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ASSESSING EDUCATION DATA QUALITY IN THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

UNESCO

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UNESCO Institute for Statistics
P.O. Box 6128, Succursale Centre-Ville
Montreal, Quebec H3C 3J7
Canada

Tel: +1 514-343-6880
Email: uis.publications@unesco.org
http://www.uis.unesco.org

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Foreword

The UNESCO Institute for Statistics (UIS) is mandated to develop and implement evaluation methodologies that assess the quality of data produced by national statistical systems within UNESCO's domains of competence. The Institute has been active in using, improving and developing such standards and tools for assessing education data quality in Member States.

The Data Quality Assessment Framework (DQAF) is an instrument initially developed by the International Monetary Fund (IMF) in 2002 to assess the quality of economic data.[1] In 2004, the World Bank and the UIS modified the tool for use in the evaluation of education data[2], now referred to as Ed-DQAF.

For several years, the UIS has been engaged in diagnostic assessments of national education statistics systems using the Ed-DQAF methodology. Such Ed-DQAFs were implemented in Latin America and in Sub-Saharan Africa (SSA) between 2005 and 2006.

From December 2008 to July 2011, 12 Southern African Development Community (SADC) countries participated in a review of the quality of their education data using the Ed-DQAF. This review was conducted within the UNESCO Regional Bureau for Education in Africa (BREDA) in support of the African Union Second Decade of Education for Africa action plan and the SADC education programme.

This report aims to provide governments and other stakeholders in SADC countries with the key findings of these assessments. In our efforts to contribute to better evidence-based policymaking in education, we hope that this report will shed light on the practices currently in place in several countries, contribute to national and regional debates on improving education data quality, and encourage countries to take the necessary steps in order to close the gaps in data quality.

1 http://dsbb.imf.org/images/pdfs/dqrs_factsheet.pdf

2 http://unstats.un.org/unsd/dnss/docs-nqaf/WB-UNESCO-DQAF%20for%20education%20statistics.pdf and http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTEDUCATION/0,,contentMDK:23150612~pagePK:148956~piPK:216618~theSitePK:282386,00.html

Acknowledgements

The Ed-DQAF evaluations took place in Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe. They were undertaken in cooperation with each country's ministry (or department) of education, UNESCO National Commissions and UNESCO offices.

The UIS regional team for sub-Saharan Africa (SSA) conducted the assessments in every participating country with the exception of Zambia, where the assessment was carried out by the Association for the Development of Education in Africa (ADEA) Working Group on Education Policy Support/National Education Statistical Information System (NESIS).

Bheki Mpanza, Chief Director of Planning and Information, Department of Education in South Africa, and Sieraag de Klerk of Statistics South Africa took part in the Ed-DQAF for the United Republic of Tanzania. Chris van Wick, researcher, Stellenbosch University, South Africa, contributed to the exercise for Botswana and Malawi. Gérard Chenais participated in the Ed-DQAF Mauritius. They all provided invaluable assistance for the improvement of the methodology.

The UIS would like to thank the UNESCO offices in Dakar and Windhoek for their financial support for conducting the Ed-DQAF exercises.

Abbreviations

ADEA	Association for the Development of Education in Africa
BREDA	UNESCO Regional Bureau for Education in Africa
CSO	Central statistical office
EAC	East African Community
ECCE	Early childhood care and education
ECD	Early childhood development
ECOWAS	Economic Community of West African States
Ed-DQAF	Education Data Quality Assessment Framework
EMIS	Education management information system
IMF	International Monetary Fund
ISCED	International Standard Classification of Education
LAN	Local area network
M&E	Monitoring and evaluation
NBS	National bureau of statistics
NESIS	National education statistical information system
NSDS	National strategy for development of statistics
NSO	National statistics office
OVC	Orphans and vulnerable children
PARIS21	Partnership in Statistics for Development in the 21st Century
SADC	Southern Africa Development Community
SIS	Statistical information system
SQL	Structured Query Language
SSA	Sub-Saharan Africa
Stats-SA	Statistics South Africa
TVET	Technical and vocational education and training
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization

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Introduction

One of the priorities of the African Union's action plan for the Second Decade of Education for Africa and the SADC education programme is the development of an efficient and well-documented education management information system (EMIS). Reliable and timely information at the continental, regional and national levels is a critical element in education policy planning, monitoring and evaluation and evidence-based decisionmaking.

The production of education statistics requires institutional, organisational and technical capacity at the national and sub-national levels. The UIS plays a key role in developing and implementing evaluation frameworks that assess the quality of data produced by education sectors. Information gaps or data of insufficient quality should not hinder opportunities to adequately assess progress made in implementing not just the African Union's priority areas, but also national and international goals that rely on the availability of sound statistical information systems. Data quality remains a necessary cornerstone to inform evidence-based decisionmaking.

Between December 2008 and August 2009, the Ed-DQAF was piloted in seven countries in the SADC region[3] to assess the quality of statistics produced by existing education information systems. Pilots were conducted in:

- Lesotho
- Madagascar
- Mozambique
- South Africa
- Swaziland
- United Republic of Tanzania
- Zambia.

Building on lessons learnt, the UIS in conjunction with stakeholders undertook a review of the Ed-DQAF tool with a view to improving the methodology used.

From January 2010 to October 2011, additional assessments based on the revised methodology were conducted in five countries:

- Botswana
- Malawi
- Mauritius
- Namibia
- Zimbabwe.

This report presents an overview of the Ed-DQAF methodology, major changes to the tool since the conclusion of the pilot exercises, as well as a regional synthesis of 12 country assessments.

A dedicated online Wiki[4] has been developed where a more detailed presentation of the methodology and related documents and experiences in SADC and other SSA regions are available.

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[3] Assessing Education Data Quality in the Southern African Development Community (SADC) – A Synthesis of Seven Country Assessments, March 2010: http://unesdoc.unesco.org/images/0019/001900/190032e.pdf

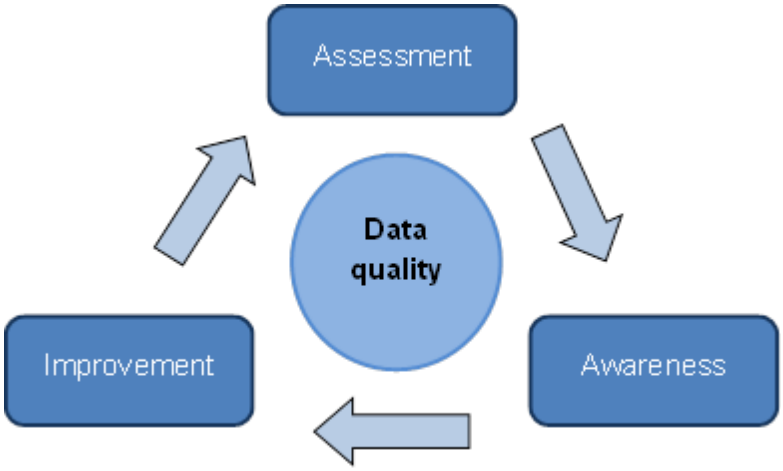
[4] http://www.poledakar.com/dqaf/index.php?title=Main_Page

Chapter 1. The education data quality assessment framework

1.1. Why care about education data quality?

Increasing the performance of education systems in terms of access, efficiency, equity and quality relies on information-based decisionmaking based on effective systems of monitoring and evaluation, budgeting and planning, policy research and analysis. Assessing data quality involves providing users with sufficient information to judge whether or not data are of sufficient quality for their intended use(s). Once data users (e.g. policymakers, analysts, etc.) have gained adequate levels of data quality awareness, which subsequently develops confidence in how data are produced and used, they can actively support the continual process of improving quality as illustrated in **Figure 1**.

Figure 1. Data quality cycle



1.2. General analytical framework

The Ed-DQAF provides a comprehensive evaluation of education data quality by assessing a country's data production system against current international standards and norms with the intended purpose of identifying and recommending areas for improvement. Such a comparison enables a country to assign priorities arising from the assessment to areas in need of strengthened data quality.

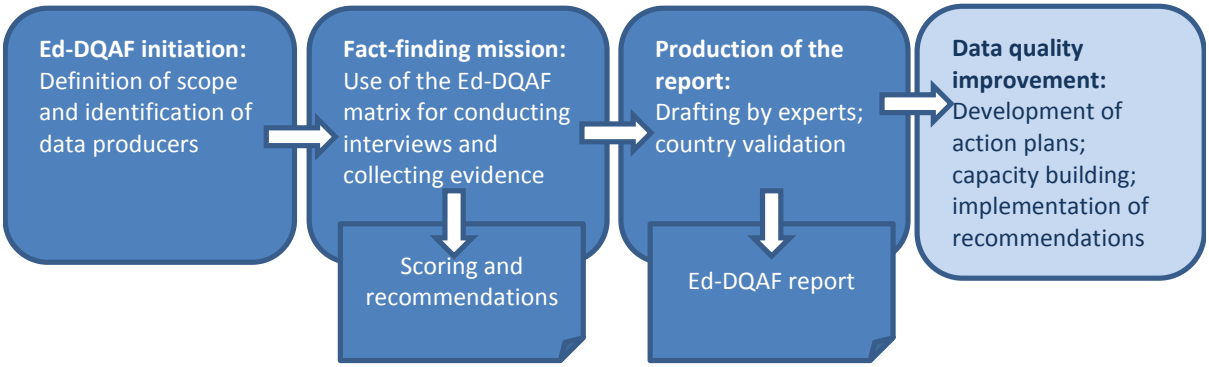
More than an assessment of the quality of data itself, the Ed-DQAF draws a picture of the environment and conditions in which data are produced. As a diagnostic tool, the Ed-DQAF looks at structural elements contributing to the quality and completeness of a country's education statistical system, including its institutional environment, production processes and practices, and takes into account the satisfaction of user needs, among others.

An Ed-DQAF diagnosis practically assesses all data produced by national education systems. It mainly focuses on the quality of data produced by administrative, routine data systems but verifies, nonetheless, whether other types of data are routinely or otherwise produced. The latter can be education data produced by national bureaus of statistics (NBS) (via population censuses or household surveys), by the ministries of education or other bodies (for data on learning outcomes for instance).

In general, the Ed-DQAF is an assessment of one or multiple education sub-sector data sets produced and/or used by existing education management information systems (EMIS) or education statistical information systems (SIS). These data are often treated as public statistics for education policy formulation and education planning purposes.

Premised upon the UIS partnership with countries and through close collaboration with their national and sub-national agencies responsible for the production of education statistics, the UIS undertakes a detailed diagnosis of the education SIS. The outcomes are outlined in **Figure 2**.

Figure 2. Process of conducting an Ed-DQAF diagnosis



One of the main strengths of the Ed-DQAF is that it provides a set of objective criteria, invariant from assessment to assessment, which permit comparisons, if desired, between countries.

At the same time, the Ed-DQAF methodology is subject to revisions that reflect international data quality development.

1.3. Six dimensions of data quality

The evaluation framework consists of three major categories:

- Institutional environment
- Statistical procedures
- Statistical results.

It examines these categories through 6 dimensions and 22 sub-dimensions as presented in **Table 1**.

Table 1. Ed-DQAF categories and dimensions

Institutional environment		Statistical procedures		Statistical results	
Prerequisites of quality	Integrity	Methodological soundness	Accuracy and reliability	Serviceability	Accessibility
Legal and institutional environment	Professionalism	Concepts and definitions	Source data availability	Periodicity and timeliness	Data accessibility
Resources	Transparency	Scope	Assessment of source data	Consistency	Metadata accessibility
Relevance	Ethical standards	Classification	Statistical techniques		Assistance for users
Quality awareness		Basis for recording	Revision studies		
			Archiving of source data		

The list of questions below highlights the decisionmaking process for each dimension shown in Table 1.

1.3.1. Dimension 0: Prerequisites of quality

- Is there a legal and institutional environment to support a statistical system?
- Are there sufficient resources, both human and technical, to support a statistical system?
- Are data collected in accordance to users' needs?
- Is there a culture of data quality?

1.3.2. Dimension 1: Integrity

- Are statistical policies and practices guided by professional principles?
- Are statistical policies and practices transparent?
- Are ethical standards used to guide policy development and staff?

1.3.3. Dimension 2: Methodological soundness

- Are concepts and definitions used in accord with standard statistical frameworks?
- Is the data set scope in accord with internationally accepted standards, guidelines, or good practices?
- Are data classified and captured in a manner consistent with international standards and best practices?
- Are the data recorded according to internationally accepted standards, guidelines or good practices?

1.3.4. Dimension 3: Accuracy and reliability

- Are the data sources adequate for compiling education statistics?
- Are education data regularly assessed and validated?
- Are sound, well-documented, statistical techniques in place?
- Are revision studies undertaken on a regular basis?
- Is data archiving in accord with standards and well documented?

1.3.5. Dimension 4: Serviceability

- Are the statistics produced regularly and are they timely?
- Are the data consistent within a data set and over time?

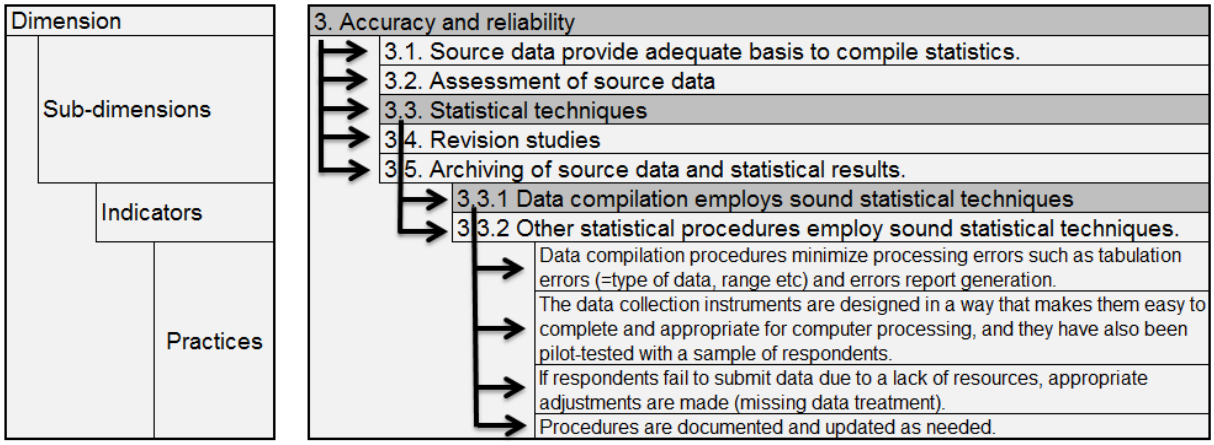
1.3.6. Dimension 5: Accessibility

- Are the data disseminated in an adequate and impartial manner?
- Are there adequate metadata to describe the data completely?
- Is assisting the user a priority? Is this considered important?

The Ed-DQAF assessment provides a comprehensive evaluation of the quality of data by comparing a country's practices with current international standards. At the same time, it recognises that the context in which data are produced, such as resources dedicated to data production, level of data quality awareness, institutional arrangements, norms and standards, among several others, will differ across countries.

The framework is organized in a cascading structure that progresses from the abstract or general to the more concrete or specific *(see **Figure 3**).* The first-digit level defines the six dimensions presented above. The first-digit level is sub-divided by sub-dimensions (two-digit level) and indicators (three-digit level). At the subsequent level, practices describe quality features that may be considered in assessing the indicators.

Figure 3. Ed-DQAF hierarchy



An Ed-DQAF at indicator level is presented in **Annex I**, and a framework at practice level is also accessible from the Wiki.[5]

1.4. Scoring methodology

The formulation of recommendations to improve data quality is based on scoring the different elements (the different practices) of quality. Scoring is also essential for the identification of priorities, development of action plans to be implemented by ministries of education and other bodies in charge of producing education statistics, and for the identification of good practices.

Like most assessments of this nature, scoring remains subjective, but it can nonetheless be used to compare data quality between countries. However, depending on the organization of the education sector in a country, the Ed-DQAF may address just a single education sector data-producing unit[6] (e.g. an EMIS unit which oversees the collection and reporting of all statistics on education) or, as is the case in most countries, the education sector is managed by several ministries which often have independent education SIS. Thus, the decision to assess one or several data-producing units impacts on the comparability across countries.

The scoring is done for each data-producing unit and for each of the 140 practices of the framework according to a scale of 1 to 4:

- **Practice not observed**: (scored 1);
- **Practice largely not observed**: Significant departures from norms and standards and the authorities will need to take significant action to achieve observance (scored 2);
- **Practice largely observed**: Some departures from norms and standards, but these are not seen as sufficient to raise doubts about the authorities' ability to observe the Ed-DQAF practices (scored 3);
- **Practice observed**: Current practices generally in observance meet or achieve the objectives of Ed-DQAF internationally-accepted statistical practices without any significant deficiencies (scored 4); and

[5] http://www.poledakar.com/dqaf/index.php?title=DQAF_Events
[6] See Section 2.4 for scope of data analysis.

- **Not applicable**: Used only exceptionally when statistical practices do not apply because of specific circumstances (not scored, will not be included in the calculation of the average).

Being a fully participatory process, the Ed-DQAF relies on national focal points to facilitate interviews with key data-producing units while, at the same time, relying on external assessors. The entire process seeks to identify practices that ultimately determine the assignment of one of the four numeric scores to each of the Ed-DQAF practices. Guided always by the Fundamental Principles of Official Statistics,[7] assessors aim to be as impartial as possible.

Using a dedicated 'matrix', assessors will usually discuss each of the 140 practices of the Ed-DQAF prior to assigning scores. This matrix is organized following the different dimensions, sub-dimensions and practices of the Ed-DQAF and comprises 6 key elements:

- **Questions**: The unit/person(s) with whom the practice is to be discussed or has already been discussed;

- **Means of verification**: Any document, database, website, etc. that can be used as a reference to verify the practice and its scoring;

- **Score**: The score that the group of experts will attribute to the practice; each of the data-producing units may be scored individually;

- **Average**: This average is automatically calculated from the scores to derive the average score of the sub-dimensions and dimensions for each data-producing unit;

- **Observations**: Arguments that justify the scoring, which has already been discussed by the group of experts; and

- **Recommendations**: Possible recommendation(s) for improving the scoring.

It is worth noting that the main goal of this evaluation is to formulate recommendations aimed at improving practices identified as weak (scored 1 or 2) while, at the same time, identifying best practices (scored 3 or 4).

Upon completion of an assessment, the Ed-DQAF evaluation team prepares a report detailing preliminary findings of the assessment and disseminates it widely. This participatory approach occurring prior to finalising the report, and prior to official endorsement by national stakeholders, is intended to elicit substantive feedback from national collaborators on the Ed-DQAF process.

[7] In its Special Session of 11-15 April 1994, the United Nations Statistical Commission (the world's highest statistical authority) adopted the Fundamental Principles of Official Statistics to assist heads of national statistics offices to defend the position of their institutes and to get the message across that good systems of official statistics must meet certain general criteria: http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx

Chapter 2. Evolution of the data quality assessment framework

2.1. Background

Following UNESCO's publication on the SADC pilot Ed-DQAF exercise in March 2010 and two main stakeholder reviews, the Ed-DQAF tools and methodology have considerably evolved. Improving the Ed-DQAF has remained a UIS goal for several years, falling under the main line of action related to the development of education indicators and promotion of data use and analysis.

Since 2009[8] stakeholders in the Ed-DQAF process have been instrumental in charting the way forward. A second Ed-DQAF stakeholders' review was convened in 2010.[9] Recommendations arising from wide consultations reflected 2009 findings so that the contents of the Ed-DQAF tool, related reports and the ways of conducting future assessments were further reviewed. Stakeholders were drawn from national statistical departments in ministries of education within the SADC, East African Community (EAC) and Economic Community of West African States (ECOWAS) regions; national statistics offices (NSOs) (e.g. Statistics South Africa); regional (e.g. AFRISTAT) and international organizations (e.g. World Bank, UNESCO, Pôle de Dakar and UIS); and external consultants.

Under the overarching objective of ensuring that the Ed-DQAF tool remains relevant to countries and users, a number of proposals with a strong emphasis on areas where the Ed-DQAF tool could be improved were put forth, among them:

- Update the structure and organization of the Ed-DQAF framework;
- Update the scope of analysis of multiple data sets;
- Document the scoring approach;
- Engage more national and regional experts;
- Update the report structure; and
- Implement recommendations.

2.2. Evolution of the Ed-DQAF (the matrix)

Since 2011, in line with stakeholders' recommendations, the Ed-DQAF matrix has evolved to be more user-friendly and relevant. Redundancies across the six dimensions of data quality *(see Section 1.3)* have been eliminated and several sub-dimensions have been excluded from the matrix, while various other sub-dimensions have been placed in the appropriate dimension. Excluding some sub-dimensions from the matrix was based on the observation that data sets are either non-existent in several, if not all, SADC countries assessed to date, or as a result of information not being regularly assessed or collected and utilised by decisionmakers. This shift has contributed to:

- Less emphasis on assessing specific data sets describing the education systems which may not be readily available in several countries;
- Less emphasis on assessing statistical practices that may not be applicable or practical to assess in several countries; and
- Adopting clearer definitions and refining concepts of sub-dimensions to promote a better understanding of the objectives of the Ed-DQAF dimensions.

[8] SADC and UNESCO workshop on EMIS, Maputo, 15-16 October 2009, and the meeting of the SADC ministers responsible for education and training, Kinshasa, 15-19 March 2010.

[9] Ed-DQAF workshop review, Cape Town, 6-10 December 2010.

2.2.1. Dimension 0: Prerequisites of quality

A meaningful assessment of human resources needs to take into account the experience of staff in statistics, as well as the availability and adequacy of physical facilities to perform tasks. Attention should also be given to the role of management in supporting staff potential, consulting data users, and ensuring that processes are continually monitored to improve quality. The modalities for assessing quality in statistics have been expanded to include the consideration of trade-offs, among others. Apart from assessing the existence of statistics acts in countries, the updated Ed-DQAF matrix aims to highlight the existence of other frameworks, such as education or other national acts (e.g. specific to technical and vocational education and training (TVET) or higher education institutions, EMIS policies, etc.) that would typically assign responsibility for the collection and reporting of statistics in these sub-sectors of education. This is especially relevant given that statistics acts may be outdated, or not specifically refer to the collection and reporting of sector-wide education statistics in some countries.

2.2.2. Dimension 1: Integrity

Promoting cultures of professionalism and training in methodology are highlighted. Definition of correct staff behaviour (in statistical data production) is refined to include how staff should manage situations related to conflict of interest, and the relationship between ethics and staff behaviour.

2.2.3. Dimension 2: Methodological soundness

Rather than assessing national data compilation using the International Standard Classification of Education (ISCED) alone, available national classification systems are assessed, as well as the availability and use of an officially agreed on UIS-ISCED mapping to report data.

2.2.4. Dimension 3: Accuracy and reliability

Looking into how source data provide an adequate basis to compile statistics, and keeping in mind the realities in countries, data sets on various categories of education (education expenditure, adult education, detailed information on assessments, specific data on the characteristics of teachers and students, among others) are not prioritised. This has contributed to a more condensed user-friendly version of the matrix. Conversely, the maintenance of school lists, reliability of age data and expenditure data on foreign sources of funding**,** including non-governmental organizations, are assessed. Regarding general processes, follow-up on response rates, as well as the estimation of the school-age population, are also assessed. Moreover, documentation on general procedures and methodologies for compiling education statistics are assessed under the sub-dimension ‘statistical techniques’. The structure of databases is assessed under an updated sub-dimension, ‘archiving of source data and statistical results’.

2.2.5. Dimension 4: Serviceability

The publication of preliminary data sets was not found to be a common practice in several countries in the SADC region. The periodicities in which the administrative school census and the dissemination of final statistics (not including ‘preliminary’ publications) occur, and the periodicity in which learning achievement surveys are conducted, as well as the timeframes for the publication of finance data, are assessed.

2.2.6. Dimension 5: Accessibility

Regarding assistance for users, informing them by making a schedule of the release of data available is assessed.

2.3. Summary of matrix's changes

A summary of the matrix's main changes is presented in **Table 2**.

Table 2. Changes in the Ed-DQAF matrix

Dimension	Sub-dimension	Changes in the revised matrix
Prerequisites of quality	0.1 Legal and institutional environment	Legislation (not limited to statistics acts in the country)
	0.2 Resources	Skills, experiences and qualifications of staff Physical facilities to perform tasks
	0.3 Relevance	Previously assessed under Dimension 4 (serviceability) Consultation of data users, identification of emerging data requirements
	0.4 Quality awareness	Monitoring processes to assist managers in quality assurance Trade-offs among dimensions of quality
Integrity	1.1 Professionalism	Training in statistical methodologies
	1.2 Transparency	
	1.3 Ethical standards	Guidelines – ethics and staff Agencies' management as role models
Methodological soundness	2.1 Concepts and definitions	Documentation on national concepts and definitions Consistency of concepts with other national data sets
	2.2 Scope	Assessing data overlaps to avoid redundancies in data sets
	2.3 Classification	National classification of programmes and its application in public and private institutions UIS-ISCED mapping Reporting data according to ISCED
	2.4 Basis for recording	Database analysis undertaken in Dimension 3 Age, graduates and actual expenditure data are assessed
Accuracy and reliability	3.1 Source data available	Less focus on data sets not usually assessed in countries
	3.2 Assessment of source data	Use of registers to monitor school response rates
	3.3 Statistical techniques	Computation of education statistics indicators in accordance with Dimension 2
	Intermediate results	Practices moved to 3.2
	3.4 Revision studies	No major changes
	3.5 Archiving data	Newly introduced sub-dimension
Serviceability	Relevance	Sub-dimension 4.1 assessed in Dimension 0
	4.1 Periodicity and timeliness	Learning achievement surveys linked to country monitoring Publication of finance statistics related to financial year
	4.2 Consistency	Emphasis on final statistics versus preliminary publications
	Revision policy	Excluded from the final matrix
Accessibility	5.1 Data accessibility	Public awareness of data dissemination products Use of electronic databases validated by data-producing units
	5.2 Metadata accessibility	Uses of metadata and effects on data quality
	5.3 Assistance for users	Schedule for data requests known to EMIS users Monitoring of additional queries

2.4. Scope of data analysis

To the extent possible, and in an effort to maintain a holistic picture of data producers across countries, the updated Ed-DQAF tool attempts to reflect the realities in countries. For instance, if multiple units in countries produce education statistics, it may be relevant to assess how they relate to each other and to the national statistical system. In countries assessed in 2010 and 2011, data producers in TVET and higher education sectors (whenever feasible) were assessed in addition to the generic EMIS departments where basic education statistics are often produced.

2.5. Scoring methodology

By 2010, a number of recommendations to improve the scoring methodology had been implemented. In assessments undertaken in 2011, some of these recommendations had been adopted, including:

- Education sub-sector scoring to assess relevant institutions responsible for the production of statistics (where feasible);

- Scoring limited to situations where a minimum level of information is available, e.g. TVET education systems; and

- Using a combined scoring methodology; in most assessed SADC countries, this approach was found to be more practical (e.g. scoring of pre-primary, primary and secondary education as general education).

Updating the scoring methodology has shifted the focus from highlighting the deviation of each sub-dimension (some of which may not exist in countries or are not regularly assessed) from international norms, to highlighting the deviation by dimension of each sub-sector of education (where feasible) from international norms *(see **Figure 4** showing graphical representations of two countries, Zimbabwe in 2010 and Mauritius in 2011)*.

2.6. Participation of national and regional experts

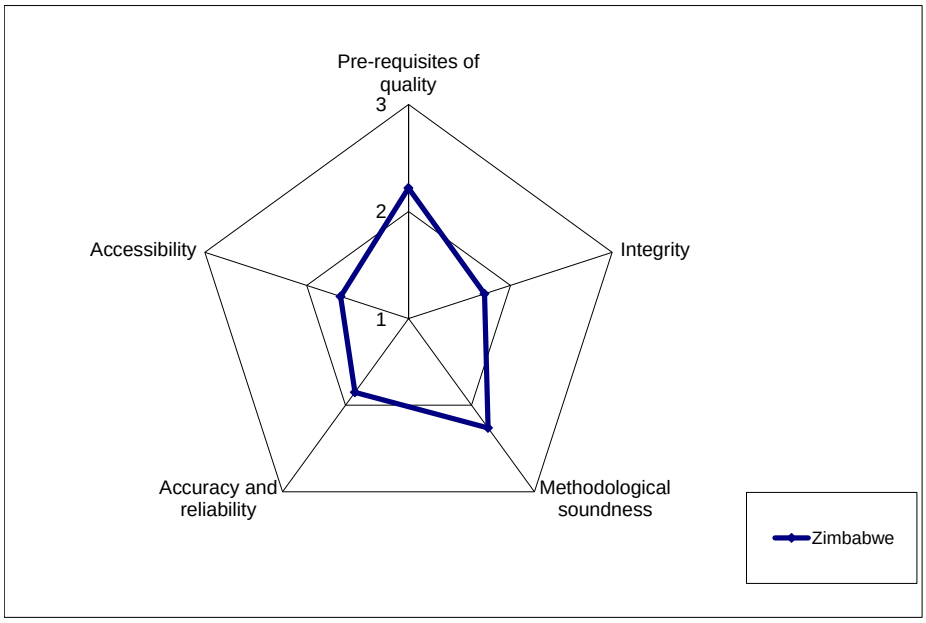
The role that regional experts play in continually promoting south-south cooperation and improving the Ed-DQAF process remains of utmost importance. In this regard, country assessments (Botswana, Malawi and Mauritius) were drafted in 2011 in conjunction with consultants from Stellenbosch University (Cape Town, South Africa), Partnership in Statistics for Development in the 21st Century (PARIS21), and UNESCO education programme specialists.

A number of national statisticians attached to SADC ministries of education or national statistics offices, as well as external consultants were associated with the development of Ed-DQAF's in the SADC region.

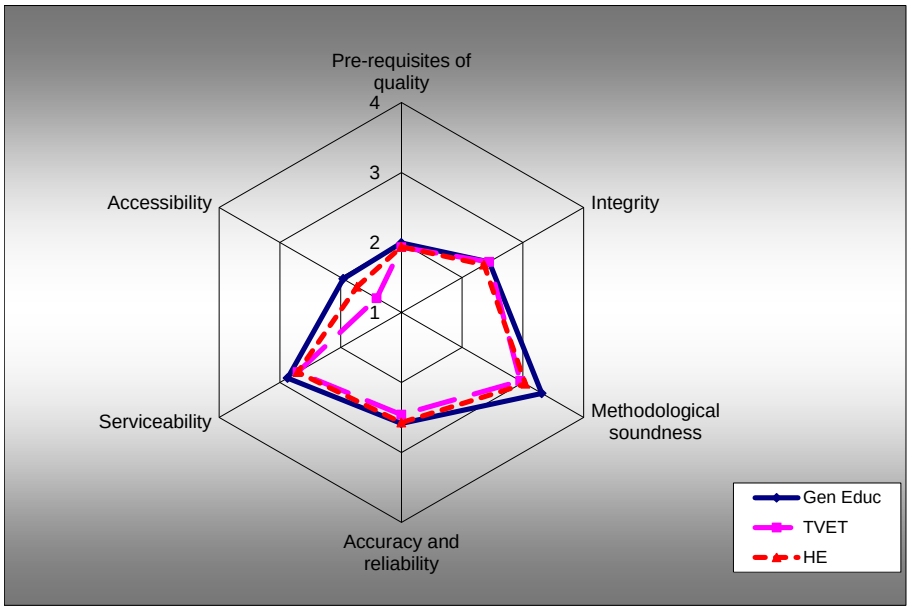
Stakeholders have suggested that regional experts should be identified for participation in the next phase of the Ed-DQAF process. Areas where their participation would be particularly important include the development of regional training modules related to Ed-DQAF and providing support to the development of capacity-building programmes. The UIS has initiated several projects in collaboration with regional statistical training and research centres in SSA.

Figure 4. Graphical representation of the evolution of scoring methodologies for Zimbabwe (2010) and Mauritius (2011)

Zimbabwe, 2010



Mauritius, 2011



2.7. Report structure

Since 2010, the structure of Ed-DQAF reports has evolved with a more standardised structure being adopted for reports generated in 2011 and 2012 as follows:

1. **Background**: Presents the context in which the education data quality analysis has been conducted.

2. **Methodology used for the Ed-DQAF**: A short presentation of the methodology: the six dimensions of data quality, scoring principles, data collection process (interviews, document analysis, etc.), identification of the data sets/data producers, etc.

3. **Objectives of the Ed-DQAF**: Mainly identifies good practices and challenges, and suggests recommendations for statistical capacity building and data quality improvement.

4. **Main findings**: Provides examples of good practices and opportunities to improve or strengthen current practices for optimal efficiency.

5. **Recommendations**: Rather than presenting recommendations on improving each of the six Ed-DQAF dimensions, a more general approach is used: areas identified for improvement are categorised as institutional, organizational, technical and capacity building, among others. Participants in the Ed-DQAF process may adapt these categories according to their country contexts, while bearing in mind that the objective is to simplify how reports are drafted and presented to decisionmakers.

6. **Overview and functional structure of the education system**: The education system is presented here, identifying the main actors and responsibilities for each sub-sector.

7. **Data collection process(es)**: This describes how data collection and processing are conducted under the responsibility of the identified data producers.

8. **Data quality assessment framework**: Narrative descriptions are given of the state of the system as regards each dimension. Significant information, gathered for each Ed-DQAF practice, is developed here.

9. **Conclusion**: A graph summarising the scoring is provided and commented. Steps for validation of the report and implementation of recommendations are also presented here.

Such a report structure allows for an 'at a glance' view for decisionmakers (see Parts 4: 'Main findings' and 5: 'Recommendations' above) and a more in-depth understanding of methodological issues directed at technical staff (see Part 8: 'Data quality assessment framework' above).

2.8. Progress in countries

Since 2009, most SADC countries have seen marked improvements in their national statistical processes. By mid-2013, almost all countries in the region had officially validated the Ed-DQAF reports and were continuing to make concerted efforts to implement key recommendations arising from the ED-DQAF using a phased approach.

By 2012, at least one-half of the countries had developed action plans *(see **Table 3**).* While the development of action plans in all countries had not been fully realised, partial or full implementation of recommendations through national or other strategic plans was underway in all countries. In addition to supporting evidence-based planning, the implementation of recommendations is expected to increase the availability of more complete and more timely internationally-comparable statistics.

Table 3. Summary of ED-DQAF country feedback

Country	Year	EMIS assessed	EMIS and other sub-sectors	Ed-DQAF validated	Action plan developed / in progress	Partially implemented recommendations
Botswana	2011		•	•		•
Lesotho	2009	•		•		•
Madagascar	2009	•			•	•
Malawi	2011	•		•	•	•
Mauritius	2011		•	•	•	•
Mozambique	2009	•		•	•	•
Namibia	2011	•		•		•
South Africa	2009	•		•		•
Swaziland	2009	•		•		•
United Republic of Tanzania (mainland)	2010			•		•
Zambia	2009	•			•	•
Zimbabwe	2010	•			•	•

Action plans respond to the needs of a given sector, for instance TVET in Madagascar. In countries such as Lesotho, Mauritius and the United Republic of Tanzania, the progressive implementation of recommendations by ministries of education has led to better coordination, improved data coverage, decentralisation of national EMIS, expansion of EMIS to cover other education sectors (such as early childhood education, TVET and non-formal education), and reporting more timely statistics.

However, policy and legislative changes are required in some countries (e.g. Namibia) if recommendations arising from the Ed-DQAF are to be fully implemented. In Swaziland, the recognition of EMIS as an independent entity has reduced bottlenecks in the production of education statistics and decreased dependency on the central statistical office (CSO), representing a positive shift. The importance that Mozambique is giving to documenting the overall EMIS process should be hailed as a model. Moreover, since 2009, there are fewer restrictions on budgetary allocations to support the production of statistics.

Countries have a continual role to play in the evolution of the Ed-DQAF tool at the institutional, national and regional levels. In line with stakeholders' recommendations, this role could encompass regularly updating national Ed-DQAFs as necessary and, in conjunction with development partners, holding national consultations to validate Ed-DQAFs, as well as initiating the development of capacity building programmes in the use of Ed-DQAFs.

For example, South Africa has requested an external evaluation of the implementation of the Ed-DQAF recommendations.

Chapter 3. SADC regional view

As stressed in Chapter 1, comparing countries through the Ed-DQAF should take into account the specific context in each country. Nonetheless, it is interesting to analyse the different results and see at a glance in which areas countries are facing challenges in delivering better quality data. In that sense, such an analysis also constitutes a good basis for the development of a regional strategy for statistical capacity building.

Results of the evaluations based on the Ed-DQAF dimensions are presented in this section. By recoding the scores into four categories and assigning a colour to each, it is possible to have a quick overview of all the results obtained for all country assessments.

Table 4a shows the country scores sorted by dimensions, while **Table 4b** presents the same results but sorted by scores (from the highest to the lowest). In this way, it is possible to highlight best practices in countries and those areas that need to be strengthened.

Table 4a. Country Ed-DQAF (sorted by dimensions)

Dimension	Lesotho	Madagascar	Mozambique	South Africa	Swaziland	UR Tanzania	Zambia	Zimbabwe	Botswana			Mauritius			Malawi	Namibia
									General ed.	TVET	Higher ed.	General ed.	TVET	Higher ed.		
0. Pre-requisites of quality	2	1	2	4	1	1	3	2	2	3	3	2	2	2	2	2
1. Integrity	3	2	1	4	2	2	4	2	2	2	2	2	2	2	2	2
2. Methodological soundness	4	2	3	4	3	3	4	3	3	3	3	4	3	3	3	3
3. Accuracy and reliability	2	1	1	3	3	3	3	2	3	3	3	2	2	2	2	3
4. Serviceability	1	1	2	3	1	2	3	2	3	3	3	3	3	3	3	3
5. Accessibility	2	1	1	4	1	1	3	1	1	1	2	2	2	2	1	2

Table 4b. Country Ed-DQAF (sorted by scores)

Dimension	Lesotho	Madagascar	Mozambique	South Africa	Swaziland	UR Tanzania	Zambia	Zimbabwe	Botswana			Mauritius			Malawi	Namibia
									General ed.	TVET	Higher ed.	General ed.	TVET	Higher ed.		
2. Methodological soundness	4	2	3	4	3	3	4	3	3	3	3	4	3	3	3	3
3. Accuracy and reliability	2	1	1	3	3	3	3	2	3	3	3	2	2	2	2	3
1. Integrity	3	2	1	4	2	2	4	2	2	2	2	2	2	2	2	2
4. Serviceability	1	1	2	3	1	2	3	2	3	3	3	3	3	3	3	3
0. Pre-requisites of quality	2	1	2	4	1	1	3	2	2	3	3	2	2	2	2	2
5. Accessibility	2	1	1	4	1	1	3	1	1	1	2	2	2	2	1	2

As indicated in Table 4b, all assessed countries (with the exception of Madagascar) demonstrate that their practices are methodologically sound. Pre-requisites of quality, serviceability, accessibility and integrity are especially weak and should be strengthened in Madagascar, Mozambique, United Republic of Tanzania, Swaziland and Zimbabwe. Some countries may need to increase efforts to improve accessibility to data on general education and TVET (e.g. Botswana).

3.1. Best practices in the SADC region

It was noted previously *(see Section 1.4)* that the main goal of this evaluation is to formulate recommendations aimed at improving practices identified as weak in the SADC region, while at the same time identifying best practices. What follows is a summary of best practices observed in the assessed countries.

Stable national development and accountability frameworks for statistics are in place (Lesotho, Malawi, Mozambique, Namibia, South Africa and Zambia). They include provisions for the legal enforcement of the national statistical system and clearly specify the roles and responsibilities of participating bodies (e.g. Botswana and South Africa). All participating bodies involved in the national statistical system have a shared interest in developing and maintaining a culture of quality (Botswana, Mauritius and South Africa).

There is extensive collaboration between participating bodies of the national statistical system, both at the central and regional levels (Botswana, Lesotho, South Africa and Swaziland). A distinct EMIS policy sets out the leadership role of the Ministry of Education and clarifies its relationship with the central statistical office (Botswana, Namibia and South Africa). Staff attached to national statistics offices are posted in the Ministry of Education and support data collection and production (Botswana and Malawi).

The EMIS unit is the only agency that collects data in the Ministry of Education and this function is acknowledged by other departments in the Ministry (Malawi).

Political will supports the development of an EMIS unit and upgrading the division of planning, statistics and research to department level (Botswana).

A human resource strategy supports the EMIS function, in particular with policies on training, recruitment and retention, values, and ethics, and is implemented with sufficient human, financial and technical resources (Zambia).

There is adherence to international classification norms of the ISCED 1997 manual (Botswana, Lesotho, Malawi, Mauritius, Namibia, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe).

Policies are in place for the timely collection, revision and dissemination of statistical data, both centrally and in the country's regions (Namibia, South Africa and Zambia). Data collection instruments are well thought out and as comprehensive as possible (Mauritius and Zimbabwe).

Documentation and dissemination procedures for statistics adhere to international standards throughout the information system (South Africa). Statistics derived from the administrative school census are disseminated within 6 to 12 months after the beginning of the school year (Zimbabwe). Producers of education statistics make their reports on the performance of education sub-sectors available to the public (Mauritius). In preparation for dissemination of the questionnaire, labels are printed and applied to the forms (Malawi). A briefing session is then organized between the EMIS unit and staff at the decentralised level on questionnaire completion, verification and validation, and calendar (Malawi).

At the central level, the EMIS unit makes concerted efforts to follow good practices: prefilling the data collection instrument, for instance, contributes to a strict maintenance of the master list of schools; also, systematic controls of erroneous and missing data are in place (Namibia).

At sub-national level, local support is provided by circuits and regional teams, and training is provided by EMIS staff. Standard registers are used at the school level, and guidelines for data quality control are nationally used (Namibia).

The coherence of data trends is presented in management meetings where lists of schools with high enrolment gains/losses are discussed (Namibia).

There is a high level of professionalism in examination practices, and national standard tests are regularly conducted to assess education quality (Namibia).

Globally, the physical model implemented in the main database seems effective. It uses the nomenclatures (modalities of variables) systematically, and this allows for easy running of relevant queries via SQL (Zimbabwe).

3.2. Capacity development and data quality and collection issues in the SADC region

In addition to identifying best practices in the SADC region, this evaluation has also brought to light a certain number of issues relating to capacity development and to data quality and collection. These issues are summarised below.

Central statistical agencies in SADC countries are at different stages of development and have different levels of capacity to manage the statistical system. Thus, for ministries of education, there is often a lack of clarity concerning mandates, delegation of authority and data quality standards, as well as insufficient understanding of what data quality means, which results in training for quality standards that is frequently not systematic or comprehensive. Owing to the relatively low degree of coordination between the regional level, central ministries of education and the post-secondary education sector, the latter varies in its ability to provide sufficient resources to support statistical functions.

In many SADC countries, there is a lack of, or at most weak, EMIS policy development. Collection mandates are unclear and there is limited statistical capacity building as measured by adequate numbers of staff or degree of expertise.

Human resource strategies do not always consider statistical capacity development and EMIS together. Recruitment and retention issues are a fact of life in most of the SADC countries. In addition, delays due to overly-centralised procurement procedures aggravate the retention issue.

Also, computing resources for compiling statistics are not always adequate to perform required tasks. In some SADC countries, lack of equipment and severe challenges with access to computers, mainly at the decentralised levels, were noted. When these resources were available, sometimes user-friendly query tools were missing or not adapted to the country's needs.

Furthermore, the lack of a dedicated budget and slow financial procedures have a negative impact on the implementation of planned activities for the collection, processing, analysis and dissemination of data.

Finally, limited collaboration between EMIS and other education sectors results in *ad hoc*, uncoordinated, incomplete and non-standardised data collections. Lack of harmonisation in data formats also complicates data extractions and reporting.

In general, all this means that regional capacities to collect and process data need to be strengthened. School administrators are typically not involved in data collection and reporting. There are varying degrees of compliance by regional education officers in fulfilling data collection mandates.

Data collection and processing issues are not always dealt with. Sometimes, no information is compiled on coverage or non-response. There are no sound methodologies to address missing data, nor are imputation methods systematically applied. No systematic processes are in place to monitor data errors and omissions, and to generally address data problems.

Poor integration with central ministry of education databases results in limited collaboration with the national statistics office. For instance, databases are not linked, especially to the TVET and tertiary sectors. As such, ministries of education do not often take advantage of expertise available at central statistical agencies.

To better understand the impact of education performance and with a view to improving data quality, it would be useful to encourage comparison of multiple data sources, such as household surveys. Very often education statistics are not widely circulated, in particular those relating to Education for All and Millennium Development Goals. Dissemination on the Internet is infrequent.

Publications (e.g. statistical yearbooks) only present raw data and/or indicators. Very few incorporate data analysis.

Lengthy delays to upload to the Internet, coupled with incomplete production and dissemination of education statistics, results in lags in international reporting. Survey metadata are incomplete or do not exist.

Chapter 4. SADC Ed-DQAF country assessment highlights

For each Ed-DQAF assessment conducted in the SADC countries that participated in the exercise, this chapter presents the context in which the assessment was carried out, along with the strengths, challenges and recommendations made by the expert team.

All validated Ed-DQAF reports are available for downloading from the Ed-DQAF Wiki.[10] Main findings and recommendations for non-validated reports are also available.

4.1. Botswana

4.1.1. Background

- Assessment conducted in February 2011.
- This is the first Ed-DQAF assessment implementing the Cape Town meeting recommendations (in particular, where several sources of data/data producers are separately assessed).
- The UIS met with:
  - Botswana Examinations Council
  - Botswana College of Distance and Open Learning
  - Botswana Training Authority
  - CSO (central statistical office)
  - Department of Out of School Education and Training
  - European Union
  - Ministry of Local Government
  - Ministry of Education and Skills Development (MoESD)
  - Tertiary Education Council
  - Teacher Training and Development
  - 1 region (Katleng), 2 primary schools, 1 senior secondary school.
- Report was shared with MoESD in April 2011.
- Final version (October 2011) incorporates feedback.

4.1.2. Strengths

- The MoESD has strong awareness of existing data quality issues, mainly involving lack of timeliness and reliability.
- Political will exists to improve the situation: development of the EMIS is a priority and there are plans to elevate the Division of Planning, Statistics and Research to department level.
- Mandates and functions of MoESD departments are governed and guided by relevant legislation and related policies.
- High levels of commitment throughout the education system, at the institutional, regional and national level.

4.1.3. Areas to improve

- Data needs for planning are not clearly expressed.
- There is no framework that allows for the coordinated and sustainable development of education information systems.
- The lack of a dedicated budget, combined with slow financial procedures, have an impact on the implementation of data collection activities.

[10] http://www.poledakar.com/dqaf/index.php?title=DQAF_Events

- *Ad hoc* and uncoordinated data collection processes are conducted in parallel.
- There are different lists of educational institutions, and these are not maintained or updated in one central place.
- Education officers receive little, if any, training in data collection methods.
- Responsibility sharing between the education statistics unit (consisting of staff seconded from the CSO) and the EMIS unit is not clearly defined, and there is no EMIS presence at the regional level.
- The existing EMIS is outdated and there is no capacity to update it.

4.1.4. Recommendations

- Implement the existing plans for restructuring the monitoring and evaluation function of the MoESD and provide more autonomy to the Division of Planning, Statistics and Research (DPSR) in controlling its own funds.
- Staff the EMIS unit at central and regional level.
- Clarify and reinforce relations between the CSO, MoE and other data-producing bodies and develop an EMIS policy that will define data collection processes and data dissemination procedures.
- Develop a modern integrated information system.
- Update and maintain the master list of all educational institutions.
- Design and implement a capacity-building strategy based on national needs and objectives.
- Develop an action plan that will identify and prioritise a set of actions needed to address the weaknesses identified by the diagnostic study.

4.2. Lesotho

4.2.1. Background

- Assessment conducted in March 2009.
- The UIS met with:
  - Ministry of Education and Training (MoET)
  - EMIS/Planning/Statistics (Primary) (MoET)
  - IT, TVET, Secondary, ECCED, National Examinations Council
  - 2 districts: Maseru, Berea
  - Lesotho Bureau of Statistics (LBoS)
  - UNESCO National Commission.
- Report shared with Lesotho MoET in July 2009.
- Final version incorporates feedback.

4.2.2. Strengths

- Legal framework for statistics collection in place.
- Strong professional and ethical values.
- Questionnaire methodologies/coverage strongly correspond to international practices.
- Policy of transparency.
- National statistical development strategy (NSDS) in place to define statistical production.
- Decentralisation of EMIS.
- Plans to strengthen statistical capacity at sub-national level.
- Strong collaboration with Ministry of Public Service for human resources services (e.g. training, recruitment, staffing).

4.2.3. Areas to improve

- Insufficient awareness of statistical quality processes (e.g. undocumented data verification procedures).
- Lack of human and technical resources to support statistical function.
- IT recruitment/retention problems.
- EMIS understaffing limits staff's ability to assess quality of data and affects timeliness.
- Inconsistent collection and limited analysis of ECCE and TVET data (e.g. several years of ECCE and TVET missing).
- Practice of replacing current year missing data by data from the previous year could lead to erroneous policy and negative impact.
- Long delays in publication of official population-specific age counts.
- Over-reliance on external contractors limits capacity building (e.g. not possible to revise database without consultant).
- Limited metadata.
- Insufficient engagement of school administrators at all levels in the collection and preparation of data to feed the education statistical system.

4.2.4. Recommendations

- Increase harmonisation of statistical policies and standards between LBoS and MoET.
- EMIS should take a greater leadership role in implementing all dimensions of data quality across sectors.
- EMIS must ensure data integrity and allow school administrators to access MoET website and revise inputted data.
- Put more focus on a human resources strategy that addresses training, staffing, recruitment and retention.
- Pay greater attention to post-secondary data collection, including for tertiary level.
- Data collection processes and standards, including software, need to be documented and disseminated to EMIS staff.
- Adopt support processes for TVET and secondary education data verification as a best practice.
- Encourage linkage between EMIS and the National Examination Council to analyse quality of education.

4.3. Madagascar

4.3.1. Background

- Assessment conducted in December 2008, over 7 working days.
- The UIS met with several departments of the Ministry of National Education (MEN):
  - Statistics, Planning and Monitoring
  - Information Technology
  - Human Resources
  - Administrative and Financial Affairs
  - Decentralised level: city of Antsirabe (1 province, 2 districts, 2 schools)
  - National office for private schools (ONEP)
  - National Institute for Statistics (INSTAT)
  - Several United Nations organizations (UNDP, UNICEF, UNFPA).
- Report shared with the MEN of Madagascar in March 2009.
- Final version incorporates feedback.

4.3.2. Strengths

- Statistical system of the Malagasy education sector has made significant progress in terms of quality during the last two years.
- Statistics of education tend to be treated with more professionalism.
- MEN education questionnaires are well documented and some explanations are translated into Malagasy thus increasing understanding.
- Data are recorded in accordance with existing international standards.
- Statistical yearbook is published annually.

4.3.3. Areas to improve

- Lack of qualified statisticians.
- Methodological and technical conditions under which education statistics are collected, compiled and disseminated are not made available to the public.
- Statistical approach implemented by the MEN must be transversal and cover all sub-sectors of education.
- No systematic procedures for imputing missing data.
- Lack of management of time series data makes difficult any decision based on historical analysis.
- Limited metadata.
- Weak collaboration between the MEN and INSTAT.

4.3.4. Recommendations

- Modernise the statistical production chain in its methodological and technical aspects (this should be the first priority of the MEN).
- Improve human, financial and physical resources.
- Establish operational partnerships between MEN and INSTAT at the technical and organizational levels.
- Put in place accurate time series data since this is a key component of an efficient statistical system.
- Provide adequate training to personnel involved in the production of education statistics.

4.4. Malawi

4.4.1. Background

- Assessment conducted in June 2011.
- The UIS met with:
  - Ministry of Education, Science and Technology (Policy and Planning, Basic Education, Secondary Education, Technical and Vocational Training, Higher Education, Budget, Inspectorate Advisory Services, Secretary MoEST), Lilongwe Urban District Office
  - CHINSAPO LEA Primary School
  - Lilongwe LEA Primary School
  - Tsabango Community Day Secondary School
  - Lilongwe Teacher Training College
  - National statistics office
  - ECD Ministry of Gender, Children and Community Development
  - Development partners.
- Report was shared with MoEST in November 2011.
- Final version (November 2011) was endorsed by the Ministry of Education, Science and Technology (MoEST) in April 2012 and incorporates feedback.

4.4.2. Strengths

- A strong policy agenda and strategic direction take into account the important role that statistics play in strategy and policy choices, and in monitoring and evaluating the education system.
- The EMIS unit is the only unit that collects data in the MoEST, and this function is acknowledged by other departments in the Ministry.
- In preparation for dissemination of the assessment questionnaire, labels were printed and applied to the forms.
- A yearly briefing session is organized in April between the EMIS unit and staff at decentralised level on questionnaire completion, verification and validation, and calendar.
- High levels of commitment throughout the education system, at the institutional, regional and national levels.
- Staff from the NSO are posted in the MoEST and support data collection and production.

4.4.3. Areas to improve

- Collaboration between the MoEST and NSO should be strengthened. They should work on the same concepts and definitions and compare data and indicators produced.
- Data collection and compilation in all sub-sectors should be harmonised for all education sub-sectors, including early childhood development (ECD).
- Additional training should be organized for head teachers and instruction on the questionnaire should also be improved.
- The data processing schedule should be optimised. Data capture should start as soon as questionnaires are received at central level without waiting for all the forms to be returned.
- The lack of a dedicated budget has a direct impact on data collection and affects the quality of data.
- Communication between departments in the MoEST and generally all data users about specific aspects of data, such as timeliness, data cross-checking (HRMIS) and data details, should be improved.
- Data audits should be done on regular basis in order to build trust and increase the integrity and the reliability of data.

4.4.4. Recommendations

- The Education Act should be revised in order to include the statistical responsibilities and MoEST mandate in terms of the scope and periodicity of the production of educational statistics.
- A consultative structure including MoEST, ECD, NSO and development partners should be set up to define a strategy for developing an integrated information system (EMIS policy).
- Terms of reference should be drawn up for an integrated information system that is appropriate for the MoEST and at sub-national levels, with a medium-term perspective of decentralisation down to the institution level if required.
- Develop standardised procedures to complete school registers and questionnaires at institutional level.
- Improve documentation and transparency by developing EMIS cycle procedures and metadata documentation. This documentation should be made available to the public.

- Establish a school registration unit in the Policy and Planning Department to maintain and update the master list of institutions. Procedures for opening and closing institutions should be developed and included in the Education Act.
- Develop an action plan that will identify and prioritise a set of actions needed to address the weaknesses identified by the diagnostic study.

4.5. Mauritius

4.5.1. Background

- Assessment conducted in May 2011.
- The UIS met with:
  - CSO
  - Human Resource Development Council
  - Mauritius Examination Syndicate (MES)
  - Mauritius Institute of Training and Development (MITD)
  - Ministry of Education and Human Resources (MoEHR)
  - Ministry of Technology Information and Telecommunications - Central Information Systems Division (CISD)
  - Mauritius Qualifications Authority (MQA)
  - Tertiary Education Commission (TEC)
  - University of Mauritius
  - UNESCO National Commission for Mauritius
  - United Nations Development Programme (UNDP)
  - Public and private pre-primary, primary and secondary schools in Mauritius.
- Report compilation and dissemination: the report was shared with all the national stakeholders that the UIS consulted, in addition to the UNESCO National Commission in October 2011.

4.5.2. Strengths

- The importance of data quality is well understood by all education data producers in Mauritius.
- Education statistics data producers in Mauritius are committed to providing up-to-date statistics on their respective sectors.
- Mauritius has a well-organized, centralised information system division to support government agencies to capture data.
- The MoEHR is committed to providing quality education to all Mauritians, and strives to ensure a continual process of collecting data to measure the efficiency of the system.
- The MoEHR has made substantive efforts at the central and zonal levels of administration to ensure that there are multiple sources of data to respond to different needs.
- There continues to be a growing demand for statistics in Mauritius. The MoEHR should be commended for its exemplary efforts to respect timeliness.
- The MoEHR (Statistics Section) has made substantive efforts to ensure that data collection instruments are as comprehensive as possible.
- The reports of education statistics data producers (MoEHR, TEC, and MITD) on the performance of their respective education sub-sectors are made available to the public.

4.5.3. Areas to improve

- The CSO should play a stronger role in including all education statistics data producers in the revision of the national strategy for the development of statistics.
- All education data producers should consider a more concerted approach to improve data quality.
- The coverage of sector-wide statistics could be improved through better coordination of efforts to harmonise data reports, among others.
- The MoEHR could improve data analysis and extraction functions.
- Information technology tools currently in use could be updated and adapted.
- The multiple data collection activities at the zonal level could be better organized and information-sharing could be improved.
- A strategy for the development of an EMIS (as defined in the Mauritius Education and Human Resources Strategy Plan) should be considered.
- Data collection across all data producers should be harmonised to eliminate redundancies, and ensure that data collection instruments are comprehensive.
- The human resource base should be expanded in order to be able to meet current and future needs.
- Research and evaluation could be improved through increased data analysis.

4.5.4. Recommendations

- Explore modalities to improve data coverage by private institutions.
- Track changes made in methodology, concepts and definitions, and disseminate such changes to the public – e.g. produce and disseminate a sector-wide education statistics guide, document deviations from international norms, and produce documents on metadata.
- Formalise national classification of education levels to capture multiple TVET providers.
- Introduce minor changes to the survey form to ensure accuracy in reporting, e.g. age data.
- Improve national data coverage through integrating estimates from existing data sources, and conduct sample surveys to determine reasons for non-response in private institutions.
- Improve collaboration with the CSO and the MoEHR to set official standards for data validation, assessing data reliability, and establishing codes of practice, etc.
- Conduct periodic site visits to institutions to conduct data quality audits, evaluate training of zonal directors, etc.
- Promote the integrity of data releases by TEC, MITD and MQA, which release annual publications independently.
- Adopt an education statistics development strategy (ESDS) and capacity building plan and establish a technical coordinating committee. Automate data consistency checks to reduce the workload of the MoEHR.
- Publish annual sector-wide documents on education statistics separately, e.g. brochures, harmonised reports, etc.
- Design a process to examine the relevance and feasibility of a national programme of assessment. This would serve to complement the participation of Mauritius in international assessments.

- Increase the pace of modernising the data processing platforms, e.g. online data capture, etc.
- Establish technical committees, ensuring that education statistics development strategies address quality concerns.

4.6. Mozambique

4.6.1. Background

- Assessment conducted in June 2009, over 7 working days.
- The UIS met with:
  - Ministry of Education and Culture (MoEC)
  - EMIS Unit
  - Provincial Directorate of Maputo
  - National Statistical Institute
  - 1 province: Maputo
  - 1 school
  - UNICEF Mozambique.
- Report shared with MoEC in September 2009.
- Second draft version incorporates feedback.
- Final version completed in October 2009.

4.6.2. Strengths

- There is a governance structure in place to support development of statistical capabilities (e.g. National Statistical System).
- Sufficient resources allocated for hardware: workstations connected to high speed Local Area Network (LAN), servers well administered.
- Statistical products are signposted with MoEC logo.
- In general, data are recorded in accordance with existing international standards and data collection instruments are well designed.
- Financial resources allocated to statistical data collection are sufficient.

4.6.3. Areas to improve

- Little or no mechanisms in place for triangulation among datasets.
- On the whole, staff numbers are insufficient to cope with demands and workload and, furthermore, retention is generally low.
- Documentation for the main statistical system is lacking.
- Resources for development of software are not sufficient.
- Use of school registers should be systematised.

4.6.4. Recommendations

- Pre-requisites of quality: develop human resources and recruit additional staff (statisticians) at national level.
- Integrity: develop a scientific approach to the production and use of statistics.
- Methodological soundness: implement an EMIS capacity development plan and monitoring and evaluation (M&E) framework.
- Accuracy and reliability: create a master list of schools and limit authority at district level to modify this.
- Serviceability: promote preliminary publications on education statistics.

4.7. Namibia

4.7.1. Background

- Assessment conducted in October 2011.
- The UIS met with:
  - Ministry of Basic Education (MoBE): EMIS Department, Directorates of Programme and Quality Assurance, of National Examination and Assessment, Finance and Namibia Student Financial Assistance Fund, Human Resources, Corporate Planning, Monitoring and Evaluation Planning and Development, Adult Education
  - Central Bureau of Statistics
  - Ministry of Gender Equality and Child Welfare
  - Polytechnic of Namibia
  - National Council for Higher Education
  - National Training Authority
  - Namibian College of Open Learning
  - Millennium Challenge Account Namibia
  - Education development partners
  - 2 regional offices and 1 circuit, 3 primary schools, 2 secondary schools, 2 combined schools.
- Report was shared with MoBE in February 2012.

4.7.2. Strengths

- The MoBE is aware of the importance of quality data and acknowledges the EMIS to be a unique source of data. It thus provides the EMIS with the required institutional authority to avoid the duplication of data collection processes.
- At central level, the EMIS unit makes important efforts to maintain good practices: prefilling the data collection instrument, for instance, contributes to a strict maintenance of the master list of schools; also, systematic controls of erroneous or missing data are in place.
- At sub-national level, local support is provided by circuits and regional teams, and training is provided by EMIS staff.
- At school level, standard registers and guidelines for data quality control are used nationwide, and the data collection instruments are self-explanatory and easy to use.
- The coherence of data trends is verified in management meetings where lists of schools with high enrolment gains/losses are discussed.
- High level of professionalism in examination practices, and national standard tests are regularly conducted to assess education quality.

4.7.3. Areas to improve

- Lack of a dedicated budget and slow financial procedures have a negative impact on the implementation of planned activities for data publication.
- There are important data gaps for some sub-sectors, i.e. vocational education and training (VET), higher education (HE), early childhood development (ECD), and there is no publication of financial data for these sectors.
- User-friendly query tools (in particular to access raw data) are missing; existing statistical publications would benefit from some improvements, and an additional publication with analytical content is recommended.

- The use of secondary data sources needs to be promoted for understanding the phenomena impacting on educational performance, for example regarding dropouts, population mobility, orphans and vulnerable children (OVC), etc., and for comparison of ways to improve data quality.
- EMIS is understaffed, and staff retention issues are seriously putting the system's sustainability at risk.
- At central level, the monitoring and evaluation (M&E) function should be given more importance (i.e. moved higher up in the hierarchy) and a culture of using data for decisionmaking should be encouraged.

4.7.4. Recommendations

- Clarify the institutional arrangements between CBS and MoE on the one hand and MoE and NCHE, NTA and the MoGECW on the other, and establish a quality committee comprising the main data users.
- Staff the EMIS Unit, especially at central level.
- Allocate a dedicated budget to EMIS and improve procurement and funding to ensure that the printing of EMIS publications is efficient.
- Develop an EMIS policy document and an EMIS activity calendar including the public release of preliminary data to improve transparency.
- Develop the following documents, make them available online (i.e. Intranet or Internet, depending on the content) and refer to them in the publications:
  - documentation on metadata, indicators and methodology (e.g. explaining coverage percentage estimation and processes);
  - documentation on the database structure for sustainability and maintenance; and
  - a procedures manual.
- Provide different kinds of publications for different audiences (e.g. researchers, general public, decisionmakers, etc.) and administrative levels and automate the production of abstracts.
- Consider the decentralisation of the EMIS for more participation at the lower administrative levels and provide feedback to schools in the form of report cards.
- Build capacity for database querying, reporting and education finance indicators.
- Develop an action plan that will identify and prioritise a set of actions needed to address the weaknesses identified by the diagnostic study.

4.8. South Africa

4.8.1. Background

- Assessment conducted in February 2009 over 7 working days.
- The UIS met with:
  - Department of Education (DoE)
  - EMIS/HEMIS/ EMS/Economic Analysis/M&E
  - Further Examination and Training (FET)
  - 3 provinces: KwaZulu Natal, Western Cape, Mpumalanga.
- Report shared with DoE in June 2009.
- Final version incorporates feedback.

4.8.2.Strengths

- South Africa has a very strong national statistical system that closely corresponds to international standards.
- Good collaboration between Statistics South Africa (Stats-SA) and the DoE to define statistical quality processes.
- Comprehensive and decentralised IT tools to the provincial level to support the data production chain.
- Classification of educational programmes follows international norms (e.g. national qualifications framework).
- Comprehensive data reporting on education finance at the provincial level.
- Strict adherence to public and regular data release schedules (pre-primary to post-secondary data).

4.8.3. Areas to improve

- Timeliness and data validation checks are limited by understaffing at the DoE.
- Little attention is paid to resolving missing data issues (e.g., imputation methodologies).
- Reconcile differences in estimated enrolment counts produced by household surveys and the Annual School Census.
- Variations in provincial human and technical resource capacity limit ability to process data effectively.
- Provincial websites are not updated regularly.
- Private tertiary enrolments are not integrated with public data for international reporting.
- Although unit response rate is relatively high, a clear methodology for estimating item non-response (especially on repeater and enrolment by age) should be clearly defined.

4.8.4. Recommendations

- Review current staffing levels and training requirements both nationally and provincially (e.g. EMIS workload in KwaZulu Natal).
- Assure on-going provincial adherence to Data Quality Standard for Surveys.
- Simplify data collection instrument to consider provincial resource limitations.
- DoE should ensure online data cover entire education sector (e.g. FET colleges).
- Verify accuracy of private and public teacher data.
- EMIS department should revise EMIS data capture tool to include a data validation check.
- DoE should publish complete set of indicators at provincial and national levels in Education Statistics in South Africa.
- School registers should be standardised across provinces and schools.
- Provincial user needs should inform questionnaire design.

4.9. Swaziland

4.9.1. Background

- Assessment conducted in March 2009 over 7 working days.
- The UIS met with:
  - Ministry of Education and Training (MoET)
  - EMIS, TVET, Non-Formal Education Institute
  - CSO
  - National Examinations Council
  - UNESCO National Commission
  - 1 district: Manzini.
- Report shared with MoET in August 2009.

4.9.2. Strengths

- Values and ethics.
- Statistical scope, concepts.
- Well-designed longitudinal EMIS database with error checking.
- MoET questionnaire adequate to generate indicators.
- Strong, long-standing relationship between CSO and MoET (e.g. CSO provides leadership and imputes missing date for MoET).

4.9.3. Areas to improve

- Collaboration between CSO and MoET, EMIS and other education sectors (e.g. access to education data in CSO databases) could be strengthened.
- MoET data quality standards are not widely enforced.
- NSDS should inform revision of Statistics Act (1967).
- EMIS not well resourced; policy not developed and implemented.
- Staff recruitment/retention issues.
- Incomplete school registers at all levels, including TVET.
- Procurement delays.
- EMIS staff does not have access to EMIS technical documentation.
- MoET should adopt national standards for collection of age data.
- Collaboration between EMIS and post-secondary and tertiary sectors is limited.
- EMIS does not process and validate post-secondary and tertiary data.
- Fragmented data production system.

4.9.4. Recommendations

- CSO should take leadership role in developing and enforcing quality standards for the national statistical system for implementation by line ministries.
- Data dissemination is delayed significantly by central approval requirements to revise or upload recent statistics.
- To support already-published education indicators, MoET should officially release age-specific release counts.
- Recruit additional statistical staff at national and regional levels.
- Develop comprehensive IT retention strategies.
- Harmonisation of EMIS with ISCED (in particular TVET).
- Ensure publication of education finance data and indicators.
- Ensure that process underway to formally register all academic institutions (secondary, ECCE) is completed.

- Swaziland government CSO link should contain most recent available data (e.g. most recent data is from 2004 but MoET has 2008 data available).
- CSO should systematise knowledge transfer for statistical quality (e.g. imputation) to MoET, given that the latter maintains EMIS data.
- Reduce significantly reliance on external consultants for database management.
- Ensure that regional education officers are consulted (e.g. issues of respondent burden at the school level) in any questionnaire revision.
- Ensure that the entire statistical production chain is documented and shared (e.g. for new staff).

4.10. United Republic of Tanzania

4.10.1. Background

- The assessment took place during May 2009 over 7 working days.
- The UIS met with:
  - Ministry of Education and Vocational Training (MoEVT)
  - EMIS unit
  - National Bureau of Statistics (NBS)
  - 2 Districts – Temeke and Bagamoyo
  - Dar Es Salaam regional office.

4.10.2. Strengths

- Statistical techniques are sound and applied regularly to data (e.g. to adjust data as necessary).
- Statistical staff is well suited to their tasks.
- External feedback on statistical publications is elicited from data users.
- Well-designed EMIS database conforming to international standards.
- Strong efforts to train school head teachers, district and regional education officers on data collection requirements.
- National publication follows internationally accepted deadlines.
- Data sharing is common within MoEVT and other ministries.
- A statistical master plan ensures coordination of data collection activities.
- Strong collaboration between MoEVT and NBS; MoEVT participates in NBS activities as a stakeholder (e.g. includes questions in Household Survey).
- Quality of statistics is ensured through data verification procedures. For instance, ward education coordinators, statistical and logistical officers (SLOs) and municipal/district education officers check and verify data. HE and VET have nominated a statistical focal person (within the context of the current ESMIS project).

4.10.3. Areas to improve

- Human resources are limited at the national level.
- The statistical policy should be revised to cover the requirements of the education sector.
- There should be institutionalised regular use of secondary data sources.
- Data capturing, processing and analysis should be managed at the district level (not at central level).
- Competitive recruitment and retention policies should be implemented, e.g. EMIS has lost several staff members with no succession plans in place.
- Data storing facilities at the district levels should be improved to ensure security.

- Dissemination of timely data (within 6-12 months) should be improved, in particular for HE and VET and finance data.
- Capacity at the central and district levels should be strengthened, in particular in data analysis, and BEST publications should have more detail.

4.10.4. Recommendations

- Improve motivation of staff (through competitive packages to retain staff and, in particular, for recruitment of EMIS staff).
- Improve budget allocation to allow expansion of statistical activities, e.g. training of staff, printing of publications.
- Education management at national level should be encouraged to regularly use statistics produced by the education sector for planning, monitoring and evaluation.
- Support for use of the EMIS system should be increased.
- MoEVT should consider developing a well-integrated and harmonised EMIS system, e.g. including higher education, TVET and adult education.

4.11. Zambia

4.11.1. Background

- The assessment took place during November 2008 and August 2009 over 7 working days.
- The UIS met with:
  - Ministry of Education (MoE)
  - Directorate of Open and Distance Education/Human Resources Directorate/EMIS
  - IT, TVET, Secondary, ECCED, National Examinations Council
  - 4 provinces: Lusaka, Central, Copperbelt, Northern
  - CSO.
- Report shared with MoE in September 2009.

4.11.2. Strengths

- Excel, PDF and metadata documents associated with official publications are accessible online.
- Master list of institutions classifies all registered district schools, including private and community schools.
- Technical guidelines are available to assist users in completing questionnaires.
- Questionnaire methodologies/coverage strongly correspond to international practices.
- Legal framework for collecting statistics is in place.
- Very high levels of professional integrity within EMIS (central).
- Data accessible on CD and in printed reports (e.g. education statistical bulletins).
- Consultation with key stakeholders on questionnaire reviews.

4.11.3. Areas to improve

- District data validation is not systematic.
- Weak quality assurance systems to address quality issues.
- Weak collaboration between TVET and other line ministries to evaluate TVET data quality.

- Limited capability to access data online.
- Weak coverage of pre-primary and private university colleges.
- Response rates burdened by bulky data collection questionnaires.
- Requested data are sometimes not analysed or accessible online (e.g. teaching hours).
- Limited recruitment of professional staff at district level.

4.11.4. Recommendations

- Provide resources for engaging school inspectors and school administrators in data production process.
- Increase information sharing within ministry directorates and with the CSO to validate statistics prior to publication (e.g. net enrolment ratio).
- Revise data collection questionnaire to reduce response burden.
- Undertake information sessions with data collectors to ensure comprehension of concepts and definitions in annual school questionnaire.
- Strengthen EMIS to define quality standards.
- Undertake regular training of EMIS staff at national and district levels.
- Review staffing levels in districts.
- Constitute a quality assurance group.
- Adopt TVET and secondary education sector data verification support processes as a best practice.
- Encourage linkage between EMIS and the National Examination Council to analyse quality of education.
- Decentralise data entry to district level.
- Data quality would be improved through greater collaboration between DPI Directorate of Planning and Information and other ministries.
- Encourage use of alternative data sources to validate education data (e.g. teacher qualifications).
- Data quality checks should be incorporated into data capturing tool.
- Following the example of Lusaka province, other provinces should publish comprehensive education statistics.
- Reconcile data from different sources prior to publication.
- Greater consultation on data collection questionnaire would enhance collaboration with the districts.

4.12. Zimbabwe

4.12.1. Background

- Assessment conducted in January 2010.
- Ed-DQAF produced before the implementation of the Cape Town meeting recommendations.
- The UIS met with:
  - Harare District Office
  - Ministry of Education, Sports, Arts and Culture (MoESAC)
  - Ministry of Higher and Tertiary Education (MoHTE)
  - UNESCO Office in Harare
  - UNICEF
  - World Bank
  - Zimbabwe National Statistics Agency (ZIMSTAT)
  - 2 schools in Harare.
- Report was shared with MoESAC in April 2010.
- Final version, incorporating feedback, available since July 2010.

4.12.2. Strengths

- The main questionnaire for education, the ED 46, seems quite effective and efficient. The same can be said for the (recently revised) data collection instruments of the MoHTE.
- As to the performance of the education system (including access, enrolment, progression, completion, and student learning achievements), basic data on such main variables are available.
- Questionnaires for data collection are in accord with international standards.
- Globally, the physical model implemented in the main database seems effective. It uses the nomenclatures (modalities of variables) systematically and this allows for easy running of relevant queries via SQL.
- Statistics derived from the administrative school census are disseminated within 6-12 months after the beginning of the school year.

4.12.3. Areas to improve

- Significant challenges remain in staffing, recruitment and fulfilment of crucial positions in key units relating to educational statistics. For example, there are no statisticians on the staff of the EMIS Unit, whether it is in the MoESAC or MoHTE.
- A lack of equipment was noted at all levels (albeit less severe at the central level), including a lack of computers, printers and paper.
- Access to computers, mainly at the provincial and district levels, is severely limited.
- MoESAC does not seem to use education data from household surveys conducted throughout the country, thus depriving itself of a very important comparison tool for data quality improvement.
- No information is compiled on coverage or non-response. The percentage of missing data is not calculated and no imputation method is used.
- No systematic processes are in place to monitor data errors and omissions, and to generally address data problems.
- Zimbabwe has not published educational statistics since 2003.
- Metadata, including information on concepts, definitions, classification and other methodology, data sources, and statistical techniques, are not made available to the public.
- International reporting of education data from private institutions is lacking.

4.12.4. Recommendations

- Promote the emergence of an independent statistical culture, e.g. emphasise in the Census and Statistics Act the independence of ZIMSTAT and its freedom from political interference.
- Widen the scope of data collection to all sub-sectors (i.e. early childhood care and education, adult and non-formal education, vocational training and correspondence schools).
- Redesign the database, observe standard modelling rules, and develop professional documentation to be used as training material for designated staff.
- Population projections produced by ZIMSTAT should be smoothed.
- The administrative school code needs to be harmonised and shared with all concerned entities. Procedures to ensure a master list of schools management (including private schools) and data quality control have to be developed and implemented at all steps of the school census.

- First of all, Zimbabwe should link its different databases, with a common identifier for educational establishments.
- Enhance collaboration with private institutions for comprehensive international data reporting.

Conclusion

This report summarises the outputs of 12 Ed-DQAFs conducted in the SADC region.

Considering all the recommendations that have already been implemented by the participating countries, it is evident that the results have been very positive in terms of improving the quality of data. This demonstrates in particular that many good practices can be implemented without the need for substantial financial resources. As mentioned earlier *(see Section 1.1),* the importance that decisionmakers dedicate to data quality and making technicians aware of the fundamental principles of official statistics are key elements to ensuring quality.

This initiative has generated a strong demand from EMIS staff to strengthen national capacities to improve data quality. In response, the UIS is working on the development of training modules and reference documents in this domain. These materials will be used within the regional and national capacity-building initiatives.

The joint efforts of national, regional and international experts to review Ed-DQAF methodology have greatly enhanced the tool. Recommendations arising from the series of regional consultations have resulted in a more stable and widely-accepted data collection instrument which has been put to use in other countries in SSA.[11]

It is worth mentioning that diagnoses conducted according to the Ed-DQAF methodology can be used by countries as a benchmark in the process of monitoring and evaluating quality improvement and the implementation of action plans for strengthening statistical capacities.

[11] Its latest version was used in the ECOWAS region (Benin, December 2012).

Annex I. Ed-DQAF at indicator level

0	**Pre-requisites of quality**		
	0.1		**Legal and institutional environment**
			0.1.1 The responsibility for collecting, processing, and disseminating statistics is clearly specified.
			0.1.2 Data sharing and coordination among data producing units are adequate.
			0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only.
			0.1.4 Statistical reporting is ensured through legal mandate and/or measures to encourage response.
	0.2		**Resources are commensurate with needs of statistical programmes**
			0.2.1 Staff, financial, and computing resources are commensurate with statistical programmes of the agency.
			0.2.2 Measures to ensure efficient use of resources are implemented.
	0.3		**Relevance – Education statistics cover relevant information**
			0.3.1 Periodical consultations with data users.
	0.4		**Quality awareness – Quality is a cornerstone of statistical work**
			0.4.1 Processes are in place that focus on quality.
			0.4.2 Managers give due consideration to monitoring the quality of the collection, processing, and dissemination of statistics.
			0.4.3 Managers deal with quality considerations in planning the statistical programme.
1	**Integrity**		
	1.1		**Professionalism – Statistical policies and practices are guided by professional principles**
			1.1.1 Statistics are compiled on an impartial basis.
			1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations.
			1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.

	1.2		**Transparency – Statistical policies and practices are transparent**
			1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.
			1.2.2 Internal governmental access to statistics prior to their release is publicly identified.
			1.2.3 Products of statistical agencies/units are clearly identified as such.
			1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques.
	1.3		**Ethical standards –Policies and practices are guided by ethical standards**
			1.3.1 Guidelines for staff behaviour are in place and are well known to the staff.
2	**Methodological soundness**		
	2.1		**Concepts and definitions – Concepts and definitions used are in accord with standard statistical frameworks**
			2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.
	2.2		**Scope – The scope is in accord with internationally accepted standards, guidelines, or good practices**
			2.2.1 The scope of the dataset is broadly consistent with internationally accepted standards, guidelines, or good practices.
	2.3		**Classification/sectorisation – Classification and sectorisation systems are in accord with internationally accepted standards, guidelines, or good practices**
			2.3.1 Classification and sectorisation systems used are broadly consistent with internationally accepted standards, guidelines, or good practices.
	2.4		**Basis for recording – Data are recorded according to internationally accepted standards, guidelines, or good practices**
			2.4.1 Recording system follows internationally accepted standards, guidelines, or good practices.
3	**Accuracy and reliability**		
	3.1		**Source data – Available source data provide an adequate basis for compiling statistics**
			3.1.1 Source data are collected from comprehensive data collection programmes that take into account country-specific conditions.

			3.1.2 Source data reasonably approximate the definitions, scope, classifications, evaluation, and time of recording required.
			3.1.3 Source data are timely. Data collection system provides for the timely receipt of source data and detailed data.
	3.2		**Assessment of source data – Source data are regularly assessed and validated**
			3.2.1 Accuracy of information is routinely assessed.
			3.2.2 Appropriate measures are taken to validate data sources.
			3.2.3 Use of school registers is promoted and accuracy of school registers is periodically assessed.
	3.3		**Statistical techniques – Statistical techniques employed conform to sound statistical procedures and are documented**
			3.3.1 Data compilation employs sound statistical techniques to deal with data sources.
			3.3.2 Other statistical procedures (e.g. data adjustments and transformations, statistical analysis) employ sound statistical techniques.
	3.4		**Revision studies – Revisions, as a gauge of reliability, are tracked and mined for the information they may provide**
			3.4.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes.
	3.5		**Archiving of source data and statistical results**
			3.5.1 Database is structured according to relational standards.
			3.5.2 Database is well documented.
4	**Serviceability**		
	4.1		**Timeliness and periodicity follow internationally accepted dissemination standards**
			4.1.1 Periodicity follows dissemination standards.
			4.1.2 Timeliness follows dissemination standards.
	4.2		**Consistency – Statistics are consistent within a dataset and over time, and with other major data sets**

			4.2.1 Statistics are consistent within the dataset.
			4.2.2 Statistics are consistent or reconcilable over a reasonable period of time.
			4.2.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.
5	**Accessibility**		
	5.1		**Data accessibility – Statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis**
			5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts).
			5.1.2 Dissemination media and formats are adequate.
			5.1.3 Statistics are released on a pre-announced schedule.
			5.1.4 Statistics not routinely disseminated are made available upon request.
	5.2		**Metadata accessibility – Up-to-date and pertinent metadata are made available**
			5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical methodologies and techniques is available, and differences from internationally accepted standards, guidelines, or good practices are annotated.
			5.2.2 Levels of detail are adapted to the needs of the intended audience.
	5.3		**Assistance to users – Prompt and knowledgeable support service is available**
			5.3.1 Procedures concerning requests are clearly defined and assistance to users is monitored.