INTERNATIONAL MONETARY FUND

THE FOURTH REVIEW OF THE FUND'S DATA STANDARDS' INITIATIVES

Supplement on the Data Quality Assessment Framework

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(In consultation with other departments)

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I. INTRODUCTION

1. In a series of discussions, beginning in 1995, that examined data provision to the Fund, the Executive Board noted that it was imperative for the IMF, as well as for member countries, to improve the quality of the data used in policy analysis. On the occasion of the Third Review of the Fund's Data Standards Initiatives in March 2000, and again in June of that year during the discussion on Data Provision to the Fund for Surveillance Purposes, the Executive Board addressed data quality more specifically, welcoming the staff's efforts to develop a framework that would allow users and compilers to make their own data quality assessments.[1]

2. Work by the Statistics Department (STA) on an approach to assessing data quality began in 1997, with the development of a framework that was based on five broad areas that were considered relevant to an assessment of data quality across a wide range of uses and users.[2] Building on this earlier work, STA has developed the Data Quality Assessment Framework (DQAF). The DQAF is a methodology for assessing data quality that brings together best practices and internationally accepted concepts and definitions in statistics, including those of the United Nations *Fundamental Principles of Official Statistics* and the SDDS/GDDS. It is the product of an intensive, iterative process of consultation with national statisticians, experts from international organizations, Fund staff, and data users outside the Fund.[3]

3. The DQAF was developed as an assessment methodology that aims to provide structure and a common language for the assessment of data quality. The DQAF facilitates a comprehensive view of data quality, one that recognizes interrelations, including tradeoffs, among elements of quality and allows emphases to vary across data categories and uses/users. It facilitates dialogue with national statistical agencies and country authorities, as well as a more homogenous approach to assessing data quality by Fund staff.

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[1] Summing Up by the Acting Chairman, BUFF/00/52 (3/29/00) and BUFF/00/93 (7/10/00).

[2] For details see: *Provision of Information to the Fund for Surveillance—Progress Report* SM/97/269, (11/10/97), page 16.

[3] These consultations included the Meeting of National Accounts Experts (6/00), Heads of National Statistical Offices of the East Asian Countries (8/00), the European Central Bank Working Group on Money and Banking Statistics (9/00), the Meeting of the Technical Expert Group on the Producer Price Index and the Voorburg Group on Service Statistics (9/00), the ECB Statistics Committee (10/00), the IMF Committee on Balance of Payments Statistics (10/00), the IMF-Korea Statistical Quality Seminar 2000 (12/00), the Government Finance Statistics Expert Group Meeting (2/01), Seminar for Financial Group hosted by the IMF Regional office for Asia and the Pacific, Tokyo (4/01), the International Conference on the Quality of Official Statistics (5/01), and the OECD-Singapore Meeting on the Consumer Price Index (6/01).

4. Three main areas were envisioned in which an assessment methodology, such as that provided by the DQAF, could be helpful. First, the DQAF could be useful to guide countries' efforts to strengthen their statistical systems by providing a self-assessment tool and to identify areas for improvement in which donor support might be sought. Second, the DQAF could be useful in guiding IMF staff in preparing Reports on the Observance of Standards and Codes (ROSCs), in assessing the quality of data provided for country surveillance and operations, and in designing programs of technical assistance. Third, the DQAF could help guide data users—both in the private and the public sectors—in gauging data quality for their own purposes. In this sense, it could serve as a useful complement to the quality dimensions included in the SDDS and the GDDS.

5. Section II of the paper provides background and a description of the DQAF. Section III describes possible uses for the DQAF and reviews staff experience to date in applying the DQAF methodology in the context of the preparation of ROSCs and in STA technical assistance. Section IV explores possible areas for further development of the DQAF.

II. A Methodology for Assessing Data Quality

6. In developing a methodology to assess data quality, two main areas of work were pursued simultaneously.

- Clarifying the meaning and promoting an understanding of data quality in the community of data users and compilers; and

- Providing a structure and a common language for data quality that could be distilled into an assessment framework.

7. On the first point, in the past, quality in statistics might have been synonymous with accuracy, but today a consensus has emerged that quality is a much wider, multidimensional concept. To promote a common understanding of data quality, STA established a Data Quality Reference Site on the Dissemination Standards Bulletin Board (DSBB).[4]

8. On the second point, the issue was approached by defining the characteristics that a data quality assessment framework would need to embody. Such a framework would need to be:

- Comprehensive in coverage of the dimensions of quality, and of elements and indicators that might represent quality,

[4] Drawing on contributions from the statistical community and IMF staff, the site introduces definitions of data quality, describes tradeoffs among aspects of data quality, and gives examples of evaluations of data quality. The site also includes a bibliography of articles on data quality, recent IMF staff papers and other staff work on data quality, and references to international conferences on data quality. The site is updated regularly and has been used to invite comment on staff work-in-progress (e.g., on a draft glossary). See: http://dsbb.img.org/dqrsindex.htm.

- Balanced between the rigor desired by an expert and the bird's-eye view desired by a general data user,
- Structured but flexible enough to be applicable across a broad range of stages of statistical development,
- Structured but flexible enough to be applicable (at least) to the major macroeconomic datasets,
- Designed to lead to transparent results, and
- Arrived at by drawing on best practices of national statisticians.

9. Taking off from these main characteristics, the data quality assessment framework that has emerged comprises a generic assessment framework and specific assessment frameworks for the key datasets used for macroeconomic analysis.[5] The generic framework, which brings together the internationally accepted core principles/standards/or practices for official statistics, serves as the umbrella under which the dataset-specific quality assessment frameworks are developed. The generic framework is shown in Annex I.

10. The framework follows a cascading structure that flows from five main dimensions that have been identified as critical constituents of data quality. The five dimensions of quality are integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility (Box 1). For each of these interrelated dimensions, the framework identifies pointers, or observable features, that can be used in assessing quality. These pointers to quality are broken down into elements (major identifiers of the quality dimension) and further into more detailed and concrete indicators.

[5] To date, six dataset-specific frameworks have been developed for, respectively, the national accounts, balance of payments, analytical accounts of central bank and other depository corporations, fiscal accounts, producer prices, and consumer prices.

Box 1. The Data Quality Assessment Framework

The DQAF covers five dimensions of quality and a set of prerequisites for the assessment of data quality. The coverage of these dimensions recognizes that data quality encompasses characteristics related to the institution or system behind the production of the data as well as characteristics of the individual data product. Within this framework, each dimension comprises a number of elements, which are in turn associated with a set of desirable practices. The following are the statistical practices that are associated with each dimension:

- **Prerequisites of quality**—the environment is supportive of statistics; resources are commensurate with needs of statistical programs; and quality is a cornerstone of statistical work.

- **Integrity**—statistical policies and practices are guided by professional principles; statistical policies and practices are transparent; and policies and practices are guided by ethical standards.

- **Methodological soundness**—concepts and definitions used are in accord with internationally accepted statistical frameworks; the scope is in accord with internationally accepted standards, guidelines, or good practices; classification and sectorization systems are in accord with internationally accepted standards, guidelines, or good practices; and flows and stocks are valued and recorded according to internationally accepted standards, guidelines, or good practices.

- **Accuracy and reliability**—source data available provide an adequate basis to compile statistics; statistical techniques employed conform with sound statistical procedures; source data are regularly assessed and validated; intermediate results and statistical outputs are regularly assessed and validated; and revisions, as a gauge of reliability, are tracked and mined for the information they may provide.

- **Serviceability**—statistics cover relevant information on the subject field; timeliness and periodicity follow internationally accepted dissemination standards; statistics are consistent within the dataset, over time, and with other major data sets; and data revisions follow a regular and publicized procedure.

- **Accessibility**—statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis; up-to-date and pertinent metadata are made available; and prompt and knowledgeable support service is available.

11. Below the indicator level, dataset-specific frameworks provide more detail in the form of focal issues for each indicator that are tailored to the dataset in question. Further, bullet points below each focal issue are key points that describe quality features that may be considered in connection with the focal issues. Although they are considerably more specific than the generic framework, the dataset-specific frameworks cannot, and indeed are not meant to, exhaustively cover all quality issues.

12. The DQAF recognizes that the quality of an individual dataset is intrinsically bound with that of the institution producing it. In other words, data quality depends on the characteristics of the institution or system behind the production of the data[6] as well as the "quality of the individual data product". Thus, the DQAF also includes some elements and indicators that, although not constituting a quality dimension in themselves, have an overarching role as pointers to, or institutional preconditions for, quality. They generally refer to desirable attributes of the agencies or the statistical system. Examples are quality awareness—the idea that quality should be recognized as a cornerstone of statistical work—and resources available for statistics. These pointers to quality appear in the first segment of the DQAF as prerequisites of quality.

13. A process of extensive international consultation has shaped the work. The DQAF has been well received by the large and diverse group of statisticians from national agencies and international organizations that were consulted over the last year. The draft frameworks were viewed as filling an important need. They were found to be careful and thoughtful, and were seen as providing a coherent and practical way forward in a complex field. Statisticians welcomed the framework's close mapping to existing statistical standards and manuals. As well, appreciation was expressed for the consultative approach that was followed. Based on comments received, the DQAF has gone through several revisions. For example, attempts have been made to clarify the element about resources for statistics and identify more explicitly an element and indicators relevant to reliability.

14. As it became clearer from the feedback received that the generic and dataset-specific frameworks were on solid ground, work moved on to parts of the data quality assessment framework that were derived from them. This took into account the need for a diagnostic tool to judge whether or not the full framework might be needed for an assessment. For example, during the process of in-depth review, some topical experts, citing staffing constraints in small statistical offices, questioned whether the framework would be operationally feasible for small countries. It was also noted that a careful and systematic application of the full framework should yield summaries at the level of interest to non-statisticians. Moreover, it was recognized that the DQAF should give room for flexibility to take into account country-specific circumstances; a prescriptive, one-size-fits-all approach was avoided. These factors led to an enhancement of the DQAF through the addition of a preview tool and a summary presentation of results that were designed, in particular, to meet the needs of non-statisticians.

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[6] These characterists related to the statistical institution or system are sometimes referred to by the shorthand "quality of the institution".

Samples of the preview tool and the summary presentation of results are presented in Tables 1 and 2, respectively.[7]

15. Considerable experience has been gained with summary presentation tables in preparing recent ROSC data modules. They are viewed as a clear and focused presentation built upon underlying detailed assessments.

16. Finally, the staff is developing additional supporting materials to help clarify the meaning of the terms used in the DQAF and to clarify for users how the DQAF methodology should be applied.[8]

III. Applications of the DQAF Methodology

17. It was envisaged that the DQAF methodology could be used by three main categories of users—national producers of official statistics, the IMF and other international organizations, and other data users, including those in the private sector. For example:

- **National Statistical Office**. One could envision a statistical office undertaking an internal assessment using the frameworks. This assessment might be the basis for its own internal planning and for requesting and justifying additional resources.

- **IMF**. Within the IMF, the framework could be and is being used in a variety of circumstances. STA has already begun to use the DQAF on an experimental basis in preparing ROSCs (see below), in conducting technical assistance, and in working with countries that wish to participate in the GDDS to prepare metadata, including their plans for improvement. With respect to Fund surveillance, the ROSC provides background information for the Article IV Consultation. In this connection, the DQAF provides a

[7] The data quality assessment preview tool comprises 13 indicators that are a subset of the generic framework. These indicators were selected because, while representative, they are relatively non-technical and draw upon reasonably accessible information.

[8] Work is under way, in consultation with data users and compilers inside and outside the Fund, to develop a glossary for the DQAF. It is intended that the glossary will include at least all terms at the dimension and element levels of the DQAF. In addition, to facilitate the application of the DQAF, a methodological note is being prepared. This note will be supplemented by guidance notes for each of the dataset-specific frameworks.

Table 1. Data Quality Assessment Framework: Preview
Country A: National Accounts

Indicators	NA	Assessments				Comments
		O	LO	LNO	NO	
Prerequisites of quality						
0.1.1 The responsibility for compiling statistics is clearly specified.		X				
0.2.1 Staff, financial, and computing resources are commensurate with statistical programs of the agency.			X			More staff needed for surveys
0.3.3 Processes are in place to deal with quality considerations, including tradeoffs within quality and to guide planning for existing and emerging issues.					X	Quality considerations not dealt with
1. Integrity						
1.2.4 Advance notice given of major changes in methodology, source data, and statistical techniques.		X				
2. Methodological soundness						
2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.			X			Follow 1968 SNA
2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines, or good practices.			X			Deficient coverage of production
3. Accuracy and Reliability						
3.1.1 Source data are collected from comprehensive collection programs, taking into account country-specific conditions.		X				
3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.		X				
4. Serviceability						
4.1.1 The relevance and practical utility of existing statistics in meeting users' needs are monitored.					X	No data-user dialogue
4.2.2 Timeliness follows dissemination standards.		X				
4.3.3 Statistics consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.			X			Weak consistency with BOP
5. Accessibility						
5.1.3 Statistics are released on pre-announced schedule.				X		Poor adherence
5.2.1 Documentation on concepts, scope, classifications, basis of recording, sources, and statistical techniques available and differences from internationally accepted standards, guidelines, or good practices are annotated.		X				

Notes: NA= Not Applicable; O = Practice Observed; LO = Practice Largely Observed; LNO = Practice Largely Not Observed; NO = Practice Not observed; Comment: only if different from O.

Plans already in train may be noted either in the "Comments" column, as a parenthetical statement, or in a separate column headed "Reforms Underway," with encouraged target completion dates.

Table 2. Data Quality Assessment Framework: Summary Presentation of Results
Country A. Balance of Payments

Elements	NA	Assessments				Comments
		O	LO	LNO	NO	
Prerequisites of quality						
0.1 Legal and institutional environment			X			No sanctions for failure to respond to surveys.
0.2 Resources						
0.3 Quality awareness				X		Severe lack of personnel for surveys.
				X		No process to focus on quality.
1. Integrity						
1.1 Professionalism		X				
1.2 Transparency				X		No advance notice of major changes.
1.3 Ethical standards					X	Little focus on ethical conduct.
2. Methodological soundness						
2.1 Concepts and definitions		X				
2.2 Scope			X			Reinvested earnings excluded.
2.3 Classification/sectorization			X			Goods for processing misclassified.
2.4 Basis for recording			X			Transactions on cash instead of accrual basis.
3. Accuracy and Reliability						
3.1 Source data		X				
3.2 Statistical techniques			X			Sounder methods should be applied to fill gaps in source data.
3.3 Assessment and validation of source data			X			Source data not regularly assessed or validated.
3.4 Assessment and validation of intermediate data and statistical outputs		X				
3.5 Revision studies	X					Time series too short for revision studies.
4. Serviceability						
4.1 Relevance		X				
4.2 Timeliness and periodicity			X			Meets GDDS but not SDDS.
4.3 Consistency			X			BOP not reconciled with national accounts.
4.4 Revision policy and practice				X		No regular revisions procedures.
5. Accessibility						
5.1 Data accessibility			X			No advance release schedule.
5.2 Metadata accessibility				X		Metadata not available to public.
5.3 Assistance to users			X			No publications catalog available.

Notes: NA= Not Applicable; O = Practice Observed; LO = Practice Largely Observed; LNO = Practice Largely Not Observed; NO = Practice Not observed; Comment: only if different from O

Plans already in train may be noted either in the "Comments" column, as a parenthetical statement, or in a separate column headed "Reforms Underway", with encouraged target completion dates.

methodology that staff can use to assess the quality of data provided to the Fund. In this sense, the DQAF is especially useful because it fosters an even-handed approach to assessing quality across the very diverse range of countries that comprise the Fund's membership. In addition, it is envisaged that the preview tool could be used in situations in which an initial diagnosis would help prioritize the staff's efforts.

- **Financial market participants and others**. Financial market analysts and others—researchers, for example—may find summaries included in a ROSC useful as a reference tool. To take one example, a financial market analyst might supplement the summary information provided in the data module of a ROSC with his/her own conclusions drawn from a specific dataset.

A. Application of the DQAF Methodology in ROSCs

18. From the inception of the ROSC initiative, the SDDS and the GDDS were used as the standards for the data module of the ROSC. For countries that have subscribed to the SDDS or are close to meeting the requirements for subscription, the SDDS serves as the standard against which the country's data dissemination practices are compared. In the case of others that have agreed to the preparation of the data module of the ROSC, the recommendations of the GDDS are used to guide this part of the assessment. To date 14 modules have been produced, of which 12 have been posted on the Fund's website.[9]

19. The early ROSCs focused on the disclosure elements of the standard—that is, the requirement to make information available to the public. However, experience showed that the reports would be more useful if they also addressed the quality of the information provided.[10] This need to focus more precisely on the quality of the data disseminated under the standard is being addressed on an experimental basis by integrating the methodology provided by the DQAF into the structure of the ROSC.

20. It should be emphasized that the DQAF is an assessment methodology and not a standard in itself. The assessment methodology provided by the DQAF encompasses all of the dimensions covered in the SDDS and GDDS—including accessibility and integrity—and complements them in a number of respects. It is worth recalling that the SDDS and GDDS were established, respectively, as a standard to guide countries in the provision of data to the

[9] ROSC data modules are close to completion for Armenia, Chile, Estonia, Republic of Korea, Romania, Sweden, South Africa, and Uruguay.

[10] During the Board discussion of *International Standards and Fund Surveillance* of March 1999, most Directors expressed the view that monitoring (of standards) needed to go beyond the disclosure elements for information to be most useful and should include, where feasible, an understanding of the basis on which information was compiled, as well as of mechanisms to ensure the quality of the information being released. See Summing Up by the Acting Chairman, SUR/99/42 of March 31, 1999.

public (dissemination), and as a system to guide dissemination and to promote statistical capacity building. In the area of data quality, the SDDS and the GDDS call upon subscribers and participants, respectively, to provide a range of information to data users that could serve as monitorable proxies for the quality of the data disseminated. However, the DQAF takes a more structured approach by providing users with a methodology, based on directly observable features of quality, that "walks users through" what best practice would call for to assure quality in the collection, production, and dissemination of data.

21. The structure of the experimental data module assesses both the disclosure element of the standard as well as the quality of the information provided to the public in the key datasets that form the core of a country's macroeconomic analysis. The assessment of the disclosure element is conducted through a comparison of national data dissemination practices with those set out in the SDDS/GDDS. With respect to the quality element, the DQAF methodology helps to identify and draw out best practices not only in dissemination, but also in data collection and compilation. The information gathered by the staff into dataset-specific assessment frameworks provides the basis for a summary-level presentation of the data quality assessment. Application of the DQAF methodology helps identify those areas where further efforts are required of the country to reach an international "best

B. Experience with Integrating the DQAF and ROSCs

22. The DQAF methodology has been applied on an experimental basis in the preparation of ROSCs for six countries, namely, Chile, Estonia, Hungary, South Africa, the Republic of Korea, and Sweden. Assessments using the DQAF methodology are underway for Costa Rica, Mauritius, and Sri Lanka. There was a high level of cooperation and interest on the part of the authorities in using the DQAF methodology for the preparation of these reports. In general, the authorities found the methodology for the assessment of data quality useful, although some expressed a concern about the ability of the target institutions to work with the detailed dataset-specific frameworks on their own due to the limited availability of adequately trained staff. As well, the authorities appreciated the identification of those areas where the application of the DQAF methodology pointed to shortfalls in practices and welcomed the Fund staff's recommendations, which are an integral part of the ROSC, for addressing these issues.

23. An issue that surfaced is that the pursuit of certain national policy objectives could overshadow the need for maintaining standard best practice in some key datasets. For example, two of the countries in which the DQAF methodology was applied use an inflation targeting framework for monetary policy. Inflation targeting, among other things, places a premium on real sector data and diminishes the role of monetary aggregates in the conduct of monetary policy. In this situation, the standard best practice of making consistency checks between monetary data and data from other sectors is not routinely undertaken. As well, the comparability of monetary data across countries is compromised.

24. The application of the DQAF methodology to fiscal data presents challenges. First, the methodology is aligned with the soon-to-be-published *Government Finance Statistics Manual,* which is based on accrual accounting. Since the majority of countries still follow a

cash-based accounting system, application of the DQAF methodology for this sector must be done in recognition of the differing national situations. Second, Fund staff noted that the assessment was complex in instances where the responsibility for compiling fiscal data was not clearly specified. In two of the countries in which the DQAF was used, several agencies were involved in the compilation of fiscal data.

25. Preparation of the experimental ROSCs has involved close cooperation with the authorities at every stage of the process. In general, this has facilitated country "ownership" of the report. Country authorities have generally been in broad agreement with the assessment, but in cases where differences of view persisted, they have expressed their appreciation for the inclusion of their views in the ROSC.

26. Building on the experience of the last six months, the structure of the ROSC will be preserved, whereby the module will continue to provide a summary assessment of a member's observance of the data dissemination standard, including a description of country practice; an assessment of the extent to which the country meets the standard now complemented with a summary assessment of data quality; and a list of the most important recommendations to improve observance. The ROSC, with the assent of the authorities, will be put on the Fund's website, together with the response of the authorities (which will comprise a separate document). In addition, a third document with the detailed dataset-specific assessment, with the consent of the authorities, will be placed on the Fund's website.[11]

C. Other Applications of the DQAF

27. In addition to its use in preparing ROSCs, the DQAF methodology has been used by STA as a diagnostic tool to identify data quality weaknesses in the context of technical assistance and in conjunction with the preparation of GDDS metadata. On an experimental basis, multisector statistics missions to the Republic of Yemen and Paraguay have used the DQAF methodology to assess data strengths and weaknesses, and single topic technical assistance missions (for balance of payments, monetary and financial, and national accounts data) have also used the DQAF to pinpoint areas of concern. Moreover, the potential of the DQAF as a methodology to identify issues related to statistical capacity building is being recognized outside the Fund. In its meeting of May 2001, the working group to advance the Paris21 initiative[12] agreed that the Fund should chair the Task Force on Statistical Capacity

[11] The detailed information contained in the appendices attached to those ROSCs prepared since January 2001 were kept with the body of the staff assessment to establish the credibility of the exercise.

[12] The Paris21 initiative was launched in November 1999 with the objective of promoting an evidence-based culture for economic and social policy making and to initiate statistical capacity building programs in target countries, namely those qualifying for HIPC debt relief and other countries producing Comprehensive Development Frameworks and/or UN Development Assistance Frameworks, with primary focus on PRGF countries. The Paris21

(continued)

Building and that the DQAF could serve as the preferred vehicle for identifying statistical capacity building issues.

D. Some Caveats

28. The experience to date suggests that application of the DQAF methodology should take into account a number of interrelated considerations. First, the DQAF is not, and cannot be, a checklist nor an audit of statistical practices as it is not meant to cover exhaustively all issues at a detailed level. Second, the application of the DQAF cannot be mechanical. Assessment is not intended to be an exact science; judgment will necessarily be involved. Third, those applying the DQAF will need to be constantly alert to the country setting—the culture, the legal environment, the stage of statistical development. They would need to ask, when finding that a certain practice is not observed, whether the intent of the practice is achieved by some other means. Conversely, when a formal process or procedure has been found to be in place, they would need to explore whether the objective of the practice is being achieved. Fourth, the DQAF results will necessarily be dependent on the willingness of representatives at both senior and technical levels in the country being assessed to be forthcoming with information.

29. Furthermore, in working through the frameworks, users should be clear that no country is likely to meet all of the best practice criteria for data quality that they embody. Moreover, countries should not be penalized if parts of the frameworks are not applicable, and thus no response can be given. Indeed, it is expected that the frameworks would be applied flexibly with the objective of pointing to relevant areas that may need attention so that an action plan, and the resources to carry it out, could be identified. Finally, given the complexity of the assessment and the wide differences in countries' statistical systems, it should be clear that the DQAF cannot be used to rank the quality of countries' data. .

IV. Future Work

30. Further work in the development of the data quality assessment framework is now focused on the following areas:

- *Refining and revising the DQAF*. The experience from application of the framework and the comments received from statisticians and others will feed into the DQAF's refinement. For instance, most immediately, the dataset-specific frameworks will be aligned with the generic framework in Annex I.

- *Completing the supporting materials*. Work is continuing on the glossary and on a methodological note that will provide guidance to users on the DQAF.

Consortium consists of some 120 members (governments, multinational and regional agencies, NGOs, and other private organizations).

- *Developing frameworks for other datasets in collaboration with other agencies*. STA is working with the World Bank on the development of a framework for a socio-demographic dataset. Such a framework would buttress the GDDS' socio-demographic sector and could have applications for assessing statistical capacity building in PRGF arrangements.

- *Pursuing a role for the DQAF methodology in assessing statistical needs and promoting capacity building.* Identifying needs and exploring the implications of using the DQAF to guide Fund technical assistance in statistics will be important, especially in light of the fact that recommendations and action plans usually would be developed as an extension of the assessments. Guidance could also be provided to national statistical offices that wish to undertake self assessments.

Data Quality Assessment FrameworkCGeneric Framework
(Draft as of July 2001)

Quality Dimensions	Elements	Indicators
Prerequisites of quality[1]	**0.1 Legal and institutional environment** – *The environment is supportive of statistics.*	0.1.1 The responsibility for collecting, processing, and disseminating statistics is clearly specified. 0.1.2 Data sharing and coordination among data producing agencies are adequate. 0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only. 0.1.4 Statistical reporting is ensured through legal mandate and/or measures to encourage response.
	0.2 Resources – *Resources are commensurate with needs of statistical programs.*	0.2.1 Staff, financial, and computing resources are commensurate with statistical programs of the agency. 0.2.2 Measures to ensure efficient use of resources are implemented.
	0.3 Quality awareness – *Quality is a cornerstone of statistical work.*	0.3.1 Processes are in place to focus on quality. 0.3.2 Processes are in place to monitor the quality of the collection, processing, and dissemination of statistics. 0.3.3 Processes are in place to deal with quality considerations, including tradeoffs within quality, and to guide planning for existing and emerging needs.
1. Integrity *The principle of objectivity in the collection, processing, and dissemination of statistics is firmly adhered to.*	**1.1 Professionalism –** *Statistical policies and practices are guided by professional principles.*	1.1.1 Statistics are compiled on an impartial basis. 1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations. 1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.
	1.2 Transparency – *Statistical policies and practices are transparent.*	1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public. 1.2.2 Internal governmental access to statistics prior to their release is publicly identified. 1.2.3 Products of statistical agencies/units are clearly identified as such. 1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques.
	1.3 Ethical standards – *Policies and practices are guided by ethical standards.*	1.3.1 Guidelines for staff behavior are in place and are well known to the staff.

Data Quality Assessment FrameworkCGeneric Framework
(Draft as of July 2001)

Quality Dimensions	Elements	Indicators
2. Methodological soundness *The methodological basis for the statistics follows internationally accepted standards, guidelines, or good practices.*	**2.1 Concepts and definitions –** *Concepts and definitions used are in accord with internationally accepted statistical frameworks.*	2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices: see dataset-specific framework.
	2.2 Scope – *The scope is in accord with internationally accepted standards, guidelines, or good practices.*	2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines, or good practices: see dataset-specific framework.
	2.3 Classification/sectorization – *Classification and sectorization systems are in accord with internationally accepted standards, guidelines, or good practices.*	2.3.1 Classification/sectorization systems used are broadly consistent with internationally accepted standards, guidelines, or good practices: see dataset-specific framework.
	2.4 Basis for recording – *Flows and stocks are valued and recorded according to internationally accepted standards, guidelines, or good practices.*	2.4.1 Market prices are used to value flows and stocks. 2.4.2 Recording is done on an accrual basis. 2.4.3 Grossing/netting procedures are broadly consistent with internationally accepted standards, guidelines, or good practices.

Data Quality Assessment Framework—Generic Framework
(Draft as of July 2001)

Quality Dimensions	Elements	Indicators
3. Accuracy and reliability *Source data and statistical techniques are sound and statistical outputs sufficiently portray reality.*	**3.1 Source data** – *Source data available provide an adequate basis to compile statistics.*	3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions. 3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required. 3.1.3 Source data are timely.
	3.2 Statistical techniques – S*tatistical techniques employed conform with sound statistical procedures.*	3.2.1 Data compilation employs sound statistical techniques. 3.2.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.
	3.3 Assessment and validation of source data–*Source data are regularly assessed and validated.*	3.3.1 Source data—including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide planning.
	3.4 Assessment and validation of intermediate data and statistical outputs.-*Intermediate results and statistical outputs are regularly assessed and validated.*	3.4.1 Main intermediate data are validated against other information where applicable. 3.4.2 Statistical discrepancies in intermediate data are assessed and investigated. 3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.
	3.5 Revision studies – *Revisions, as a gauge of reliability, are tracked and mined for the information they may provide.*	3. 5.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes.

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Quality Dimensions	Elements	Indicators
4. Serviceability *Statistics are relevant, timely, consistent, and follow a predictable revisions policy.*	**4.1 Relevance –** *Statistics cover relevant information on the subject field*.	4.1.1 The relevance and practical utility of existing statistics in meeting users' needs are monitored.
	4.2 Timeliness and periodicity – *Timeliness and periodicity follow internationally accepted dissemination standards.*	4.2.1 Timeliness follows dissemination standards. 4.2.2 Periodicity follows dissemination standards
	4.3 Consistency – *Statistics are consistent within the dataset, over time, and with other major datasets.*	4.3.1 Statistics are consistent within the dataset (e.g., accounting identities observed). 4.3.2 Statistics are consistent or reconcilable over a reasonable period of time. 4.3.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.
	4.4 Revision policy and practice – *Data revisions follow a regular and publicized procedure.*	4.4.1 Revisions follow a regular, well-established and transparent schedule. 4.4.2 Preliminary data are clearly identified. 4.4.3 Studies and analyses of revisions are made public.

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Quality Dimensions	Elements	Indicators
5. Accessibility *Data and metadata are easily available and assistance to users is adequate.*	**5.1 Data accessibility –** *Statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis.*	5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts). 5.1.2 Dissemination media and formats are adequate. 5.1.3 Statistics are released on a pre-announced schedule. 5.1.4 Statistics are made available to all users at the same time. 5.1.5 Non-published (but non-confidential) sub-aggregates are made available upon request.
	5.2 Metadata accessibility – *Up-to-date and pertinent metadata are made available.*	5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from internationally accepted standards, guidelines or good practices are annotated. 5.2.2 Levels of detail are adapted to the needs of the intended audience.
	5.3 Assistance to users – *Prompt and knowledgeable support service is available.*	5.3.1 Contact person for each subject field is publicized. 5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.

[1] The elements and indicators included here bring together the "pointers to quality" that are applicable across the five identified dimensions of data quality.