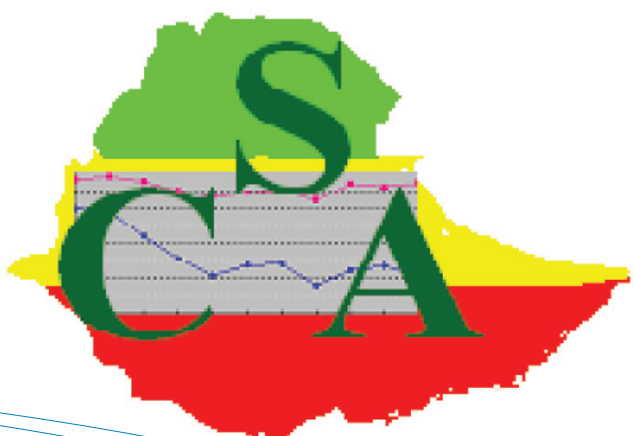
Ethiopian Data Quality Assessment Framework (EDQAF)



Central Statistical Agency (CSA)

September 2011
Addis Ababa, Ethiopia

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Acknowledgment

This framework was developed with inputs and technical and financial support from the Protection of Basic Services' (PBS) project, specifically from its Monitoring and Evaluation (M&E) component. Those who directly involved in assisting the development of the framework included staffs from the PBS Donors' Secretariat, the Channel One Programs Coordination Unit (COPCU) of MoFED, the World Bank, European Union, Irish Aid, and the African Development Bank.

The framework benefited from feedbacks on its earlier drafts from a number of participants in workshops and meetings held in the CSA office and at various forums. Particularly, the feedbacks from the statistical council, various line ministries, government agencies, and the PBS donors' group were vital in guiding and reshaping the final document.

The team at the CSA who worked hard with the international consultant, Michael Colledge had exerted quite an extra effort to bring this EDQAF document a reality. Therefore, both the CSA team and the consultant should be acknowledged for their valuable effort.

Preface

Statistical reports based on sectoral data must be accurate and timely to be effectively and credibly utilized by policy-makers and stakeholders for decision making, resource mobilization, and managing national programs/projects. Due to the significant adverse effect of poor quality data (which is caused by weak Monitoring and Evaluation systems) on decision-making, data quality and M&E systems assessments have become critical focus areas to authorities across all levels and to the wider stakeholders alike.

To this effect, the Growth and Transportation Plan (GTP) has put priority in improving sectoral data management systems through undertaking M&E systems assessments and verification of data collected through established systems at national, intermediary and site levels. In line to this, the Ethiopian National Strategy to Development of Statistics (NSDS), which deals with the issue related to data quality through strong M&E system, further highlights the facilitation of coherence and comparability of data in the national statistics system, along with ensuring the reliability of the data for concerned decision-makers.

Therefore, it is with this view that the Central Statistical Agency (CSA) initiated the development of the current Ethiopian Data Quality Assurance Framework (EDQAF) that helps the sectoral Management Information Systems (MIS) produce quality, timely and reliable data.

Through the implementation of EDQAF, statistical information generated from line ministries will be assessed, among others, for quality, relevance, accuracy and timeliness, so that any statistics that these ministries produce will be authenticated as official data, and be used at large for various decisional purposes. The implementation of EDQAF is expected to identify the critical bottle necks that contribute to the quality data so that it assists to provide a reasonable response to improve data quality which in turn is expected to improve the evidence based decision making in Ethiopia.

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Abbreviations and Acronyms

CSA	Central Statistical Agency
DQA	Data quality assessment
DQAF	IMF Data Quality Assessment Framework
EDQAF	Ethiopian Data Quality Assessment Framework
GTP	Growth and Transformation Plan
IMF	International Monetary Fund
M&E	Monitoring and evaluation
MDG	Millennium Development Goal
NSDS	National Strategy for the Development of Statistics
NSDQSCD	National Statistical Data Quality and Standards Coordination Directorate
NSI (any)	National statistical institute
NSS	(Ethiopian) National Statistical System
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
QAF	Quality assurance framework
QAS	Quality assessment schedule
QAT	Quality Assessment Team
QMF	Quality management framework
QMS	Quality management system
SASQAF	South African Statistical Quality Assessment Framework
TQM	Total quality management

1 Introduction

1.1 Purpose of Document

The purpose of the document is to describe the reasons for the Ethiopian Data Quality Assessment Framework (EDQAF), the factors that were taken into account in its design, the details of the quality assessment procedures, the legislative framework within which EDQAF operates and other design and implementation considerations.

1.2 Context - National Strategy for the Development of Statistics (NSDS)

National programs are working towards achieving ambitious goals related to the Growth and Transformation plan (GTP), Millennium Development Goals (MDGs) and other development related initiatives. Measuring the success and improving the management of these initiatives is predicated on good quality indicators.

The main sources of indicators are the statistical outputs generated by the National Statistical System (NSS). Thus, it is important to identify the quality of the data available from the NSS and to identify quality improvements where there are quality problems. This is the objective of the EDQAF.

The need to enhance the National Statistical System (NSS) to meet the ever more challenging information requirements of government and society are well documented in the National Strategy for the Development of Statistics (NSDS), which covers the period 2010/11 to 2014/15. The NSDS was finalized in June 2009 and endorsed by the National Statistical Council. In his foreword to the NSDS, the Minister for Finance and Economic Development stated:

"Central Statistics Agency (CSA) will continue to play a crucial role in coordinating and delivering the National Statistical System...

In order to provide a framework for strengthening the National Statistical System and to reinforce the coordinating role of the CSA, the design of this five year National Statistical Development Strategy (NSDS) was decided by the Statistical Council of the country. This National Statistical Strategy is expected to provide a road map for building capacity and work programmes across the whole National Statistical System to meet prioritized data-user needs, and will serve as a framework for harnessing resources to support the said statistical strategic development...."

In her introduction to the NSDS, the CSA Director-General stated:

"It falls on the role of the National Statistical System to build publicly accessible and reliable statistics, which effectively provide a relevant and sound management information system to aid informed decision-making at the highest level of government, as well as the individual citizen of the country. Improving the National Statistical System will play a very important role, not only as basic data input for planning, designing, evaluating and monitoring or reviewing of policies, programmes and strategies, but also as information that is indispensable to the public as a whole for making rational decisions...

Accordingly, a number of system-wide improvements are included in the new strategy, such as the coordination role of the CSA..."

1.3 Ethiopian Data Quality Assessment Framework

The NSDS is definitive as regards improvements in the NSS for the period to 2015. Improvements are described in terms of six strategic themes. Of particular significance for EDQAF are Themes 1 and 2.

Theme 1: Implementation of the Statistics Law contains two sub-themes with a direct bearing on EDQAF.

1.1 Establishment of an NSS methodological and support unit in the CSA for quality assessment and NSS capacity building. This unit has already been established in CSA. It is referred to as the National Statistical Data Quality and Standards Coordination Directorate (NSDQSCD). It is the engine of EDQAF development and implementation.

1.3 Introduction of memoranda of understanding (MoU) between the CSA and its NSS partners. Such MoUs will provide the basis for effective conduct of quality assessments throughout the NSS.

Theme 2: Develop data quality procedures contains three sub-themes.

2.1 Developing a data quality assessment framework for Ethiopia. This is the basis on which the EDQAF has been established.

2.2 Development and support of ministry/agency statistical units in NSS partners. This will enable quality improvements required to deal with quality problems revealed by quality assessments.

2.3 Strengthening of NSS quality and support unit in the CSA for quality assessment and NSS capacity building. This will ensure the unit (NSDQSCD) has sufficient capacity to conduct a program of assessments based on EDQAF and to assist NSS partners to undertake quality assessments and improvements

The NSS comprises the Central Statistical Agency (CSA) and all organisational units responsible for data systems capable of generating statistical data in federal and regional government agencies and institutions. Most NSS member organizations other than the CSA produce statistics derived from administrative records as a by-product of their mandates. Such statistics supplement data produced by the CSA. However, to be regarded as "official" these statistics must of sufficient quality. As indicated in the NSDS, the principal aim of the EDQAF is to assure such quality through the following activities.

- Development of the EDQAF by the CSA (NSDQSCD), taking advantage of international best practices and specializing them to the specific needs of Ethiopia.
- Testing EDQAF assessment methods prior to introduction of the assessment program.
- Conducting quality assessments by quality assessment teams, the core members of which are NSDQSCD staff.
- Training team members in quality assessment procedures.
- Presenting and discussing the results of quality assessments with data producing organisation, and developing concrete plans for quality improvements.
- Disseminating results to users of statistics.

The NSDQSCD was established upon completion of the recent Business Process Reengineering (BPR) study. It reports directly to the Deputy Director General, National Statistics System Coordination and Operations.

1.4 EDQAF Design Approach

In designing EDQAF the aim has been to take advantage of, and to be aligned with, international best practice. Use has been made of quality policies, models, and assessment methods developed not only by international and national statistical organisations but also by the international monitoring and evaluation (M&E) community, which is a major user of statistics.

The approach to EDQAF design also includes ensuring that the quality assessment process:

- is *effective* – covers all the quality issues and takes account of dataset, sector and organisation specific situations, including the maturity of organisational data management systems;
- is *efficient* – is simple, flexible, and easy to use; is conducted at minimum cost to the CSA, and imposes minimum reporting burden on the NSS members whose data outputs are being assessed;
- incorporates a suite of *standard assessment tools* that ensure assessment procedures are consistent across assessment teams, datasets and organizations;
- is harmonised with, and takes into account, the results of *other assessment programs* that may exist;
- produces quality reports summarising the main quality issues and potential improvements and including quality scores reflecting the various *dimensions* of quality.

Principal reference documents

In developing the EDQAF the principal reference documents have been:

- the NSDS;
- the Statistics Proclamation No 442/2005 - in particular those paragraphs relating to the CSA's coordination role;
- the EDQAF First Draft, December 2010, developed by the NSDQSCD;
- the DQA Systems Assessment developed under contract for the NSDQSCD.

Concepts and methods have been drawn from international best practices for national statistical organisations (NSOs) as reflected in:

- the European Statistical Code of Practice and Quality Declaration;
- the IMF Data Quality Assurance Framework;

Also in the quality documentation of those NSOs with a strong commitment to quality as evidenced in their methodological practices and publications, including:

- the South African Statistical Quality Assessment Framework (SASQAF);
- Statistics Canada's Quality Assurance Framework and

- Statistics Finland's Quality Guidelines for Official Statistics
- Australian Bureau of Statistics' Statistical Clearing House, and Quality Management of Statistical Processes Using Quality Gates.
- UK Statistical Authority's Code of Practice.

In addition, insights into the quality assessment (DQA) methodology typically used in the context of monitoring and evaluation (M&E) have been obtained from the USAID Performance Monitoring and Evaluation Tips.

1.5 Terminology

For EDQAF communication and training purposes, a common vocabulary is vital. This involves reconciling terms commonly used in national statistical offices with those used by other NSS members and by development partners. Terms of particular importance are the following.

- *Statistics* – numerical facts disseminated in aggregate form as statistical tables or datasets.
- *Government statistics* – statistics produced by a government agency or institution and disseminated outside that organisation.
- *Government agency or institution* - any organ of the federal or regional state government.
- *Official statistics* – government statistics which have been labelled by the CSA as being of acceptable quality.
- *Statistical data* – data produced by government agencies or institutions that, from the EDQAF perspective, are, or could be, used to produce statistics.
- *Dataset* - data table (or cube) or (hierarchically) related set of tables, usually in held in electronic form in a database
- *Statistical output dataset* – dataset produced by NSS for statistical purposes.
- *Key user* – (for a particular dataset) any government agency or institution, or research institution, or donor organisation with a strong need for data contained within the dataset under consideration.
- *NSS member* – a government agency or institution that produces government statistics; often referred to by CSA staff as NSS partner or sector.
- *Data producer* - the organisational unit (or set of units) within the NSS member that produces the dataset that is the subject of an EDQAF assessment.
- *Data production staff* - the staff of the data producer responsible for any aspect of the data production process.
- *Data production process* – the procedures covering the entire data life cycle including design, data collection, data processing and transmission, data tabulation, dissemination and archiving.
- *EDQAF Program* - the quality assessment program resulting from EDQAF implementation.
- *EDQAF assessment* – a quality assessment undertaken within the EDQAF Program
- *Quality Assessment Team* – team designated responsible for a particular EDQAF assessment.

1.6 Content of Document

Chapter 2 discusses the design of the EDQAF Program, covering objectives, outputs, scope and quality model.

Chapter 3 discusses the design of the EDQAF assessment process, covering assessment phases, assessment outputs, summary scores, and criteria for determining official statistics.

Chapter 4 details the quality assessment phases.

Chapter 5 focuses on EDQAF Program implementation, covering legislation, quality assurance framework, roles and Program resources and schedule.

The annexes include a list of reference documents with hyperlinks, a draft CSA quality declaration, a provisional list of datasets subject to quality assessment, and assessment tools (questionnaires, instructions and checklists) for each phase.

2 EDQAF Program Design

2.1 EDQAF Program Objectives and Outputs

The target outcome of EDQAF may be succinctly expressed as

- More satisfied users, using better statistics to make more informed decisions.
  Overall Objective

The target outcome is to be realised through achievement of the overall EDQAF objective, which is:

- *to introduce a comprehensive quality assessment program that summarises the quality of NSS data outputs for the benefit of both data producers and users, and that identifies quality problems and potential quality improvements and brings them to the attention of producers and senior managers for action.*

Specific Objectives

The specific objectives of EDQAF are:

- to assess, on a rotating basis, the quality of all NSS data outputs and of the systems that produce them.
- to identify quality problems and to highlight the major ones;
- to propose quality improvements;
- to ensure that quality problems and potential improvements are brought to the attention of senior management;
- to review the extent to which quality problems have been addressed (during the next assessment round);
- to provide producers and users with a quality summaries, including quality scores by dimension;
- to provide quality scores enabling labelling of official statistics.

Over the first few years of the assessment program the first four items have higher priority. As the assessment program matures, the remaining items will be accorded equal priority.

EDQAF Program Outputs

The Program outputs include monthly progress reports to CSA senior management and an annual report to the Statistics Council as well as the results of the individual assessments (further described in Chapter 3) that are presented to and discussed with data producers and key users.

2.2 EDQAF Program Scope

Data object being assessed

The data object that is the subject of the assessment program is the statistical output dataset defined as follows:

- *statistical* - meaning of use for statistical purposes, in aggregate form;

- *output* - meaning product of the national statistical system (NSS), not input to it:
- *dataset* - meaning data table (or cube) or (hierarchically) related set of tables, usually in held in electronic form in a database

For convenience *statistical output dataset* is abbreviated *output dataset* or simply *dataset* where the context is clear.

A dataset is a more appropriate unit for assessment rather than is an individual indicator, on the one hand, or a complete domain (sector), on the other. This is because:

- assessment of an individual indicator requires assessment of the dataset within which it is contained; and
- assessment of a statistical domain (sector) involves separate assessment of each of the datasets of which it is composed.

In either case it is a dataset that has to be assessed.

Statistical datasets in scope for assessment

The datasets in scope for the EDQAF are national level datasets that are produced by government agencies or institutions and that are used, or could be used, to produce government statistics.

Regional, zonal, and woreda datasets are not in scope for EDQAF assessment except in so far as they contribute to national datasets. However, regional, zonal or woreda organisations are free to adopt and implement the EDQAF for self assessment.

Identification of the set of datasets in scope has begun and will continue as EDQAF is implemented. It will be achieved by examining the data holdings of each government ministry, department or agency and identifying existing or potential statistical output datasets. An initial list is appended (Annex D).

2.3 General Quality Concepts

A *quality model* indicates what *quality* means, how *quality* is defined. Within national statistical organisations, quality may be considered in terms of three aspects:

- quality of statistical output data;
- quality of the statistical production process that produces the outputs; and,
- quality of the institutional environment within which the statistical production takes place.

Process and institutional environment quality may be combined and termed *systems quality,* referring to the *statistical system* that produces the statistical outputs.

Within each of these aspects, quality is defined in terms of a number of dimensions (also called criteria or components). For example, as regards output data quality, dimensions typically include *relevance, accuracy, timeliness, accessibility, interpretability and coherence.*

Producer Perspective

For individual data producers all three aspects of quality – data output, process and institutional environment - are important. Producers can control process quality and hence data output quality but the institutional environment is not within their control.

Typically, the quality of institutional environment is partly within the control of the organisation and partly outside its control being dependent upon the government as a whole. For example the CSA can ensure it sets up an environment that preserves confidentiality of individual respondent data, but it cannot guarantee that adequate resources are assigned to the statistical program.

User Perspective

For users, output data quality is of paramount importance. The efficiency of data collection and processing and the burden collection may place upon respondents are not of direct relevance to users. However, quality of output is determined by the quality of the statistical process that produces the data and the quality of the institutional environment within which the production takes place, and so these aspects may be indirectly important to users. For example, response rate is a measure of process quality that may be used as an indirect indicator of accuracy, reflecting non-response bias;

Monitoring and Evaluation Community

The M&E community is a very important class of user. Internationally it has developed its own statistical terminology and models of data output quality, which are somewhat different from those of the national statistical community. For example where NSIs tend to use relevance, accuracy and coherence as data output quality dimensions, the M&E community uses precision, reliability and validity to cover essentially the same range of dimensions. In implementing EDQAF care has to be taken that all producers and users have a common understanding of the quality dimensions.

2.4 EDQAF Quality Model

Sources of model

In formulating the EDQAF quality model, account was taken of the models used by international and national statistical organisations and by the international M&E community.

The EDQAF model has five output data quality dimensions. They are an enhanced version of the dimensions proposed in the First EDQAF Draft. For the most part they reflect the dimensions initially proposed by Statistics Canada and subsequently adopted, with minor modifications, by in the European Statistical System.

The model has six process quality dimensions that reflect on methodology, standard operating procedures, data and metadata management, human resource management, and reporting burden. They include the IMF DQAF and South African Quality Assurance Framework (SASQAF) methodological soundness dimension as well as five other dimensions covering the data management system functions referenced in Data Quality Assessment (DQA) framework developed under contract for the NSDQSCD.

The institutional quality dimensions are largely based on the European Statistical Code of Practice, supplemented by the integrity dimension from the IMF DQAF and SASQAF.

EDQAF Output Data Quality Dimensions

1. Relevance

- The relevance of statistical outputs is the degree to which they meet current and potential user needs.
- A high degree of relevance implies all statistics that are needed are produced, no statistics that are not needed are produced, and concepts and classifications take account of user needs and international standards.

2. Accuracy

- The accuracy of statistical outputs is the degree to which they accurately and reliably portray reality, the degree to which the data actually measure the phenomena they are designed to measure.
- Accuracy is usually characterized in terms of errors in statistical outputs. For sample surveys errors are traditionally decomposed into sampling and non-sampling errors. Non-sampling errors apply to all forms of data collections and are usually further subdivided by source of error, such as non-response.
- The degree of consistency of estimates over time, often referred to as reliability, is an aspect of accuracy.

3. Timeliness and Punctuality

- The timeliness of statistical outputs is the length of time between their availability and the phenomenon or events that they describe.
- The punctuality of statistical outputs is the time difference between the date the data are released and the target date on which they were scheduled for release, as announced in an official release calendar, laid down by regulations or previously agreed with users.

4. Accessibility and Interpretability

- The accessibility of statistical out puts is the ease with which users can obtain the data. It is determined by the physical conditions by means of which users obtain data: where to go, how to order, delivery time, pricing policy, marketing conditions, availability of micro or macro data, and delivery formats (paper, files, CD-ROM, internet, etc.)
- The interpretability of statistical outputs is ease with which users can understand the data, assess their fitness for purpose, and make appropriate use of them. It reflects the extent to which outputs are presented in a clear and understandable form and is determined by the availability of metadata, supplementary information and support services. It includes informing users of significant changes in concepts or methods that affect outputs.

5. Coherence and Comparability

- The coherence of two or more statistical out puts refers to the degree to which the statistical processes by which they were generated used the same concepts, definitions, classifications and target populations and harmonized methods. Coherent statistical out puts have the potential to be validly combined and used jointly.

- Comparability is a special case of coherence where the statistical outputs contain the same data items and the aim of combining them is to make comparisons over time, or across regions, or across other domains.

EDQAF Process Quality Dimensions

6. Methodological Soundness

- Methodological soundness refers to the degree to which statistical outputs are produced by application of international and/or peer-agreed standards, guidelines, and best practices.

7. Human Resource Management

- Human resource management refers to extent to which responsibilities for the statistical process are well defined and are assigned to well trained and dedicated staff.

8. Standard Operating Procedures

- Standard operations refers to the extent that operational procedures are defined, standardized, documented, used, and give a clear indication of the data to be collected, the collection and processing activities to be undertaken, and the outputs to be produced.
- It includes ensuring data collection tools (questionnaires and checklists) exist and are uniformly standardized across all organizational levels through which the data pass

9. Data Management and Security

Data management refers to the extent to which data are managed from initial collection, through data entry, processing, aggregation, transmission to higher levels within the organization, and dissemination.

It includes ensuring source documents are retained and available for subsequent checking or audit. It also includes the degree of computerization.

Security refers to the provisions for security of transmission and storage, including encryption, back-up and disaster recovery.

10. Quality Assurance/Control

Quality assurance/control refers to the extent to which quality is assured either by procedures embedded in the statistical processes or through quality gates at key points in these processes.

It includes verification of input data, quality control of data entry procedures, identification and correction of errors and discrepancies, and feedback of identified quality problems to their source.

11. Reporting Burden

Reporting burden refers to the extent to which the reporting burden on the individuals and businesses and institutions that provide the raw input data is minimised and seen to be minimised.

EDQAF Institutional Environment Quality Dimensions

12. Mandate, Resources, Performance and Quality Management

Mandate refers to the extent to which collection, processing and dissemination of statistics by the organization are supported by legislation or regulation.

Resources refers to extent to which resources devoted by the organization to collection, processing and dissemination of statistics is sufficient.

Performance refers to the extent to which resources are effectively used.

Quality management refers to the extent to which the organisation promotes total quality management in the context of its data collection, processing and dissemination activities.

13. Integrity

Integrity refers to the degree to which the values and practices of the producing organization as regards professionalism, impartiality objectivity and transparency promote user confidence in the organization as a producer of good quality statistical outputs.

Professional independence is major factor.

14. Provider Transparency, Privacy and Confidentiality

Provider transparency refers to the extent to which the persons, businesses, or organisations providing their individual data are informed of the mandate under which the data are being collected and the purposes for which the data are being collected.

Privacy means that data provided are used only for the stated purposes for which they are collected.

Confidentiality means that individual data are not revealed.

3 EDQAF Assessment Design

3.1 Factors Affecting Assessment Design

The assessment process and the actual conduct of the assessment have to be adjusted to the particular circumstances. As elaborated in the following paragraphs, this means taking into account:

- the type of the data production process;
- the maturity of the process; and
- the flows of data from households, businesses and local sites of government production or service delivery through woredas, zones, regions to national offices.

Types of Statistical Processes

Statistical datasets are generated by a variety of different types of process. The primary division is between:

- *statistical data processes* –processes that collect, process and disseminate data entirely for statistical purposes – all CSA processes fall into this category; and
- *administrative data processes* - processes that produce statistical data as a by-product of an administrative requirement, for example, collection of income tax or administration of government hospitals – most processes conducted by other members of the NSS fall into this category.

A more precise division of processes is into five groups.

Statistical data collection process, i.e., *sample survey, census or price collection* -where data are directly obtained from individual respondents, or directly observed in the case of price data, and are aggregated to form statistics.

Administrative data collection process - where data are collected for an administrative purpose (typically in accordance with some particular legislated requirement such as VAT payment, or registration of a birth marriage or death) from which data are extracted and aggregated to form statistics, for example external trade statistics compiled from customs declarations.

Mixed statistical and administrative data collection process - where data are obtained both directly by survey, and by administrative collection. An example would be a production survey in which data from small businesses are obtained from tax records while data from medium and large businesses are obtained by direct survey.

Statistical compilation process - where data on different topics from a variety of primary sources are combined and compiled within a conceptual framework to obtain new aggregate data elements - for example national accounts, balance of payments, and current population projections (combining data from birth and death, and migration sources)

Statistical compendium process - where aggregate data are simply brought together for dissemination purposes without creation of new data elements - for example in a statistical yearbook or statistical compendium on a particular topic.

In assessing any given dataset, assessment procedures must be adapted as needed to the particular characteristics of the type of process by which a dataset has been generated.

Compendium processes themselves are not subject to assessment, but the datasets which contribute to the compendia are assessed.

Data flows up the organizational hierarchy

The input data for all processes except compilations and compendia originate from individual persons, households, businesses or institutions.

A characteristic feature of all administrative collections in Ethiopia is that the input data are collected at local community or woreda level. (This is not the case in countries with advanced statistical systems, where data are often collected directly from individual respondents at national level, for example by questionnaire or by Internet.) Data are assembled, aggregated and passed on to successively higher levels (zone, region) within the organisation responsible for the statistical process, until they reach the highest level, which is the national level (also called the federal or central level).

Maturity of data management systems

- At each level, data may or may not be captured in electronic form.
- The data transfer to the next higher level may or may not be electronic.
- The data transferred to the next higher level may be the original micro-data or (more commonly) data aggregates, or both.
- The operational procedures for data collection and transfer may or may not be standardised across each level.
- The operational procedures for data collection and transfer may or may not be harmonised across all levels, forming part of a coherent national program.
- There may be quality measurements, checks or assurance procedures at none, one or more levels.

These factors have a bearing on how an assessment is best conducted

3.2 Assessment Phases

To cater for the various types of statistical process and data flows, and the maturity of the operating and data management procedures, the EDQAF involves a phased approach to data assessment. There are four assessment phases (further elaborated in Chapter 4) which may be summarised as follows.

Phase 1: Initiation and Preliminary Investigation

This phase involves:

- setting up the assessment schedule and working relationships with data producer and key users;
- conducting an initial review of metadata and other documentation and having preliminary discussions with the data producer;
- obtaining a sufficiently informed perception of data process quality to determine whether Phase

2 is required; and

- establishing the logistics of the assessment.

Phase 2: Systems Assessment

This phase involves on site assessment at samples of woreda, zones, and regions through which the data pass. It has two components:

- assessment of data collection, capture, processing and transmission procedures, based on discussions with production staff, and review of metadata and other documentation, at each level;
- verification of (samples of) the data received and transmitted at each level.

Phase 3: Overall National Assessment

This phase involves assessment of output, institutional and (selected) process quality dimensions based on:

- detailed discussion with production staff at national office;
- review of metadata and other documentation at national level;
- review of results of Phase 2 assessment (if conducted).

Phase 4: Reporting and Conclusion

This phase involves:

- preparation of assessment results, comprising descriptions of major quality problems and potential quality improvements and quality summaries;
- distribution and discussion of these results with the data producer, senior managers having oversight of the data production process, and key data users; and
- formally wrapping up the assessment process and provisionally scheduling the next assessment.

Exemption from Phase 2

In principle every dataset should pass through all four phases. However, Phase 2 (systems assessment) is by far the most time consuming phase and, in order to ensure effective use of EDQAF Program assessment resources, there are datasets which exempted.

Whether or not a particular dataset should be exempted is determined during Phase 1. If, based on the initial review of documentation and preliminary discussions with the data producers and key users, the Quality Assessment Team has the perception of good/acceptable process quality it can decide to exempt the dataset from Phase 2. Any one of the following conditions means there will not be an exemption:

- any key user expresses severe doubts about data quality;
- the data producer has severe doubts about quality of procedures at woreda, zonal or regional level;

- the data cannot be reconciled with other official statistics or with data from another source that is considered reputable;
- the Quality Assessment Team has detected significant quality problems.

Sequence of Phases

The possible sequences of phases are indicated in Figure 1. An assessment including all four phases is referred to as a full assessment. An assessment not including Phase 2 is referred to as a reduced assessment.

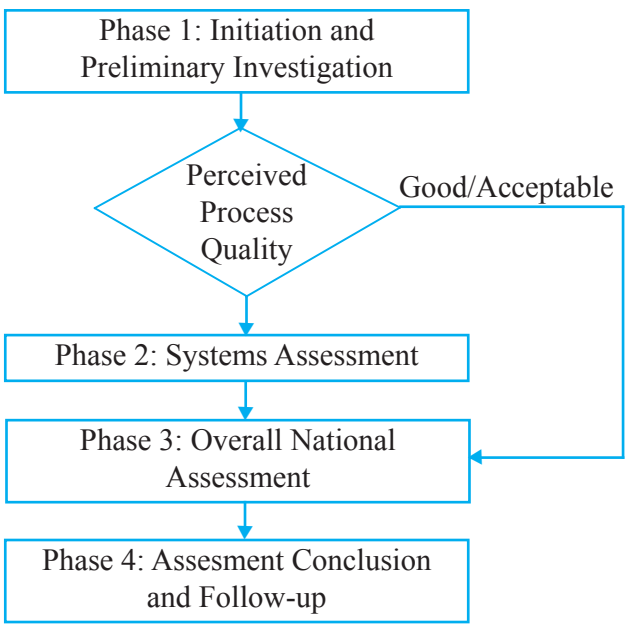

Figure 1: Sequence of Phases Assessment

Design and Use of Assessment Tools

Each assessment phase is supported by one or more tools in the form of standard questionnaires, checklists, or instructions for conduct of interviews or discussion groups.

The benefits of using standard questionnaires are that they provide an interview framework, they help ensure complete coverage of the topic being discussed, they help harmonise assessments across assessment teams and datasets, and they enable calculation of summary scores by quality dimension.

However, a standard questionnaire is an enabler not a straitjacket. No questionnaire can contain all the questions that are pertinent in a particular case. There is almost always the need to probe beyond the questions (or go beyond the instructions) in the assessment tool in order to fully identify quality problems and potential quality improvements. The most valuable information is less likely to be obtained in direct answer to a standard question than in subsequent discussion. In summary, all interviews and meetings are expected to involve systematic use of assessment questionnaires coupled with free format discussions.

Questionnaire Format and Summary Scores

Questionnaire format

The systems and overall assessment questionnaires have a standard format.

- Each ***quality dimension*** covered by the questionnaire is assessed through one or more of ***quality elements.***
- For each quality element there are a number of quality indicators, each of which is expressed in the form of a question.
- For each question there are four possible benchmark response categories, labelled 4, 3, 2, 1, where 4 reflects the highest quality response and 1 the lowest quality. In some cases there are only 2 or 3 categories.

This format is illustrated for a particular example for the Coherence/Comparability dimension in Figure 2. (Annex E3 contains the full questionnaire.)

Element	Indicator	Benchmark Response Categories
5.2 The data are comparable over time and regions	(b) Are data comparable over regions?	4. Data are comparable over all regions
		3. Data are comparable over most regions
		2. Data are not comparable over regions
		1. No thought has been given to data comparability over regions

Summary scores by quality dimension

Quality as reflected in questionnaire responses is summarised by computing the score ***for each quality dimension*** as the average of the scores obtained for all the elements associated with that dimension. The value of such a dimensional score is interpreted in terms of the following four levels

Level 4: Good – the data/process/institution satisfies(s) all the quality requirements.

Level 3: Acceptable - the data/process/institution satisfies(s) many of the quality requirements.

Level 2: Questionable - the data/process/institution satisfies(s) few of the quality requirements.

Level 1: Poor - the data/process/institution satisfies(s) none of the quality requirements, or cannot be assessed.

3.3 Identification of Potential Quality Improvements

During every phase in assessment process the primary aim is to identify significant quality problems and propose potential quality improvements.

In essence, there are three types of improvement:

Reengineering/ enhancement of the production process – with the aim of building quality into the process;

Introduction of quality measurements into the production process – with the aim of tracking quality as the process is conducted rather than measuring it subsequently;

Introduction of quality gates – with the aim of detecting quality problems at points in the process where there is known potential for problems.

3.4 Assessment Outputs

There are two types of output in the reports from an EDQAF assessment. First there is an overall summary of quality, comprising quality scores by dimension, and, depending upon the scores, labelling of the dataset as the basis for official statistics. Second there is a detailed description of quality problems, and quality improvement proposals comprising:

- improvements to production processes; and/or
- introduction of quality measurements; and/or
- introduction of quality gates.

These outputs are presented to, and discussed with:

- the dataset producer – the organisational unit(s) responsible for the collection, processing and dissemination of the data;
- senior management – manager(s) in the producing organisation who are capable of making decisions regarding allocation of resources for quality improvements;
- data users – the key users for the dataset.

3.5 Designation of Official Statistics

Official Statistics

One of the CSA's roles is to determine and label official statistics. Not all statistical datasets produced by government agencies and institutions qualify as official statistics or even as government statistics. In order to be government statistics, a dataset has to satisfy two criteria:

- it must contain aggregate data without references to the units (persons, households or institutions) that provided the data: or, if it comprises individual (unit record) data, then that data must have been stripped of unit identifiers and usable only to produce aggregates;
- it must be made accessible outside the government organisation that produced it.\

In order to be official statistics, a dataset has to satisfy two criteria:

it must be government statistics;

it must be of acceptable quality.

Whether or not a dataset is of acceptable quality to be (or be a source of) official statistics is a determination for which the CSA is responsible. The EDQAF provides the basis for such determinations.

Quality Criteria

The quality of a dataset is sufficient for the dataset (and its products) to be labelled official statistics if and only if that dataset has:

a score of at least T1 for the accuracy and sound methodology quality dimensions; and

a score of at least T2 obtained by averaging all the quality dimensions included in the National (Phase 3) Assessment.

For the initial implementation of EDQAF, the target values T1 and T2 are both set to 3.0.

As experience grows a case may emerge for changing these values. If this happens the NSDQSCD will document the reasons for change and the proposed new values and discuss them with CSA deputies. If the CSA deputies accept the need for change, the proposed changes will be taken to the Statistics Council for endorsement at its next annual meeting.

3.6 Taking Account of Other Assessment Programs

In conducting an assessment, account is taken of any other assessment programs that have recently taken place or are planned for the near future. This is to avoid duplication of effort and to minimise the possibility of conflicting results. For example an assessment team from the IMF presently reviews the three compilations - national accounts, balance of payments and financial statistics - on a six monthly basis. On the one hand, EDQAF assessment of these compilations will make use of the IMF Team's results. On the other hand, the EDQAF assessments of datasets contributing to these compilations will assist the IMF Team.

Taking account of another assessment does not mean accepting its results without question, or not conducting the EDQAF based assessment. It means coordinating EDQAF based and other assessment efforts to the extent possible, making use of results from the other assessment where they seem reliable and where appropriate.

Role of self-assessment

Each dataset producer is encouraged to conduct a self-assessment on an annual basis using a self-assessment questionnaire provided by the NSDQSCD. Of its own accord, this self assessment may be sufficient to identify quality problems and trigger quality improvements. Also, it provides a starting point for a quality assessment conducted by a Quality Assessment Team as part of the EDQAF Program.

4 EDQAF Assessment Phases: Procedures and Conduct

4.1Phase 1: Initiation and Preliminary Investigation

Initiation involves:

- establishing the Quality Assessment Team;
- identifying the data production staff in the data producing organisation at national level;
- informing the data production staff about the purpose and conduct of the assessment, and obtaining their contact details and availabilities;
- identifying and contacting the key users;
- providing training in quality concepts and assessment procedures to data production staff and (on request) to key users;
- establishing the logistics of the assessment.

The main aim of the preliminary investigation is to obtain sufficient impression of the data output and systems quality to determine the required scope and depth of the assessment, in particular whether or not it will involve Phase 2 (systems assessment).

The preliminary investigation involves review of readily available metadata and preliminary discussions with the data production staff at national level. The review covers institutional arrangements, an overview of community, woreda, zonal, and regional procedures, organisational responsibilities for data collection and processing, data management procedures, and the organisation's management information capacity. The preliminary investigation also involves discussions with key users, identifying the uses to which they put the data and their major concerns.

The decision regarding whether the assessment is to be full or reduced depends upon the perceptions obtained during the preliminary investigation and the general credibility of data from the data producer. As previously noted, any one of the following conditions will result in a decision to conduct a full scale assessment:

- any key user expresses severe doubts about data quality;
- the data producer has severe doubts about quality of procedures at woreda, zonal or regional level;
- the data cannot be reconciled with other official statistics or with data from another source that is considered reputable;
- the QAT has detected and documented significant quality problems.

The outputs of the phase include:

- contact details and availabilities of data production staff and key users;
- an overview of the main data collection processes and quality issues;
- a decision whether the assessment will include Phase 2;
- an assessment schedule.

An indicative Phase 1 checklist is appended (Annex E1).

4.2 Phase 2: Systems Assessment

Phase 2 involves on site assessment at each of the woreda, zonal, and/or regional levels through which the data pass. It has two components:

- systems assessment of the organizational units responsible for data collection, processing and transmission;
- verification of (samples of) data received and transmitted.

At each level, a sample of organizational units is selected. The sizes of the samples at each level depend upon the perceived degree of difference between units across the country at that level. Ideally the samples are probability based meaning that all units at each level have a known probability of being selected. However there may well be cases where a purposive sample is selected in order to simplify the logistics.

For each selected organizational unit, at each level, systems assessment and data verification are conducted.

Systems assessment involves review of metadata and other documentation and discussions with the local data producers, i.e., the persons responsible for data collection and transmission, with their managers, and with local data users. Discussions may be on a bilateral basis or in focus groups. Discussions are centred on, but not limited to, completion of a structured systems questionnaire. An indicative questionnaire is appended (Annex E2A). It focuses on four process dimensions namely, human resource management, standard operating procedures, data management and security, and quality assurance/control.

Data verification involves comparison of individual data that were (or should have been) received by the unit from the selected lower level units with the corresponding data that were recorded by the unit. It also involves a comparison of all data received from lower level units with those transmitted to next higher level. Indicative Phase 2 data verification templates are appended (Annex E2B).

Responses to the questionnaire and the data verification results are vital in providing a quality summary, but, and even more importantly, are triggers for further probing leading to identification of major quality problems and improvement possibilities. Documentation of quality problems and potential quality improvements is a primary target output of the assessment.

4.3Phase 3: Overall National Assessment

Phase 3 involves detailed assessment of output and systems (process and institutional) quality based on discussions with data producers (and their managers) and users at national office and on review of all metadata and other pertinent documentation available. Discussions may be on a bilateral basis or in focus groups. Discussions are centred on, but not limited to, completion of a structured overall national assessment questionnaire. An indicative questionnaire is appended (Annex E3). It covers all five output data quality dimensions and five systems (process and institutional) dimensions namely:

- (output) relevance, accuracy, timeliness and punctuality, accessibility and clarity, coherence and comparability;
- (process) methodological soundness, reporting burden;

- (institutional) mandate, resources, performance and quality management, integrity, and provider transparency, privacy and confidentiality.

The assessment is informed by the results of a local/regional systems (phase 2) assessment (if one took place).

4.4 Phase 4: Reporting and Conclusion

Phase 4 involves two aspects:

- preparation, dissemination and discussion of quality reports containing assessment results to data producer, users and senior managers; and
- wrapping up the assessment, including provisionally scheduling the next assessment.

There are three main categories of reports prepared by the Quality Assessment Team for an assessment.

- Report for data producer(s) at national level. This is the most comprehensive form of report. It contains an account of the assessment process, scores and comments for all quality dimensions covered by the assessment, an indication whether the data outputs are of sufficient quality to be official statistics, and detailed descriptions of the major quality problems and proposed quality improvements.

- Report for data users at national. This report comprises scores and comments for all quality dimensions covered by the assessment, and on whether the data are of sufficient quality to be official statistics. It also includes a summary of the major quality problems in so far as they may limit use of the data, and an indication of any quality improvements that have been agreed.

- Report for senior managers.This report is targeted for senior managers in both the CSA and in the data producing organization. The main aims of the report are to give senior managers a general impression of output and systems quality, in particular whether the data are of sufficient quality to become official statistics, and to secure support for quality improvements. The report includes an overview of quality problems and quality improvement proposals and scores and comments for all quality dimensions covered by the assessment.

An indicative Phase 4 checklist is appended (Annex E4).

5 EDQAF Program Implementation

5.1Underlying Legal Framework and CSA Coordination Role

Statistics Act

CSA's role in promoting quality and coordinating the NSS is made clear in Proclamation No 442/2005 that establishes the Central Statistics Agency. The Proclamation states:

> *The objectives of the Agency are...to provide technical guidance to government agencies and institutions in their endeavour to establish administrative recording, registration and reporting systems; and build the capacity required for providing directives and consultations in database creation and development of administrative records and registration systems*

It further states:

the Agency being the country's information centre shall have the following powers and duties...

3. provide advisory services on statistical activities to government agencies or institutions and private organisations on request;

5. provide appropriate short-term training of personnel of government agencies and institutions, non-government organizations and the private sector who are engaged in statistical activities;

6. issue and follow up the implementation of programs and directives with a view to improving the country's statistical system and to avoid duplication of effort in statistical activities;

8. maintain internationally accepted standards with respect to the statistical data collected in the country in order to make them comparable to data produced by other countries, international organizations and the United Nations;

10. upon request, provide assistance in guiding and coordinating the statistical work of regional states with regard to matters pertaining to the collection, organization, analysis, and preparation of publication and dissemination of statistical data; and follow up the establishment of statistical registration systems;

14. design and monitor the implementation of statistical recording and reporting systems to be followed by government agencies and institutions and other organizations.

Support for EDQAF

Whilst there is no specific reference to quality assessment in the Proclamation, it is evident that the Proclamation provides a mandate for the development and implementation of the EDQAF. Thus, for the time being, the EDQAF is being conducted under current legislation. It will be supported by memoranda of understanding (MOUs) established on a bilateral basis with each organization producing statistical output.

At a later stage, when EDQAF is well established and experience in its operation has been gained, formal legislation may be introduced to give the EDQAF additional support. The creation of the United Kingdom (UK) Statistical Authority which has a mandate to assess the quality of all data produced by the NSS provides an example of an approach that could be adopted.

5.2 Need for CSA Quality Assurance Framework and Quality Declarations

In principle, the EDQAF should be situated within and viewed as a component of CSA's quality assurance framework (QAF). A QAF comprises a quality declaration, quality model, quality assessment program, quality assurance procedures and a quality improvement program, and it defines the roles of senior managers, quality unit, data producers, and internal service providers in quality assurance.

As the CSA did not have a formally constituted QAF at the time of EDQAF formulation, the EDQAF development process has gone part way to fill the gap in two respects. First, as described in Chapter 2 EDQAF contains a quality model for use in the CSA and throughout the NSS. Second, in order to provide EDQAF with the authority it needs to operate effectively, a CSA quality declaration has been introduced, and one for other NSS members will be prepared, as further discussed below.

CSA Quality Declaration

As the CSA did not have a formal quality declaration one has been developed during the course of EDQAF preparation and will be submitted for endorsement by the Statistics Council. It is a quality specific extension of the CSA's vision and mission for the NSS, which are defined in the NSDS as follows.

- ***Vision*** – to be a credible and recognized national statistical system for better decision making, in support of sustainable socio-economic development
- ***Mission*** – to produce and disseminate nationally coordinated, timely and good quality statistical data for planning, monitoring and evaluation, for socio-economic analysis, research and policy formulation

The declaration includes a commitment to total quality management principles and justification and support for the EDQAF. The full text is contained in Annex B.

Quality Declaration for Other NSS Members

In its role as NSS coordinator, the CSA will also develop a quality declaration for use by the other NSS members. Evidently, as production of statistics is a by-product rather than main activity of other NSS members the quality declaration will be greatly simplified relative to that of the CSA and will focus exclusively on the statistical data production activities of the organisation and the environment within which they take place.

The quality declaration will reflect the expectation that the statistics producing units within the NSS member will adopt the EDQAF quality model, and will put in place assurance procedures and quality improvements that will enable the EDQAF Program to achieve its objectives.

5.3 Roles

The quality assessment program that results from implementation of the EDQAF is referred to as the *EDQAF Program*. It is managed by the NSDQSCD. The NSDQSCD reports on a monthly basis to the *CSA Deputies*.

The *dataset producer* is the organisational unit (or set of units) within the organisation that produces the dataset. The *data production staff* are the organisational unit members who are actually responsible for any aspect of the data production process. The *data production process* covers the entire data life cycle including process design, data collection, data processing and transmission, data tabulation, dissemination and archiving.

A quality assessment carried out within the EDQAF Program is referred to as an *EDQAF assessment.* A schedule of EDQAF assessments, referred to as the *EDQAF Assessment Schedule* is prepared by NSDQSCD taking into account the priorities of the CSA, dataset producers, and dataset users, as further discussed below. It is reviewed, modified as required, and approved by the CSA Deputies.

Annually, the results of the EDQAF Program are presented to the *Statistical Council*, together with the EDQAF Assessment Schedule for the following year. The Statistical Council is asked to endorse the Schedule and ensure support for the assessments.

Quality Assessment Team (QAT)

Each EDQAF assessment is conducted by an individually designated *Quality Assessment Team (QAT). The QAT* for any given assessment is nominated by NSDQSCD and approved by CSA senior management.

- The QAT team leader and secretary are from NSDQSCD.
- Other team members may be drawn from NSDQSCD and/or from other CSA directorates with special interest in the dataset being assessed.
- On occasion there may also be team members from the user community and/or from another organization within the NSS.

Use of Contractors

Two experimental systems assessments of Education and Roads datasets were carried out by contractors. When the need arises due to time and capacity constraints, contractors may be further involved.

Assessment Priorities and Depth of Assessment

Determining priorities

In determining the EDQAF assessment schedule the following factors are considered in assessing the relative priority with which any given dataset should be assessed:

- its contribution to GTP indicators;
- the extent of user concerns about quality;
- the severity of known quality problems;
- the probability of being able to identify quality improvements;
- the capacity of the data producer to make quality improvements – depending upon the human and financial resources available.

Determining assessment depth

In principle each dataset assessed should be subject to a similar depth of assessment, which is determined by the resources available to the EDQAF Program as a whole and the number of assessments scheduled per annum. In practice, for efficiency and effectiveness reasons, depth of assessment will depend upon the particular dataset. In order of depth of assessment, the options are as follows.

- The deepest form of assessment comprises a full (four phase) assessment, with a large sample of units examined during systems assessment and very detailed probing during the systems and national assessment phases. It is appropriate for datasets for which there is a great deal of user demand and about which there are severe quality concerns.
- The next less deep form of assessment comprises a full assessment, but with a smaller sample of units examined during systems assessment and less detailed probing. It is appropriate for datasets for which there is less user demand and/or quality concern, but that nevertheless warrant a full assessment.
- The next less deep form of assessment comprises a reduced (three phase) assessment with very detailed probing at during the national assessment phase to compensate for the absence of a systems assessment. This would be the normal arrangement for reduced assessment. For well established CSA surveys this form of assessment may well be considered sufficient.
- The lightest form of assessment comprises a reduced assessment with only light probing. It is appropriate for datasets about which there are essentially no a priori quality concerns as evidenced by a recent quality assessment carried out within the framework of some other reputable quality assessment program, for example IMF assessment of national accounts.

5.4 Quality Assessment Resources and Periodicity

Resources

Based on a preliminary analysis:

- a full (four) phase assessment can be expected to take an elapsed time of six months and to require a total of 30 person-weeks of work by QAT members;
- a reduced (three) phase assessment can be expected to take an elapsed time of six weeks and to require a total of 10 person-weeks of work by QAT members.

These are very rough estimates and require checking and updating in the light of experience. Furthermore, the figures are only averages. There could be significant differences in the resources and elapsed times needed for same type (full or reduced) of assessment.

Quality Assessment Periodicity

The aim of the EDQAF Program is to assess all datasets in its scope on a rotational basis over a three to five year period. The actual length of the period has yet to be decided. It will depend upon the number and intensity of the assessments and the resources made available to the Program.

5.5 Training

EDQAF implementation involves training at three levels.

NSDQSCD Staff

The staff responsible for conducting and enhancing the EDQAF Program should be exposed to comparable programs in other national statistical offices, from which they will be able to pick up ideas for Program improvements. In particular, the UK Statistical Authority (UKSA) has much the same overall objectives as EDQAF but a significantly stronger mandate and a different, less structured, more intuitive style of assessment. A detailed review of UKSA procedures would undoubtedly result in suggestions how to enhance the EDQAF.

Quality Assessment Team (QAT)

Every member of a QAT will be trained prior to undertaking his/her first assessment. The training will include a thorough review of the EDQAF (this document) supplemented by a more detailed description of how to conduct each assessment phase.

Prior to full implementation of EDQAF, NSDQSCD will prepare a training manual and course.

Data production staff

Data production staff will receive introductory EDQAF training during the course of Phase 1 (initial assessment phase). The training will include summary of the EDQAF (this document) coupled with a detailed description of the role of the data producer in each assessment phase.

Annex A: Reference Documents

Ethiopian

Federal Democratic Republic of Ethiopia, National Strategy for the Development of Statistics (NSDS), June 2009

Federal Democratic Republic of Ethiopia, Statistics Proclamation No 442/2005.

Central Statistical Agency, Ethiopian Data Quality Assessment Framework, First Draft, December 2010.

Central Statistical Agency, DQA Systems Assessment, internal working document developed under contract for the NSDQSCD.

European Statistical System

European Commission, *European Statistics Code of Practice*, 2005

Eurostat Statistical Programme Committee, *Quality Declaration of the European Statistical System*, 2001

Eurostat, ESS Handbook for Quality Reports, 2009

Eurostat, ESS Standard for Quality Reports, 2009

International

International Monetary Fund (IMF), *Generic Data Quality Assurance Framework*, 2003

International Standards Organization, ISO 9000:2005, Quality management systems - Fundamentals and vocabulary, 2005.

National Statistical Institutes

Australian Bureau of Statistics, Data Quality Framework, 2009.

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Statistics Canada, National Quality Assurance Frameworks, Report to the UN Statistical Commission, 2010.

Statistics Finland, Quality Guidelines for Official Statistics,

Monitoring and Evaluation Community

USAID, *Performance Monitoring and Evaluation Tip #12 Data Quality Standards* *Standards,* Second Edition, 2009.

USAID, Performance Monitoring and Evaluation Tip #18 Conducting Data Quality Assessments, 2010

Annex B: Quality Declaration Considerations

Annex #	Item
Annex B1	Annex B1: Total Quality Management Principles Annex B1: Total Quality Management Principles
Annex B2	Annex B2: European Statistical System Quality Declaration
Annex B3	Annex B3: CSA Quality Declaration

Annex B1: Total Quality Management Principles

The principles of total quality management as expressed in ISO 9000:2005 are as follows

- *Customer focus:* an organisation depends upon its customers and thus must understand and strive to meet their needs; customers are central in determining what constitutes good quality; quality is what is perceived by customers rather than by the organisation.
- *Leadership and constancy of purpose:* leaders establish unity of purpose and direction of an organisation; they must create and maintain an internal environment that enables staff to be fully involved in achieving the organisation's objectives; quality improvements require leadership and sustained direction.
- *Involvement of people:* people at all levels are the essence of an organisation; their full involvement enables their abilities to be fully used.
- *Process approach:* managing activities and resources as a process is efficient; any process can be broken down into a chain of sub processes, for which the output of one process is the input to the next.
- *Systems approach to management:* identifying, understanding and managing processes as a system contributes to efficiency and effectiveness.
- *Continual improvement:* continual improvement should be a permanent objective of an organisation.
- *Factual approach to decision making:* effective decisions are based on the analysis of information and data.
- *Mutually beneficial supplier relationships:* an organisation and its suppliers are interdependent and a mutually beneficial relationship enhances both.

Annex B2: European Statistical System Quality Declaration

The mission of the European Statistical System

"We provide the European Union and the World with high quality information on the economy and society at the European, national and regional levels and make the information available to everyone for decision-making purposes, research and debate."

The vision of the European Statistical System

"The ESS will be a world leader in statistical information services and the most important information provider for the European Union and its member states. Based on scientific principles and methods, the ESS will offer and continuously improve a programme of harmonized European statistics that constitutes an essential basis for democratic processes and progress in society."

User focus

We provide our users with products and services that meet their needs. The articulated and non-articulated needs, demands and expectations of external and internal users will guide the ESS, its members, their employees and operations.

Continuous improvement

The needs and demands of users will change as will the environment we operate in. Globalisation and advances in methods and technology will avail new possibilities. It is imperative that we actively strive to improve our work methods to take advantage of the new possibilities and to better meet the demands of our users.

Product quality commitment

We produce high quality statistical information according to scientific methods in accordance with objectivity and confidentiality. We provide information on the main quality characteristics of each product so that users are able to assess product quality.

Accessibility of information

We provide statistical results in a user-friendly and accessible form. Utilizing the possibilities of new media ensures easy access to the information. As far as possible, we will enhance user awareness of the strengths and limitations of the produced statistics. Consulting on how to use data is an integral part of dissemination.

Partnership with and beyond the European Statistical System

The cooperation between current and future members of the ESS as well as with other organisations will be encouraged. Only by working together, can we learn from others and gradually develop our system. The broad knowledge of staff and our users, suppliers, partners and other parties must be combined for us to excel in our purpose.

Respects for the needs of data providers

The suppliers of data for statistics – the respondents – are an especially important group with which a mutually rewarding partnership must be established. The producers of statistics should strive to always minimise the respondent burden, both the objective and the perceived burden.

Commitment of leadership

The leaders of the organisations in the ESS exercise a personal, active, and visible leadership to create and sustain a culture of quality. By providing a clear overall direction, prioritizing improvement activities and stimulating empowerment and innovation, leaders enable the staff to perform a successful job and to continuously strive for improvement.

Systematic quality management

We systematically and regularly identify strengths and weaknesses in all relevant areas to continuously identify and implement improvements where needed. A long-term strategic orientation is vital for the development of the ESS. The long-term effects in all situations must be considered with the more obvious short-term effects.

Effective and efficient processes

ESS activities should be seen as processes that create value for the users. We work efficiently to produce output with as little resources as possible and to prevent errors in the processes and products. The processes and their quality are continuously reviewed and improved.

Staff satisfaction and development

To attract and keep competent staff, it is vital to satisfy staff needs. The ESS members should treat their employees as the key resources they are.

Annex B3: CSA Quality Declaration

The CSA Quality Declaration is based on the European Statistical System Quality Declaration and on TQM principles as presented in ISO 9001. It is as follows.

User focus

The CSA provides its users with data products and services that meet their needs. The articulated and non-articulated needs, demands and expectations of external and internal users guide the CSA and also those parts of other government organisations that produce statistics within the NSS framework.

Continuous improvement

The needs and demands of users evolve as the economy, society and the environment changes. Globalisation and advances in methods and technology bring new possibilities. The CSA actively strives to improve its work methods to take advantage of new possibilities and to better meet the demands of users.

Product quality commitment

The CSA produces high quality statistics using scientific methods and with transparency, objectivity and confidentiality preservation. It describes the main quality characteristics of each product together with the product so that users are able to assess product quality.

Accessibility of information

The CSA provides statistics in a user-friendly and accessible form. It aims to utilize new media to ensure easy access. As far as possible, the CSA enhances user awareness of statistics and their strengths and limitations. Consulting on how to use data is regarded as an integral part of dissemination.

Respects for the needs of data providers

The CSA regards the suppliers of input data – the respondents – as a vital resource with whom it is important to establish a mutually rewarding partnership. The CSA strives to minimise both actual and perceived the respondent burden.

Leadership commitment

CSA senior managers exercise personal, active, and visible leadership in creating and sustaining a quality culture. By providing a clear overall direction, prioritizing improvement activities and stimulating empowerment and innovation, managers enable the staff to perform successfully and to improve continuously.

Staff satisfaction and development

To attract and keep competent staff, it is vital to address staff needs. The CSA treats its employees as the key resource they are by empowerment, by training and by recognising good performance

Effective and efficient processes

CSA activities are seen as processes that create value for the users. The CSA strives to work

efficiently to produce outputs with minimum resources and to work effectively to prevent errors in the processes and products.

Systematic quality assessment

The CSA systematically and regularly assesses the quality of all its outputs, and of the processes that produce them, with the aim of identifying and implementing improvements where needed. The CSA has a long-term strategic vision and ensures long-term effects are always considered together with more obvious short-term effects.

Coordination of the National Statistical System

The CSA recognises that its responsibility for quality embraces not only the statistics it produces but all government statistics. As coordinator of the national statistical system, the CSA provides technical guidance and training to government agencies and institutions, regularly assesses the quality of their data outputs, and makes and supports recommendations for quality improvements,

Partnerships with other statistical organisations

The CSA actively collaborates with international and national statistical organisations abroad. By working with others, the CSA can share best practices and can make use of them in continually improving its processes.

Annex C: EDQAF Output and Systems Quality Dimensions

(The following paragraphs reproduce what is in Chapter 3 of the main text and are replicated here only for ease of access.)

EDQAF Output Data Quality Dimensions

1. Relevance

- The relevance of statistical outputs is the degree to which they meet current and potential user needs.
- A high degree of relevance implies all statistics that are needed are produced, no statistics that are not needed are produced, and concepts and classifications take account of user needs and international standards.

2. Accuracy

- The accuracy of statistical outputs is the degree to which they accurately and reliably portray reality, the degree to which the data actually measure the phenomena they are designed to measure.
- Accuracy is usually characterized in terms of errors in statistical outputs. For sample surveys errors are traditionally decomposed into sampling and non-sampling errors. Non-sampling errors apply to all forms of data collections and are usually further subdivided by source of error, such as non-response.
- The degree of consistency of estimates over time, often referred to as reliability, is an aspect of accuracy.

3. Timeliness and Punctuality

- The timeliness of statistical outputs is the length of time between their availability and the phenomenon or events that they describe.
- The punctuality of statistical outputs is the time difference between the date the data are released and the target date on which they were scheduled for release, as announced in an official release calendar, laid down by regulations or previously agreed with users.

4. Accessibility and Interpretability

- The accessibility of statistical out puts is the ease with which users can obtain the data. It is determined by the physical conditions by means of which users obtain data: where to go, how to order, delivery time, pricing policy, marketing conditions, availability of micro or macro data, and delivery formats (paper, files, CD-ROM, internet, etc.)
- The interpretability of statistical outputs is ease with which users can understand the data, assess their fitness for purpose, and make appropriate use of them. It reflects the extent to which outputs are presented in a clear and understandable form and is determined by the availability of metadata, supplementary information and support services. It includes informing users of significant changes in concepts or methods that affect outputs.

5. Coherence and Comparability

- The coherence of two or more statistical out puts refers to the degree to which the statistical processes by which they were generated used the same concepts, definitions, classifications and target populations and harmonized methods. Coherent statistical out puts have the potential to be validly combined and used jointly.
- Comparability is a special case of coherence where the statistical outputs contain the same data items and the aim of combining them is to make comparisons over time, or across regions, or across other domains

EDQAF Process Quality Dimensions

6. Methodological Soundness

- Methodological soundness refers to the degree to which statistical outputs are produced by application of international and/or peer-agreed standards, guidelines, and best practices.

7. Human Resource Management

- Human resource management refers to extent to which responsibilities for the statistical process are well defined and are assigned to well trained and dedicated staff.

8. Standard Operating Procedures

- Standard operations refers to the extent that operational procedures are defined, standardized, documented, used, and give a clear indication of the data to be collected, the collection and processing activities to be undertaken, and the outputs to be produced.
- It includes ensuring data collection tools (questionnaires and checklists) exist and are uniformly standardized across all organizational levels through which the data pass

9. Data Management and Security

- Data management refers to the extent to which data are managed from initial collection, through data entry, processing, aggregation, transmission to higher levels within the organization, and dissemination.
- It includes ensuring source documents are retained and available for subsequent checking or audit. It also includes the degree of computerization.
- Security refers to the provisions for security of transmission and storage, including encryption, back-up and disaster recovery.

10. Quality Assurance/Control

- Quality assurance/control refers to the extent to which quality is assured either by procedures embedded in the statistical processes or through quality gates at key points in these processes.
- It includes verification of input data, quality control of data entry procedures, identification and correction of errors and discrepancies, and feedback of identified quality problems to their source.

11. Reporting Burden

- Reporting burden refers to the extent to which the reporting burden on the individuals and businesses and institutions that provide the raw input data is minimised and seen to be minimised.

EDQAF Institutional Environment Quality Dimensions

12. Mandate, Resources, Performance and Quality Management

- Mandate refers to the extent to which collection, processing and dissemination of statistics by the organization are supported by legislation or regulation.
- Resources refers to extent to which resources devoted by the organization to collection, processing and dissemination of statistics is sufficient.
- Performance refers to the extent to which resources are effectively used.
- Quality management refers to the extent to which the organisation promotes total quality management in the context of its data collection, processing and dissemination activities.

13. Integrity

- Integrity refers to the degree to which the values and practices of the producing organization as regards professionalism, impartiality objectivity and transparency promote user confidence in the organization as a producer of good quality statistical outputs.

- Professional independence is major factor.

14. Provider Transparency, Privacy and Confidentiality

- Provider transparency refers to the extent to which the persons, businesses, or organisations providing their individual data are informed of the mandate under which the data are being collected and the purposes for which the data are being collected.
- Privacy means that data provided are used only for the stated purposes for which they are collected.
- Confidentiality means that individual data are not revealed.

Annex D: Statistical Datasets Subject to EDAQF Assessment

The following list, based on the GTP Sector Matrix, indicates the datasets that are subject to assessment.

Central Statistics Agency

Annual agricultural sample survey

Retail price of goods and services

Labor force survey

Welfare monitoring survey

Livestock survey

Employment/unemployment survey

Demographic and health survey

House hold income survey

Population and housing census

Small scale industry survey

Urban informal sector

Health and nutrition survey

Producer price of agricultural survey

Distributive and service trade

Large scale industries survey

Ministry of Agriculture

Crop production

Crop productivity

Cultivable agricultural land

Agricultural extension services and inputs

Agricultural marketing strategy

Livestock production and productivity

Agricultural research

Private sector investment in agriculture sector

Plant health and quality control

Livestock health and quality control

Natural resource conservation

Bio-diversity conservation

Disaster mitigation and managing

Population living below poverty line

Ministry of Trade

Trade registration and licensing

Domestic trade

Foreign trade

Regulatory framework for trade

International trade relations and benefits from market opportunities and investment flows

Marketing system for domestic products

Capacity of cooperatives, institutional framework and human resource capacity of cooperatives

Ministry of Industry

Micro and small scale enterprises

Textile and garment industries

Leather and leather products

Sugar

Cement

Metal and metal engineering

Chemical industries

Pharmaceuticals industries

Agro processing industries

Ministry of Mining

Geological research and mining exploration

Minerals and petroleum exploration

Traditionally produced precious metals and gemstone export

Ethiopian Roads Authority

Road infrastructure construction

Road transport service

Ethiopian Electric Power and Energy Authority

Electric power supply service

Transmission systems quality and their distribution

Electric power generation and production

Ministry of Water Resources

Safe drinking water access and sanitation services

Irrigated land and improved land productivity

Ministry of Transport

Public transportation service

Marine and dry land transit service

Road safety

Air transport service and quality

Rail network

Ministry of Education

Preschool and primary school (Grade 1-8) access coverage and enrollment

Secondary (Grade 9-12) access coverage and enrollment

Adults' education

Middle level trained manpower

Undergraduate and postgraduate level higher education intake capacity

Quality and efficiency of delivery mechanism of education

Equality in access to education

Ministry of Health

Maternal health and maternal mortality rate

Child mortality

Child nutrition strategy

Distribution and supply of iodized salt

Family planning service (CPR)

Penta 3 and measles immunization coverage

Tuberculoses prevention and control

Malaria epidemic

Environmental health

Access and quality of health service

HIV AIDS incidence and prevalence

Technology transfer and private investment in the health sector

Ministry of Civil Service

Human resource capacity of top management

Human resource capacity of middle level management and executives

Government organizations' institutional setups and working systems

Capacity of capacity building institutions

Civil service reform programs

System of transparency and accountability

Attitudes and practices of rent seeking

Citizen and community based organizations (CBO) participation in development process

Capacity of zonal, woreda and local councils

Rules and regulations within the civil servant

Capacity of ICT utilization in the reform programs

Ministry of Justice

Human resource capacity

Effectiveness of the justice sector

Efficiency of the justice sector

Rule of law

Transparency and accountability of the justice sector (including the Judiciary)

Accesses to justice and court service

Reforming inmates

The federal system

Communications of the justice reform program

Justice sector reform program and (ICT) information communication technology

Implementation of cross cutting programs

Ministry of Information Communication Technology

Telecommunication infrastructure and service

Accessibility of ICT

The community benefit from ICT service

Use of ICT to foster the government's economic policy (ADLI Export led Industrial Development)

ICT supported social development to expand quality education and health services

Improved ICT usage of public and government institutions to ensure good governance and increased public participation

ICT to ensure sustainable environmental development

Expansion of ICT and Investment in the sector

Trained and sufficiently qualified human resource in the ICT sector

Conducted research in accelerating and supporting the sector development

Implementation policy, and regulatory and legal framework to expand ICT development for accelerated economic growth and poverty reduction

House of Peoples Representative

Audit service improvement

Capacity of democratic institutions and law enforcement organ

Number of free and fair elections

Promotion and creation of greater awareness on human rights within the society

Capacity of the human rights Commission, its accessibility and cooperation among relevant sectors and organizations

Government compliance with constitutional regional and international human rights standard

Human rights violations committed against citizens by government organs

Curtail maladministration committed against the citizens by government institutions/executive bodies

Citizens' rights to freedom of information

Institutional capacity and accessibility

Ethiopian Broadcasting Authority

Media Broadcasting Service

Media inspection and support

Ministry of Children and Women

Efficiency and benefit of women and children

Capacity of women and children

Child policy

Vulnerable children and women and their contribution to social and sconomic Development

Women's associations and their empowerment

Women coalition and monitoring and evaluation system

Ministry of Culture and Tourism

Cultural values heritage and natural ecotourism

Cultural diversity and folklores

Cultural and natural ecotourism centers and their contribution for economic growth

Research on scanty cultural heritages and natural attractions

Private and public sector institutions implementing capacity and render efficient and quality service

Tourism information system, its accessibility and customer satisfaction

Capacity required to build a climate resilient green house gases

Environmental laws in all administrative units and sectors

Ministry of Labor and Social Affairs

Social rights of persons with disability and aged peoples, opportunities to participate and being benefited

Labor market information at regional and national level, the country's human resource demand and supply

Job opportunity services

Monitoring services of working conditions/ environments

Social consultation service

Ministry of Finance and Economic Development

Proportion of people living below the poverty line, achievements towards the millennium development goals

Economic growth information

Economic and social development

Government financial system

Ministry of Federal Affairs

National urban planning design policy

Pastoral community development

National mechanisms and capacities for conflict transformation

Civil development

National Bank of Ethiopia

Money

Banking

Financial Market

General Inflation

Ethiopian Meteorological Agency

Weather statistical data

Climate statistical data

Ethiopian Mapping Agency

Geo-information products and services

Federal Police Commission

Criminal data and statistics country wide

Investigation activities, forensic investigation, etc

Health & Nutrition Research Institute

National food consumption survey

Infectious and non-infectious diseases

Nutrition and food science research

Traditional and modern medicine

Ethiopian Agricultural Research Institute

Soil and water research

Crop research

Livestock research

Forestry research

Pastoral/agro pastoral research and capacity development

Ethiopian Civil Service University

Urban development studies.

Public management and development studies.

Federalism and legal studies.

Tax and customs administration.

Certification of accountant and auditors.

Cross cutting issues (Gender, HIV /AIDS, etc.).

Ministry of Science and Technology

Research on innovations systems development

Technology transfer and development

Human resource development

Quality and standardization

Science and technology and innovation information development initiative

Federal HIV AIDS Prevention & Control Office

Trends and status of the HIV epidemic

Variability of the HIV epidemic

Most at risk population groups

Risk factors driving HIV epidemic in Ethiopia

Vulnerability factors and drivers of the epidemic

Impacts of AIDS

Government Houses Agency

Government owned housing data

Federal Small and Micro Finances Enterprises Agency

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Ministry of Youth and Sport

Youth and youth association organizers' training participation by subject

Sport associations and training given

Community sport participation and sport grounds created

Oromiya Region Finance & Economic Development Bureau

Economic and demographic growth relationship study

Natural resources, economy and society data

Society data showing sex, age, educational status, occupation and family number

Geological data, analysis and distributions

Transferable and non transferable shares which are government properties

Regional income accounts showing economic status

Oromiya region atlas map - geographic demographic and socio economic data

Addis Ababa City Administration Finance & Economic Development

Socio-economic policy study and analysis

Financial and physical performance of the city administration

Socio-economic data about Addis Ababa City

Federal Revenue and Customs Authority

Duties taxes and others charges levied on the importation and exportation of goods

Personal income tax collected from employers of central Government and International

Profit tax, personal income tax and value added tax collected from enterprises owned by the central Government

Taxes collected from national lotteries and other chance winning prizes

Taxes collected on income from air, train and marine transport activities

Taxes collected from rent of houses and properties owned by Central Government

Charges and fees on licenses and services issued or rendered by the central Government

Charges and fees on licenses and services issued or rendered by the Central Government

Joint Revenues of the Central Government and Regional Government

Profit tax, personal income tax and VAT collected from organizations

Profit tax, royalty and rent of land collected from large scale mining, any petroleum and gas operations, forest royalty

Addis Ababa University

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Federal Environmental Protection Authority

Water Statistical data

Air Statistical data

Privatization Agency

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Ethiopian Investment Authority

Investment opportunities

Private investors

Anti Corruption and Ethics Commission

Corruption survey

House of Federation

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Annex E: EDQAF Assessment Tools (Indicative)

Annex #	EDQAF Phase	Assessment Tool
Annex E1	Phase 1: Initiation and Preliminary Investigation	Checklist
Annex E2A	Phase 2: Local/Regional Systems Quality	Questionnaire
Annex E2B	Phase 2: Local/Regional Data Verification	Template
Annex E3	Phase 3: National Assessment	Questionnaire
Annex E4	Phase 4: Reporting and Follow-up	Checklist

Annex E1: EDQAF Phase 1: Initial Investigation - Checklist

- Set up the quality assessment team.
- Identify the dataset to be assessed, and the organizational unit(s) responsible for any aspect of data production the data producing organization at national level.
- Identify persons in those units responsible for any aspect of the data production process. Obtain their contact details and inform them of the purpose and conduct of the assessment.
- Identify and contact the key users.
- Conduct preliminary discussions with the dataset producers.
- Review readily available metadata and other relevant documentation.
- Develop an overview of institutional arrangements, data collection and transfer procedures at community, woreda, zonal, regional and national levels, including organisational responsibilities for data collection and processing, data management procedures, and the organisation's management information capacity.
- Decide whether to conduct full (four phase) or reduced (three phase) assessment. Any one of the following conditions will result in a full assessment:
    - any key user expresses severe doubts about data quality;
    - the data producer has severe doubts about quality of procedures at woreda, zonal or regional level;
    - the data cannot be reconciled with other official statistics or with data from another source that is considered reputable;
    - the QAT has detected and documented significant quality problems.
- Establish the logistics for the remainder of the assessment with the data producer and key users.

Annex E2A: EDQAF Phase 2: Systems Assessment - Questionnaire

Element	Indicator	Benchmark Levels
Process Quality: Quality Dimension 7. Human Resource Management		
Process Quality: Quality Dimension 7. Human Resource Management	a) Does the organizational structure clearly identify the positions that have responsibility for data production activities	4. All data production responsibilities are clearly identified.
		3. Most data production responsibilities are clearly identified.
		2. A few data production responsibilities are identified.
		1. No data production responsibilities are identified.
	b) Are the staff positions dedicated to data production activities all filled?	4. All staff positions dedicated to data production are filled.
		3. Most staff positions dedicated to data production are filled.
		2. Only a few of the staff positions dedicated to data production are filled.
		1. There are no staff positions dedicated to data production per se.
	c) Are there designated staff responsible for reviewing the quality of the data received from lower reporting levels?	4. There are sufficient staff responsible for reviewing received data quality.
		3. There are some but not sufficient staff responsible for reviewing received data quality
		2. There are no staff responsible for reviewing received data quality.
		1. No thought is given to reviewing received data quality.
	d) Is a senior person designated as responsible for reviewing data aggregates prior to their dissemination and/or transfer to a higher level?	4. There is a senior person responsible for reviewing aggregates prior to dissemination/transfer.
		3. There is a junior person responsible reviewing aggregates prior to dissemination/transfer.
		2. No staff are available to review aggregates prior to dissemination/ transfer.
		1. No thought is given to reviewing aggregates prior to dissemination/ transfer.

Process Quality: Quality Dimension 7. Human Resource Management (continued)		
7.1 Staff responsible for data production are well trained.	(e) Is there a training program that is relevant to staff responsible for data production?	4. There is a training program that is suitable for all staff responsible for data production.
		3. There is a training program that is suitable for most staff responsible for data production.
		2. There is a training plan that program that is suitable for a few of the staff responsible for data production.
		1. No consideration has been given to having a training program.
	f) Have staff responsible for data production activities received appropriate training?	4. All staff responsible for data production have received appropriate training.
		3. Some staff responsible for data production have received appropriate training.
		2. No staff responsible for data production have received appropriate training.
		1. No consideration has been given to staff training.
Process Quality: Quality Dimension 8. Standard Operational Procedures		
8.1 Operational procedures are defined, documented, and used; they give a clear indication of the data to be collected, the collection and processing activities, and the outputs to be produced.	a) Are there standard operating procedures or guidelines that define what data to collect, how to process them and to whom to report or disseminate them?	4. There are standard operating procedures covering all data items and processing activities.
		3. There are operating procedures covering most data items and processing activities.
		2. There few operating procedures or defining data items and processing activities.
		1. No consideration has been given to developing standard operating procedures.
	b) Are the definitions of the data items to be collected and/or reported/disseminated in accordance with relevant standards?	4. All data item definitions are in accordance with relevant standards.
		3. Most data item definitions are in accordance with relevant standards.
		2. Few data item definitions are in accordance with relevant standards.
		1. No consideration has been given to the relationship of data items definitions to relevant standards

Process Quality: Quality Dimension 8. Standard Operations (continued)		
8.1 Operational procedures are defined, documented, and used; they give a clear indication of the data to be collected, the processing activities, and the outputs to be transferred/ disseminated.	c) Is there an adequate description of how to process every data item collected processed?	4. There an adequate description of how to process every data item.
		3. There an adequate description of how to process most data items.
		2. There an adequate description of how to process a few data items.
		1. No consideration has been given to descriptions of how to process data items.
	d) Are there standard data collection and transfer dissemination templates?	4. There are standard data collection and transfer/dissemination templates.
		3. There is a standard template for data collection, or for transfer/dissemination but not for both.
		2. There are no standard data collection or transfer/dissemination templates.
		1. No consideration given to standard data collection and transfer/dissemination templates
Process Quality: Quality Dimension 9. Data Management and Security		
9.1 Data are well managed through all processing phases - initial collection, data entry, processing, aggregation, transfer to higher levels, dissemination.	a) Are source documents and reporting forms (including dated print-outs in case of computerized system) kept and made available for inspection or auditing in accordance with a written policy?	4. Source documents are kept and made available in accordance with a written policy.
		3. Source documents kept and made available but there is no written policy.
		2. Source documents are not kept and made available even though there is a written policy to do so.
		1. No consideration has been given to source document maintenance.
	b) Are computerized systems used for data recording, processing and reporting/ dissemination?	4. Computerized systems are used for all aspects of data processing, storage, transfer.
		3. Data processing, storage and transfer are substantially computerized.
		2. Data processing, storage and transfer are only partially computerized.
		1. No computerized systems are used.

Process Quality: Quality Dimension 9. Data Management and Security (continued)		
9.1 Data are well managed through all processing phases - initial collection, data entry, processing, aggregation, transfer to higher levels, dissemination.	c) Are there effective data transmission and storage security provisions?	4. There are effective security provisions for data transmission and storage.
		3. There are effective security provisions for data storage but not data transmission.
		2. There are effective security provisions for data transmission but not data storage.
		1. There are no effective security provisions for data transmission or storage.
	d) Are there well specified data back-up and disaster recovery procedures?	4. There are well specified data back-up and disaster recovery procedures.
		3. There are well specified procedures for data back-up but not for disaster recovery.
		2. There are well specified procedures for disaster recovery but not for data back-up.
		1. There are no data back-up and disaster recovery procedures.
Process Quality: Quality Dimension 10. Quality Assurance/Control		
10.1 Quality gates are embedded at critical points in the data production process.	a) Are there well defined procedures to check receipt of data input from source/ immediately lower level, and if so, are they regularly followed?	4. There are well defined procedures to check receipt of data from source/ lower level, and they are regularly followed.
		3. Receipt of data from source/ lower level is checked using ad hoc procedures.
		2. There well defined procedures to check receipt of data from source/ lower level, but they are not followed.
		1. No attention is given to checking receipt of data from source/ lower level.
	b) Is feedback systematically provided to source/ immediately lower level on the quality (accuracy, completeness, timeliness) of the data provided?	4. Feedback on data quality is systematically provided to source/ lower level.
		3. Feedback on data quality is provided to source/ lower level on an ad hoc basis.
		2. Feedback on data quality is only very occasionally provided to source/ lower level.
		1. No thought is given to feedback to source/ lower level on data quality.

Process Quality: Quality Dimension 10. Quality Assurance (continued)		
10.2 Quality assurance procedures are embedded in statistical processes.	(c) Is there quality control on, or effective inspection of, data entry and data coding procedures?	4. There is quality control on data entry and data coding procedures.
		3. There is effective quality inspection of data entry and data coding procedures.
		2. There is very limited inspection of data entry and data coding procedures.
		1. No thought has been given to quality control or inspection of data entry and coding procedures.
	d) Are there clearly defined editing procedures (to identify and reconcile data discrepancies), and if so, are they followed?	4. There are well defined procedures to edit data and they are followed.
		3. Data are edited using ad hoc procedures.
		2. There well defined editing procedures but they are not followed.
		1. No thought is given to editing procedures.
	e) Are there effective mechanisms for identifying and resolving major data quality problems?	4. There are very effective mechanisms for identifying and resolving major data quality problems.
		3. There are somewhat effective mechanisms for identifying and resolving major data quality problems.
		2. There are very limited mechanisms for identifying and resolving major data quality problems.
		1. No thought is given to identification or resolution of major data quality problems

Annex E2B: EDQAF Phase 2: Data Verification - Template

Identification Details

Quality assessment identifier	
Quality assessor	
Geographical level	
Organization	
Organizational Unit	
Dataset	
Reference Period	

Review of Completeness and Timeliness of Data Received

Covering reports received from lower level (or from the original source in the case where there is no lower level).

For a report to be considered complete, it should include at least:

1. the reference period to which the data refer;

2. the date of submission of the report;

3. the name and signature of the staff member submitting the report; and

4. all the relevant data.

		Number	*Comments*
1	Number of reports that should have been received		
2	Number of reports actually received		
3	Difference (target – actual)		
4	Number of reports received by due date.		
5	Number of complete reports received.		

Review of Accuracy

For each of two key data items (indicators), for one or more reference periods, re-aggregate the numbers reported by the immediately lower level (or from the original source in the case where there is no lower level).

Record these totals and compare them with the totals actually reported by the level being assessed using the following table.

(Repeat table for each selected occasion.)

		Data item #1	*Data item #2*
Data item (Indicator) Name			
1	Re-aggregated total		
2	Reported total		
3	Difference (Re-aggregated – Re-ported)		
3	Is there any reason to over report data intentionally? Yes/No		
4	Is there any reason to under report data intentionally? Yes/No		
5	Most likely reasons for non-zero difference		

Annex E4: EDQAF Phase 3: Overall National Assessment - Questionnaire

Element	Indicator	Benchmark Levels
Output Quality: Quality Dimension 1. Relevance		
1.1. Outputs meet the needs of users	a) Are users generally satisfied with the data available?	4. Fully satisfied
		3. Reasonably satisfied – some deficiencies
		2. Not very satisfied – many deficiencies
		1. Not satisfied at all
	b) Were all requests for special tabulations met?	4. All special requests were met
		3. Some special requests were met
		2. Most special requests were not met
		1. No special requests were met
1.2. Users and their needs are identified and acted upon.	a) Is there an up to date list of internal and external users of the data?	4. There is an up to date list.
		3. There is a list but it is not quite complete or fully up to date.
		2. There is a list but it is far from complete or up to date.
		1. There is no list.
	b) Are key users regularly consulted regarding their data needs and uses?	4. There is regular and comprehensive consultation.
		3. There is some consultation.
		2. There is very limited consultation.
		1. There is no consultation at all.
	c) Have substantive changes been made to the regular survey program in the last 2 years in response to user needs?	4. There were substantive additions/ changes to the regular program.
		3. There were some changes to the program.
		2. There have been only minor changes.
		1. There were no changes in the regular program in the last two years.
1.3. User satisfaction is measured.	a) Has a user satisfaction survey been conducted within the last three years and the results analysed and discussed?	4. A survey has been conducted and results analysed and discussed.
		3. A survey has been conducted within the last 3 years but results not discussed.
		2. A survey has been conducted > 3 years ago.
		1. No user satisfaction survey ever conducted.

Output Quality: Quality Dimension 2: Accuracy		
(For sample surveys only) 2.1 Sampling errors for key output data items are calculated and fall within targets	a) Are sampling errors for key output data items regularly calculated and analysed?	4. Sampling errors are regularly calculated and analysed for key output data items.
		3. -
		2. There has been very limited calculation of sampling errors.
		1. Sampling errors are not calculated
	b) Are sampling errors for key data items within targets set in the survey design?	4. Sampling errors for key output data items are within design targets
		3. Sampling errors for some key output data items are within design targets.
		2. No sampling errors are within design targets.
		1. No targets are set and/or no sampling errors are calculated.
2.2 All possible sources of coverage error are identified and quantified	a) Have the major sources and risks of under-coverage been identified and analysed?	4. All major sources of under-coverage have been identified and analysed.
		3. Most sources of under-coverage have been identified and some analysed.
		2. Some sources of under-coverage have been identified but not analysed.
		1. There has been no under-coverage assessment
	b) Is the register/frame used for the survey/ collection adequate?	4. The register/frame is derived from a well maintained central register/area master sample.
		3. The register/frame is not derived from central business register/area master sample but is thought to be adequate.
		2. -
		1. The register/frame is known to be seriously deficient.
2.3 All possible sources of measurement error are identified and quantified	a) Has the questionnaire/ collection instrument been well constructed, analysed and tested	4. The collection instrument has been well constructed, analysed and tested.
		3. The collection instrument has been used for years but not recently analysed.
		2. The collection instrument is new or recently revised but has not been analysed or tested.
		1. No analysis or testing of collection instruments takes place.

Output Quality: Quality Dimension 2: Accuracy (continued)		
2.4 Every effort is made to maximise response; response rates are measured; and appropriate adjustments are made for non-response.	(a) Is every effort made to maximise response?	4. Significant efforts are made to maximise response.
		3. Some efforts are made to maximise response.
		2. There is very limited effort to deal with non-response.
		1. Non-response is ignored.
	(b) Are appropriate adjustments made for non-response in compiling aggregates?	4. Precise adjustments are made for non-response.
		3. Approximate adjustments made for non-response.
		2. Non-response is not taken into account in aggregating data, but response rates are noted.
		1. Non-response is ignored.
2.5 All possible sources of processing error are identified and quantified	(a) Are procedures in place to control the quality of major clerical operations such as data entry and data coding?	4. There is quality control for all major clerical operations.
		3. There is quality control or checking for most major clerical operations.
		2. There is limited quality control or checking.
		1. There is no quality control or checking of any clerical operations.
	(b) Are input data well edited?	4. Input data are well edited,
		3. -
		2. Input data are poorly edited.
		1. Input data are not edited.
2.6 There is a policy for revision of published data and the policy is followed.	(a) Is there a revision policy and/or procedure regarding published data and is it followed?	4. There is a revision policy/procedure and it is always followed. 4. No revisions are ever made.
		3. There is revision policy/procedure but it is sometimes not followed. 3. There is no revision policy/procedure but revisions always follow the same pattern.
		2. -
		1. There is no revision policy and revisions are made on an ad hoc basis.

Output Quality: Quality Dimension 3: Timeliness and Punctuality		
3.1 The time lag between the reference period to which the data refer and the date on which the data are released is in accordance with international best practice.	a) Are data always made available in a timeframe that is accordance with international best practice?	4. Data are always made available in a timeframe that matches best practice.
		3. Data are usually made available in a timeframe that matches best practice.
		2. The release of data lags behind best practice.
		1. No account is taken of best practice.
	b) Are preliminary data regularly released?	4. Preliminary data are regularly released in response to user demand. 4. There is no user demand for preliminary data.
		3. Preliminary data are occasionally released in response to user demand
		2. -
		1. Preliminary data are not released and it is not known if there is user demand for them
3.2 Data are always released in accordance with a predefined release schedule.	a) Is a data release schedule published well in advance?	4. A data release schedule is published well in advance.
		3. There is a data release schedule and it is published but not well in advance.
		2. There is an internal release schedule but it is never published.
		1. There is no release schedule. Data are released when processing is completed
	b) Are final data always released in accordance with a schedule?	4. Final data are always released in accordance with the schedule.
		3. Final data are usually released in accordance with the schedule or a little later.
		2. Final data are usually released later than the schedule.
		1. There is no release schedule. Final data are released when processing is completed.
	c) Are changes from the scheduled data release date explained in advance?	4. Data are always released in accordance with the schedule.
		3. Changes in the release date are explained in advance.
		2. Changes in release date are made without explanation.
		1. There is no release schedule. Data are released when processing is completed.

Output Quality: Quality Dimension 4: Accessibility and Clarity		
4.1 Data are made readily accessible on an impartial basis	a) Are all the data items for which data are collected made available to users?	4. All data items for which data are collected are made available to users.
		3. Most data items for which data are collected are made available to users.
		2. Only a few data items for which data are collected are made available to users.
		1. There has never been any check to see which data items collected are made available to users.
	b) Are data made available in a variety of different formats to suit users?	4. Data are made available in a full range of different formats to suit users.
		3. Data are made available in limited range of different formats to suit the key users.
		2. Data are made available in a single format that suits the key user.
		1. There has been no attempt to determine the formats that would suit users.
	c) Are data released at the same time to all users?	4. Data are released at the same time to all users.
		3. Data are released at the same time to most users, but key users get an early release.
		2. The aim is to release data at the same time to all users but this does not happen in practice.
		1. No attempt is made to release data at the same time to all users.
	d) Are data sold to users and if so does this severely restrict user access?	4. All data are provided free of charge to users.
		3. Charges are made for some data; but charges are small and unlikely to severely restrict access.
		2. Charges are made for some data and are likely to severely restrict access.
		1. Charges are made for most data and certainly restrict access.

Output Quality: Quality Dimension 4: Accessibility and Clarity (continued)		
4.2 Data are presented in a clear and easily understandable way	a) Are data accompanied by metadata that enable users to understand the data coverage, content and limitations?	4. Data are accompanied by metadata that enable users to fully understand the data.
		3. Data are accompanied by metadata that enable users to understand most aspects of the data.
		2. Data are not accompanied by sufficient metadata.
		1. No thought is given to the metadata that could or should accompany the data.
	b) Can users easily obtain metadata at a level of detail appropriate to their needs	4. Metadata are available at an additional level of detail on request or at the click of a button.
		3. Metadata are available at a single level of detail.
		2. Insufficient metadata are available.
		1. No thought is given to the metadata that could or should accompany the data.
Output Quality: Quality Dimension 5: Coherence and Comparability		
5.1 The data are coherent with data from other potentially relatable datasets; and potential sources of incoherence have been analysed.	a) Have all potential sources of incoherence with data from other relatable datasets been analysed?	4. All potential sources of incoherence with data from other relatable datasets been analysed.
		3. Some potential sources of incoherence with data from other relatable datasets have been analysed.
		2. Some potential sources of incoherence with data from other relatable datasets been identified but not analysed.
		1. No thought has been given to potential sources of incoherence with other relatable datasets
	b) Is there a deviation in dataset coverage from what is commonly used that reduces coherence with data from other relatable datasets?	4. There is no deviation in coverage from what is commonly used.
		3. There is a deviation in coverage that causes a minor reduction in coherence.
		2. There is a deviation in coverage that causes a major reduction in coherence.
		1. No thought has been given to deviation from coverage from what is commonly used.

Output Quality: Quality Dimension 5: Coherence and Comparability (continued)		
5.1 The data are coherent with data from other potentially relatable datasets; and potential sources of incoherence have been analysed.	c) Are there deviations from commonly used concepts and/ or classifications that reduce coherence with data from other relatable datasets?	4. There are no deviations from commonly used concepts/classifications.
		3. There are deviations in concepts/ classifications in that cause a minor reduction in coherence.
		2. There are deviations in concepts/ classifications in that cause a major reduction in coherence.
		1. No thought has been given to deviations from common used methods or their effects
	d) Are there deviations from commonly methods that reduce coherence with data from other relatable datasets?	4. There are no deviations from commonly used methods that might affect coherence.
		3. There are deviations from commonly used methods that cause a minor reduction in coherence.
		2. There are deviations from commonly used methods that cause a major reduction in coherence.
		1. No thought has been given to deviations from common used methods or their effects
5.2 The data are comparable over time and across regions	(For repeated collections only) a) Are the data comparable over last five reference periods, or/since collection started*? (*whichever is shorter)	4. The data are comparable over the last five reference periods/ since collection started.
		3. The data are comparable but over less than 5 reference periods/ not since collection started.
		2. The data are not comparable period to period.
		1. No consideration has been given to data comparability over time.
	b) Are the data comparable over regions?	4. The data are comparable over all regions.
		3. The data are comparable over most regions.
		2. The data are not comparable over regions
		1. No consideration has been given to data comparability over regions.

Output Quality: Quality Dimension 5: Coherence and Comparability (continued)		
	c) Are all potential sources of lack of comparability over time or region been identified and analysed?	4. All potential sources of lack of comparability have been identified and analysed.
		3. Some potential sources of lack of comparability have been identified and analysed.
		2. Some potential sources of incomparability have been identified but not analysed.
		1. No thought has been given to potential sources of incomparability over time or region.
Process Quality: Quality Dimension 6: Methodological Soundness		
6.1 Methods and standards are in accordance with international standards and best practices.	a) Are concepts and definitions in accordance with international standards and best practices?	4. Concepts and definitions are in accordance with international standards and best practices.
		3. Some concepts and definitions are in accordance with international standards and best practices.
		2. Concepts and definitions are mostly not in accordance with international standards and best practices.
		1. No account is taken of international concepts and definitions.
	b) Are classifications in accordance with international standards and best practices?	4. Classifications are in accordance with international standards and best practices.
		3. Some classifications are in accordance with international standards and best practices.
		2. Classifications are mostly not in accordance with international standards and best practices.
		1. No account is taken of international classifications.
	C) Are methods in accordance with international standards and best practices?	4. Methods are in accordance with international standards and best practices.
		3. Some methods are in accordance with international standards and best practices.
		2. Methods are mostly not in accordance with international standards and best practices.
		1. No account is taken of international methods.

Institutional Quality: Quality Dimension 11: Reporting Burden		
11.1 The reporting burden on the individuals and businesses and institutions that provide the individual input data is minimised and is perceived to be minimised.	a) Is reporting burden minimised and perceived to be minimised?	4. Reporting burden is minimised and is perceived to be minimised.
		3. Reporting burden is minimised but not perceived to be minimised.
		2. Reporting burden is known not to be minimised.
		1. No account is taken of reporting burden.
Institutional Quality: Quality Dimension 12: Mandate, Resources, Performance and Quality Management		
12.1 The organization has a clear and well supported mandate for collecting, processing and disseminating statistical data.	a) What mandate does the organization have for its collection activities?	4. The organization has a legally enforceable mandate for collecting and disseminating data.
		3. The organization has a commonly understood but informal basis for collecting and disseminating data.
		2. The organization does not have any particular basis for collecting and disseminating data.
		1. No consideration has been given to the basis for collecting and disseminating data.
12.2 The resources devoted by the organization to collecting, processing and disseminating statistical data are adequate and well directed	a) Are the resources devoted by the organization to collecting, processing and disseminating statistical data adequate and responsibilities are well specified?	4. The resources devoted by the organization to are adequate and responsibilities well specified.
		3. The resources devoted by the organization are somewhat inadequate and/or responsibilities are not entirely well specified.
		2. The resources devoted by the organization are far from adequate and/ or responsibilities are poorly specified.
		1. No resources are specifically devoted by the organization to collecting, processing and disseminating statistical data.
12.3 Resources are effectively used.	a) Is full use made of funds available	4. All funds available are used.
		3. 80% of funds available are used.
		2. 60% of funds available are used.
		1. <40% of funds available are used.

Institutional Quality: Quality Dimension 12: Mandate, Resources, Performance and Quality Management (continued)		
12.4 The organisation promotes total quality management in the context of its statistical data collection, processing and dissemination activities	a) To what extent does the organisation promote total quality management in the context of its data collection, processing and dissemination activities?	4. The organisation strongly promotes total quality management.
		3. The organisation encourages total quality management.
		2. The organisation gives very limited support to total quality management.
		1. No consideration has been given by the organization to quality management.
Institutional Quality: Quality Dimension 13: Integrity		
13.1 The values and institutional practices of the producing organization promote user confidence in the organization as a producer of good quality statistical outputs.	a) Are choices of sources, concepts and statistical methods and dissemination are based purely on statistical considerations?	4. Choices of sources and methods are based purely on statistical considerations.
		3. Choices of sources and methods are partially based on other organizational considerations
		2. Choices of sources and methods are more or less entirely based on other organizational considerations.
		1. No consideration has been given by the organization to statistical sources and methods.
	b) In the context of statistical activities, are there clear and well known guidelines for staff behaviour?	4. There are clear and are well known guidelines for staff behaviour.
		3. Guidelines for staff behaviour and are not completely clear and/or well known.
		2. Guidelines for staff behaviour and not at all clear or are not known.
		1. No consideration is given to guidelines for staff behaviour.
Institutional Quality: Quality Dimension 14: Provider Transparency and Confidentiality		
14.1 The persons, businesses, or organisations providing data are fully informed and confidentiality of data is maintained	a) Are data providers informed of the mandate under which the data are being collected and the uses to which the data will be put?	4. Data providers are informed of mandate for collection and uses of data.
		3. Data providers are informed of uses of data but not mandate for collection.
		2. Data providers are informed mandate for collection but not uses of data.
		1. No consideration is given to informing data providers of collection mandate or data uses.

Institutional Quality: Quality Dimension 14: Provider Transparency and Confidentiality (continued)		
	b) Are individual data kept confidential?	4. Data are kept completely confidential.
		3. Data confidentiality is not guaranteed by the collection mandate but is kept to extent possible
		2. Data confidentiality is an aim but not achieved.
		1. No consideration is given to data confidentiality.

Annex F5: EDQAF Phase 4: Reporting and Conclusion - Checklist

- Preparation of draft assessment report for data producer with focus on quality problems and quality improvement proposals, including summary quality scores by dimension.
- Discussion of draft assessment report with data producer.
- Identification of quality improvements that data producer will make without need for additional resources.
- Finalisation of assessment report for data producer.
- Preparation of draft assessment report for senior managers.
- Discussion of draft assessment report with senior managers.
- Identification of quality improvements that merit assignment of additional resources to data producer.
- Finalisation of assessment report for senior managers.
- Preparation of assessment report for data users.
- Discussion of assessment report with selected key data users.

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