following graph is an example of discrepancies.

Between federal and state data, there is a difference of 2106 schools (54503 schools at state level and 56609 at federal level). Three states have no data (Abia, Akwa Ibom and Jigawa). Greater differences are in Oyo, Lagos, Enugu and Delta states. The situation is same concerning enrolments.

Current Data Situation in Nigeria – Primary Schools (State Figures / Federal Figures)

3.3.1 KANO State

Under the Kano State Capacity-Building Project, funded by the U.S. Agency for International Development, experts from Research Triangle Institute (RTI) are helping to develop a computer-based information system for the State Primary Education Board (SPEB).

Over a period of 1.5 years, Kano State has received support from RTI experts under a project funded by USAID to develop a computer-based information system for the State Primary Education Board (SPEB). Within the EMIS Unit, there are six computers and one server. In this framework, different tools and training have been developed. Four SPEB staff are working on the implementation of the EMIS, alongside RTI consultants. All SPEB staff have computer backgrounds and at least a diploma degree. They received training, especially in Access and Excel. They are undergoing SQL training (6 hrs by week) but at this time, they didn’t know how to make any changes to the application. Development is being undertaken by the RTI
project team, transfer of knowledge and ownership by national authorities is planned to occur later. Further Training is planned in March – to enable state to take of maintenance of the system. The USAID project was nearing its completion, and the essential training in SQL and transfer of knowledge was scheduled to occur in the last months of the project.

The state Census questionnaires developed for Kano is quite similar to the Federal level one. One difference is that is collects data on pupils according the type of shift (morning / afternoon shift). The questionnaire is sent to schools in triplicate with instructions on how to complete it. The questionnaires have to be returned to the LGEA where the school is located and the LGEA will then forward it to the director of PRS at SPEB, Kano.

The EMIS system in Kano has been built using web-enabled software. It is designed for the collection and Electronic data capture of core education statistics for pupils, teaching and non teaching staff, school infrastructure and other equipments at pre-primary and primary levels, in public and private schools in the Kano’s state. The main characteristics of the EMIS are:

- provide electronic screens for the capture of questionnaire data for different schools classified by LGEA and period of data collection;
- provide access control to the information captured by the use of electronic forms by restricting access and editing capabilities to selected personnel
- provide access to a full set of statistics reports with graphic representation

The LGEAs are also involved in the process of data collection. At first, a training session on “how to fill the form” is organized during one day in each LGEA with all head teachers (There are 44 LGEAs in Kano state). After completing the forms, school directors return them to the LGEA, where they are verified.

There is no link between State school code and Federal school code. The program used in Kano gives a code automatically to a new school. The form does not include the school code, because the program can identify it by the name. This can create errors if the name is badly written. The information on teachers is not recorded if it has already captured the previous year.

The program produces reports automatically for all levels (State, LGEA, Zone and Schools). Reports are given out to all schools around November. The information includes:

- Name of school and head teacher
- Name of LGA and town
- Enrolment by sex and grade (table & graph)
- Textbooks by subject and grade (table)
- Number of teachers qualified and unqualified (table)
- Number of benches (table)
- Pupil teacher Ratio (table) and comparative graph with LGEA and State
- Comparative graph with LGEA and State on pupil classroom ratio
- Comparative graph with LGEA and State on pupil seat ratio

This sort of feedback to schools and school councils is very exemplary, and LGEAs asked about this practice indicated that this information is found to be very useful at the school level.
The EMIS project produced automatically a statistical yearbook in February 2005 for the school year 2003/2004. Last year, the cost of the State level census was around 560,000 Naira (including training, materials, transport, etc.).

An uneven capacity was observed within Kano: SPEB has an EMIS but within the Planning, Research and Statistics Unit, there is no EMIS and equipment is very limited. This unit has just received a computer by the local government. The State Ministry operates with no computerization of data. Within the PRS, there are 11 staff with formal training in education and in statistics. Their capacity to plan and to carry out research is very limited.

- School mapping

In KANO State a school mapping project was funded by USAID. In fact, the result of the project consists of a set of different maps showing the existing schools in the town. However, there appears to be no connection with demographic data nor with the school census data. Without such linkages, it does not provide a real tool for allowing for management of the supply and demand of schools.
More precisely, the following information is available in the GIS\textsuperscript{2}-database:

![GIS Database Table]

1. This data structure shows that there is no a common coding between the GIS-Database and the EMIS.

2. A school mapping database must be updated each year, in particularly to prepare the next school year. No identification of the year appears in the data structure. Hence, it is impossible to identify the concerned year.

### 3.3.2 NIGER State

Niger State does not collect data with its own form because it is too expensive. So, they use the Federal form. There is no state EMIS and little computerization of SPEB.

However, they are doing their own summaries for planning, produced manually by compiling information included in the forms. The summary information is entered into Excel spreadsheets, and these have been used in discussing problems with the ministry. But, analyses are very limited due to the lack of computers and training. There are only two statisticians.

LGEAs play a role during the school Census, including distribution of Questionnaire from the Ministry and sending them back to SPEB. They also help in making sure that the questionnaires are completed on time and they verify data recorded. They have motorbikes to visit schools but there are some schools difficult to reach. Training in completion of the national school census form is very limited.

DFID is coming in with a technical Assistant and a 3 years plan is being prepared for computer procurement, software installation, and training in data entry, Access, and network administration. IDA credits will be used to finance the state level EMIS implementation.

The PRS in SPEB and the State Ministry have an adequate size, with persons with formal training in education and in statistics. But capacities are under-exploited due to a lack of equipment and training. There is no culture of use and analysis of data.

\footnote{Geographical Information System}
3.3.3 IMMO State

There is no EMIS at present in Immo state and the Federal form is used to collect data. There is no evidence of capture of summaries of data into the computer. Within LGEAs, the planning research and statistics unit occasionally uses the data; but the culture of data use is not well developed and there are no computers.

However, at LGEA, they manually collect data quarterly on enrollment and attendance but the information is not shared with the SPEB and Ministry of Education. There is no information on finance. No school fees are paid.

Immo State is one of the 16 states involved in the World Bank project on EMIS development. The Ministry of Education collects data from private schools but information comes from the federal school census. There is no process to capture data. The World Bank and DFID plan to assist Immo State to implement an EMIS and plans are being developed for data entry by LGEAs, merged through networking.

In terms of human resources at the PRS unit at the Ministry of Education, there are around 12 staff, including 2 statistical officers and 2 planning officers. Concerning computers, only two are working and they are used for diverse purposes, but mostly for letter writing, etc.

3.3.4 LAGOS State

Within the Ministry of Education, there is an EMIS unit, which has developed its own EMIS system, using Access. Data have been collected twice annually for last 5 years via an annual state census at pre-primary, primary and secondary levels. The Ministry uses its own data collection forms for:

- m. public primary schools
- n. private nursery and primary schools
- o. public secondary schools
- p. private secondary schools
- q. public technical college

Questionnaire are designed and sent to school heads to complete. Time frames are given for submission through the LGEAs to SPEB and finally the Ministry and thereafter for data capture, analysis and dissemination by the Ministry. There is no formal training of head teachers in filling the forms.

Each of the officers of Research and Statistics Unit of PRS of the ministry is assigned to monitor early completion and submission of data by schools in each of the 20 local education districts. There is 9 staff, including 7 statisticians. The EMIS unit is a part of PRS. Data capture is done by the Ministry, using 7 people. Within the EMIS unit, there is only one computer and a small but effective Communications and Information Technology unit in the ministry responsible for EMIS.

At SPEB, there is a high level political support to produce accurate and complete data for planning education. Budgets to support data collection come from the state education budget (the total budget to collect data is around 500,000 Naira). SPEB and Ministry work together to share the load in data entry of primary questionnaires.
In total, 597 public primary schools, 2000 private primary schools, 300 junior secondary schools and 295 senior secondary schools have been recorded. The Ministry produces statistical reports but there is no data analysis. Ministry staff were unable to offer any explication concerning (i) the very low teacher ratio in Lagos and (ii) the difference between data from Federal and Lagos.

Analysis of data collection instrument (public primary)

The form on public primary schools contains 5 sections. It is a 4 page questionnaire and there is no instruction note. Two copies are sent to schools.

A. Directory
This section concerns the basic information on the school: name and address. There is no information on school code and location (rural or urban) and operational mode (morning / afternoon shift).

B. Enrolment figures
In the same table, data on enrolment and repeaters are collected by gender and by class. Number of streams/arms and classrooms occupied are collected too. The information is not collected by age.

C. Staff figures
Information on teaching staff and non-teaching staff is collected by gender according qualifications.

D. Structure and facilities
Information about the state of the school/blocks and toilets are detailed and allow, for example, supporting the development of a precise program of building rehabilitation. In addition there is a table office available.

Information on furniture is requested, especially on desks, tables and chairs but there is no information requested on textbooks. Information on sources of water, electricity supply and fencing is requested too. The head teachers can add comments at the end of the questionnaire.

Concerning the form for the private primary schools, information is requested for 2003/2004 and 2004/2005. There are no tables concerning structures and facilities, but there is a table on tuition fees/remuneration.

Coordination of data and EMIS between Federal Ministry of Education and Lagos

Up to now the flow of information between the state and FME was slow and not effective. This has improved through the EMIS implemented at FME but there are still some hurdles to cross before this could be effective. These are:

r. Data from FME sometimes are at variance with those supplied by the state
s. In most cases, Lagos state is underestimated by figures provided by the FME (the state view)
t. Duration of the annual school census exercise organized by FME is too short to capture the total school population (public, private) in the state

u. Need to provide more facilities in areas of software and networking for the entire state education organ as well as capacity building for EMIS staff.

There is a World Bank project to assist the implementation of EMIS at SPEB. There is already a work plan and at first, the project will focus on 6 LGEAs. They plan to provide computers and training.

### 3.3.5 OYO State

The UIS team went to the OYO state in order to observe the school census day. Unfortunately, the state decided to postpone the school census by one week because they received the forms from FME too late.

A revised schedule was developed by Oyo state authorities as follows. Forms will be distributed to schools by LGEAs on 16\textsuperscript{th} February. The forms should be back by the 18\textsuperscript{th} and before the 22\textsuperscript{nd}, all forms should be available at the Ministry and after sent to FME. They received only two copies of forms for each school. So, the Ministry will ask to schools to make 2 additional copies in order to have 4 (1 for school, 1 for LGEA, 1 for the Ministry and 1 for the FME).

In order to improve data collection from private schools, the ministry held a meeting with the representative of private schools to ask him to sensitive all schools to the needs to collect data from all schools.

The PRS unit at both Ministry and SPEB has an adequate size, with staff with formal training in education and in statistics. Excel summaries of school census data have been produced. There is a room with eight computers but they are obsolete. For this year, 6 Million Naira coming from the state budget is available to acquire computers for computerization of state data. A generator should be purchased too because at this time, there is a great problem of power and no generator. This budget should include EMIS training and computerization at LGEA level.

Within SPEB, there are 7 people at PRS unit, including 3 people in statistics. The World Bank project is planned to develop an EMIS and an assessment of material requirements should be done soon.

### 3.3.6 Federal Capital Territory (FCT)

The FCT collected is own data with separate questionnaires for public and private schools. School census data are collected annually and data capture is done at FCT into Excel spreadsheets.

Head teachers receive training from time to time in completion of the forms. When they received the questionnaire from FCT – around December - they have to return the questionnaire 3 or 4 days later and they keep one copy.
In total, at FCT, there are 45 secondary schools and 362 public primary schools. 200 private primary schools and 20 private secondary schools are registered. There are a lot of unregistered schools (around 500 private) which are not included in the data collection. They have problem to collect data from private schools.

An annual report is produced and published with several figures but there is no analysis on data. There is no connection between database at FCT and FME.

3.4 Data collection at LGEA level

Since the introduction of UBE, both SPEB and LGEAs are linked with the UBE Commission (UBEC). However, the Supreme Court ruling of April 2002 has relieved the Federal government of some functions, which are now transferred to the Local Government through the State Primary Education Board (SPEB).

Specifically, supervision is the main responsibility of the local Government Education Authority (LGEA) and in most cases this is limited to record keeping and the physical aspect of inspection. In terms of data collection, as indicated below, LGEA plays an important role in the chain of distribution of school census forms to schools. They are involved in the process and have to verify the accuracy of data recorded by head teachers. Data from private schools are not collected by LGEAs because private schools are not under their responsibilities.

In most of districts visited by UIS team, LGEAs collect information manually every month or quarterly on schools and send summaries to SPEB. The information collected concerns enrolments and staff and they are doing their own analysis and planning but most of the time, this is very weak due to a lack of skills and computerization.

The current primary school management arrangement between the states and the Local Government Education Authorities (LGEA) needs to be clarified to remove tension, duplication of efforts and wastage of resources. The LGEAs should be more empowered with unhindered resources to carry out its statutory functions of supervision, supply and management of schools (World Bank, 2004).

Generally, staff at PRS has a good education level but a weak computer expertise and formal training. Statisticians have at least a diploma. But it appears that their qualification is under utilized due to the lack of equipment.

3.5 School record keeping practices

Primary urban and rural schools were visited in each of the 6 districts in order to observe the school record keeping practices and to interview the head teacher on the school census.

- Admission Registers

Schools used standard registers containing several pieces of information: admission number, name, gender, age, date of admission, name of parents or guardians, address and religion. Registers are well established and updated but most of the time, date of birth is problematic – especially in rural areas - due to lack of birth certificates. For example, registers asks for
“approximate data of birth”; in some cases exact date is reported, in other cases only the year: in a rural school visited, the entry age at school was 7 for boys and 6 for girls. Hence, in the column “approximate age of birth” all girls were born in 1998 and all boys in 1999.

➢ Attendance Registers

This is a daily attendance register and generally data is well captured. It is used to complete the school census form. However, age data is weak on these, and in spot checks did not correspond to that in the admission registers.

➢ Completion and Use of School Census form

Many headmasters had filed the school census form but could not find their copy of the census form. According to them, they are not making any use of the information.

The part on “pupil enrolment by = age” is badly filled (see example below) because systematically, the “theoretical” and not the actual age of students is frequently reported. This is due to the lack of information on how to collect age data, lack of good information on birth date, and a lack of training on what data are to be reported.

An analysis done by UIS of the database, showed that fully 40 percent of schools nationally reported “theoretical” rather than actual age. This pattern of response is illustrated in the example below, where all grade six students are recorded as 6 years of age, all grade 2 students as 7 years old, etc.

<table>
<thead>
<tr>
<th></th>
<th>6 years</th>
<th>7 years</th>
<th>8 years</th>
<th>9 years</th>
<th>10 years</th>
<th>11 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>NIVEAU</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>PR1</td>
<td>23</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>PR2</td>
<td></td>
<td></td>
<td>28</td>
<td>33</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>PR3</td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td>19</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>PR4</td>
<td></td>
<td></td>
<td></td>
<td>22</td>
<td>24</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>PR5</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>22</td>
<td></td>
<td>42</td>
</tr>
<tr>
<td>PR6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>22</td>
<td>28</td>
<td>33</td>
<td>25</td>
<td>19</td>
<td>277</td>
</tr>
</tbody>
</table>
Clearly this demonstrates that the age data for Nigeria are unreliable and hence should not be used until improvements in the collection of this information can be undertaken.

- Other records maintained at the school level

In all schools, there is a register concerning teacher attendance and national and state examination results. Generally the teacher attendance data are sent to the LGEA.

3.6 Conclusion and Recommendations

There are examples of successful state EMIS in Nigeria in Kano and Lagos, and with some automation falling short of a full-fledged EMIS in FCT. However, it is important to note that EMIS development is not just a technical issue of supplying hardware and EMIS software. It needs to be accompanied with extensive training, so that state authorities own and operate EMIS – and have the skills needed to maintain and adapt the system. But it appears, that this is not always the case. Training needed includes first training in basic computer skills, training in use of EMIS software, training in SQL or other programming languages needed to change and modify the system; etc. This is a large undertaking - that needs a thought through and resourced plan, and which will take time to achieve.

At a state level, there is also need to build capacity in the use and analysis of the data. This is an area where needs are perhaps greatest. This includes training in how to query the EMIS system, in the understanding the definition and importance of education indicators for planning purposes.

In terms of data collection, it is important to define roles between FME, State – including SPEB, and LGEA in order to avoid duplication. Data is a good that can be shared, and whose value increases with use. Multiple, uncoordinated data collections are costly, and create confusion about which numbers are right. There should be one unified data collection which meets needs of all users. Most of the time, data are collected several times by different administrations and at the same time, activities of planning are very weak due to the lack of training and equipment (computers and generators).

IV NEEDS OF DATA AND INDICATORS

4.1 Information needs

At central level

Under the Universal Basic Education Act, 2004, the broad central goal is to attain universal basic education (UBE) by the year 2015. Key complementary objectives include improving equity, quality and learning, as well as the expansion of early childhood care and education and adult literacy.

Measurement of school enrollments, and their transformation into net and gross enrollment ratios, has been problematic in Nigeria for many years because of the widespread inflation of enrollments in some states, the unreliability of school-age population estimates, and unreliability of school census data by age. To produce the educational indicators which required the population data, the Ministry of Education uses projections based on the last
population census produced in 1991 and the Nigeria Demographic and Health Surveys produced in 1999 and 2003. In Nigeria, population has always been a contentious issue because population figures are used by the Federal Government as one factor in the allocation of funds and power sharing.

As is also the case for educational expenditures, international tabulations of enrollment data tend to neglect Nigeria on the grounds that reliable information is not available. The recent EFA Monitoring Report (UNESCO, 2002) has gaps for Nigeria in most categories. However, for those responsible in Nigeria for the development of the education system best estimates have to be constructed and used.

The scarcity of data and the very limited analysis of data have limited the availability of indicators. Hence, this limits the ability of those who make, interpret, and implement policy in the federal and state governments to undertake their own analyses of the dynamics of the educational system, design new interventions, and gauge their effects.

Now that the data on primary and secondary school enrollments are becoming available through the 2002 School Census, with a better level of accuracy than in the past, it will be important to delve deeper into these data to understand better the patterns of student flows and the efficiency of the educational system. In these efforts it is important to move away from the traditional gross and net enrollment ratios toward measuring the intake, survival, and completion rates for each cycle of schooling.

As the Universal Basic Education program develops, it will be necessary to focus even more on rates of completion of primary schooling and of junior secondary schooling, depending on the state. Currently, the lack of data on repetition and reentry rates makes it difficult to understand student flows. At the same time, it appears urgent to train staff to use and analyze data.

State and Local government level

Current conditions in the 37 states (including FCT) and 774 LGAs are very different. Some states and LGEAs are already close to UBE today, while others have a long way to go. Thus, the magnitude of the job to be accomplished by each is different, and the resources required by each are also different. At the national level there is no strategy yet to address the large differences among the states, and at the state level there are no strategies yet to address the differences among the LGEAs. The formula for the allocation of funds to the states and LGEAs from the Federation Account is not structured well to compensate for these differences (World Bank, 2004).

Hence, it seems that the achieving UBE throughout Nigeria by the year 2015 may be difficult. Each of the states needs to re-think its own strategies, building realistic objectives. The lack of realistic objectives is also due to a lack of indicators and data for monitoring and planning purposes.
4.2 International Information Needs: MDG’s, FTI Indicative Framework; EFA indicators

Developing countries and the international community alike are committed to important development goals. These include the Millennium Development Goals (MDG’s); Education For All goals, the EFA FTI Indicative Framework, and the UN Literacy decade.

An important objective of the project of capacity building of education statistics is to develop within countries the capacity for production and use of indicators for monitoring and evaluation of progress towards these important development goals. It is important that these indicators are produced in a timely fashion, and according to internationally accepted definitions and methodologies, to enable cross-national comparisons. Such comparisons are important both to countries as well as the international community to measure country progress in light of internationally agreed to goals.

This section briefly analyses the UIS Statistical Capacity Building Program in terms of how it is contributing and will contribute towards a monitoring and evaluation of a number of the specific MDG, EFA and FTI goals.

The UIS is mandated within the United Nations system for the collection of data from countries in the areas of specialization of UNESCO. This includes education, science and technology, culture and communications. In education, these data are collected via an annual Education Survey that includes three questionnaires – on basic education, on education finances and on higher education. These forms are completed by Ministries of Education and returned to UIS, where the data are quality assured, then added to an international database which UIS maintains, and which forms the basis for international data on education. UIS also collects international data on literacy from countries, in a separate data collection. UIS publishes the education and literacy data in its own publication – the Global Education Digest. Additionally these data serve as the basis for international data on education used in UNESCO’s EFA Global Monitoring Report, in the World Bank’s World Development Indicators, in the UNDP’s Human Development Index, and in global reports by the UNDP on MDG’s.

There are a number of data quality issues for the International Data – many of these are the same or similar to data quality issues nationally. These include:

**Timeliness.** Currently UIS publishes its international education database 18 months after the end of the reference school year. A limiting factor in how quickly UIS can publish data, is the speed of countries in collecting and producing their national data and in reporting it to UIS.

**Coverage and Completeness.** There is a need for improving the coverage and completeness of the data reported internationally to UIS. This is particularly the case for financial data. There are a lot of gaps in the financial data currently reported internationally for Nigeria. This financial data is need for international, national and state monitoring.

For Education For All, data are needed on gender parity and equity; improved data on non-formal education, literacy, life-skills; data on primary completions; and data on quality of education. Each of these is discussed briefly below.

In many cases these international needs coincide with demands for improved information nationally. Action plans prepared need to address how to meet these demands.
Gender. Gender equity in education is both an EFA and a Millennium Development Goal indicator. Gender and age are two basic demographic variables collected in school censuses. Hence the school census data permits analysis of gender parity not only at a national level, but also at sub-national levels, such as by rural versus urban, or by region or district. Such analysis is needed to target efforts to achieve gender equity to where they are most needed. Were the UIS data modeling approach to be adopted in the annual school census, the richness of data collected would permit the analysis of factors impacting on gender parity, for example the relationship between the gender of the teacher and the presence or absence of latrines, on female enrolment rates.

Improved data on non-formal education, literacy, life-skills. Non-formal education is a priority in many developing countries. It aims at developing literacy and other life-skills in the adult population that has not completed formal schooling. Such programs relate to two of the EFA goals – reduction of the levels of illiteracy in the population by one half; and the goal of improved life-skills. The UIS is active in developmental work in terms of: the Literacy Assessment and Monitoring Program (LAMP), to measure literacy levels following a scientifically defensible methodology; studies into the concept definitions of life skills; and development of an EMIS module for non-formal education. Once the developmental cycle is complete, these approaches will be part of the methodologies and systems that UIS can offer to help countries adopt and adapt to country specificities.

Universal primary completions. The UIS has been working actively with the World Bank over the last year to define alternate measures of primary completion, and to begin to collect and publish these data. For the time being a proxy measure of entry to the last grade of primary education as a percentage of the typical-age population cohort has been adopted. More direct measures are sought. One such measure can be taken as those successfully completing end-of-primary exams as a percentage of the typical-age population cohort. The development is being considered of an EMIS module that will link school examinations and school census databases, and permit calculation of such completion rates in timely fashion, prior to the beginning of the next school year and disaggregated by gender, school characteristics, etc.

Quality of Education. Linkage of school census and examinations data will yield a lot of additional indicators on the quality of education from a national perspective, based on the proxy of examinations results. This will include derivation of indicators on exam results by rural versus urban areas; by socio economic status characteristics of the parents; by school infrastructure and supplies; and by teacher qualifications. Such indicators and analyses will be helpful to identify factors impacting on data quality, to help influence policy formulation. In addition to national measures of data quality based on examinations results, the UIS will help countries to participate in regional or international assessments of student achievements, where this coincides with national priorities.

International Education Data on Nigeria

The UNESCO Institute for Statistics carries out an annual education survey to collect data from UNESCO member states. Three questionnaires – on Basic education, tertiary education, and education finances are sent. The questionnaires follow international standards and definitions, to ensure cross-national comparability of the education database maintained by UIS. The questionnaires are sent by UIS to UNESCO National Commissions, who forward the forms to national authorities for completion. In the case of Nigeria, the statistics subdivision within the FME PRS is responsible for completion of the UIS questionnaires.
The data provided by countries are subjected to quality assurance procedures by UIS staff in Montreal. In cases where problems with the data are detected, UIS attempts to resolve these via communications either by telephone, fax, or E-mail with individuals responsible for completing the questionnaires. Where problems cannot be resolved in this fashion due to difficulties in making contacts with country contacts and the short time frames for resolution of such problems, then UIS does not publish the data as provided by the country. Where feasible, the UIS will derive estimates for missing or erroneous data cells, based on accepted statistical procedures, and these are flagged as UIS estimates in the UIS database. When estimates are not feasible, data for the problematic cells are deleted.

The UIS database is used to provide education data and indicators for a number of international publications published throughout the year. These include the UIS Global Education Digest, UNESCO EFA Global Monitoring Report, The UNDP Human Development Index, and the World Bank World Development Report.

Generally in these reports, country data may either be present, present but with asterisks, or missing. Where data are present without asterisks, this signifies that data as provided by the country have met the quality assurance procedures of UIS. Asterisks indicate that the data as provided by the country did not meet UIS quality assurance standards, but that the UIS was able to use statistical procedures to derive estimates for the data cells in question. Missing cells are those for which no data were provided by the country and/or for which no estimates were feasible by UIS.

In recent years, the majority of data for Nigeria has been either missing or with asterisks, signifying a lack of reliable international data on education for Nigeria. With the 2002-03 baselines Census in Nigeria, there is the opportunity to have data present for Nigeria in the next round of international publications.

During both the October 2004 and February 2005 missions of UIS, the UIS delegation met with the Statistics sub-division with the objective to resolve as many as possible of the data interrogations posed by the UIS staff in Montreal concerning the data provided by Nigeria. These meetings included a review of the underlying international standards, and of the relationship between the Nigerian education system, and the International System for Classification of Education (ISCED). Outcomes of the meetings included:

1) Many data problems identified by UIS staff in Montreal were examined and corrections made to the questionnaire responses, and transmitted to UIS. As a result, more data without asterisks will appear for Nigeria in upcoming publications based on the UIS database.

2) A number of limitations of the existing Nigerian data, that could be remedied with simple modifications to the school census questionnaires in the future were noted:
   a. **Teacher data is currently not available separately for pre-primary and primary education; and is not available separately for junior and senior secondary education.** These correspond to different levels of education under ISCED. While enrolments are available for each ISECD level, the lack of separate teacher data, means that indicators such as the pupil teacher ratio cannot be calculated for these levels of education. Whereas in the past it might have been difficult to separate teachers into these teaching junior versus senior secondary, now that the administration of these levels of education has become
more separate, this should be possible in the future. Separation of pre-primary versus primary teachers should also be feasible.

b. **Enrolment and teacher data for technical vocational education are included in the data reported for secondary education.** Enrolments and teacher data for academic and technical vocational streams should be separately reported. As the technical vocational education is provided by separate institutions, it is feasible to derive such separate data, even with existing data, by introduction of a code for type of institution.

c. **Data on trained versus untrained teachers is not provided.** Data are collected by level of qualification (1st or second degree) and discipline and gender of teachers. However in the national context, trained teacher are those with NCE qualifications or BEd - but the school census questionnaire does not ask this.

3) An improved correspondence between the national education system and ISCED was prepared. This correspondence is the basis on which the national data can be reported in terms of the ISCED categories required by the UIS questionnaires, so that in turn UIS data are internationally comparable. Particularly for tertiary education, the correspondence was detailed over what had existed before. The improved correspondence will improve the international comparability of data for Nigeria, and will permit a better understanding on the part of Nigerian authorities of what programmes are included under the different levels. In a given year, if data for one or more of the programmes included in an ISCED level are missing, this can be signalled to UIS. Hence, a better ISCED mapping increases the transparency and the interpretation of the data.

International data requirements need to be factored into the design and development of data systems for Nigeria. As an important part of the international community, data from Nigeria must be present for international monitoring of EFA, MDGS, and progress towards the goals of the Literacy Decade. As well, it is important to have data for Nigeria for other international frameworks, such as the Fast Track Initiative (FTI) indicative framework, so that Nigeria can compare itself to these countries currently in this initiative. There is an advantage to a closer UIS presence in Nigeria, and for its technical assistance in EMIS development and capacity building, as the UIS is uniquely positioned, by virtue of its responsibility for International data on education, to ensure that these international requirements are duly taken into account in the design of national systems; and moreover, to help ensure that as international requirements evolve, this can be reflected in Nigerian data systems.

### 4.3 Unit of Education for All

The mandate of Education for All (EFA) is (i) to produce the National Action Plan for EFA that has credibility and buy-in from all States of the Federation and is workable and (ii) amalgamate the state level plans into a National Action Plan.

Within state ministries, there is a desk officer in charge of EFA plan. But it appears that there is a lack of institutionalization and a great turn-over of these individuals. Situation in terms of equipment and budget is very different according state.
The EFA desk officers collect data on an agreed template for all states. The EFA data collection process appears different from the school census process, but the desk officers met could not explain very well the source of the data. In one case for example the data had been put together by a consultant, who left with the work only partly completed, and the desk officer was not aware of how it had been done, or how to complete the task. But there are challenges on data because of bias for revenue allocation, the attendant politicization resulting in falsification of figures.

At the federal level, in terms of software, the EFA Unit uses Excel and data are aggregated from state level. The unit is computing its own indicators (transition rate, completion rate, pupil/teacher ration, gross enrolment rate).

There is a great gap of information concerning non-formal education and literacy rate. In Nigeria, there is no a clear definition on this.

One of objective of the EFA action plan is to “to strengthen the capacity of the Nigerian education system to collect distribute and use education data as the basis for the planning and management of education change including realisation of MDG and EFA goals in education”.

To achieve this objective, following actions are proposed by UIS:

- Facilitate the UIS in the provision of long-term technical assistance to enable the improved capacity of the Education Data Bank and State planning units
- Train state education statistical officers in the preparation and use statistics in the development of a credible and sustainable national educational policy and programmes for the achievement of EFA
- Upgrade the equipment available to the Data Bank for the analysis and preparation of statistical information.

These activities show that there is a lack of communication between all levels and units working in the education system. Without a clear master plan including role and responsibilities of each one concerning data collection and analysis, there is a great risk of duplicate activities.

4.3 Unit of Education Sector Analysis

The mandate of ESA is to develop a framework for a sector reform project. Hence, the unit conducts surveys in order to identify some key challenges in education with a view to proffering solutions towards making progress. The project covers all levels of education from pre-primary to tertiary including crosscutting themes like Education Management, Quality Assurance, Curriculum, Learning Achievements, etc.

The school census could not provide the detailed information required for specific studies. Hence the unit collects data through specific studies and questionnaires elaborated for these studies. It has investigated around 40 issues and carried out research to supplement data derived from the school census. Around 160 questionnaires have been elaborated.

Six working groups are put in place:

- basic education
- higher education
- technical and vocational education
A large number of reports have been produced, but access to them in electronic form, which would have enabled the UIS team to examine them was not possible. Hence, little information was ascertained on the studies themselves – the methodologies followed, sampling procedures used, etc.

V. DATA QUALITY ASSESSMENT FRAMEWORK – DQAF

One important element of the diagnostic study is the completion of the DQAF in order to provide a benchmark of the data quality and also to help pinpoint weak areas that need to be addressed.

As part of an initiative being lead by the IMF to improve the overall standard comparability of national and international data, the UIS has developed together with the World Bank specialists an education-specific DQAF instrument to assess the overall quality of education statistics, and the setting in which they are collected, produced and used.

In this section, qualities of education data are assessed by using DQAF. This instrument is based on five main dimensions considered as pertinent for an evaluation of data quality. These dimensions are:

- **Integrity**: encompassing the institutional foundations that are in place to ensure professionalism in statistical policies and practices, transparency, and ethical standards.

- **Methodological soundness**: covers the idea that the methodological basis for the production of statistics should be sound and that this can be attained by following international standards, guidelines and agreed practices.

- **Accuracy and reliability**: relates to the notion that source data and compilation techniques must be sound if data are to meet users’ needs. For most users, accuracy and reliability is the most sought out quality dimension.

- **Serviceability**: this relates to the need to ensure that data are produced and disseminated in a timely fashion, with an appropriate periodicity; provide relevant information; are consistent internally and with other data sets; and follow a predictable revision policy. This dimension is also of great concern to users.

- **Accessibility**: relates to the need to ensure that clear data and metadata (information about the data) are easily available, and assistance to users of data is adequate.

The taking into account of all these dimensions in the evaluation makes it possible to provide an overall view of the data quality in the education sector. The assessment has been made at the federal level. Although it does not reflect the detailed situation in individual states, the diagnostic study has revealed large differences in state capacities and the situation of the data quality issues in the education statistics. This assessment can be useful guiding tool to help
strengthen the country’s statistical system by identifying the strengths and weaknesses of the system as well as areas to be improved.

The assessment has been carried with the staff from statistics department at Federal level. It is important to note that results could be different according to who completes the assessment. Table describes the outcomes of the DQAF assessment:

The outcomes of the assessment by usin DQAF Pre-primary and primary education

<table>
<thead>
<tr>
<th></th>
<th>Country Weight</th>
<th>Maximum Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score</td>
<td>%</td>
</tr>
<tr>
<td><strong>Prerequisites to Quality</strong></td>
<td>10.7</td>
<td>59%</td>
</tr>
<tr>
<td>Legal and institutional environment</td>
<td>4.45</td>
<td>89</td>
</tr>
<tr>
<td>Resources</td>
<td>2.5</td>
<td>31</td>
</tr>
<tr>
<td>Quality Awareness</td>
<td>3.75</td>
<td>75</td>
</tr>
<tr>
<td><strong>Integrity</strong></td>
<td>10.25</td>
<td>64%</td>
</tr>
<tr>
<td>Professionalism</td>
<td>7</td>
<td>78</td>
</tr>
<tr>
<td>Transparency</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>Ethical standards</td>
<td>0.25</td>
<td>13</td>
</tr>
<tr>
<td><strong>Methodological soundness</strong></td>
<td>5.05</td>
<td>30%</td>
</tr>
<tr>
<td>The concepts and definitions follow internationally accepted standards, guidelines, or good practices.</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>The scope of statistics is consistent with internationally accepted standards, guidelines, or good practices.</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Classification</td>
<td>1.25</td>
<td>63</td>
</tr>
<tr>
<td>Base for recording</td>
<td>1.8</td>
<td>60</td>
</tr>
<tr>
<td><strong>Accuracy and Reliability</strong></td>
<td>9.40</td>
<td>55%</td>
</tr>
<tr>
<td>Source data are collected from comprehensive data collection programs that take into account country-specific conditions</td>
<td>1.90</td>
<td>38</td>
</tr>
<tr>
<td>Statistical techniques</td>
<td>2.5</td>
<td>63</td>
</tr>
<tr>
<td>Assessment and validation of source data</td>
<td>2</td>
<td>67</td>
</tr>
<tr>
<td>Assessment and validation of intermediate data and statistical outputs</td>
<td>2</td>
<td>67</td>
</tr>
<tr>
<td>Revision studies</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td><strong>Serviceability</strong></td>
<td>6</td>
<td>33%</td>
</tr>
<tr>
<td>Relevancy</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>The timeliness of statistics</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Consistency</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>The practice of revisions</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td>1.5</td>
<td>11%</td>
</tr>
<tr>
<td>The presentation of the statistical series is commensurate with users’ needs.</td>
<td>1.5</td>
<td>25</td>
</tr>
<tr>
<td>Accessibility of metadata</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Assistance to users</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td>42.9</td>
<td>43%</td>
</tr>
</tbody>
</table>
As seen in the above table, the total score for the quality of data at pre primary and primary level is 43%. Some areas score are very weak like methodological soundness (30%), serviceability (33%) and accessibility (11%).

The very low score concerning the accessibility is also link to the multiplicity of data collection and the lack of communication and sharing between institutions at all levels. This shows that statistics are not presented in a clear and understandable manner, forms of dissemination are not adequate, and statistics are not made available on an impartial basis. This point proves that a Master plan is required in order to define the role of each.

Prominently accessibility and serviceability seems to be a major weakness of the education management information system in Nigeria.

It should be noted that while in the DQAF assessment, integrity and accuracy and reliability dimensions scored highly, yet Nigerian education statistics have come under a lot of criticism for being unreliable, and some states have inflated figures in the past. The high scores in these dimensions may be a reflection of the “optimistic” views of the PRS statistics with regards to these problems, and a different reading could have resulted had others completed the DQAF. In any event, the overall assessment is one of many weaknesses.

This depicts clearly the classic and symptomatic vicious circle between statistics units missing the mark of servicing policy-makers with the data they want in timely manner and in turn not receiving recognition as well as enough financial and political support from the policy level. This situation contributes to progressively worsen the overall condition of work for the statisticians no matter their professional and technical capabilities.
Because the minimum professional competencies are already there, the necessary action would be policy-makers to be assisted in clearly formulating their demands for data or indicators, and further to put in place the adequate institutional framework and resources (human, technical and financial) required to address the identified needs. In turn clear goals should be set for the statistics units to attain. The goals need to be regularly monitored and achievements constantly assessed.

VI. CONCLUSIONS

VI. UNESCO INSTITUTE FOR STATISTICS’ PROPOSAL

At the conclusion of the diagnostic study mission, the UIS left behind a proposal for consideration by the FME. The UIS is keen to participate in a consortium of development agencies providing technical assistance to Nigerian authorities in the development, implementation and use of EMIS at federal, state, and LGEA levels, and seeks a partner to finance its efforts.

The objective will be to assist Nigerian authorities to build sustainable institutional, technical and human capacities in the production and use of statistical information for use in education planning and management, and for monitoring progress nationally and internationally towards EFA and MDG’s goals.

There are a number of initiatives underway or planned by development agencies in the area of EMIS. DFID has an EMIS advisor providing technical assistance to the Federal Ministry of Education in the development of an EMIS system at the federal level, and in the conduct of the 2004-05 federal school census, and during 2005 and beyond in the roll out of EMIS to States and LGEAs. USAID is providing also a technical assistance for the development of EMIS in three states – Kano, Nassawara, and Lagos, under a 1.5 year project ending in June 2005. UNICEF has a project planned to begin in 2005 that will include an EMIS development component in 5 states. Work based on earlier World Bank IDA credits in 16 states involved a component related to EMIS. The Technical Partners involved in these initiatives met on 1st February 2005, and there was support of the need for a coherent and harmonized approach to EMIS development in Nigeria and its roll out to states and LGEA’s. Such an approach would involve agreement by Nigerian authorities on a common core EMIS system to be deployed at federal and state levels, with flexibility for additional state-specific additions to the common core to respond to state-specific requirements. Development agencies present were of the view that a consortium approach to EMIS and capacity building, under which each participating agency would provide TA to a number of states, had advantages of combined resources and expertise of the different agencies, and would result in a more effective and timely execution and roll out of EMIS than could be accomplished by a single agency.

The UIS seeks to participate in a consortium of development agencies, with the financial backing of a partner. One option is for the FME itself to bring UIS on board through use IDA credits.
Comparative Advantages of UIS

• Conformity with Existing and Emerging International Standards, Definitions and Indicators for Monitoring of EFA and Education MDG’s. UIS is the UN agency responsible for international reporting of data and indicators for EFA and education MDG’s. UIS works at an international level with the World Bank, UN Statistics Division and other stakeholders, to define indicators, methodologies, and underlying data to be collected to support indicator production. UIS participation in Nigerian EMIS development will ensure Nigerian data conform to international standards, and that Nigerian data will be present in international EFA and MDG reports, and so that ESA and national EFA and MDG monitoring is consistent with that at an international level.

• UIS Institutional Support for Statistical Capacity Building. Statistical Capacity Building (SCB) is one of the main lines of action of the UIS, reflected in the Statutes governing the Institute. UIS has established a program of SCB for providing technical assistance to UNESCO member states in the area of education and other UNESCO domains. The program is financed through extra budgetary sources. Its goal is to help countries to build sustainable national capacities at institutional, technical and individual levels for the production and use of statistical information in UNESCO’s domains to support policy formulation and decision making as well as facilitating the monitoring and evaluation of national and international goals.

Program financing is provided through partnerships, primarily with a number of multi-lateral and bilateral development agencies. In two instances, Ghana and Sierra Leone, countries are financing UIS assistance from IDA and Grant credits respectively. Core support to the programme is provided by the WB and CIDA through grants, permitting work aimed at development of training materials, methodologies and EMIS systems modules. Project support for delivery of SCB technical assistance to countries is provided by EU for a project in 11 EFA FTI-countries; Japan for a project in 15 Pacific Island States; AfDB in RDC; World Bank and AfDB in Sierra Leone; and the MOEYS in Ghana using IDA credits.

• UIS Support Mechanisms. The UIS is active in working with countries globally to develop new methodologies and EMIS modules in response to existing and emerging requirements. Modules where development is underway or planned include: school mapping, non-formal education, and higher education, linkage of examinations and school census databases, and education finances. These EMIS modules are developed through piloting in a small number of countries, with later input from a wider group of countries, to ensure modules broadly reflect the needs of countries. As they are developed, these modules become available to countries with which UIS is working. Similarly enhancements introduced by individual countries become available to other countries. In this fashion there is a growing network of countries, benefiting from these development processes and south–south sharing of experiences. Part of the budget of the UIS program is devoted to ongoing “after project” support to countries in adopting new modules, and helping countries in times of need, such as retraining in the case of unexpected turnover of key staff.

• UIS Expertise, Tools and Training Materials. The UIS has developed methodologies, training materials, and EMIS system modules that with a minimum of effort be can customized to unique requirements of Nigeria. This approach of adapting generalized tools to country specificities has savings over approaches of developing these materials from scratch. A number of the UIS EMIS modules can effectively be combined with the
EMIS development already in progress in Nigeria to fast track efforts. Specifically UIS modules for flexible report generation and for user friendly query of the EMIS database have been demonstrated to the national EMIS Committee and the DFID EMIS Advisor, who have expressed support for the approach of incorporating these modules into the EMIS system being developed for Nigeria.

• Details of the proposal. UIS seeks a partner to finance the costs of UIS participation in a consortium of technical agencies who will work together in a coherent and coordinated fashion to provide Technical Assistance to national authorities to develop and implement EMIS at all levels of government responsible for education in Nigeria (Federal, State, and LGA), and to carry out a program of capacity building to ensure country ownership and sustainability. The program will deal not only with the production of data, but also the use of EMIS data for education management and planning purposes – from the Federal level down to use of data by school headmasters and PTAs for planning purposes.

The UIS TA will be provided by a UIS EMIS and project coordination expert and an IT specialist on site in Nigeria, backstopped by periodic missions of other UIS experts and specialists from its Montreal headquarters and its Dakar Regional Advisor. One of the project modalities will include provision by the UIS of TA to a number of states. The budget includes provisions for travel and DSA to cover costs of the UIS expert for missions to work with these states.

The financing required is only in support of direct UIS costs of SCB TA. The in-country costs associated with EMIS implementation and capacity building, such as equipment procurement, attending workshops and training courses, etc need to be covered – one possibility is use of IDA credits.

Costs: 250,000 USD per year for a three-year period, to begin in an August – October 2005 time frame.