Conceptualization of a Regional Quality Assurance Framework

Statistics Sub Programme of the CARICOM Secretariat

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Abstract

The Regional Statistics Sub Programme of the CARICOM Secretariat has been mandated to facilitate the harmonization of statistical processes in National Statistical Offices across the Region. The production of high quality data is critical to the harmonization process. In facilitating this process and in accordance with global trends in data production the statistics sub programme has embarked on research in the area of Quality Assurance Framework development. This framework will harmonize quality checks and reporting procedures throughout the Region. This paper provides a conceptualization of a core quality framework based on a critical review of similar frameworks developed by internationally renowned data producing agencies such as the International Monetary Fund, Statistics Canada, United Nations Industrial Development Organization (UNIDO) and the Office of National Statistics (ONS) in London. This is a road map to monitoring and reporting on the quality of data collection, production and dissemination processes.

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Introduction

The concept of quality assurance is integral to the efficient operation of the statistical cycle. The accurate production of relevant data in a timely manner can only be ensured by high quality processes. The quality of a process can be measured by reduction in variance and how well the data meet the needs of the customers.

This paper will explore the concept of a **Core Data Quality Assurance Framework (CDQAF)** which can be used to assess the process and outputs of National Statistical Offices (NSOs) across the Region. It is not exhaustive, but will provide a checklist of quality measures and indicators that can be used to measure and report on quality. The CDQAF promotes a standardised approach to measuring and reporting on quality across the Region.

The issue of developing a quality assurance framework was included under the CARICOM Integration Support Programme (CISP), as a desirable activity. This framework is being developed for National Accounts but will have wider implication for other areas in economic statistics. It utilises information from existing frameworks such as: The International Monetary Fund (IMF) Data Quality Assurance Framework– National Accounts, Statistics Canada- quality assurance framework, Guidelines for measuring statistical quality as outlined by the Office of National Statistics – London and A quality assurance framework for UNIDO statistical activities 2006/2008, among others.

Background

The CARICOM Secretariat, in its aim to facilitate the establishment of a CARICOM Single Market and Economy (CSME), has mandated its Statistical Unit to facilitate the harmonization of statistical processes and methods across the Region. This harmonization is critical to the establishment of the CSME and can only be successful if high quality data are being produced by all parties. The production of high quality data includes both the processes involved in production as well as the actual statistical outputs.

The Secretariat is committed to ensuring that users of information have access to the methods and processes used to produce the National Accounts estimates, as this is a critical aspect of quality assurance. The process of improving quality starts with the National Statistical Offices (NSOs), as those offices are involved in the collection of raw data and the generation of economic estimates. Therefore, any quality framework that is being introduced must also be in place at the national level and should include every survey conducted by the statistical offices and every staff member employed in the process, from clerks to managers.

 Even though the Secretariat benefits at a secondary level from improved quality in the NSOs, the core fundamental elements of the quality framework is the same at the Secretariat, as in the NSOs. As such, this paper is relevant not only for the Secretariat but also for NSOs.

Outlined in this paper are some guiding principles for setting up the CDQAF, the prerequisites of quality, five core dimensions of quality and a generic CDQAF.

Aim and purpose of the CDQAF

The need for high quality processes cannot be over emphasized and is critical to statistical harmonization. As such, the overall aim of the CDQAF is to outline best practices for measuring and reporting on the quality of statistical process throughout the Region. This framework will:

- Establish regional guidelines for measuring and reporting on data quality;

- Facilitate proper harmonization of statistical processes;

- Stimulate NSOs that do not have an existing quality framework in place to introduce one using this core as a framework;

- Encourage NSOs that already have some aspects of a quality framework in place to harmonize their process using the CDQAF as a framework;

- Encourage good practices and ensure the credibility of information produced throughout the Region;

- Reduce the cost to the NSOs in the establishment of a Quality Assurance Framework, which is of absolute importance.

Guiding Principles of setting up CDQAF

The implementation of a quality framework is a meticulous and time consuming process, which can be very expensive. It is therefore important that such a process be carefully planned before implementation. The concept of what is quality must be fully grasped and the customers must be clearly identified and their needs isolated. It must also be acknowledged that some aspects are static while others are dynamic. Some needs are dependent on the current economic conditions, while others remain unchanged.

The quality process must involve every member of staff, at every stage of the process. This involvement not only saves time but also reduces cost.

The guiding principle of setting up a CDQAF as outlined by Statistics Canada, in a draft report for the 41st session of the United Nation Statistical Commission includes the following conceptualization of quality:

>   (i)   Quality is relative not an absolute;
>
>   (ii) Quality is multidimensional;
>
>   (iii) Every employee has a role in assuring quality (clerks to managers);
>
>   (iv) Balancing of the dimensions of quality is best achieved through a project team approach;
>
>   (v)   Quality must be built in to each phase of the process;
>
>   (vi) Quality assurance measures must be adapted to the specific programme;
>
>   (vii) Users must be informed of data quality;
>
>   (viii) Quality must be at the forefront of all activities.

Prerequisites to Quality

The IMF in the development of a Data Quality Assessment Framework (DQAF) identified some prerequisites to quality. These preconditions do not constitute a quality dimensions within themselves, but each has an overarching role for ensuring the quality of statistics. They are equally important, as they must be in place for the proper implementation of the quality dimensions.

In an attempt to fulfill these pre requites at the NSOs, it is important to note that the conditions under which each NSO functions are different, and these will impact the extent to which they are fulfilled or if it is relevant enough to be considered. Consequently, as will be the case in the implementation of quality dimensions, these prerequisites are just core issues and they are not exhaustive, identical nor fixed.

The prerequisites as outlined by the IMF in its DQAF are:

(i)   Legal and institutional environment

- The primary responsibility for collecting the information from Member States are clearly defined (statistics laws, working arrangements, consistency of methods and conflict resolutions);

- Arrangements or procedures exist to facilitate data sharing and coordination;

- Laws and other formal provisions clearly articulated and guarantee of confidentiality;

- Statistical reporting is ensured through legal mandates such as a Statistics Acts.

(ii) Resource availability for the statistical program

Well-trained staffs in the respective areas are adequate and available to perform required task. This can be captured by addressing the following issues:

- Number of staff;

- qualification of staff;

- core staff adequately trained;

- staff turn over manageable; and

- salary levels adequate for the nature of the work.

Resources necessary for compiling the statistics are adequate to perform the required task. The following issues must be properly addressed:

- sufficient resources are allocated and used efficiently;

- necessary statistical software available;

- hardware is distributed adequately;

- adequate protection is provided for computer resources; and

- cost and budgeting practices are in place.

(iii) Relevance

The degree to which the statistical product meets the needs of the customers can be assessed by asking the following questions:

- What are the needs of the customers?

- Have the objectives of the office changed in response to economic demands?

- How has these objectives changed?

- What mechanisms are in place to identify new and emerging requirements?

(iv) Other quality management

- What other processes are in place to focus on quality?

- What mechanisms are in place to deal with quality consideration planning?

Dimensions of CDQAF

Even though the dimensions of quality that have been identified are equally important, priority in addressing each will differ depending on the specific conditions under which the NSO is functioning. While some dimensions can be categorized as static in that they change relatively slowly, others are more dynamic as they are intimately linked to the external environment.

The dimensions highlighted as core in this paper are similar to those identified by the IMF Quality Assessment Framework, with inclusions from other sources. These dimensions are:

1. Assurance of integrity

This dimension is static and deals with adherence to the principles of the objectives of data collection, compilation and dissemination of statistics. It includes institutional arrangements that ensure: professionalism, transparency and uphold ethical standards.

Professionalism

- Statistics are produced on an impartial basis (Law or other formal provisions support professional independence);

- Prohibits interference from government;

- Staff members are properly trained in statistical methodology and compilation methods.

Transparency

- The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.

- Internal government access to statistics prior to their release is publicly identified;

- Products of statistical agencies/ units are clearly identified as such;

- Advance notice is given to major changes in methodology, source data and statistical techniques.

Ethical standards

- Guidelines for staff behavior are in place and are well known to the staff (ethical standards set and staff aware of these standards).

2. Accuracy and Reliability

While accuracy can be considered to be static, reliability is intimately linked to the external environment and as such is very dynamic. It covers the idea that statistical outputs sufficiently portray the reality of the economy. The data produced have minimum variances around the mean value, this means that the differences between the estimated results and the true values are minimal.

Ensuring accuracy and reliability involves:

- How errors in data set are identified and dealt with. It also involves putting in place control measures that are of an internationally acceptable standard to deal with these errors. These identification and correction measures can be common across the Region and should be a part of the statistical harmonization initiative.

   The errors to be identified, corrected or highlighted[1] are:

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[1] Guidelines for measuring statistical quality as outlined by the Office of National Statistics - London

- **Coverage error**- error that arises from not being able to sample from the whole target population. Estimates of under coverage, duplication, ineligibility and misclassification may be provided to give an indication of coverage error.

- **Non-response error**[2]- Failure to obtain some or all of the information from a unit. This occurs when the entire interview or questionnaire is not completed or is missing for the unit, this may lead to response bias. It is difficult to accurately calculate this error, but users should be made aware that the data is subject to this error

- **Processing error**[3] – this occurs when processing data. It includes errors in data capture, coding, editing, tabulation of data and assigning weights.

- **Measurement error**[4] – Measurement error is the difference between measured values and true values, this arises from failing to collect the true data values from respondents. Sources of measurement error are: the survey instruments; mode of data collection; respondent information system; respondents and interviewers. This error can be reduced by having properly developed questionnaires, pilot studies, cognitive testing and interview training.

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[2] Guidelines for measuring statistical quality as outlined by the Office of National Statistics - London
[3] Guidelines for measuring statistical quality as outlined by the Office of National Statistics - London
[4] Guidelines for measuring statistical quality as outlined by the Office of National Statistics - London

- **Method of adherence to principles**[5]- it is critical that internationally accepted principles are adopted when; collecting, compiling and disseminating statistical information. This ensures credibility and comparability of data. These principles should also be embedded in the fundamentals of the statistical harmonization process being undertaken by the CARICOM Secretariat's statistical unit. These principles should be addressed by answering the following questions:

    o How does this method differ from international best practices?

    o How do the ISIC codes that are unique to a particular NSO impact comparability of data, regionally and internationally[6] (documented table of equivalence)?

- **Source Data**[7]- include censuses, sample surveys, and administrative records, which are all susceptible to errors. The accuracy of information collected from these sources must be routinely checked and the practices must adhere to internationally accepted standards. The effects of changing questionnaires must be assessed and accounted for. All censuses and surveys must be routinely audited to verify accuracy[8]. This issue will be addressed with the introduction of common questionnaires throughout the Region.

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[5] Guidelines for measuring statistical quality as outline by the office of national statistics - London
[6] International Monetary Fund Statistics Department – Data Quality Assessment Framework for national Accounts
[7] International Monetary Fund Statistics Department – Data Quality Assessment Framework for national Accounts
[8] International Monetary Fund Statistics Department – Data Quality Assessment Framework for national Accounts

- **Statistical techniques[9]**- should conform to sound statistical procedures. These core procedures should be identified as a part of the harmonization process, and, as such, should be common across the Region. Compilation procedures will minimize processing errors. There is also a need to ensure that appropriate measures are taken to validate source of data, and sound estimation techniques are employed to address missing data.

- **Other statistical procedures[10]** – Sound adjustments are employed to make source data consistent with national accounts requirements. This should be documented as indicated in items i. – v. below:

i. **Production approach procedures**

    o Output estimates are compiled at a sufficient level of industrial detail.

    o Intermediate consumption estimates are compiled at a sufficient level of detail.

    o The reliance on fixed ratios derived from benchmarks or other sources is monitored.

    o Internationally acceptable techniques are used to address specific issues of GDP compilation.

    o Internationally acceptable procedures are followed for compiling volume measures of GDP.

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[9]International Monetary Fund Statistics Department – Data Quality Assessment Framework for national Accounts

[10] International Monetary Fund Statistics Department – Data Quality Assessment Framework for national Accounts

ii. **Expenditure approach procedures**

- o The GDP estimates by expenditure components are derived independently.

- o Expenditure estimates are compiled using detailed classifications.

- o The reliance on fixed ratios derived from benchmarks or other sources is monitored.

- o Internationally acceptable techniques are used to address specific issues of GDP compilation.

- o Adequate procedures are followed to compile volume measures of the expenditure components of GDP.

iii. **Specific quarterly compilation techniques**

- o Specific quarterly compilation techniques are in accordance with internationally accepted good practices.

iv. **Assessment and validation of intermediate data and statistical outputs**

- o Intermediate results are validated against other information where applicable.

- o Intermediate results are validated against other independent data.

v. **Statistical discrepancies in intermediate data are assessed and investigated.**

- o The discrepancies in intermediate data are routinely investigated and measures taken to remove them.

- o Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.

  o The statistical discrepancies, if any, between GDP by activity and GDP by expenditure components are investigated.

3. Methodological Soundness

Critical to the production of high quality data is adherence to internationally accepted standards, guidelines, and good practices. In this regard, an equally important dimension is that of Methodological soundness. Methodological soundness includes: concepts and definitions, scope, classification, basis for recording, grossing and netting procedures.

The IMF's DQAF on National Accounts statistics suggests the following guidelines under methodological soundness:

Concepts and definitions

Concepts and definitions used should be in accordance with an internationally accepted statistical framework.

- It should follow the agreed general framework for compiling the National Accounts statistics (SNA 1993 or SNA 2008).
- Deviations from these accepted guidelines should be kept under review and documented.

Scope

The scope should be in accordance with internationally accepted standards, guidelines, or good practices.

- At least the Minimum Required Datasets (MRDs) should be compiled in accordance with the 1993 SNA and prepared on a regular basis.
- The economy should include the following:
  - territorial enclaves in the rest of the world,
  - free zones/bonded warehouses/factories operated by offshore enterprises under customs control,
  - workers who work part of the year in another country.

- In the scope of output measure the following items should be included:
  - own-account production of all goods for own final consumption;
  - research and development on own account;
  - output of goods for own-account fixed capital formation;
  - mineral exploration;
  - production of entertainment, literary or artistic originals;
  - production of computer software;
  - illegal output sold to willing buyers.

- In determining the assets boundary the following should be included:

  Among tangible assets:
  - defense related assets that could be used for civilian purposes;
  - valuables and historical monuments;
  - agricultural work-in-progress.

  Among intangible assets:
  - mineral exploration (whether successful or not);
  - systems and standard applications computer software and databases (purchased or built in-house);
  - entertainment, literary or artistic originals;
  - patented entities;
  - leases and other transferable contracts (such as purchased goodwill).

- Any deviations from the above scope should be kept under review and documented.

Classification/sectorization

Classification and sectorization systems must be in accordance with internationally accepted standards, guidelines, or good practices.
- The concept of the *1993 SNA must be* followed to classify:

- institutional units;
- transactions;
- other flows.

- The classification methods used to classify the principal economic activity (industry) of establishments and enterprises must be compatible with ISIC, NACE, or a compatible (e.g., derived or related) national industry classification

- The CPC, CPA, or a compatible (e.g., derived or related) national product classification should be used to classify products.

- COICOP should be used to classify household consumption.

- COFOG should be used to classify functions of government.
Any deviations from the above classifications/sectorizations must be kept under review and documented.

Basis for recording

Flows and stocks are valued and recorded according to internationally accepted standards, guidelines or good practices. The IMF's DQAF assesses recording of data given the following standards:

- Market output valued preferably at basic prices, and, if not, at producer prices.
- Output for own use valued at equivalent market prices.
- Sales and excise taxes should be included in the valuation of intermediate consumption.
- If value added taxes are in place, they should be included in the valuation of intermediate consumption, excluding the deductible part of the value added taxes.
- If applicable, the deductible part of the value added taxes should be excluded from the valuation of final uses.
- Corrections should be made when transfer prices are detected.
- The information on insurance and freight for merchandise imports should be made available.

- Total imports and exports should be valued on an f.o.b. basis

- Transactions in foreign currency should be converted using the mid-point exchange rate prevailing in the market at the moment they take place.

- If a system of multiple official exchange rates exists adjustments should be made.

- Deviations from the above valuation should be kept under review and documented.

Recording is done on an accrual basis.

- All transactions and flows should be recorded on an accrual basis.

- Work-in-progress must be recorded in the period it is produced.

- Government-related transactions should be recorded on an accrual basis, in particularly:
  - taxes and subsidies on products;
  - expenditures;
  - revenues.

- Any deviations from the above accrual accounting should be kept under review and documented.

Grossing/netting procedures are broadly consistent with internationally accepted standards, guidelines or good practices.

- Transactions between establishments within the same enterprise should be recorded on a gross basis.

- Any deviations from the above accrual accounting should be kept under review and documented.

4. Serviceability

Serviceability relates to the need for statistics to be disseminated with appropriate periodicity in a timely fashion; are consistent internally and with other major databases, and follow a regular revision policy[11].

*Statistics, with adequate **periodicity and timeliness**, are **consistent** and follow a predictable revisions policy.*

Periodicity and Timeliness:

Periodicity and timeliness should be established and known to all stakeholders. It should be adhered to at all costs and it should match customers demand.

In assessing the Periodicity of the data the following questions should be answered:

- How often these estimates are compiled (ie. monthly, quarterly, annually, etc)?

- How often are these estimates demanded? Does the current periodicity support this demand?

- Has the current economic situation changed the demand for these estimates?

Timeliness

Timeliness is just as important as periodicity and must also be adhered to in the strictest sense. All customers must be aware of the release dates as this also affects the integrity of the information. In assessing timeliness, the following questions should be answered:

- What is the scheduled time of release of these estimates?

- What is the average time lag between scheduled and actual release date?

- What are the reasons for delays?

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[11] International Monetary Fund Statistics Department – Data Quality Assessment Framework for National Accounts

Consistency:

Consistency deals with the regularity of coherency between different data sets over time and different estimates that are comparable. It also deals with the documentation of changes in methodology and minimization of discrepancy. Consistency also requires that changes in economic trends that might impact changes in demand for certain statistics be documented.

The issue of consistency can be addressed by answering the following questions:

- Are statistics internally consistent?

- If there is a discrepancy, is it small and stable over time?

- Are quarterly estimates consistent with annual estimates?

- Is consistent time series data available for an adequate period of time (at least five years)?

- When changes in source data, methodology and statistical techniques are introduced are historical series reconstructed as far back as is reasonably possible?

- Are detailed methodological notes provided identifying and explaining the main breaks and discontinuities in time series, their causes, as well as adjustments made to maintain consistency over time?

- Are unusual changes in economic trends explained in supporting text?

- Are these statistics consistent with other frameworks (ie. balance of payments, government finance statistics, and other statistical frameworks)?

Completeness

This is a measure in relative terms of coverage at different levels[12].

- o *Country/Industry Coverage* - Are all the countries/industries included in the database (CARICOM Secretariat).

- o *Activity/Sector Coverage* – Are all sectors covered in their entirety? Coverage is based on the industrial census and business register. This is affected by cutoff sizes to the industrial census/surveys. For example:

Coverage of the Informal Sector

- o What adjustments are made for coverage of the informal sector? In some economies within the Region the informal sector represents a significant portion of the total economy. If left unaccounted, the estimates compiled will be significantly understated.

- o *Unit coverage* – non coverage and non response. Non coverage relates to the problem of identification of units, while non response refers to the failure of observation of units. High non-coverage results from poor sample frames. How is this dealt with?

- o *Data items coverage* - Classification characteristics and commonality among Member States. Census value coverage versus total value added. This depends on the statistical unit chosen (establishment or enterprise) both units carry advantages and disadvantages.

Revision policy and practice:

It is not sufficient to simply have a quality framework in place; it must be responsive to changing circumstances. The revision must respond to errors in procedures and changes

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[12] UNIDO Data Quality: A quality assurance framework for UNIDO statistical activities 2006/2008

in best practice and methodology. It should involve teams (Technical Working Group (TWG)) that constantly meet to audit areas that are constantly under quality risk. Data revisions follow a regular and publicized procedure.

The following questions must be answered to assess the revision process:

- Is the revision cycle reasonably stable from year to year and known to the public?

- Is adequate documentation of revisions included in the publication of the statistical series?

- At the time of data dissemination, are users informed whenever data are preliminary?

- Are they informed when data are changed/revised?

- Are revisions explained in the statistical publication?

5. Accessibility / Clarity

Accessibility deals with the ease with which users are able to access the data. It deals with the format of the available data and also the availability of supporting information.[13] Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.[14]

Data accessibility

Statistics should be presented in a clear and understandable manner, forms of dissemination should be adequate, and statistics are made available on an impartial basis. The quality of data accessibility can be assessed by answering the following questions:

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[13] Guidelines for measuring statistics quality – Office of National Statistics, London
[14] Guidelines for measuring statistics quality – Office of National Statistics, London

Presentation of Data

- Is the data published in a clear manner? Are charts and tables disseminated with the data to facilitate the analysis?

- Is any analysis of current-period developments included with the dissemination?

- Are estimates disseminated at a detailed level and with time series?

Dissemination media and format

- How are estimates disseminated?

- Are the statistics disseminated in ways that facilitate re-dissemination in the media (e.g., information releases)?

Release procedure

- Is a schedule prepared that announces in advance the dates on which statistics are to be released?

- Are the statistics released punctually, that is according to the preannounced schedule?

- Is the public informed of the statistics being released and of the procedures to access them (e.g., Internet, publications)?

- In addition to the statistics routinely disseminated, are other general statistics made available upon request?

- Can customized tabulations be provided (perhaps for a fee) to meet specific requests?

- Is the availability of additional statistics and of the procedures for obtaining them made known?

Regional Compatibility:

All published data, given a harmonized system, must be presented in a compatible format. The format may not necessarily be identical but the core elements are similar. In this regard, Regional compatibility includes:

- Compatibility in Data Presentation

- Compatibility in media and format

- Compatibility in release procedure and timelines

Metadata accessibility

Up-to-date and pertinent metadata should be made available.

- A comprehensive sources and methods document should be published and updated regularly, including the following:

    - Information on concepts, definitions, classifications, and data sources, compilation methods, statistical techniques, and other relevant methodological aspects and procedures

    - Departures from internationally accepted standards, guidelines, or good practices;

    - information on survey sources, such as survey characteristics (response rates, survey monitoring and studies of nonsampling errors) and other survey features (method, sample frame, sample design and selection, estimation and imputation techniques, etc.), and on the nature of administrative data sources and main linkages with related major data systems.

- Metadata should be readily accessible (e.g., websites, statistical publications) and their availability should be cross-referenced with data releases, and otherwise well publicized (e.g., in catalogs).

Assistance to users

- Prompt and knowledgeable support services or helpdesks should be made available.

- All statistical releases should identify contact points for enquiries by mail, telephone, facsimile or by e-mail.

- Material to raise awareness on the use of statistics should be made available (e.g., for schools and research).

- Access points for clients to obtain statistical information should be advertised.

- All assistance programmes should be reviewed periodically (e.g., time of response to e-mail requests.

Conclusion

Implementing and maintaining a quality assurance framework is not a static process, but one that instead involves constant review and an intimate link to the economic and social environment within which the NSOs operate. The need for quality assessment and the areas to be prioritized will depend on the conditions under which the NSOs operate.

The implementation of a CDQAF is not a project for an individual. It is, rather, a project that must be undertaken by the entire organization at the individual level. It involves every staff member that is involved in the statistical cycle, from clerks to managers. The Regional coordination of this project should be the responsibility of the TWG and can be facilitated using the Helpdesk on Statistics. This group will consist of the technocrats with the skills necessary to manage this process.

Training is very important in maintaining quality. Key personnel should be equipped with the skills necessary for managing and implementing the framework. Hence, workshops and training will be an important part of enhancing the Regional agenda of improved quality in NSOs.

Quality assurance should not be seen as a seasonal project but instead it must be instilled as part of the organization's culture. This culture is developed by setting clear expectations of employees and providing the tools and training needed to meet those expectations. It also involves assessing and providing feedback on performance against expectations. Individuals must be appraised on quality as much as any other objective. Each individual should be free to contribute to the process of improving quality.

Project management and documentation become even more important as the tradeoff of quality dimensions, lowering cost and response burden become apparent. Thus, for more

efficient management of the quality programme, project management is important. Documentation of all processes is critical to the successful implementation of this framework. This will save time and money as future amendments will be easier as efficiency is increased.

The dimensions covered are just core guidelines, in this regard, it should be noted that the quality programmes of Member States may differ but the principles will be the same.

Generic Core Data Quality Assurance Framework (CDQAF)

Introduction

- Current Circumstance of National Accounts and need for Quality management

- NSOs, policies on quality and its inclusion in strategies and frameworks

- Content of QAF, justification for exclusion/ inclusion of other areas

Quality Framework

- Gaps between the CDQAF and the framework being used by NSO

Pre-requites to Quality

- Legal and institutional environment

  - Statistics Act

  - Gaps

- Resource availability

  - Deficiencies

- Relevance

  - Demands of Customers

- Other quality management

  - Other processes in place to focus on quality

Quality Assurance Procedure

Quality Dimensions	Current Status	Gaps	Implementation Strategy	Constraints
Managing Assurance and Integrity				
Professionalism				
Transparency				
Ethical Standards				
Managing Methodological Soundness				
Concepts and definition				
Scope				

Classification/sectorisation			
Basis for recording			
Managing Accuracy and reliability			
Source data			
Assessment of source data			
Statistical techniques			
Assessment and validation of intermediate data and statistical output			
Revision studies			
Managing Serviceability			

Periodicity and timeliness			
Consistency			
Revision policy and practice			
Managing Accessibility			
Data accessibility			
Metadata accessibility			
Assistance to users			

- **Quality assessment/Review Programme**

  o Quality targets – setting and monitoring

  o Quality assessment program – self assessment program, peer review, labeling

- **Quality and performance management**

  o Planning , cost and efficiency

  o Continuous improvement (quality culture, ongoing enhancement)

  o Governance structure – quality and performance trade off, re engineering

    initiatives

- **Conclusion**

  o Summary of benefits

  o Future plans to improve quality