

INTERNATIONAL MONETARY FUND

**Supplement to the
Sixth Review of the Fund’s Data Standards Initiatives
Metadata Standardization in the Data Quality Program**

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(In consultation with other departments)

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July 1, 2005

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ACRONYMS

DQAF	Data Quality Assessment Framework
DQP	Data Quality Program
GDDS	General Data Dissemination System
PARIS21	Partnership in Statistics for Development in the 21 st Century
ROSC	Report on the Observance of Standards and Codes
SDDS	Special Data Dissemination Standard
SDMX	Statistical Data and Metadata Exchange
TA	Technical Assistance
TAIMS	Technical Assistance Information Management System

I. INTRODUCTION

1. At the Fifth Review of the Fund's Data Standards Initiatives in July 2003, Executive Directors welcomed the Data Quality Program's (DQP's) integration of these initiatives, sharpening their focus on data quality assessment as well as identifying and promoting good statistical practices.¹ The DQP's Data Quality Assessment Framework (DQAF) provides the common metadata structure integrating the DQP's three principal components.
2. The DQAF already is the underlying structure for two key components of the DQP: (1) the Data Module of the Report on the Observance of Standards and Codes (data ROSC) and (2) the Fund Statistics Department's (STA's) Project Management System for technical assistance (TA). This Supplement describes how the staff proposes to achieve further synergies by mapping the DQAF into the metadata structure of the DQP's other key component: (3) the data transparency initiatives comprising the Special Data Dissemination Standard (SDDS) and General Data Dissemination System (GDDS).
3. This last integration will not change the four-dimensional metadata structure of the SDDS Annex and the GDDS Document,² comprising data, quality, integrity, and access. It also will not change the six aspect summary methodology of the SDDS and comprehensive framework of the GDDS. Instead, it replaces the existing "prompt points," written by the staff to aid countries in drafting metadata for the above dimensions and aspects, with the detailed components of the DQAF.³ The staff proposes to parse countries' existing metadata into these DQAF "prompt points," forward the results to the countries for approval, and, on receipt of their approval, use these deconstructed metadata as the basis for the metadata posted on the Dissemination Standards Bulletin Board.^[k1]
4. Integrating the DQAF into the metadata model of the data transparency initiatives will enable direct linkages between the metadata maintained through the SDDS and GDDS and comparable metadata from the detailed assessment (section III) of the Data ROSC. It also will sharpen the role of the GDDS in planning national statistical development and coordinating the supporting statistical TA.

¹ The Acting Chair's Summing Up—Fifth Review of the Fund's Data Standards Initiatives—Executive Board Meeting 03/66—July 9, 2003, [Public Information Notice No. 03/86](#), July 23, 2003 (PIN No. 03/86)

² See the [SDDS Annex](#), as amended, and [GDDS Document](#), as amended, of [Selected Decisions and Selected Documents of the International Monetary Fund, Article VIII, Section 5, Furnishing of Information](#).

³ For latest set of existing prompt points, see the *GDDS Guide, Updated October 2004*, Appendix V, at <http://dsbb.imf.org/vgn/images/pdfs/gddsguide.pdf>.

5. Within the Fund, all of these integration initiatives will materially support the prospective Data Warehouse project. This project is investigating the potential benefits of incorporating the Fund's databases into an integrated information technology environment comprising a repository for the databases and facilities for linking and documenting them. STA is the focal point of this project, which is a joint undertaking of STA, Fund area departments, and the Fund Research Department.

6. In an ongoing complementary effort, the Fund has been participating in an interagency initiative to streamline electronic data interchange between institutions. The SDMX initiative will make the electronic exchange of data and metadata across organizations more fully automated and more accurate by eliminating transcription errors. This includes data transfers among international organizations, among government agencies, among units within these organizations (such as Fund Departments), and among all of these groups.

7. Section II describes the key role of the DQAF for guiding STA's activities with countries, notably in the data ROSC and STA's TA; Section III outlines the advantages of using the DQAF structure for SDDS and GDDS metadata; and Section IV describes the plan for migrating existing metadata to the DQAF structure. Section V describes the work taking place under the SDMX initiative and the DQAF's role in setting standards for metadata content.

II. THE DATA QUALITY ASSESSMENT FRAMEWORK

8. The DQAF, the heart of the DQP, provides a methodology that covers every aspect of the data compilation and dissemination cycle. It captures key aspects of this cycle by focusing on the quality-related features of the governance of statistical systems, their core statistical processes, and their statistical products. Rooted in the *United Nations Fundamental Principles of Official Statistics*, it is the product of an intensive consultation with national and international statistical authorities and data users inside and outside the Fund. The DQAF has a cascading topical classification structure. Its top level comprises six one-digit *dimensions*: (0) prerequisites of quality, (1) assurances of integrity, (2) methodological soundness, (3) accuracy and reliability, (4) serviceability, and (5) accessibility (see Appendix I). Within each dimension, the DQAF contains one or more two-digit *elements*, and within each element, one or more three-digit *indicators*. This structure is common to all datasets.⁴ Within each indicator, the DQAF's detailed structure becomes specialized to the subject matter of each dataset.

⁴ Currently, the DQAF applies to macroeconomic datasets for the real, fiscal, financial, and external sectors. Much of its structure, however, would apply with minor adaptation to other types of statistical datasets, such as those contained in the socio-demographic sector of the GDDS, that are usefully linked with the macroeconomic datasets in assessing and tracking economic and social development. To explore this

(continued...)

9. By providing an organizing model of internationally accepted good practices, including internationally accepted methodologies, the DQAF facilitates the comparison of national practices against best practices. Hence, it guides staff in assessing national practices and provides a systematic, yet flexible, structure for the Data ROSC.

10. In addition to its use in data ROSCs, the DQAF has been applied in the Fund's statistical TA program as a guide to identify areas for improvement, make recommendations, and evaluate the outcomes of TA projects. More recently, STA's implementation of the Fund-wide Technical Assistance Information Management System (TAIMS) has taken advantage of the DQAF methodology to structure the various aspects of TA missions' tasks. The Partnership in Statistics for Development in the 21st Century (PARIS21) also has incorporated the DQAF into its statistical capacity building indicators.

III. THE REVISED METADATA STRUCTURE OF THE SDDS AND GDDS

11. The SDDS and GDDS metadata components are alternative aggregations of the DQAF's *indicators*. The SDDS/GDDS metadata model has somewhat narrower scope than the DQAF because the former excludes some DQAF indicators, notably in the DQAF's dimension 0, comprising topics under prerequisites of quality. These deal with legal and institutional arrangements not envisaged under the dissemination practices orientation of the SDDS and GDDS.

12. The mapping of the SDDS and GDDS metadata elements to the three-digit indicators of the DQAF should provide substantial opportunity for realizing efficiencies in and increasing the effectiveness of STA's technical assistance and data ROSC work, as well as materially supporting the Data Warehouse project. Prospective work integrating the GDDS plans for improvement with the three-digit DQAF structure should strengthen the GDDS as a capacity-building framework for the Fund and other TA providers. The Fund already structures its statistics TA programs according to the three-digit DQAF. For the Fund, the consolidation of the GDDS plans for improvement with the TAIMS, both following the structure of the DQAF, will help to eliminate duplication across STA TA activities. Furthermore, merging the DQAF structure into the data dissemination standards makes the data ROSC reports and updates a direct source of metadata for the GDDS and SDDS, eliminating unnecessary redrafting. At the same time, supplying data ROSCs with metadata already in the DQAF format from the DSBB presents potentially significant increased efficiencies in data ROSC mission preparation and mission activities while in country.

possibility, Fund and World Bank staff could jointly examine development of a DQAF variant for this data sector.

IV. MIGRATING SDDS/GDDS METADATA TO THE DQAF STRUCTURE

13. The SDDS and GDDS metadata reside in a database, content management, and web-dissemination system collectively known as the Dissemination Standards Bulletin Board (DSBB). The staff intends to take a phased approach to migrating the existing metadata of the DSBB to the DQAF structure. The migration process will not burden member countries subscribing to the SDDS or participating in the GDDS. STA staff will parse existing information into the relevant three-digit DQAF indicators. Newly parsed metadata will be forwarded to countries for review, update, and approval in the context of the required quarterly SDDS metadata certification and annual GDDS metadata updates. To support conversion and maintenance of the metadata in the new format, the staff will implement updated versions of the Microsoft Word templates now used for reporting annual GDDS metadata and metadata updates, modified to incorporate DQAF three-digit topics. The new templates will be used for the SDDS quarterly metadata certification and update process as well as the annual GDDS metadata update process.

14. A future refinement of the process for reporting metadata would provide SDDS subscribers and GDDS participants the option of using web forms rather than Word templates in reporting and updating metadata. Still another option for future metadata capture would take advantage of prospective adoption by countries and international organizations of the developing Statistical Data and Metadata eXchange (SDMX) and eXtensible Markup Language (XML) encoding and decoding protocols for displaying web pages and exchanging statistical information. The term for the combination of these protocols is SDMX-ML. In this scenario, the Fund could directly scan public websites disseminating metadata organized according to the DQAF and encoded with SDMX-ML protocols without needing a formal “reporting” mechanism. Section V below elaborates further on the initiative to develop the SDMX by an interagency consortium including the IMF.

15. On the DSBB, the SDDS and GDDS metadata will continue to be available in the current presentation formats familiar to DSBB users. As the underlying metadata will be structured according to the DQAF, another view of the metadata, based on the cascading structure of the DQAF, also will be provided on the DSBB. Appendix II contains preliminary mappings of the SDDS and GDDS metadata elements to the three-digit indicators of the DQAF.

V. THE SDMX INITIATIVE

16. The SDMX initiative brings together several international organizations to foster greater efficiencies in data and metadata exchange. The goal is to establish standards and foster best-practices for exchanging statistical information, increasing data management/exchange efficiencies for SDMX partners. The SDMX website (<http://www.SDMX.org>) provides the most current information on the various projects taking place under the auspices of the SDMX initiative.

17. SDMX standards comprise two distinct but complementary sets of standards. The *technical* standards provide, inter alia, the specifications for the formats for the exchange of SDMX-structured data and metadata. These SDMX Version 1.0 Standards are an approved technical specification of the International Organization for Standardization (ISO/TS 17369:2005 SDMX). The other component of SDMX standards, the *content* standards, is required to standardize and harmonize the use of specific concepts and terminologies when exchanging statistical information, a necessary step to encourage interoperability of exchange flows.

18. The cascading structure of the DQAF is at the core of the SDMX proposal for reference metadata⁵ content standards. This approach is consistent with the future work on the DQAF identified at the time of the Fifth Review,⁶ i.e., collaboration with international organizations with the aim of reconciling the existing quality frameworks. The seven international organizations⁷ involved in the SDMX are collaborating with national statistical agencies and central banks to develop a structure for metadata content and exchange that is derived from the three-digit indicators of the DQAF.

⁵ The term “reference metadata” refers to metadata that provides information on every aspect of the data production cycle, such as data access, statistical concepts, compilation practices and methodologies, as well as agencies assuming responsibility for the production of data. SDDS and GDDS metadata are reference metadata.

⁶ See [Supplement 2 to the Fifth Review of the Fund’s Data Standards Initiatives on the Data Quality Assessment Framework and Data Quality Program](#).

⁷ The Bank for International Settlements, the European Central Bank, the IMF, the Organisation for Economic Cooperation and Development, the Statistical Office of the European Communities (Eurostat), the United Nations Statistics Division, and the World Bank.

Data Quality Assessment Framework—Generic Framework
(July 2003 Framework)

Quality Dimensions	Elements	Dimensions
<p>0. Prerequisites of quality</p>	<p>0.1 Legal and institutional environment – <i>The environment is supportive of statistics.</i></p> <p>0.2 Resources – <i>Resources are commensurate with needs of statistical programs.</i></p> <p>0.3 Relevance– <i>Statistics cover relevant information on the subject field.</i></p> <p>0.4 Other quality management – <i>Quality is a cornerstone of statistical work.</i></p>	<p>0.1.1 The responsibility for collecting, processing, and disseminating the statistics is clearly specified.</p> <p>0.1.2 Data sharing and coordination among data-producing agencies are adequate.</p> <p>0.1.3 Individual reporters’ data are to be kept confidential and used for statistical purposes only.</p> <p>0.1.4 Statistical reporting is ensured through legal mandate and/or measures to encourage response.</p> <p>0.2.1 Staff, facilities, computing resources, and financing are commensurate with statistical programs.</p> <p>0.2.2 Measures to ensure efficient use of resources are implemented.</p> <p>0.3.1 The relevance and practical utility of existing statistics in meeting users’ needs are monitored.</p> <p>0.4.1 Processes are in place to focus on quality.</p> <p>0.4.2 Processes are in place to monitor the quality of the statistical program.</p> <p>0.4.3 Processes are in place to deal with quality consideration in <u>planning the statistical program.</u></p>
<p>1. Assurances of integrity</p> <p><i>The principle of objectivity in the collection, processing, and dissemination of statistics is firmly adhered to.</i></p>	<p>1.1 Professionalism – <i>Statistical policies and practices are guided by professional principles.</i></p> <p>1.2 Transparency – <i>Statistical policies and practices are transparent.</i></p> <p>1.3 Ethical standards – <i>Policies and practices are guided by ethical standards.</i></p>	<p>1.1.1 Statistics are produced on an impartial basis.</p> <p>1.1.2 Choices of sources, statistical techniques and decisions about dissemination are informed solely by statistical considerations.</p> <p>1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.</p> <p>1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.</p> <p>1.2.2 Internal governmental access to statistics prior to their release is publicly identified.</p> <p>1.2.3 Products of statistical agencies/units are clearly identified as such.</p> <p>1.2.4 Advanced notice is given of major changes in methodology, source data, and statistical techniques.</p> <p>1.3.1 Guidelines for staff behavior are in place and are well known to the staff.</p>

Quality Dimensions	Elements	Dimensions
<p>2. Methodological soundness</p> <p><i>The methodological basis for the statistics follows internationally accepted standards, guidelines, or good practices.</i></p>	<p>2.1 Concepts and definitions – <i>Concepts and definitions used are in accord with internationally accepted statistical frameworks.</i></p> <p>2.2 Scope – <i>The scope is in accord with internationally accepted standards, guidelines, or good practices.</i></p> <p>2.3 Classification/sectorization – <i>Classification and sectorization systems are in accord with internationally accepted standards, guidelines, or good practices.</i></p> <p>2.4 Basis for recording – <i>Flows and stocks are valued and recorded according to internationally accepted standards, guidelines, or good practices.</i></p>	<p>2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.</p> <p>2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines, or good practices.</p> <p>2.3.1 Classification/sectorization systems used are broadly consistent with internationally accepted standards, guidelines, or good practices.</p> <p>2.4.1 Market prices are used to value flows and stocks.</p> <p>2.4.2 Recording is done on an accrual basis.</p> <p>2.4.3 Grossing/netting procedures are broadly consistent with internationally accepted standards, guidelines, or good practices.</p>
<p>3. Accuracy and reliability</p> <p><i>Source data and statistical techniques are sound and statistical outputs sufficiently portray reality.</i></p>	<p>3.1 Source data – <i>Source data available provide an adequate basis to compile statistics.</i></p> <p>3.2 Assessment of source data – <i>Source data are regularly assessed.</i></p> <p>3.3 Statistical techniques – <i>Statistical techniques employed conform to sound statistical procedures.</i></p> <p>3.4 Assessment and validation of intermediate data and statistical outputs – <i>Intermediate results and statistical outputs are regularly assessed and</i></p>	<p>3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions.</p> <p>3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required.</p> <p>3.1.3 Source data are timely.</p> <p>3.2.1 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.</p> <p>3.3.1 Data compilation employs sound statistical techniques to deal with data sources.</p> <p>3.3.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.</p> <p>3.4.1 Intermediate results are validated against other information where applicable.</p> <p>3.4.2 Statistical discrepancies in intermediate data are assessed and investigated.</p> <p>3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are</p>

Quality Dimensions	Elements	Dimensions
	<p><i>validated.</i></p> <p>3.5 Revision studies – <i>Revisions, as a gauge of reliability, are tracked and mined for the information they may provide.</i></p>	<p>investigated.</p> <p>3.5.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes (see also 4.4.3).</p>
<p>4. Serviceability</p> <p><i>Statistics are relevant, timely, consistent, and follow a predictable revisions policy.</i></p>	<p>4.1 Timeliness and periodicity – <i>Timeliness and periodicity follow internationally accepted dissemination standards.</i></p> <p>4.2 Consistency – <i>Statistics are consistent within the dataset, over time, and with major datasets.</i></p> <p>4.3 Revision policy and practice – <i>Data revisions follow a regular and publicized procedure.</i></p>	<p>4.1.1 Timeliness follows dissemination standards.</p> <p>4.1.2 Periodicity follows dissemination standards.</p> <p>4.2.1 Statistics are consistent within the dataset.</p> <p>4.2.2 Statistics are consistent or reconcilable over a reasonable period of time.</p> <p>4.2.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.</p> <p>4.3.1 Revisions follow a regular and transparent schedule.</p> <p>4.3.2 Preliminary and/or revised data are clearly identified.</p> <p>4.3.3 Studies and analyses of revisions are made public (see also 3.5.1).</p>
<p>5. Accessibility</p> <p><i>Data and metadata are easily available and assistance to users is adequate.</i></p>	<p>5.1 Data accessibility – <i>Statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis.</i></p> <p>5.2 Metadata accessibility – <i>Up-to-date and pertinent metadata are made available.</i></p> <p>5.3 Assistance to users – <i>Prompt and knowledgeable support service is available.</i></p>	<p>5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts).</p> <p>5.1.2 Dissemination media and format are adequate.</p> <p>5.1.3 Statistics are released on a pre-announced schedule.</p> <p>5.1.4 Statistics are made available to all users at the same time.</p> <p>5.1.5 Statistics not routinely disseminated are made available upon request.</p> <p>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.</p> <p>5.2.2 Levels of detail are adapted to the needs of the intended audience.</p> <p>5.3.1 Contact points for each subject field is publicized.</p> <p>5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.</p>

MAPPING OF SDDS AND GDDS METADATA TO THE THREE-DIGIT DQAF

**Table A1. SDDS and GDDS Data, Quality, Integrity, and Access
Integrated with the DQAF
Three-digit DQAF topics covered by SDDS and GDDS Dimensions**

The Data: Coverage, Periodicity, and Timeliness
Coverage.
2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards
2.2.1 The scope is broadly consistent 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.
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.
3.1.1 Source data are obtained 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.
3.3.1 Data compilation employs sound statistical techniques to deal with data sources.
3.3.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.
3.4.1 Intermediate results 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 or problems in statistical outputs are investigated.
5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts).
Periodicity:
4.1.1 Periodicity follows dissemination standards.
Timeliness:
4.1.2 Timeliness follows dissemination standards.

Quality
Documentation of Methodology
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.
5.3.2 Catalogs of publications, documents, and other services, including information on any charges, are widely available.
Data to Support Cross-checks and Assurance of Reasonableness
4.2.1 Statistics are consistent within the dataset.
4.2.2 Statistics are consistent or reconcilable over a reasonable period of time.
4.2.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.
5.1.5 Statistics not routinely disseminated are made available upon request.
Integrity
a. Terms and Conditions Under Which Data are Produced and Disseminated.
0.1.1 The responsibility for collecting, processing, and disseminating the statistics is clearly specified.
0.1.2 Data sharing and coordination among data-producing agencies are adequate.
0.1.3 Individual reporters' 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.
1.1.1 Statistics are produced on an impartial basis.
1.1.2 Choices of sources and statistical techniques as well as decisions about dissemination are informed solely by statistical considerations.
1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.
1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.
1.3.1 Guidelines for staff behavior are in place and are well known to the staff.
b. Identification of Internal Government Access to Data Before Release
1.2.2 Internal governmental access to statistics prior to their release is publicly identified.
c. Identification of Ministerial Commentary on the Occasion of Statistical Releases:
1.2.3 Products of statistical agencies/units are clearly identified as such.
d. Provision of Information about Revisions and Advance Notice of Major Changes in Methodology:
1.2.4 Advanced notice is given of major changes in methodology, source data, and statistical techniques.
3.5.1 Studies and analyses of revisions are carried out routinely and used internally to inform statistical processes (see also 4.3.3).
4.3.1 Revisions follow a regular and transparent schedule.
4.3.2 Preliminary and/or revised data are clearly identified.
4.3.3 Studies and analyses of revisions are made public (see also 3.5.1).

Access by the Public**a. Simultaneous Release to the Public**

5.1.4 Statistics are made available to all users at the same time.

b. Advance Release Calendars

5.1.3 Statistics are released on a preannounced schedule.

Table A2. SDDS Summary Methodology and GDDS Comprehensive Framework Integrated with the DQAF

**Three-digit DQAF topics covered by SDDS Summary Methodology/
GDDS Comprehensive Framework Aspects**

<p>I. Analytical Framework, Concepts, Definitions, and Classifications</p> <p>Analytical Framework, Concepts and Definitions</p> <p>2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.</p> <p>Classification System</p> <p>2.3.1 Classification/sectorization systems used are broadly consistent with internationally accepted standards, guidelines, or good practices.</p>
<p>II. Scope of the Data</p> <p>2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines, or good practices.</p>
<p>III. Accounting Conventions</p> <p>2.4.1 Market prices are used to value flows and stocks</p> <p>2.4.2 Recording is done on an accrual basis</p> <p>2.4.3 Grossing/netting procedures are broadly consistent with internationally accepted standards, guidelines, or good practices.</p>
<p>IV. Nature of the Basic Data Sources</p> <p>3.1.1 Source data are obtained from comprehensive data collection programs that take into account country-specific conditions</p> <p>3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required.</p> <p>3.1.3 Source data are timely.</p> <p>3.2.1 Source data—including censuses, sample surveys, and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and nonsampling error; the results of the assessments are monitored and made available to guide statistical processes.</p>
<p>V. Compilation Practices</p> <p>3.3.1 Data compilation employs sound statistical techniques to deal with data sources.</p> <p>3.3.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.</p> <p>3.4.1 Intermediate results are validated against other information where applicable.</p> <p>3.4.2 Statistical discrepancies in intermediate data are assessed and investigated.</p> <p>3.4.3 Statistical discrepancies and other potential indicators or problems in statistical outputs are investigated.</p> <p>3.5.1 Studies and analyses of revisions are carried out routinely and used internally to inform statistical processes (see also 4.3.3).</p>

VI. Other Aspects

4.2.1 Statistics are consistent within the dataset.

4.2.2 Statistics are consistent or reconcilable over a reasonable period of time.

4.2.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.

4.3.1 Revisions follow a regular and transparent schedule.

4.3.2 Preliminary and/or revised data are clearly identified.

4.3.3 Studies and analyses of revisions are made public (see also 3.5.1).