



ED-DATA QUALITY ASSESSMENT FRAMEWORK
(Ed-DQAF) TO EVALUATE ADMINISTRATIVE ROUTINE DATA
SYSTEMS:
MANUAL FOR THE CONDUCT OF AN EVALUATION BY A
NATIONAL TECHNICAL TEAM

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ACRONYMS

CapED	Capacity Development for Education
CoP	Code of Practice
DBMS	Database management system
DQA	Data Quality Assessment
DQAF	Data Quality Assessment Framework
ECD	Early Childhood Education
EMIS	Education management Information System
ESIP	Education Sector Implementation Plan
IMF	International Monetary Fund
LAC	Latin American and the Caribbean
M&E	Monitoring and Evaluation
MoE	Ministry of Education
MoEST	Ministry of Education, Science and Technology
NESP	National Education Sector Plan
NFE	Non-Formal Education
NSDES	National Strategy for the Development of Education Statistics
NSO	National Statistics Office
NTT	National Technical Team
SDG4	Sustainable Development Goal 4
SSA	Sub-Saharan Africa
TVET	Technical and Vocational Education and Training (TVET)
UIS	UNESCO Institute for Statistics
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization

1. Introduction

The Capacity Development for Education (CapED) programme¹ is one of UNESCO's responses to the challenges raised by the "holistic, ambitious and transformative vision" of the Education 2030 development agenda. The programme is organised under 2 components to support countries (1) to integrate the Sustainable Goal for Education (SDG 4) into education plans and (2) to strengthen education monitoring systems.

Component 2² promotes the design of a National strategy for the development of education statistics (NSDES) through the following phases:

- Mapping relevant data sources and identifying data gaps against the contextualised SDG 4 indicators framework;
- Conducting a situation analysis through a series of Data Quality Assessment (DQA) for various required data sources and producing the DQA Reports, including recommendations for improvement;
- Developing the NSDES out of these recommendations.

This manual has been designed to help countries to conduct Data Quality Assessment (DQA) for specific education administrative routine data systems (commonly referred to as "EMIS"). The users are members of the national technical team (NTT) identified for the implementation of Component 2. This manual will be used during the different "learning by doing" phases that have been designed by UIS to assist the NTT members in the process of preparing their DQA report (an initial training workshop, practical sessions and continuous backstopping).

2. The UIS Light Ed-DQAF for administrative routine data systems

The UIS expertise in the domain of data quality assessment tools for administrative data is widely recognised. The initial work UIS undertook with a group of experts from the World Bank was to adapt the existing IMF DQAF³ tool for education data. The Ed-DQAF (a matrix of 140 quality items structured under 6 dimensions of quality) was used for a series of country assessment exercises in SSA, Asia and LAC and became one of the main pillars for UIS capacity building activities in countries. In an attempt

¹ CapED Concept Note

² Component 2 Concept note

³ IMF Fact Sheet.

to make the tool a public good, a Wiki⁴ was developed to particularly centralize all existing documentation and give access to all Ed-DQAF reports and other related materials. However, the lack of proper documentation appears to be the main barriers that hinder the expansion of the methodology to a wider number of countries. These include among others the following:

- Detailed guidance on how to conduct a full DQAF exercise
- Precise description of what needs to be checked, as well as
- Practical scoring guidance for each of the Ed-DQAF items

In the context of the SDG4 Education 2030 agenda and the UIS capacity building strategy revision, the need for a lighter tool to be used as a self-assessment by national teams - still following recognized standards - was raised.

Consequently, the Ed-DQAF tool was revisited (1) to focus specifically on administrative routine education data systems (while other tools were being developed for education data collected through household surveys and for learning assessment studies) and (2) to make sure that evidence for assessment can realistically be identified for each of the selected data quality items. A new “Light Ed-DQAF” was produced, which retained 46 of the 140 items from the initial matrix. The new matrix is also self-explanatory in that practical scoring guidance is given for each data quality item, thus facilitating the assessment by national teams.

2.1. Data source to be assessed using the Light Ed-DQAF

At this stage it is appropriate to define and gain an understanding of what is meant by administrative routine education data systems and the type of data sources that are to be assessed using the UIS “Light Ed-DQAF”.

In the routine discharge of their administrative or regulatory duties, line ministries (e.g. Ministry of Education, Ministry of Health, etc.) or other authorities in a country, collect administrative data. Administrative data are thus a by-product of the administrative process and although not always designed for statistical purposes, these data are potentially a rich source of information for producing statistics.

Typically, and in most developing countries, education statistics collected through administrative systems are run under an annual census that collects aggregated data from schools essentially on the education provision (learners, programs) and inputs (teachers, facilities, finance).

⁴ <http://dqaf.uis.unesco.org>

A common characteristic of the production of education administrative data is its fragmentation among different ministries. One frequently finds several structures in charge of producing data for one or a group of education sub-sectors (one for basic education, one for TVET and another for higher education). In some cases, an administrative data source for the same sub-sector can even be fragmented among different structures in charge (this is sometimes the case for ECD or NFE). It is also important to note that in some cases the official mandate of collecting education administrative data has not properly been allocated to a structure in charge. In such cases, there may be gap in coverage or duplication of efforts.

Within the CapED context, each of the different administrative education data sources potentially identified will be assessed using the Light Ed-DQAF.

2.2. Light Ed-DQAF and Code of Practice

The Light Ed-DQAF is structured under a list of principles and indicators that constitutes the “UIS Code of Practice for education statistics produced and disseminated through administrative routine data systems” (Refer to **Appendix B**). It is based on the UN Fundamental Principles of Official Statistics⁵ but strictly concentrates on education administrative data. It further provides guiding elements to the structures in charge of producing this type of data to produce appropriate and reliable data that adhere to internationally recognised professional and scientific standards.

The Code of Practice is comprised of 8 principles and 21 indicators covering the institutional environment, the statistical production processes and the statistical outputs. Each of these indicators are detailed into a set of 46 quality assessment items to form the Light Ed-DQAF matrix which serves as guidance on how to implement the UIS Code of Practice.

2.3. Light Ed-DQAF Matrix

The Light Ed-DQAF matrix is the core tool of the overall UIS methodology for conducting an administrative data source DQA. It provides a framework to help the NTT to further understand each of the 46

⁵ The United Nations General Assembly has endorsed the Fundamental Principles of Official Statistics last 29 January 2014, in its 68th session. These principles are considered a basic framework which all statistical activities developed by national and international organizations must follow in recognizing official statistics as a public good.

quality items through brief additional explanation and concrete guidance on how to score. Key (highlighted) words used for the description of items are defined in the Glossary (See

Appendix A: Glossary).

The Matrix is also a working tool for evidence based assessment where comments, evidence, brief notes and recommendations for improvement are recorded in a collaborative process to summarise the situation analysis and facilitate the DQA report writing.

3. Overall process of a DQA exercise

As seen above, UIS is promoting a “learning by doing” approach to conduct the DQA. The following phases will be conducted:

- Training workshop (See paragraph 4.): This is a 5 day national workshop facilitated by UIS aiming to train the NTT to conduct a DQA and preparing them for the following phases (organising subgroups and their planning for each data sources)
- Each of the identified administrative data sources will be assessed:
 - Evidence gathering phase (See 6.): A one to two week investigation period where the subgroup will meet and interview the relevant staff in the different departments concerned with the data source and will gather all pertinent elements that will guide the scoring of each of the Light Ed-DQAF quality assessment items
 - DQA workshop (See paragraph 7.): A two to three day workshop aimed at the completion of the light Ed-DQAF matrix
 - Report writing and validation (See paragraph 8.): This phase will be conducted in close collaboration with UIS representative and should not take longer than 2 weeks to produce a synoptic report summarising the findings of the situation analysis and the recommendations for improvement.

4. The training workshop

The workshop will consist of a combination of demonstrations and practical work where skills will be “acquired by doing”. Participants will complete a series of hands-on exercises to assist them to identify the relevant evidence required for scoring the different quality items. This will also help them in the actual situation to assess the data source for which they will be responsible.

Participants will leave the workshop with a thorough understanding of how to use the UIS Light Ed-DQAF to investigate the challenges affecting EMIS. Upon completion of this workshop, participants will be able to:

- Identify and understand the challenges that the structures in charge of administrative routine data systems face in their drive towards the production of education quality statistics
- Identify gaps in the current situation and key priorities for future development through the DQAF
- Put forward recommendations to the Education Authority on ways to improve the quality of education statistics in the country

In addition, each participant will be assigned to one or several data source for which he/she will be in charge of assessing. Together with other NTT members, he/she will have to elaborate a related plan of activities.

The training facilitator will typically go through all the different chapters of this manual following the agenda given in **Appendix C**.

Note: during the workshop, participants will complete a series of hands-on exercises that cover some of the important concepts. Practical exercises will be functional and related to the evidence as required by the Ed-DQAF Matrix, using a range of real-world data sets. The practical work will include exercises to create tables and graph, such as institutions by region, enrolment by grade and year; age by grade, etc. Refer to the special attached Excel files for the practical examples.

5. Constituting the subgroups in charge of the DQA

At the end of the training workshop, NTT members will be organised into several subgroups that will each be responsible for assessing one data source including gathering evidence, completing the light Ed-DQAF matrix and writing the DQA report.

Such a subgroup should consist of the following NTT members:

- At least two members of the structure in charge of the education administrative data source (the authority mandated to collect the data – e.g. EMIS department from Ministry of Education). One of them should take the lead during the assessment.
- At least one member from other ministries working on/with similar datasets (e.g. Higher Education, TVET, etc.)
- At least one member within the same ministry from another department (e.g. Primary Education department, Human Resources)
- At least one member from an external organisation. A representative of the NSO should systematically participate in each of the subgroups.

Please note that one NTT member may participate in several DQA exercises.

6. The Evidence gathering phase

The identified members of the subgroup will first meet to analyse the Light Ed-DQAF Matrix in terms of the data source for which they are responsible, assessing each item to identify which structures (services/departments) will have to be met to gather the evidence.

The structures to be interviewed can be identified among others:

- The main national users of the investigated data source: mainly the different departments of the Ministries of Education (who can sometimes also be producers), the development partners and other stakeholders when constituted as official entities.
- The structures involved in the collection, production and dissemination of data: mainly training institutions (schools, colleges, universities, etc.), decentralised and central units under the relevant Ministries, the NSO and other units responsible for data production will be identified. When possible, a minimum of two institutions per sub-sector and two structures of decentralised levels are to be investigated, mainly to corroborate whether the instructions (in terms of data collection, verification and archival) given by the central level are well received and observed.

Evidence will be collected in the form of documents, data, interviews, etc. from the relevant services/departments.

This fieldwork and on-site visits could be in the form of:

- Interviews: Semi-structured interviews held with key stakeholders. An example of a possible interview guide is provided in the attached MS Word file named “Interview Protocol”. The intention is to structure the sequence of questions and needs to be adapted to the function of the

interviewee (statistician, school head, department head, etc.). It is advisable that one of the team members conducts the interview while another one takes notes.

- Data collection tools: Inventory of existing resources within the structure in charge of the data source investigated will be conducted using some proposed data collection tools given in the attached MS Word File called “List of instruments”. These instruments should be contextualised to the national context, in particular in decentralised countries. Where possible, it could be useful to distribute it in advance so that interviewees can complete the tables prior to the interview. It could then be discussed during the meetings.
- Archival analysis: This observational method is a way to examine the accumulated documents as part of the research method to substantiate the evidence. The documents should include, but are not limited to: promulgated Acts; Policies; documents; official publications; strategic plans of the agencies; and questionnaires used to collect data. A list of these documents that form the basis of the analysis should form part of the final report as an Appendix.
- Analysis of data: When feasible, a basic analysis of the available data in the country should be done for consistency and accuracy, and for trends and patterns in the data that are required as evidence for the scoring of certain items in the Matrix. The UIS representative will provide technical support when required for the use of Excel sheets provided to conduct this type of analysis (Refer to the special attached Excel files with the practical examples).

7. The DQA workshop

Once available evidence have been gathered, members of the subgroup will meet for a 2 to 3 day DQA workshop with the main objective to complete the Light Ed-DQAF Matrix

7.1. Organisation

Several subgroups can possibly be working in parallel in separate rooms to allow the UIS representative to provide continuous guidance on how to aggregate the results of the evidence gathering phase into the Matrix. If necessary, members of the subgroups can suggest inviting additional resource persons, met during the previous phase, to further discuss and clarify certain elements or to take part in the scoring.

7.2. Scoring guidelines

Using the “Light Ed-DQAF” Matrix does not result in a single numerical measure (or index) for data quality. Instead, the Matrix provides the individual score for each item to determine the nature of the

data quality of that particular item. These item scores are not used for inter-country comparison purposes but rather to put forward recommendations for improving data quality at national level.

The usefulness of the Ed-DQAF Matrix lies in providing a well-developed set of questions that prompt the user to consider certain key attributes of data quality. The Matrix does not result in a judgment, but rather serves as a developmental and diagnostic tool. Each scoring level in the Ed-DQAF is applied in the following way:

- Level 4: Meets quality standards
- Level 3: Room for improvement (Acceptable Statistics)
- Level 2: Questionable Statistics
- Level 1: Poor Statistics

In some cases, only three scoring level options are provided (Refer to Items 2-5; 11-13; 19-28; 36-38; 43-46). For these items, level 3 is not available (no guidance is given for that level). This is the case where scoring a 2 or 3 would have no impact on the suggested recommendation. The exception is item 27 where level 2 is not provided.

In other cases, only two scoring level options are provided (e.g. Items 17 and 23). For these items, level 3 and 1 are not available. These items are exceptions and the limited scoring options provided are the only ones available based on the nature of these items.

The scoring should be the result of a global well-argued consensus among the members of the group. Items scored at level 1 or level 2 should be used to propose recommendations and regarded as the priority areas for improvement of the data quality.

7.3. Completing the light Ed-DQAF matrix

The following steps should be considered when completing the Matrix:

- Work through each item and use the evidence to score each item. Should evidence not be provided, then isolate it for further investigation.
- Use the notes in the column with the heading “Brief additional explanation” for further clarification and detail about each item
- Review the item and then assess which level of scoring (see 7.2) closely approximates the status of the assessed quality item.
- Use the associated column (“Score”) to record the level agreed upon among the group members.
- Complete the Evidence Column with information collected during the evidence gathering phase

- In the Comment column additional information can be provided to further clarify the score or explain the evidence.

8. The DQA Report writing phase

The report should provide clearly organised information and/or data about the situational analysis. The writing of the report will take place with the help of the UIS representative. Compiling the report should not take longer than 2 weeks. The report should consist of five main chapters and is structured in the following way:

8.1. Introduction

Start the report with presenting the data source that is being assessed, the structure in charge, the overall data collection process (in a few words) and how it contributes to the overall National Education Statistical System.

8.2. Overview of the Education system organisation

Provide an overview of the education structure in the country, including the different sub-sectors with the age range and grades they cover and the Ministries in charge. Indicate which of these sub-sectors are addressed by the report. The following diagrams could be used to show examples of the education structure in countries:

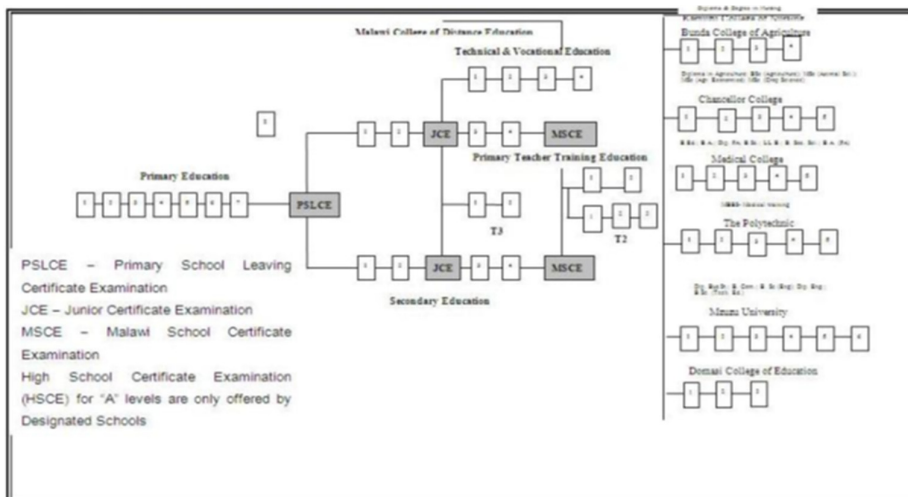


Figure 1: Education Structure in Malawi

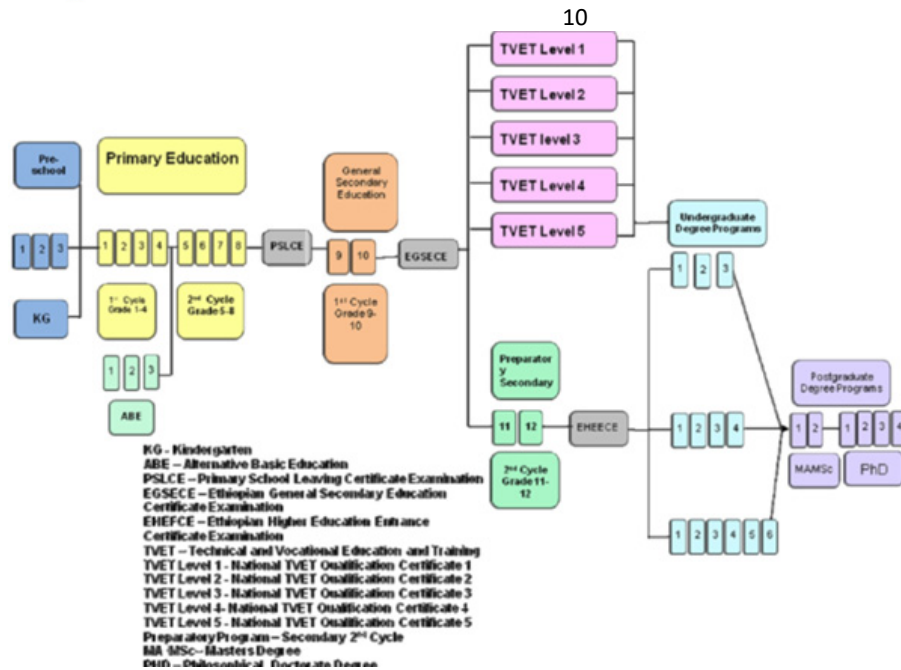


Figure 2: Education Structure in Ethiopia

8.3. DQAF process description

Present the members of the team responsible for the exercise and the process which was followed:

- Training of the team,
- Evidence gathering phase, its methodology (different type of tools seen above), the different departments visited and staff interviewed
- DQAF workshop,
- Report writing and validation.

8.4. Ed-DQAF findings

The major findings extrapolated from the situational analysis should be included in the report. The eight principles outlined in the Code of Practice will be used as the framework to summarise the key findings of the data quality assessment exercise:

- Principle 1: Policy and legal framework
- Principle 2: Adequacy of resources
- Principle 3: Relevance
- Principle 4: Sound Methodology
- Principle 5: Accuracy and reliability
- Principle 6: Periodicity and timeliness

- Principle 7: Consistency
- Principle 8: Accessibility and clarity

Under each Principle, a narrative description of the state of the system in the country will be given detailing or summarising the different items under each principles.

8.5. Recommendations

This section of the report identifies good practices, and opportunities to improve or strengthen the current situation for optimal adherence with accepted statistical standards as introduced by the Light Ed-DQAF. Based on the findings of the situational analysis, it is suggested that recommendations are put forward and categorised as follows:

- Institutional and policy environment (Acts, policies, etc.) and coordination among the relevant structures in charge of data sources should be presented: suggest strengthening the official texts governing the production of statistics and stating on the responsibilities and roles of the different Ministries concerned and the NSO. Provide Examples of Acts and Policies to be implemented.
- Organizational/statistical processes: Recommendations on data collection processes should be emphasised, e.g. questionnaire design, questionnaire dissemination, data capturing, quality controls at different levels of the data collection chain, dissemination schedule, data use and dissemination, documentation (operational manual) etc.
- Technical capacity (data system and dissemination): Focus on the functionality of the system that is required within the Ministry of Education and sub-national levels to improve data quality
- Human resource capacity: Adequate training and capacity building strategies should be included as part of the recommendations

Recommendations produced by the different data source DQA and structured that way will constitute the basis for the development of a NSDES (see CapED Module “NSDES Guide”).

Glossary of statistical terms	
administrative school census	Administrative school census is the set of activities involved in the collection, processing, storage and dissemination of statistical data from institutions
Audited	The process to verifying and validating that the information provided by institutions is correct and reliable. This involves head counts of sample institutions
Data aggregates	Data aggregate is the result of transforming unit level data into quantitative measures for a set of characteristics of a population. Aggregate data refers to summary data collected among others at the school level, sub-national or national level typically through surveys such annual school census. Aggregated or summary data collection provides information on issues such as enrolment by grade and age, gender, etc.
Data collection instruments	Survey questionnaires used to collect data from institutions in a country
Data source	Data source is the organisational unit responsible for implementing an administrative regulation (or group of regulations) and viewed as a source of statistical data. The Unit responsible for the collection and aggregation of data from their initial source.
Database	A database management system (DBMS) is a computer software application that interacts with the user, other applications, and the database itself to capture and analyze data. It is a systematically organized or structured repository of indexed information (usually as a group of linked data files) that allows easy retrieval, updating, analysis, and output of data.
Demographic data	Demographic data in this context refers to the statistics that describe a student population and can be used to divide that student enrolment into different groups. Examples of demographic information include age, gender, race, language, etc.
Drop-outs	Dropouts are defined as those students who leave the specified level in the educational system without completing it.
Enrolment	The total number of students registered at an institution
Full-time	Students enrolled in primary and secondary level educational programmes are considered to participate full-time if they attend school for the entire school day. A teacher employed for the entire school day is regarded as full-time.
Geographical areas	Geographic area describes the coverage by the education census. An area of land that can be considered as a unit for the purposes of some geographical classification (regions, districts, etc.)
Geographical boundaries	Boundaries that determine the regional area of the Ministry (data source)
Hardware	Reference to the computer itself (central processing unit, CPU), as well as to all peripheral input and output devices, such as monitors, and printers, etc.

Imputation	Refers to the process of identifying missing data from a census survey and taking steps to adjust or modify the data accordingly. Imputation is a procedure for entering a value for a specific data item where the response is missing or unusable.
Individual data	It is also referred to as unit-level records and is the opposite of aggregate level data. Individual level data denote information about individuals
Institution	An institution in EMIS terms is a place of learning dedicated to education. It refers to more than just a school. It refers to schools, colleges, universities, centres or any formal and non-formal education and training provider that occupies an institution and provides a recognised education programme. It includes sub-sectors such as pre-primary education, primary education, secondary education, Technical and Vocational Education, Teachers' training education, Non-formal education, Higher and tertiary education.
Institution registers	It refers to a register keeping a record of every learner in the school and used to record days when a student is absent.
ISCED 2011 mapping	ISCED mappings are the outputs of a collaborative process between the UIS and Member States to map national education systems according to the International Standard Classification of Education (ISCED). ISCED mappings ensure a transparent process of coding national education programmes and related qualifications into comparable categories for use in international statistics by linking the classification criteria to the properties of the education programmes and their related qualifications.
List of institutions	A register of all the institutions in a country
Metadata	Metadata is data that defines and describes other data (data about data). It is the information on the underlying concepts, definitions, and classifications used, the methodology of data collection and processing, and indicators or measures of accuracy of the statistical information.
Missing data	Missing data can occur because of nonresponse: no information is provided for one or more items. Missing data in a questionnaire may occur when there are no data whatsoever for a respondent (non-response).
National Statistical Office (NSO)	The national statistical office is the leading statistical agency within a national statistical system.
Nomenclatures	A nomenclature is a systematic naming of things or a system of names or terms for things. In classification, nomenclature involves a systemic naming of categories or items.
Non-response	Nonresponse means failure to obtain a measurement on one or more questions in the survey instrument.
Part-time	Part-time - Students enrolled in primary and secondary level educational programmes are considered to participate part-time if they attend school for only part of the school day. A teacher employed for part of a school day or week is regarded as part-time.

Physical facilities	It refers to office buildings, furniture and equipment including transportation arrangements.
Private	An education institution is classified as private if it is controlled and managed by a non- governmental organisation (e.g. a Church, business enterprise, etc.). It is not state owned.
Public	Public means relating to the state or government, or things that are done for the people by the state. It is state controlled and the opposite of private.
Questionnaire	A group or sequence of questions designed to collect data from institutions
Referential integrity	Referential integrity is a relational database concept, which states that table relationships must always be consistent. In other words, any foreign key field must agree with the primary key that is referenced by the foreign key.
Repeaters	Grade retention or grade repetition is the process of having a student repeat a grade, because last year the student failed. Students who repeat a grade are referred as "repeaters".
SDG4 indicators	A set of 43 indicators produced on an internationally comparable basis to track progress on the SDG4 – Education 2030 Agenda. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all
Software	Programs, procedures and data associated with the operation of a computer system. In this context, specifically it refers to programs and procedures to manage and analyse data.
Staff establishment	Official document indicating the actual number of persons who should be employed in the establishment including their positions (designations)
Structure in charge	The administrative source (structure in charge) is the organisational unit responsible for implementing an administrative regulation (or group of regulations) and is viewed as a source of statistical data. Entities at a specific level of the education system with a specific legal mandate and secondly, entities with independent data collection processes.
Sub-groups of education	It refers to the sub-sectors in education such as pre-primary education, primary education, secondary education, Technical and Vocational Education, Teachers' training education, Non-formal education, Higher and tertiary education.
Succession planning	Succession planning is a process for identifying and developing new leaders who can replace old leaders when they leave, retire or die.
Tables	In relational databases terms, a table is a set of data elements (values) using a model of vertical columns (identifiable by name) and horizontal rows, the cell being the unit where a row and column intersect.
Time series data	A time series is a series of data points indexed in time order. Most commonly, a time series is a sequence taken at successive equally spaced points in time.

<p>UIS</p>	<p>The UNESCO Institute for Statistics (UIS) is the official and trusted source of internationally-comparable data on education, science, culture and communication. As the official statistical agency of UNESCO, the UIS produces a wide range of indicators in UNESCO's fields of action by working with national statistical offices, line ministries and other statistical organizations.</p>
<p>UOE manuals</p>	<p>The objective of the joint UNESCO-UIS/OECD/EUROSTAT (UOE) data collection on education statistics is to provide internationally comparable data (mostly at national level, with some insights at the subnational level) on key aspects of formal education systems, specifically on the participation and completion of education programmes, as well as the cost and type of resources dedicated to education. This manual presents the concepts, definitions and classifications used for the UOE data collection. It constitutes the conceptual and methodological background of the UOE data collection</p>
<p>User Satisfaction Survey</p>	<p>A statistical survey aiming to assess the satisfaction of users of the data and to get feedback from them.</p>
<p>Users</p>	<p>It distinguishes the persons for whom the data product is designed and developed. A data user is defined in this Manual as "a person who make use of the data".</p>
<p>Variables</p>	<p>A variable is a characteristic unit of observation that may assume more than one of a set of values to which a numerical measure or a category from a classification can be assigned</p>

Appendix B: UIS Code of Practice for education statistics produced and disseminated through administrative routine data systems

Credible education statistics are vital since they are essential to the design, formulation, monitoring and assessment of education plans and programmes.

This credibility is a value that gains strength over time thanks to the generation of quality statistics that comply with standards, principles and norms relating to the production process and statistical activity as a whole.

Education statistics consist of information and data of different types gathered from different data sources (administrative data, assessment data, household surveys, and population census). At country level, Ministries of Education are in general the main body in charge of statistics produced from administrative routine systems (commonly referred as “EMIS”).

The UIS Code of Practice (CoP) for Ministries of Education aims to ensure that these statistics produced from administrative data are not only relevant, timely and accurate but also comply with principles of professional independence, impartiality and objectivity.

The CoP is constituted of 8 principles covering the **institutional environment**, the **statistical production processes** and the **statistical outputs**. A set of indicators of good practice for each of the Principles provides a reference for reviewing the implementation of the Code. It is based on the “Light Ed-DQAF” which provides guidance and evidence for the implementation of the indicators.

The CoP is a technical instrument containing practical rules for ensuring the credibility of statistics produced and disseminated at the national level through administrative routine data systems. It is intended to serve as a guide for improving the quality of statistics produced at global level, to improve the quality of official statistics and build trust in users by encouraging the application of best international methods and practices in statistical production and dissemination.

Institutional Environment

Institutional and organisational factors have a significant influence on the effectiveness and credibility of Ministries of education developing, producing and disseminating education Statistics. The relevant aspects are Policy and legal framework, Adequacy of resources, Quality awareness, Professionalism, Transparency and Ethical standards

Principle 1: Policy and legal framework

Legal and institutional environment governing education statistics have a significant influence on the effectiveness and credibility of a Ministry of Education to produce and disseminate education statistics.

Indicators:

- 1.1: The responsibility for collecting, processing, and disseminating statistics is clearly specified.
- 1.2: Respondents' data are to be kept confidential and used for statistical purposes only

Principle 2: Adequacy of resources

The Ministry of Education ensures that resources are commensurate with the statistical programmes, personnel, facilities, equipment, technology, training and financing of their education management information systems.

Indicators:

- 2.1: Staff and their qualification are commensurate with statistical programs and policies for retention are in place
- 2.2: Computing resources and physical facilities are commensurate with statistical programs
- 2.3: Financial resources are commensurate with statistical programs

Principle 3: Relevance

Education Statistics meet the needs of users.

Indicators:

- 3.1: Consultations with data's users are done periodically.
- 3.2: User satisfaction is monitored on a regular basis and is systematically followed up.

Statistical Processes

International standards, guidelines and good practices are fully observed in the processes used by the Ministries to organise, collect, process and disseminate official Statistics. The credibility of the statistics is enhanced by a reputation for good management and efficiency. The relevant aspects are Methodological soundness.

Principle 4: Sound Methodology

The methodological basis for the education statistics follows internationally accepted standards, guidelines, or good practices.

Indicators:

- 4.1: Concepts and definitions used are in accord with standard statistical frameworks.
- 4.2: The scope is in accord with good quality standards.
- 4.3: Classification systems are in accord with national and internationally accepted standards, guidelines, or good practices.
- 4.4: Archiving of source data and statistical results.

Principle 5: Accuracy and reliability

Data sources and statistical techniques are sound and education statistical outputs sufficiently portray reality.

Indicators:

- 5.1: Available data sources provide an adequate basis to compile statistics.
- 5.2: Data sources are regularly assessed and validated.
- 5.3: Statistical techniques employed conform to sound statistical procedures, and are documented.

Education statistical Outputs

Available statistics meet users' needs. Education statistics comply with the international quality standards and serve the needs of international institutions, governments, research institutions, business concerns and the public generally. The important issues concern Relevance, Periodicity and timeliness, Consistency and Accessibility and clarity.

Principle 6: Periodicity and timeliness

Education statistics are released following internationally accepted periodicity and in a timely manner.

Indicators:

6.1: Periodicity and timeliness follows dissemination standards.

Principle 7: Consistency

Released education statistics are consistent within a dataset and over time, and with other major datasets.

Indicators:

7.1: Final statistics are consistent within a dataset.

7.2: Final statistics are consistent or reconcilable over a reasonable period of time.

7.3: Final statistics are consistent or reconcilable with those obtained through other surveys and data sources.

Principle 8: Accessibility and clarity

Education statistics and metadata are easily available in a clear and understandable manner, and there is adequate user support.

Indicators:

8.1: Statistics are presented in a clear and understandable manner, forms of dissemination are adequate.

8.2: Up-to-date and pertinent metadata are made available.

8.3: Prompt and knowledgeable assistance support service to users is available.

Appendix C: Workshop Training Schedule

DAY ONE	GENERAL OVERVIEW, OBJECTIVE AND OUTCOMES OF WORKSHOP
	THE UIS LIGHT ED-DQAF FOR ADMINISTRATIVE ROUTINE DATA SYSTEMS
	<ul style="list-style-type: none"> ❖ Light Ed-DQAF: Background ❖ Code of Practice (Brief Overview – see Appendix in Training Manual) ❖ Light Ed-DQAF Matrix <ul style="list-style-type: none"> • <i>Structure</i> • <i>Scoring Levels (discuss- look at specific examples in Matrix)</i>
	OVERALL PROCESS OF A DQA EXERCISE
	<ul style="list-style-type: none"> ❖ Training Workshop ❖ Evidence gathering phase ❖ DQA workshop (Completing the light Ed-DQAF matrix) ❖ Report writing and validation (<i>Findings of the situation analysis and the recommendations for improvement</i>)
	THE TRAINING WORKSHOP (Overview)
	<ul style="list-style-type: none"> ❖ Chapters of this manual form the basis of the workshop agenda(Refer to AppendixC) ❖ Participants will be allocated to one or several data sources he/she will be in charge of assessing together with other NTT members ❖ Subgroups draw up plan of activities and time schedule ❖ Identify users and institutions to visit and to be interviewed ❖ Note: during the workshop, participants will complete a series of hands-on exercises that cover some of the important concepts. Practical exercises will be functional and related to the evidence as required by the Ed-DQAF Matrix, using a range of real-world data sets (Refer to the special attached Excel files with the practical examples)
	CONSTITUTING THE SUBGROUPS IN CHARGE OF THE DQA
	<ul style="list-style-type: none"> ❖ Identification of Data Sources ❖ Constituting the subgroups in charge of the DQA for each Data Source
	THE EVIDENCE GATHERING PHASE
<ul style="list-style-type: none"> ❖ Methodology to be used <ul style="list-style-type: none"> • <i>Semi-structured interviews (See interview guide in Appendix)</i> • <i>Data collection tools</i> • <i>Archival Analysis (List all the documents consulted)</i> • <i>Analysis of Data (Refer to the special attached Excel files with the practical examples)</i> ❖ Subgroups/teams meet: Note - Analyse the Light Ed-DQAF Matrix using each item to identify which structures (services/departments) will have to be met to gather the evidence. <ul style="list-style-type: none"> • <i>Plan and organise the data gathering phase</i> • <i>Identify institutions to visit</i> • <i>Identify users to meet and to be interviewed</i> • <i>Draw up timetable (schedule)</i> 	
THE DQA WORKSHOP	
<ul style="list-style-type: none"> ❖ Organisation ❖ Scoring guidelines <ul style="list-style-type: none"> • <i>Level 4: Meets quality standards</i> 	

	<ul style="list-style-type: none"> • <i>Level 3: Room for improvement (Acceptable Statistics)</i> • <i>Level 2: Questionable Statistics</i> • <i>Level 1: Poor Statistics</i> <p>❖ Completing the light Ed-DQAF Matrix (Structure)</p> <ul style="list-style-type: none"> • <i>Comments</i> • <i>Evidence</i> • <i>Notes and</i> • <i>Recommendations</i>
	<p>COMPLETING OF THE MATRIX (Items 1 – 13)</p> <p>Focus on items with specific examples of evidence:</p> <p><i>Item 1: Examples: Acts and Policies in specific countries.</i></p> <p><i>Item 3: Elaborate on the overarching role of NSO (Example-Statistical Act)</i></p> <p><i>Item 6&7: Discussion: Resource Tables - (Complete a resource table on staff (numbers and qualifications))</i></p> <p><i>Item 10: Inventory of computers</i></p> <p><i>Item 12: Discuss processes in country how to involve users</i></p> <p><i>Item 13: User Satisfaction Survey</i></p>

DAY THREE	<p>COMPLETING OF THE MATRIX (Items 14 – 30)</p> <p><i>Item 17: Practical Exercise:</i> Enrolment coverage at different levels of aggregation (e.g. private/public, local, regional, institution type, etc.): Use register of institutions</p> <p><i>Item 19: Referential integrity: Illustrate</i> the concept with database example</p> <p><i>Item 23: Practical Exercise:</i> Enrolment by grade, teachers by gender, etc.</p> <p><i>Item 24: Practical Exercise:</i> Use register of institutions to demonstrate possible discrepancies (duplicates, school code, spelling, etc.)</p> <p><i>Item 25: Practical Exercise:</i> Table & Graphical Presentation of age by grade and gender.</p> <p><i>Item 27:</i> Explain how to calculate response rate – illustrate if possible</p> <p>Datasets: Register of Institutions, EMIS data (enrolment by grade, age by grade)</p> <p>Refer to the special attached Excel files with the practical examples</p>
	<p>COMPLETING OF THE MATRIX (Items 31 – 46)</p> <p><i>Item 35: Practical Exercise:</i> Check the enrolment table with the age table</p> <p><i>Item 36: Practical Exercise:</i> Graphical presentation of enrolment data over time. Check also meaningful increase between two years and two grades</p> <p><i>Item 39: NB Practical Exercise:</i> Construct data tables from datasets by region, grade, gender, age, public, private, etc.</p> <p>Datasets: Master list of institutions, EMIS data (enrolment by grade and age), EMIS by grade over time (5 years)</p> <p>Refer to the special attached Excel files with the practical examples</p>
	<p>THE DQA REPORT WRITING PHASE</p> <ul style="list-style-type: none"> ❖ Introduction (Background) ❖ Overview of the Education system organisation <ul style="list-style-type: none"> • <i>Graphical Examples</i> ❖ DQAF process description <ul style="list-style-type: none"> • <i>Training of the team, (Workshop)</i> • <i>Evidence gathering phase: methodology (different type of tools), the different departments visited and staff interviewed. Attach a list all the role players interviewed. Provide a list of all the documents consulted</i> • <i>DQAF workshop,</i> • <i>Report writing and validation</i> ❖ Ed-DQAF findings <ul style="list-style-type: none"> • <i>Principle 1: Policy and legal framework</i> • <i>Principle 2: Adequacy of resources</i> • <i>Principle 3: Relevance</i> • <i>Principle 4: Sound Methodology</i> • <i>Principle 5: Accuracy and reliability</i> • <i>Principle 6: Periodicity and timeliness</i>

	<ul style="list-style-type: none">• <i>Principle 7: Consistency</i>• <i>Principle 8: Accessibility and clarity</i> <p>❖ Recommendations</p> <ul style="list-style-type: none">• <i>Institutional and policy environment</i>• <i>Organizational/statistical processes</i>• <i>Technical capacity (data system and dissemination)</i>• <i>Human resource capacity</i>
FINAL WRAP UP AND CONCLUSION OF THE WORKSHOP	