Evolution of Data Quality Assessment Framework (DQAF)

Maputo 5 June 2012
Purpose

To provide a general overview of the Data Quality Assessment Framework (DQAF) evolution process since 2009;

- **Brief overview of the evolution of DQAF tools**
- **Understand why the DQAF tool has evolved**
- **Review how the DQAF tool has evolved – main proposed changes, how changes have been implemented**
- **Discuss countries contributions – role in the evolution of DQAF**
- **Discuss and agree on next steps**
DQAF Evolution

Overview

Since 2009, DQAF has evolved following the completion of seven DQAF pilot countries:

- *Maputo meeting held*, synthesis of pilot DQAF`s undertaken in 2009
- *Synthesis of seven pilot DQAF’s* published in March 2010
- *Stakeholders convened in Cape Town*, recommendations on improving the DQAF tool put forth in December 2010.
- *Improvements to improve DQAF tool initiated*, additional DQAF reports completed in 2011.
- *Next Steps* to be evaluated by stakeholders.
DQAF Evolution

Key recommendations – Maputo 2009

MAPUTO 2009: Representatives from pilot countries attended Maputo Synthesis meeting.

• Synthesis of seven pilot countries presented - publication of synthesis report followed in 2010.

Key Recommendations:

• Conduct formal review with ministries and UIS with UNESCO support - Meeting of Ministers held following Maputo meeting.

• Revise DQAF instrument in light of experiences with assessed countries.

• UIS continues to promote South-South cooperation.

• Ministries of Education should develop action plans based on DQAF recommendations.

• Identification of partners in the region - develop sub-regional strategy for capacity-building.
DQAF Evolution

Key recommendations – Cape Town 2010

CAPE TOWN 2010: Meeting engaged Ministries of Education, UIS and external partners on the way forward with DQAF.

1. Member States – representatives from Ministries of Education – Cameroon, Cape Verde, Kenya, Botswana, South Africa.

2. Representatives from international and regional bodies - Paris 21, Pôle de Dakar, World Bank, regional bodies (Statistics South Africa, Afristat, AfDB, IMF, UIS).

Key Recommendations:
Similar to 2009 Maputo recommendations including:

• Expanding DQAF to remaining SADC countries.

• Reviewing and improving the content of reports, scoring methodology, expanding collaboration with regional partners among others.
DQAF Evolution

- **DQAF expanded to five SADC countries** (excluding Seychelles, DRC, Angola)
- **External consultant engaged by UIS** to collaborate on DQAF tool: DQAF report, develop DQAF wiki content.
- Structure of the *matrix* improved – four DQAF reports produced in 2011.
- Structure and content of DQAF *reports* improved from earlier versions.

<table>
<thead>
<tr>
<th>Matrix assessed mainly EMIS, all sub-dimensions</th>
<th>Revised Matrix, including EMIS, other producers of data, relevance of sub-dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008 Madagascar</td>
<td>2009 Lesotho</td>
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<tr>
<td>2009 Mozambique</td>
<td>2010 Tanzania (Mainland)</td>
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<td>2010 South Africa</td>
<td>2011 Botswana</td>
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<td>2011 Swaziland</td>
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</tbody>
</table>

- **Same six generic DQAF dimensions** assessed.
DQAF Evolution

progress in countries since 2010

- Updating the scope of DQAF reports - EMIS assessment expanded to include assessment of sub-sector data producers e.g. Tanzania DQAF updated in 2010

- Development and implementation of action plans – progress made in some countries e.g. Madagascar – development of action plans still pending in other SADC countries.

- Validation of reports completed by some countries in 2011, 2012 e.g. Malawi, Mauritius

- Implementation of some recommendations to improve data quality initiated in some countries – Tanzania, work plans designed (Mozambique), other action plans pending in other countries.
DQAF evolution

**suggestions put forth to improve DQAF tool in 2010**

1. Improve the structure and organisation of the DQAF matrix and report
   - Develop more userfriendly instrument - reduced matrix
   - Improve understanding of terms, definitions and concepts across dimensions
   - Limit redundancies across different dimensions
   - Focus on "official" statistics

2. Clarify the nature of legal frameworks (related to education statistics)
   - Consider other ACTS or legislation - not limited to Statistics ACTs

3. Improve the relevance of the matrix (assess context in country)
   - Assess relevance of statistical practices in countries - exclude them from matrix
DQAF evolution

Suggestions put forth to improve DQAF tool in 2010

4. Expand the scope of analysis of multiple data sets/providers in the country
   - Assess sub-sector education statistics data producers (not EMIS alone)
   - Adjust DQAF matrix according to country context to assess data producers

5. Review overall scoring methodology
   - Score at the dimension level - emphasis on outcomes of dimension not score
   - Score of sub-sectors of education
   - Exclude scoring at the aggregate level

6. Engage regional and national experts
   - Engage external editors on reports
   - Develop capacity development programme with regional expertise
   - Develop training materials - manuals and guides on DQAF, norms and standards
DQAF Evolution

Evolution of the structure of reports until 2010

- **Content**: Brief commentary on data collection and reporting by all education statistics producers – more focus on EMIS roles.

- **Drafting**: Reports drafted entirely by UIS staff, one drafted by partner.

- **Participation**: Country’s self assessment in relation to the DQAF matrix to inform report content of the report undertaken by one country.

- **Relevance**: Commentary on each sub-dimension of the matrix (irrespective of the relevance or context in each country) published.

- **Recommendations**: Reports published detailed recommendations on areas for improvement on each dimension (as opposed to general recommendations)

5.2. Consistency: Statistics are consistent within a dataset and over time, and with other major data sets

167. It largely seems to be the case that accounting identities between aggregates and their components are observed for all involved data.

168. It also seems to be largely the case, in general, that accounting identities between enrolments, repeaters, drop-outs, and demographic data are observed.

173. Data longitudinal coherency: A comparison of enrolment for two consecutive years (2003 and 2004) was conducted, showing some discrepancies which should be investigated in greater detail, when more complete and recent data will be available. Figure 5.2.1 below shows in particular obvious problems in Harare and Mashonaland West regions.

**Figure 5.1**

- Scatterplot of 2003 against 2004, categorized by Region name DATA ENROLMENT SCHOOL 1999-2006.xlsx (B2:K9637) 10/v6373c

- Region name: Harare
- Region name: Mashonaland
- Region name: Mashonaland West
- Region name: Masvingo
- 2003
DQAF evolution

improvements to the structure of reports after 2010

Suggestions following 2010 Cape Town meeting adopted for 2011 reports

- Highlighting positive aspects of data quality - best practices in the countries.
- Summarising recommendations and areas for improvement at onset of all reports – clearer narrative.
- Analysing sub-sector data sets/ data producers (where feasible) including EMIS e.g. TVET and Higher education.
- Reports are more “user-friendly” with context of the system elaborated e.g. presenting information on the education system in the country.
- Adopting “consensus approach” to scoring to ease report writing.

Synthesis completed (2010)
DQAF evolution

improvements to the structure of reports after 2010

- Collaboration with regional and other expert partners to draft and edit reports – e.g. Botswana, Malawi, Mauritius drafted in conjunction with consultants-Stellenbosch University, Paris 21 - in 2011.

- Promoting south – south cooperation – e.g. Stellenbosch University, UNESCO Harare focal points involved in DQAF (Botswana).

- There remains a need to engage external editors to work on the DQAF reports as suggested in 2010.

- Modalities to publish country reports (if necessary as suggested in 2010) are yet to be determined.
Less emphasis on assessing multiple elements related to the production process e.g. education expenditure, teacher, and school characteristics are not readily available in several countries.

Less emphasis on assessing statistical practices that may not be applicable or feasible in several countries e.g. “revision policies”

Reducing or eliminating redundancies within the DQAF matrix - Moving sub-dimensions from one dimension to another or excluding them from the matrix.

Adopting clearer definitions (user friendly) and refining concepts of DQAF dimensions and sub-dimensions to better understand the objective of the dimension.
### DQAF evolution

**Revised content – dimensions 0, 1, 2**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measure</th>
<th>Sub-dimensions</th>
<th>Pertinent changes/introductions to matrix (July 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Pre-Requisites of Quality</td>
<td>0.1 Legal and institutional environment</td>
<td>* Complementary legislation (not limited to Statistical ACTS in the country)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2 Resources</td>
<td>* Skills, experience and qualifications of staff; * Physical facilities to perform tasks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3 Relevance</td>
<td>* Consultation with data users * Advisory committees etc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3 Quality Awareness</td>
<td>* &quot;Monitoring Processes&quot; to assist managers in quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1 Professionalism</td>
<td>* Tradeoffs among dimensions of quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 Transparency</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 Ethical Standards</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Integrity</td>
<td></td>
<td>No major changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1 Concepts and definitions</td>
<td>* Guidelines - Ethics and staff * Agencies' management as role models</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2 Scope</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Methodological Soundness</td>
<td>2.3 Classification</td>
<td>* Documentation on national concepts and definitions * Deviations of concepts from national definitions are checked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 Basis for recording</td>
<td>* Assessing data overlaps - redundancies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 Basis for recording</td>
<td>* National classification of programmes and its application</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3 Classification</td>
<td>* UIS ISCED mappings * Reporting data according to ISCED classifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 Basis for recording</td>
<td>* Database analysis undertaken in Dimension 3</td>
</tr>
</tbody>
</table>
### DQAF evolution

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measure</th>
<th>Sub-dimensions</th>
<th>Revised Matrix (July 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Accuracy and Reliability</td>
<td>3.1 Source data adequate to compile statistics</td>
<td><em>Less focus on data sets not usually collected in countries in the region</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2 Assessment and validation of source data</td>
<td><em>Focus on measures to improve the accuracy of data e.g. field visits etc</em> <em>Use of registers to monitor school response rates</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.3 Statistical techniques</td>
<td><em>Computation of education statistics indicators in accordance with Dimension 2</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.4 Assessment of Intermediate Results</td>
<td>No major changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.5 Revision studies</td>
<td>No major changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.6 Archiving of source data and statistical results</td>
<td><em>Sub-dimension 3.6: Archiving of source data and statistical results</em></td>
</tr>
<tr>
<td>4</td>
<td>Serviceability</td>
<td>4.1 Relevance</td>
<td><em>Subdimension 4.1 Moved to Dimension 0</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.2 Timeliness and periodicity</td>
<td><em>Learning achievement surveys related to country monitoring needs</em> <em>Publication of Finance statistics related to financial year</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.3 Consistency</td>
<td><em>Emphasis on &quot;final statistics&quot; and consistency with secondary data</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.4 Revision policy</td>
<td><em>Subdimension 4.4 Excluded from the matrix</em></td>
</tr>
<tr>
<td>5</td>
<td>Accessibility</td>
<td>5.1 Public awareness around data dissemination</td>
<td><em>Public awareness around data dissemination products</em> <em>Use of electronic databases validated by data producing agencies</em> <em>Simultaneous release of data related to pre-announced schedule</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.2 Metadata accessibility</td>
<td><em>Uses of metadata and effects on data quality</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.3 Assistance to users</td>
<td><em>Schedule for data requests known to EMIS users</em></td>
</tr>
</tbody>
</table>
DQAF Evolution

changes to scoring methodology since 2010

- **Scoring range 1 to 4 maintained:** – 1: Practice not observed: Most DQAF practices are not met; 4 – Practice Observed: Practices in observance - achieve the objectives of DQAF international statistical practices without any significant deficiencies.

- **Not applicable:** Used exceptionally when statistical practices do not apply to country’s circumstances
  
  - **Education sector wide 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
  - **Combined scoring** in most countries in the region is more practical e.g. scoring of pre-primary, primary and secondary education as General Education.
  - **Private and Public institutions** not scored separately in the matrix.
  - **Separate DQAF’s for each sub-sector** not done.
DQAF Evolution

changes to scoring methodology since 2010

- New approach underscores a more practical approach to scoring:

1. **Assess the relevance of scoring all sub-dimensions** - revision studies and practices not widely assessed in more recent DQAF’s: Malawi, Mauritius, Namibia.

2. **In depth analysis of certain sub-dimensions not done** - sub-dimensions not done - rather, brief commentary is published in existing reports.

3. **Recently introduced sub-dimensions** - archiving of source data, relevance – **assessed** in more recent DQAF’s Malawi, Mauritius, Namibia.
How pilot countries were assessed in 2009, 2010, and 2011 assessments

<table>
<thead>
<tr>
<th>Country</th>
<th>0. Pre-requisites</th>
<th>0. Environment</th>
<th>0. Resources</th>
<th>0. Pre-requisites</th>
<th>0. Pre-requisites</th>
<th>0. Pre-requisites</th>
<th>0. Pre-requisites</th>
<th>0. Pre-requisites</th>
<th>0. Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesotho</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Madagascar</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mozambique</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>S. Africa</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>Swaziland</td>
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<tr>
<td>Tanzania</td>
<td>2</td>
<td>4</td>
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<tr>
<td>Zambia</td>
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<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
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</tbody>
</table>

2011 assessments

Promoting a more comprehensive overview of the nature of data production and reporting by key data producers
DQAF Evolution

Seven Pilot Countries

- Focus on highlighting the deviation of each sub-dimension from the international norms. – Country Example Zimbabwe, 2010

- Emphasis on an overall score based on scoring of each dimension.

3.6. Synthesis and score

Based on an assessment of all the DQAF sub-dimensions, a global score of 39% has been assigned for the methodological soundness dimension.

Figure 3.7: Results of methodological soundness

<table>
<thead>
<tr>
<th></th>
<th>Gen Educ</th>
<th>TVET</th>
<th>HE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-requisites of quality</td>
<td>1.99</td>
<td>1.93</td>
<td>1.94</td>
</tr>
<tr>
<td>Integrity</td>
<td>2.44</td>
<td>2.44</td>
<td>2.36</td>
</tr>
<tr>
<td>Methodological soundness</td>
<td>3.31</td>
<td>2.96</td>
<td>3.04</td>
</tr>
<tr>
<td>Accuracy and reliability</td>
<td>2.58</td>
<td>2.46</td>
<td>2.57</td>
</tr>
<tr>
<td>Serviceability</td>
<td>2.88</td>
<td>2.71</td>
<td>2.71</td>
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<tr>
<td>Accessibility</td>
<td>1.96</td>
<td>1.41</td>
<td>1.73</td>
</tr>
</tbody>
</table>

Reports completed in 2011

- Focus on highlighting the deviation of each dimension by education sector from the international norms – Country Example Mauritius, 2011

- Generic assessment of each dimension (based on assessment of sub-dimensions) – excluding overall score.
DQAF Evolution

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