Assessing Education Data Quality in the Southern African Development Community (SADC): A Synthesis of Seven Country Assessments

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During 2008 and 2009, seven countries in the Southern African Development Community (SADC) participated in a review of the quality of their education data using a tool called the Data Quality Assessment Framework (DQAF) developed by the UNESCO Institute for Statistics (UIS). In cooperation with each country’s Ministry (or Department) of Education and their National Commission to UNESCO (which facilitated introductions and interviews with Ministry officials), the evaluations took place in Lesotho, Madagascar, Mozambique, South Africa, Swaziland, Tanzania and Zambia. The UIS and the UNESCO Regional Bureau for Education in Africa (BREDA) conducted the assessments in every country with the exception of Zambia which was carried out by the ADEA Working Group on Education Policy Support / NESIS.

The authors of the six remaining country reports, all from UIS, are Marc Bernal, (Regional Advisor, Nairobi), Monica Githaiga (Cluster Advisor, Dar es Salaam), Thierry Lairez (Regional Advisor, Dakar) and Mélanie Smuga (Statistical Advisor, Dakar).

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Frederic Borgatta, (UIS Cluster Advisor, Windhoek) analysed and synthesised the country reports to produce this document: what was learned about education data quality in the SADC region.

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A. THE DATA QUALITY ASSESSMENT FRAMEWORK

Background

1. 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 an efficient and well-documented information system to support education management. Reliable, timely information at the continental, regional and national level is a critical element in education policy planning, evaluation and decision-making.

2. The production of education statistics requires institutional, organisational and technical capacity at the national and sub-national levels. The UNESCO Institute for Statistics (UIS) is the focal point at UNESCO to develop and implement evaluation frameworks that assess the quality of data produced by the education sector.

3. Called the Data Quality Assessment Framework (DQAF), the instrument incorporates current international standards for quality data in the education sector, with particular reference to the African reality.

4. The current form of the DQAF is based on one initially developed by the International Monetary Fund in 2002 to assess the quality of economic data. In 2004, the World Bank and UIS modified it for use in the evaluation of education data.

5. Between 2008 and 2009, seven countries in the SADC region used the DQAF to conduct a pilot study in their countries to describe the quality of the statistics produced by the education information system currently in place. On completion of an assessment, a DQAF evaluation team prepared and shared a report with the country for feedback and revision. The countries which participated in the pilots were:

   - Lesotho
   - Madagascar
   - Mozambique
   - South Africa
   - Swaziland
   - Tanzania
   - Zambia
6. With the final assessments, SADC and UIS can evaluate the utility of the framework tool and modify it to reflect experience with the pilot countries. At the same time, a synthesis of the country evaluations into a regional view – and the purpose of this report – can also show areas where international data quality standards are in evidence and those that are less so.

Why assess data quality?

7. The figure below shows the basic question the DQAF addresses; namely, the extent to which a country has the capacity to produce quality statistics to inform education policy planning.

8. The DQAF assessment provides a comprehensive evaluation of education data quality by comparing a country’s data production with current international standards. Such a comparison enables a country to assign priorities to areas in need of strengthening arising from the assessment.
9. As a diagnostic tool the DQAF looks at structural elements contributing to the quality and completeness of a country’s statistical system, including its production processes and practices and satisfaction of user needs (a critical element of Total Quality Management).

10. The DQAF process itself depends on a partnership between UIS and the country agreeing to an assessment. To this end, UIS conducts interviews and collaborates with national and sub-national agencies responsible for the production of education statistics.

11. The figure below shows the DQAF process as it is currently practiced.

12. The DQAF is more than just statistical processes and outcomes; it ultimately has implications for organizational design and culture (i.e., client service orientation, collaborative practices, risk management, etc.).

13. The strength of a DQAF is that it provides a set of objective criteria, invariant from assessment to assessment, which permit comparisons, if desired, between countries.

14. At the same time, the DQAF evaluation instrument is subject to revision. By reflecting international best practices in data quality and the evaluation experience in Africa, the instrument can remain relevant to its users.

15. While a powerful tool, the current form of the DQAF has some limits, including:
   - It provides advice but not implementation;
   - It is up to the country to identify priorities if desired and engage relevant ministries;
   - Applying the instrument requires experienced assessors;
   - No one dimension and sub-dimension is viewed as more important than another and so contribute equally to the assessment.
Six dimensions of data quality

16. The evaluation framework consists of two major categories:
   - Data collection quality;
   - Quality of the analysis and dissemination process for education statistics at the national and sub-national levels.

17. The DQAF examines these categories through six dimensions and twenty-one sub-dimensions. Table 1 below shows the complete framework.

18. For each sub-dimension, the evaluation team assigns a percentage score based on its judgment about the extent to which there is a correspondence between country and international practice. Aggregating sub-dimension scores gives a dimension score and aggregating dimensions gives an overall quality score.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Sub-dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Prerequisites</td>
<td>.1 Legal &amp; institutional environment</td>
</tr>
<tr>
<td>1 Integrity</td>
<td>.1 Professionalism</td>
</tr>
<tr>
<td>2 Methodological Soundness</td>
<td>.1 Concepts &amp; Definitions</td>
</tr>
<tr>
<td>3 Accuracy &amp; Reliability</td>
<td>.1 Source data available</td>
</tr>
<tr>
<td>4 Serviceability</td>
<td>.1 Relevance**</td>
</tr>
<tr>
<td>5 Accessibility</td>
<td>.1 Clearly presented statistics</td>
</tr>
</tbody>
</table>

** Evaluators frequently combine the sub-dimensions Relevance and Timely and regular dissemination.

19. The list of questions below highlights the decision-making process for each dimension shown in the table above.

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?
- Is there a culture of data quality?
1. Integrity

- Are data collection, analysis and dissemination processes guided by professional principles?
- Are statistical policies and practices transparent?
- Are ethical standards used to guide policy development and staff?

2. Methodological soundness

- Do education concepts and definitions comply with standard statistical frameworks?
- Are the data produced comprehensive and follow international norms?
- Are the data categorized and classified in a manner consistent with international standards and best practices.
- Are the data recorded according to internationally accepted standards, guidelines, or good practices?

3. Accuracy and reliability

- How comprehensive are the data sources used to compile statistics?
- Are education data and statistics validated against different data sources?
- Are there sound, well-documented, statistical techniques in place?
- Are data sources regularly assessed and validated?

4. Serviceability

- Are the statistics relevant and timely?
- Is there a predictable revision policy?
- Are the data consistent within a dataset and over time?

5. Are the data easily available?

- Are the data disseminated in an adequate and impartial manner?
- Are there adequate metadata to describe the data completely?
- Is there a focus on assisting the user?
B. SADC REGIONAL VIEW

SADC DQAF Assessments

20. As discussed earlier, the evaluation team assigns a percentage score to each sub-dimension. By recoding the scores into four categories however, and assigning colours to each, it is possible to see quickly what the country DQAFs look like when viewed together.

<table>
<thead>
<tr>
<th>Sub-dimension score</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 - 100 %</td>
<td>4</td>
</tr>
<tr>
<td>60 - 74 %</td>
<td>3</td>
</tr>
<tr>
<td>50 - 59%</td>
<td>2</td>
</tr>
<tr>
<td>Less than 50%</td>
<td>1</td>
</tr>
</tbody>
</table>

21. Table 2A below shows the country scores in order of assessment dimensions discussed above. Table 2B shows the same thing but sorted from the highest total row score to the lowest. In this manner, it is possible to see at a glance regional areas of strength and those that need to be strengthened.

| Table 2A: Country DQAF Scores (in order of DQAF Dimensions and sub-dimensions) |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Dimension                        | Sub-dimension | Lesotho | Malawi | Mozambique | S. Africa | Swaziland | Tanzania | Zambia |  |
| 0. Prerequisites                  | 0.1 Environment | 2 | 1 | 3 | 3 | 1 | 2 | 3 |  |
| 0. Prerequisites                  | 0.2 Resources | 2 | 1 | 1 | 3 | 1 | 2 | 3 |  |
| 0. Prerequisites                  | 0.3 Quality awareness | 1 | 1 | 3 | 3 | 1 | 1 | 2 |  |
| 1. Integrity                      | 1.1 Professionalism | 2 | 3 | 1 | 3 | 1 | 2 | 4 |  |
| 1. Integrity                      | 1.2 Transparency | 4 | 2 | 2 | 4 | 2 | 2 | 2 |  |
| 1. Integrity                      | 1.3 Ethical norms | 4 | 2 | 2 | 4 | 2 | 2 | 2 |  |
| 2. Sound Methodology              | 2.1 Concepts & definitions | 4 | 1 | 2 | 4 | 2 | 2 | NA |  |
| 2. Sound Methodology              | 2.2 Scope | 4 | 3 | 4 | 4 | 3 | 4 | 4 |  |
| 2. Sound Methodology              | 2.3 Classification | 4 | 3 | 3 | 4 | 3 | 3 | 3 |  |
| 2. Sound Methodology              | 2.4 Basis for scoring | 4 | 2 | 3 | 4 | 4 | 4 | 4 |  |
| 3. Reliable                       | 3.1 Adequate source data | 4 | 1 | 1 | 4 | 4 | 4 | 4 |  |
| 3. Reliable                       | 3.2 Assess & validate source data | 2 | 1 | 1 | 4 | 1 | 3 | 4 |  |
| 3. Reliable                       | 3.3 Validation of intermediate results & statistical outputs | 1 | 4 | 1 | 3 | 2 | 4 | 3 |  |
| 3. Reliable                       | 3.4 Statistical techniques | 1 | 3 | 1 | 4 | 1 | 3 | 4 |  |
| 3. Reliable                       | 3.5 Revision studies | 1 | 1 | 1 | 4 | 2 | 2 | 3 |  |
| 4. Serviceable                    | 4.1.2 Relevance, timeliness, periodicity | 1 | 2 | 2 | 2 | 1 | 4 | 2 |  |
| 4. Serviceable                    | 4.3 Consistent statistics | 1 | 1 | 1 | 2 | 1 | 2 | 3 |  |
| 4. Serviceable                    | 4.4 Revision policy | 1 | 1 | 1 | 4 | 1 | 3 | 4 |  |
| 5. Accessible                     | 5.1 Assistance to users | 1 | 1 | 1 | 4 | 1 | 3 | 4 |  |
| 5. Accessible                     | 5.2 Accessible metadata | 2 | 1 | 1 | 3 | 1 | 1 | 2 |  |
| 5. Accessible                     | 5.3 Accessible data | 2 | 1 | 2 | 4 | 1 | 1 | 2 |  |
With few exceptions, the table shows that most of the pilot countries are relatively stronger on the dimensions ‘sound methodology’ and ‘integrity’. The other quality dimensions need to be strengthened. The next two sections flesh out some of the issues underlying the table.

Best practices in the SADC region

22. There are stable, national development and accountability frameworks in place (Lesotho, South Africa, Zambia, and Mozambique). The framework includes legal enforcement of the national statistical system, one that clearly specifies the roles and responsibilities of implicated entities (South Africa).

23. There is a shared interest in developing and maintaining a quality culture by all entities in the national statistical system (South Africa).

24. There is extensive collaboration between entities of the national statistical system both at the central and regional levels (South Africa, Lesotho, and Swaziland).

25. A distinct EMIS policy sets out its leadership role in the Ministry of Education and clarifies its role with a central statistical agency (South Africa).

26. There is adherence to international classification norms found in the International Standard Classification of Education (ISCED, 1997 revision) (Lesotho, South Africa, Swaziland, Tanzania, Zambia).

27. There are policies in place for the timely collection, revision and dissemination of statistical data both centrally and in a country’s regions (South Africa, Zambia).

28. The EMIS function is supported by a human resource strategy, in particular with policies on training, recruitment and retention, values and ethics implemented with sufficient human, financial and technical resources (Zambia).
29. Documented and disseminated procedures adhere to international standards throughout the system (South Africa).

### Data quality issues in the SADC region

30. Central statistical agencies are at different stages of exercising leadership of the statistical system. Thus, for Ministries of Education there is oftentimes a lack of clarity around mandates, delegation of authorities and data quality standards.

31. Varying degrees of understanding of what data quality means results in training for quality standards which are frequently not systematic and comprehensive.

32. Human resources strategies do not always consider statistical capacity development and EMIS together. Recruitment and retention issues are a fact of life in most of the pilot assessment countries. And delays due to overly centralized procurement aggravate the retention issue.

33. 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 knowledge.

34. Limited collaboration between EMIS and other education sectors results in non-regularized data collections, lack of harmonization in data formats complicates data extractions.

35. Because there is a relatively low degree of coordination between regional, central Ministries of Education and the post-secondary education sector, the latter varies in its ability to provide resources sufficient to support statistical functions.

36. In general, there is a limited regional capacity to collect and process data. School administrators are typically not involved in data collection and reporting. There is varying degree of compliance by regional education officers in fulfilling their data collection mandate.

37. Poor integration with central Ministry of Education databases results in limited collaboration with the central statistical office. (Databases are not linked, especially to the TVET and tertiary sectors.) As such, Ministries of Education do not often take advantage of central statistical agency expertise.

38. Very often education statistics are not widely circulated, in particular those relating to Education for All and Millennium Development Goals. Dissemination to the Internet is infrequent.

39. 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.
SADC regional data quality issues in each education sector’s

40. Pre-primary: several institutions are privately managed and do not report data to Ministries of Education.

41. Primary: Age / gender data by grade level is often missing and there is over-reporting of enrolments in some countries.

42. Secondary: Some institutions may not be registered – mainly private institutions that provide regular education curriculum.

43. Post-secondary: There are coverage issues in some countries; not all schools respond to the Ministry questionnaire.

44. TVET: Programme classification at the national level may not be adhered to - coverage issues when data are reported to international organizations.

Opportunities

45. Issues raised present opportunity to effect change: the pilot studies show need for countries in general to hasten development of a national statistical strategy and / or to improve support for quality statistics.

46. Opportunity to share best practices between countries.

47. Opportunity to obtain adequate resources and clarify or develop Central Statistical Office (CSO) leadership roles.

48. Opportunity to strengthen linkages to National Strategy for Development of Statistics (NSDS) and clarify mandates between CSOs and Ministry of Education.

49. Opportunity to strengthen quality culture of continuous improvement including human resources strategy focus on quality.

50. Opportunity to engage education administrators in use of statistics to support education planning.

51. By collaborating with countries the UNESCO Institute for Statistics (UIS) can help improve statistical consistency and methodology.

52. DQAF is an aid in strategic plan to harness funding from donor organizations.

53. DQAF highlights need to develop a user oriented focus to improve data processes and products.
54. Opportunity to regularize coordination with sub-national data suppliers.

55. Finding the right organizational structure to reinforce EMIS leadership role without overburdening staff.

56. DQAF creates impetus for greater transparency and accountability.

**Next steps**

57. Formal review with ministries and UIS with UNESCO support.

58. Revise DQAF instrument in light of experience with assessed countries for public consultation.

59. UIS continues in the other SADC countries thus promoting South-South cooperation.

60. Action plans to be developed by ministries based on DQAF recommendations.

61. Identification of African partners and development of sub-regional strategy for capacity building.
C. SADC DQAF COUNTRY ASSESSMENT HIGHLIGHTS

LESOTHO

Background

1. Assessment conducted in March 2009 over 7 working days.
2. UIS met with
   - Ministry of Education and Training (MoET)
   - EMIS/Planning/ Statistics (Primary)
   - IT, TVET, Secondary, ECCED, National Examinations Council
   - 2 districts: Maseru, Berea
   - Lesotho Bureau of Statistics (LBoS)
   - UNESCO National Commission
4. Final version incorporates feedback.

Positives

5. Legal framework for statistics collection in place.
6. Strong professional and ethical values.
7. Questionnaire methodologies / coverage strongly correspond to international practices.
8. Policy of transparency.
10. Decentralisation of EMIS
    - Planning on strengthening statistical capacity at sub-national level
    - Strong collaboration with Ministry of Public Service for human resources services (e.g., training, recruitment, staffing).
Areas to strengthen

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

Recommendations

1. Greater harmonization of statistical policies and standards between LBoS and MoET.
2. EMIS should take a greater leadership role in implementing all dimensions of data quality across sectors.
3. EMIS must ensure data integrity and allow school administrators to access MoET website and revise inputted data.
4. Greater focus on a human resources strategy that addresses training, staffing, recruitment and retention.
5. Greater attention to post-secondary data collection including tertiary.
6. Data collection processes and standards, including software need to be documented and disseminated to EMIS staff.
7. Adopt TVET and Secondary education sector data verification support processes as a best practice.
8. Encourage linkage between EMIS and National Examination Council to analyze quality of education.
MADAGASCAR

Background

1. Assessment conducted in December 2008, over 7 working days.
2. UIS met with several departments of the Ministry of National Education (MEN)
   - Statistics, Planning and Monitoring
   - Information Technology
   - Human Resources
   - Administrative and Financial Affairs
   - Decentralized level: city of Antsirabe (1 province, 2 districts, 2 schools)
7. Final version incorporates feedback.

Positives

8. Statistical system of the Malagasy education sector has made significant progress in terms of quality during the last 2 years.
9. Statistics of education tend to be treated with more professionalism.
10. MEN education questionnaires are well documented and some explanations are translated into Malagasy thus increasing understanding.
11. Data are recorded in accordance with existing international standards.
12. Statistical yearbook is published annually.

Areas to strengthen

13. Lack of qualified statisticians.
14. Methodological and technical conditions under which education statistics are collected, compiled and disseminated are not available to the public.
15. Statistical approach implemented by the MEN must cover all sub-sectors of education.
16. No systematic procedures for imputing missing data.
17. Lack of management of time series data making difficult any decision based on historical analysis.

18. Limited metadata.

19. Weak collaboration between the MEN and INSTAT.

**Recommendations**

1. Modernize the statistical production chain in its methodological and technical aspects (this should be the first priority of the MEN).

2. Improve human, financial and physical resources.

3. Establish operational partnerships between MEN and INSTAT at the technical and organizational levels.

4. Put in place accurate time series data since it is a key component of an efficient statistical system.

5. Provide adequate training to personnel involved in the production of education statistics.
MOZAMBIQUE

Background

1. Assessment conducted in June 2009, over 7 working days.
2. 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
4. Second draft version incorporates feedback.
5. Final version to be completed in October 2009.

Positives

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

Areas to strengthen

11. Little or no mechanisms in place for triangulation among datasets.
12. In general, staff numbers insufficient to cope with demands / workload and, in addition, retention is generally low.
13. Documentation for main statistical system is lacking.
15. Systematize use of school registers.
Recommendations

1. Pre-requisites of quality: develop human resources and recruit additional staff (statisticians) at national level.
2. Integrity: develop a scientific approach to production and use of statistics.
4. Accuracy and reliability: create a Master List of schools and limit authority at district level to modify this.
5. Serviceability: promote preliminary publications on education statistics.
SOUTH AFRICA

Background

1. Assessment conducted in February 2009 over 7 working days.
2. UIS met with
   - Department of Education (DoE)
   - EMIS/HEMIS/EMS/Economic Analysis/Monitoring & Evaluation
   - Further Examination & Training (FET)
   - 3 provinces: KwaZulu Natal, Western Cape, Mpumalanga
4. Final version incorporates feedback.

Positives

5. South Africa has a very strong national statistical system that closely corresponds to international standards.
6. Close collaboration between Statistics South Africa (SSA) and the DoE to define statistical quality processes.
7. Comprehensive and decentralized IT tools to the provincial level to support data production chain.
8. Classification of educational programs follows international norms (e.g. National Qualifications Framework).
9. Comprehensive data reporting on education finance at the provincial level.
10. Strict adherence to public and regular data release schedules (pre-primary to post-secondary data).

Areas to strengthen

11. Timeliness & data validation checks are limited by understaffing at the DoE.
12. Little attention paid to resolving missing data issues (e.g., imputation methodologies).
13. Reconcile differences in estimated enrolment counts produced by household surveys and Annual School Census.
15. Provincial web sites are not updated regularly.
16. Private tertiary enrolment are not integrated with public data for international reporting.
17. Data collection questionnaire impacts item response although unit response is relatively high.

**Recommendations**

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

Background

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

Positives

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

Areas to strengthen

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

19. Fragmented data production system.

**Recommendations**

1. CSO should take leadership role in developing and enforcing quality dimensions for the national statistical system for implementation by line ministries.

2. Data dissemination is delayed significantly by central approval requires to revise or upload recent statistics.

3. To support already-published education indicators, MoET should officially release age-specific release counts.

4. Recruit additional statistical staff at national and regional levels.

5. Develop comprehensive IT retention strategies.

6. Harmonization of EMIS with ISCED (in particular TVET).

7. Ensure publication of education finance data and indicators.

8. Ensure that process underway to formally register all academic institutions (secondary, ECCE) is completed by end 2010.

9. Swaziland government CSO link should contain most recent available data (e.g., most recent data is from 2004 but MoET has 2008 data available).

10. CSO should systematize knowledge transfer for statistical quality (e.g., imputation) to MoET given that the latter maintains EMIS data.

11. Reduce significantly reliance on external consultants for database management.

12. Ensure that regional education officers are consulted (e.g., issues of respondent burden at the school level) in any questionnaire revision.

13. Ensure that the entire statistical production chain is documented and shared (e.g., for new staff)
TANZANIA

Background

1. The assessment took place during May 2009 over 7 working days.
2. UIS met with
   - Ministry of Education and Vocational Training (MoEVT)
   - EMIS unit
   - National Bureau of Statistics (NBS)
   - 2 Districts – Temeke and Bagamoyo districts
   - Dar Es Salaam regional office
   - Two schools
3. DQAF report draft is forthcoming.
4. Country feedback to be integrated in final report.

Positives

5. Statistical techniques are sound and applied regularly to data e.g. to adjust data as necessary.
6. Statistical staff is well suited to their tasks.
7. External feedback on statistical publications is elicited from data users.
8. Well-designed EMIS database conforming to international standards.
9. Strong efforts to train school head teachers’, district and regional education officers on data collection requirements.
10. National publication follows internationally accepted deadlines.
11. Data sharing is common within MoEVT and other ministries.
12. A statistical master plan ensures coordination of data collection activities.
13. Strong collaboration between MoEVT and NBS (e.g. MoEVT participates in the activities of NBS as a stakeholder e.g. includes questions to Household Survey.
14. Quality statistics are ensured through data verification procedures e.g. There is checking and verification of data by ward education coordinators, Statistical and Logistical Officers (SLO) and municipal /district Education Officers. HE and VET has nominated statistical focal person (within the context of the current
Areas to strengthen

15. There are limited human resources at the national level.
16. The statistical policy (in the form of the Act) should be revised to cover the requirements of the education sector.
17. There should be institutionalized regular use of secondary data sources.
18. Data capturing, processing and analysis should be managed at the district level (not at central level).
19. Competitive recruitment and retention policies should be implemented e.g. EMIS has lost several staff with no succession plans in place.
20. Data storing facilities at the district levels should be improved to ensure security.
21. Dissemination of timely data within 6 – 12 months should be improved (In particular improvements need to be done for HE and VET and Finance data.
22. Capacity at the central and district levels should be strengthened in particular data analysis and more detail in Basic Education Statistics in Tanzania (BEST) publications.

Recommendations

1. Improve motivation of staff (through competitive packages to retain staff and in particular recruitment of EMIS staff).
2. Improve the budget allocation to allow expansion of statistical activities e.g. training of staff, printing of publications.
3. Management should be sensitized to regularly use statistics produced by the education sector for planning, monitoring and evaluation.
4. There should be wider support for use of the EMIS system.
5. MoEVT should consider building a well integrated and harmonized EMIS system e.g. Higher Education, TVET and Adult Education.
ZAMBIA

Background

1. The assessment took place during November 2008 and August 2009 over 7 working days.
2. NESIS 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
   - Central Statistical Office
4. Final version will incorporate feedback.

Positives

5. Excel, PDF and metadata associated with official publications are accessible online.
6. Districts Master list of institutions classifies all registered schools including private and community schools.
7. Availability of technical guidelines to assist users to complete questionnaires.
8. Questionnaire methodologies / coverage strongly correspond to international practices.
10. Very high levels of professional integrity within EMIS (central).
11. Data accessible on CD and in paper reports (e.g. education statistical bulletins).
12. Consultation with key stakeholders concerning questionnaire reviews.

Areas to strengthen

13. District data validation is not systematic.
14. Weak quality assurance systems to address quality issues.
15. Weak collaboration between TVET and other line ministries to determine TVET data quality.
16. Limited ability to access data on-line.
17. Weak coverage of pre-primary and private university colleges.
18. High response burden imposed by bulky questionnaire instrument.
19. Requested data are sometimes not analyzed and accessible on-line (e.g., teaching hours).
20. Limited recruitment of professional staff at district levels.

Recommendations

1. Provide resources for engaging school inspectors and school administrators in data production process.
2. Greater information sharing within ministry directorates and with the CSO to validate statistics prior to publication (e.g., Net Enrolment Ratio).
3. Revise questionnaire instrument to reduce response burden.
4. Undertake information sessions with data collectors to ensure comprehension of concepts & definitions in annual school questionnaire.
5. Strengthen EMIS to define quality standards.
6. Undertake regular training of EMIS staff at national and district levels.
7. Review staffing levels at the district levels.
8. Constitute a quality assurance group.
10. Encourage linkage between EMIS and National Examination Council to analyze quality of education.
11. Decentralize data entry to district level.
12. Data quality would be improved through greater collaboration between DPI and other ministries.
13. Encourage use of alternative data sources to validate education data (e.g., teacher qualifications).
14. Data quality checks should be incorporated into data capturing tool.
15. Following Lusaka province, other provinces should publish comprehensive education statistics.
16. Reconcile data from different sources prior to publication.
17. Greater consultation on questionnaire instrument would enhance collaboration with the districts.
## D. Detailed UIS DQAF Diagnostic Tool

<table>
<thead>
<tr>
<th>Level</th>
<th>Sub-level</th>
<th>Pre-requisites of quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.1</td>
<td><strong>Legal and institutional environment</strong></td>
</tr>
<tr>
<td>110</td>
<td>0.1.1</td>
<td>The responsibility for collecting, processing, and disseminating statistics is clearly specified</td>
</tr>
<tr>
<td>120</td>
<td>0.1.2</td>
<td>Data sharing and coordination among data producing agencies are adequate.</td>
</tr>
<tr>
<td>130</td>
<td>0.1.3</td>
<td>Respondents' data are to be kept confidential and used for statistical purposes only.</td>
</tr>
<tr>
<td>140</td>
<td>0.1.4</td>
<td>Statistical reporting is ensured through legal mandate and/or measures to encourage response.</td>
</tr>
<tr>
<td>200</td>
<td>0.2</td>
<td><strong>Resources are commensurate with needs of statistical programs.</strong></td>
</tr>
<tr>
<td>210</td>
<td>0.2.1</td>
<td>Staff, financial, and computing resources are commensurate with statistical programs of the agency.</td>
</tr>
<tr>
<td>211</td>
<td>0.2.1.1</td>
<td>Staff resources for compiling statistics are adequate to perform required tasks.</td>
</tr>
<tr>
<td>212</td>
<td>0.2.1.2</td>
<td>Computing resources for compiling statistics are adequate to perform required tasks.</td>
</tr>
<tr>
<td>213</td>
<td>0.2.1.3</td>
<td>Financial resources for compiling statistics are adequate to perform required tasks.</td>
</tr>
<tr>
<td>220</td>
<td>0.2.2</td>
<td>Measures to ensure efficient use of resources are implemented.</td>
</tr>
<tr>
<td>300</td>
<td>0.3</td>
<td><strong>Quality awareness – Quality is a cornerstone of statistical work.</strong></td>
</tr>
<tr>
<td>310</td>
<td>0.3.1</td>
<td>Processes are in place to focus on quality.</td>
</tr>
<tr>
<td>320</td>
<td>0.3.2</td>
<td>Processes are in place to monitor the quality of the collection, processing, and dissemination of statistics.</td>
</tr>
<tr>
<td>330</td>
<td>0.3.3</td>
<td>Processes are in place to deal with quality considerations, including tradeoffs within quality, and to guide planning for existing and emerging needs.</td>
</tr>
<tr>
<td>1000</td>
<td>1</td>
<td>Integrity</td>
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<tr>
<td>1100</td>
<td>1.1</td>
<td>Professionalism – Statistical policies and practices are guided by professional principles.</td>
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<tr>
<td>1110</td>
<td>1.1.1 Statistics are compiled on an impartial basis.</td>
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<tr>
<td>1120</td>
<td>1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations.</td>
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<tr>
<td>1130</td>
<td>1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.</td>
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</tr>
<tr>
<td>1200</td>
<td>1.2</td>
<td>Transparency - Statistical policies and practices are transparent.</td>
</tr>
<tr>
<td>1210</td>
<td>1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.</td>
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<tr>
<td>1220</td>
<td>1.2.2 Internal governmental access to statistics prior to their release is publicly identified.</td>
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<tr>
<td>1230</td>
<td>1.2.3 Products of statistical agencies/units are clearly identified as such.</td>
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<tr>
<td>1240</td>
<td>1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques.</td>
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<tr>
<td>1300</td>
<td>1.3</td>
<td>Ethical standards Policies and practices are guided by ethical standards.</td>
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<tr>
<td>1310</td>
<td>1.3.1 Guidelines for staff behaviour are in place and are well known to the staff.</td>
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<tr>
<td>2000</td>
<td>2</td>
<td>Methodological soundness - The methodological basis for the statistics follows internationally accepted standards, guidelines, or good practices.</td>
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<tr>
<td>2100</td>
<td>2.1</td>
<td>Concepts and definitions – Concepts and definitions used are in accord with standard statistical frameworks</td>
</tr>
<tr>
<td>2110</td>
<td>2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.</td>
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<tr>
<td>2200</td>
<td>2.2</td>
<td>Scope – The scope is in accord with internationally accepted standards, guidelines, or good practices.</td>
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<tr>
<td>2210</td>
<td>2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines, or good practices.</td>
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<tr>
<td>2300</td>
<td>2.3 Classification – Classification systems are in accord with internationally accepted standards, guidelines, or good practices</td>
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</tr>
<tr>
<td>2310</td>
<td>2.3.1 Classification and categorisation systems used are broadly consistent with internationally accepted standards, guidelines, or good practices</td>
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</tr>
<tr>
<td>2310</td>
<td>- Classification of statistics complies with internationally accepted standards, guidelines or good practices.</td>
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<tr>
<td>2310</td>
<td>- Classification systems are applied consistently across different units of collection and analysis.</td>
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<tr>
<td>2310</td>
<td>- Deviations from the above classification/categorization are kept under review.</td>
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<tr>
<td>2400</td>
<td>2.4 Basis for recording – Data are recorded according to internationally accepted standards, guidelines, or good practices.</td>
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<tr>
<td>2410</td>
<td>2.4.1 Questionnaires are in accordance with internationally accepted standards, guidelines or good practices.</td>
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<tr>
<td>3000</td>
<td>3 Accuracy and reliability Source data and statistical</td>
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</tr>
<tr>
<td>3100</td>
<td>3.1 Source data: Source data available provide an adequate basis to compile statistics.</td>
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<tr>
<td>3110</td>
<td>3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions.</td>
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</tr>
<tr>
<td>3110</td>
<td>- Statistics on enrolment and education resources collected through a regular administrative school census program.</td>
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<tr>
<td>3110</td>
<td>- Statistics on demand for education collected through household surveys and population censuses.</td>
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<tr>
<td>3110</td>
<td>- Statistics on the quality of learning outcomes collected through assessments of student achievement.</td>
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<tr>
<td>3110</td>
<td>- Statistics collected on the environment within schools that impact on quality of education (school surveys or censuses).</td>
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<tr>
<td>3200</td>
<td>3.2</td>
<td>Assessment of source data: Source data are regularly assessed and validated.</td>
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<tr>
<td>3210</td>
<td></td>
<td>Accuracy of information is routinely assessed.</td>
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<td>3220</td>
<td></td>
<td>Appropriate measures are taken to validate data sources.</td>
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<tr>
<td>3230</td>
<td></td>
<td>Considerations relating to administrative data, the use of school registers are promoted and the accuracy of school registers is periodically assessed.</td>
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<tr>
<td>3300</td>
<td>3.3</td>
<td>Statistical techniques: Statistical techniques employed conform to sound statistical procedures and are documented.</td>
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<tr>
<td>3310</td>
<td></td>
<td>3.3.1 Data compilation employs sound statistical techniques to deal with data sources.</td>
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<td></td>
<td></td>
<td>- Data procedures are sound</td>
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<tr>
<td>3400</td>
<td>3.4</td>
<td>Assessment and validation of source data: Source data are regularly assessed and validated.</td>
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<tr>
<td>3410</td>
<td></td>
<td>3.4.1 Intermediate / provisional results are validated against other information where applicable.</td>
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<td>3420</td>
<td></td>
<td>3.4.2 Statistical discrepancies in intermediate data are assessed and investigated.</td>
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<td>3430</td>
<td></td>
<td>3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.</td>
</tr>
<tr>
<td>3500</td>
<td>3.5</td>
<td>Revision studies: Revisions, as a gauge of reliability, are tracked and studied for the information they may provide.</td>
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<tr>
<td>3510</td>
<td></td>
<td>3.5.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes (See also 4.4.3).</td>
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<tr>
<td></td>
<td></td>
<td>- Revision studies are taken on a regular basis.</td>
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<tr>
<td>4000</td>
<td>4</td>
<td>Serviceability: Statistics are relevant, timely, consistent, and follow a predictable revision policy.</td>
</tr>
<tr>
<td>4100</td>
<td>4.1</td>
<td>Timeliness and periodicity follow internationally accepted dissemination standards.</td>
</tr>
<tr>
<td>4110</td>
<td></td>
<td>4.1.1 Source data are timely.</td>
</tr>
<tr>
<td>4110</td>
<td>- Data collection system provides for the timely receipt of source data and detailed data.</td>
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</tr>
<tr>
<td>4120</td>
<td>4.1.2 Periodicity follows dissemination standards.</td>
<td></td>
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<tr>
<td></td>
<td>- The periodicity of statistics follows internationally accepted good practices.</td>
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</tr>
<tr>
<td>4130</td>
<td>4.1.3 Timeliness follows dissemination standards.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The timeliness of statistics follows internationally accepted good practices.</td>
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<tr>
<td>4200</td>
<td>4.2 <strong>Consistency: Statistics are consistent within a dataset and over time, and with other major data sets.</strong></td>
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</tr>
<tr>
<td>4210</td>
<td>4.2.1 Statistics are consistent within the dataset.</td>
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<tr>
<td></td>
<td>- Statistics are internally consistent.</td>
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</tr>
<tr>
<td>4220</td>
<td>4.2.2 Statistics are consistent or reconcilable over a reasonable period of time.</td>
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<tr>
<td></td>
<td>- The statistical data are consistent over time.</td>
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<tr>
<td>4230</td>
<td>4.2.3 Statistics are consistent or reconcilable with those obtained through other data sources and / or statistical frameworks.</td>
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</tr>
<tr>
<td>4400</td>
<td>4.3 <strong>Revision policy and practice: Data revisions follow a regular and publicized procedure.</strong></td>
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</tr>
<tr>
<td>4310</td>
<td>4.3.1 Revisions follow a regular, well established and transparent schedule.</td>
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<tr>
<td>4320</td>
<td>4.3.2 Preliminary data and / or revised estimates are clearly identified in statistical releases.</td>
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<tr>
<td>5000</td>
<td>5 <strong>Accessibility : Data and metadata are easily available and assistance to users is adequate</strong></td>
<td></td>
</tr>
<tr>
<td>5100</td>
<td>5.1 <strong>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.</strong></td>
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</tr>
<tr>
<td>5110</td>
<td>5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts).</td>
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<tr>
<td>Section</td>
<td>Description</td>
<td></td>
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<tr>
<td>5120</td>
<td>The presentation of statistical data is commensurate with user needs.</td>
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</tr>
<tr>
<td>5130</td>
<td>5.1.2 Dissemination media and formats are adequate.</td>
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</tr>
<tr>
<td>5140</td>
<td>The means of dissemination are commensurate with user needs.</td>
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</tr>
<tr>
<td>5150</td>
<td>5.1.3 Statistics are released on a pre-announced schedule.</td>
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</tr>
<tr>
<td>5140</td>
<td>5.1.4 Statistics are made available to all users at the same time.</td>
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<tr>
<td>5150</td>
<td>5.1.5 Non-published (but non-confidential) sub-aggregates are made available upon request.</td>
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</tr>
<tr>
<td>5200</td>
<td>5.2 Metadata accessibility: Up-to-date and pertinent metadata are made available.</td>
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</tr>
<tr>
<td>5210</td>
<td>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, guideline, or good practices are annotated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Statistical metadata provide users with adequate information about what the data mean and the methodology used to collect and process them.</td>
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<tr>
<td></td>
<td>- Metadata also provide information on biases, response rates, linkages to other data data systems and other information users may need to assess the data.</td>
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</tr>
<tr>
<td>5220</td>
<td>5.2.2 Levels of detail are adapted to the needs of the intended audience.</td>
<td></td>
</tr>
<tr>
<td>5300</td>
<td>5.3 Assistance to users: Prompt and knowledgeable support service is available.</td>
<td></td>
</tr>
</tbody>
</table>
Notes
Assessing Education Data Quality in the Southern African Development Community (SADC): A Synthesis of Seven Country Assessments

March 2010

Regional Bureau for Education in Africa

United Nations Educational, Scientific and Cultural Organization