Qatar National Quality Assurance Framework (QNQAF)

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PREFACE

Being the official source of statistical data and the custodian of the data repository in the State of Qatar, the responsibility of QSA is multifaceted. QSA is committed to provide quality data to Government agencies, stakeholders, and the academic community to meet their demands. This document, Qatar National Quality Assurance Framework (QNQAF) is an Institutional Framework to assist QSA and other national producers of statistics in the process of collection, classification, analysis and interpretation and dissemination of data and indicators for better decision making and evidence-based policy. Further steps will be taken to develop generic quality assurance frameworks for individual areas of requirement, for example, household surveys.

It is expected that this framework will provide a mechanism for facilitating the identification of quality problems and possible actions for their resolution. We hope earnestly that this document will serve as a guideline for the authority to serve the nation in more meaningful ways and provide a basis for creating and maintaining a quality culture within the organization and contains reference material that can be helpful for training.

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Abbreviations and Acronyms

CPI: Consumer Price Index.

CSA: Classification of Statistical Activities.

ESA: European System of Accounts.

GDP: Gross Domestic Product.

GNI: Gross National Income.

IMF: International Monetary Fund.

MoU: Memorandum of Understanding.

NQAF: National Quality Assurance Framework.

NSDS: National Strategy for the Development of Statistics.

NSS: National Statistical System.

PPI: Producer Price Index.

PPP: Purchasing Power Parity.

QNQAF: Qatar National Quality Assurance Framework.

QSA: Qatar Statistics Authority.

SDMX: Statistical Data and Metadata Exchange.

SLA: Service Level Agreements.

SNA: System of National Accounts.

UN: United Nations.

Quality Assurance Framework at QSA

1.Quality context:

1a.Circumstances and key issues driving the need for the development of a Quality Assurance Framework at QSA.

Following the publication "*Guidelines for the Template for a Generic National Quality Assurance Framework*", of the UN in February 2012, a team was set up at QSA to study the guidelines and to make a proposal for the formulation of a quality assurance framework for QSA.

At QSA, data quality is defined in "terms of its fitness" for use. This is a multidimensional concept embracing both the relevance of information for users' needs, and characteristics of the data such as accuracy, timeliness, accessibility, interpretability and coherence. Most operations and functions of QSA have an impact on the quality of the organization's products. The management of quality is therefore an integral part of the management of every activity, and an important component of the Agency's management, similar to, data collection management, human resource management, the management of respondent relations, or the management of data dissemination.

1b. Benefits and Challenges:

Benefits:

The main benefits of having a quality assurance framework in place are:

- It provides a systematic mechanism for facilitating the ongoing identification of quality problems and possible actions for their resolution. At the same time, it serves to stimulate and maximize the interaction among staff throughout the organization;
- It gives greater transparency to the processes by which quality is assured and reinforces the image of the office as a credible provider of good quality statistics;
- It provides a basis for creating and maintaining a quality culture within the organization and contains reference material that can be helpful for training;
- It supports quality improvements and their maintenance over time;

- It is a mechanism for the exchange of ideas on quality management with other producers of statistics within the national statistical system (NSS) and with other national and international statistical organizations.

Challenges:

- A common understanding of the meaning of quality in the context of official statistics.
- A shift from typical "old" notion of quality as being synonymous with accuracy to the more current one, in which quality, when referring in particular to statistical outputs, encompasses many other dimensions such as relevance, timeliness, punctuality, accessibility, clarity, coherence, comparability etc.
- Concrete practical examples of other countries' experience and results.

1c. Relationship to other statistical agency policies, strategies and frameworks

The quality assurance framework should be developed and implemented in an integrated manner with existing policies and strategies, to achieve the QSA mission and vision statements.

- NSDS: In 2009, QSA developed the National Strategy for the Development of Statistics (NSDS) for the purpose of strengthening statistical capacity across the entire Qatar NSS. The NSDS objectives are consistent with those of the State of Qatar's national development policy and goals. The NSDS addresses all statistical aspects including data collection, analysis, dissemination and use, from censuses, surveys and administrative systems, as well as mechanisms for coordination and consultation.
- The Statistical Act was passed in 2011.
- The UN Fundamental Principles of Official Statistics are closely followed by the Agency.

2. Quality Concepts and Frameworks

Concepts and terminology

- ISO 9000 (the most widely used quality standard).

  ISO is an internationally recognized quality management system. ISO 9000 is not a single standard. The ISO 9000 family is a set of international quality standards and guidelines which has earned a global reputation as the basis for establishing quality management systems. ISO

9001, ISO 9002 or ISO 9003 are the three quality assurance models of ISO against which organizations can be certified.

ISO 9000 describes a set of rules to be adopted and best practices that should exist in any organization that claim to possess a good quality management system. This is to ensure the organization consistently provides best quality services to its customers and stakeholders to enhance their satisfaction. The major requirements of ISO 9001 are based on eight management principles: a customer focused organization, leadership, the involvement of staff, ensuring a process approach, a systematic approach to management, a factual approach to decision making, mutually beneficial supplier relations and continuous improvement.

The ISO standard provides a general framework for quality management and is targeted towards manufacturing organizations. New standards for quality management are needed which target other sectors like Health care, Universities, Environmental Organizations and Public Services. In future QSA may consider to go for ISO certification.

- UN Family of statistical classifications.
  The international family of economic and social classifications is comprised of those classifications that have been registered into the United Nations Inventory of classifications, reviewed and approved as guidelines by the United Nations Statistical Commission or other competent intergovernmental board on such matters as economics, demographics, labour, health, education, social welfare, geography, environment and tourism. QSA is following this pattern in its activities.
  The international family of economic and social classifications are comprised of reference classifications, derived classifications and related classifications. Reference classifications of the family are those economic and social classifications that are a product of international agreements approved by the United Nations Statistical Commission or another competent intergovernmental board. Derived classifications of the family are based upon reference classifications prepared either by adopting the reference classification structure and categories and then possibly providing additional detail beyond that provided by the reference classification, or they may be prepared through rearrangement or aggregation of items from one or more reference classification. Related classifications are those that partially refer to reference classifications, or that are associated with the reference classification at specific levels of the structure only.
  (source: Statistical Commission)

- Generic Statistical Business Process Model Eurostat Quality Glossary.
  The Generic Statistical Business Process Model (GSBPM) is a cornerstone of work on the standardization and industrialization of statistical production. It was launched in 2009 by the Conference of European Statisticians Steering Group on Statistical Metadata (METIS), and was originally intended as a tool to facilitate harmonization of terminology and benchmarking of statistical production processes within and between organizations. The GSBPM has since been adopted by many countries around the world, and is increasingly being used for other purposes such as strategic resource management, process quality management and as a classification framework for statistical standards and software. See annex (2)

3. Quality assurance guidelines:

3a. Managing the National Statistical System (NSS):

3a.1. Coordinating the NSS:

- Designation of a coordination body with QSA as mentioned in the Statistics Act.
- Availability of mechanisms to facilitate the cooperation among the NSS.
- Availability of methodological guidelines.
- Sharing of technical knowledge.
- Promotion of the Standards.

3a.2. Managing relations with data users and data providers

At the Agency level:
- Identification of the stakeholders.
- Service Level Agreements (SLA).
- Informed information to the stakeholders.
- Availability of a consultative body.

In regard to users:
- Availability of users Committees.
- Periodic discussions with users.
- Strategies to service the users' need through a combination of print, electronic etc.

Data providers:
- Availability of a provider management policy.

- Consulting with provider organizations.
- Access to registers.
- Memorandums of Understanding (MoUs)with data provider agencies.

  In regard to media:
- Availability of a media strategy.
- Responding to claims of the media.
- Role of media in dissemination of statistical products.

3a.3 Managing Statistical standards:

There are basically two broad types of standards, those applied to the structure and contents of the data, and those applied to the structure and content of the metadata.

Elements to be assured :

At the Agency level:

• Work towards the development of statistical standards with other agencies.
• Create a unit to be responsible for the development of standards and programme/domain.
• Monitor the use of standards by other statistical programs.
• Prepare regular reports explaining to what extent the standards are being used.
• Educate staff on the statistical standards.

At the programme design stage:
• Involve all stakeholders in developing and approving the statistical standards.
• Develop statistical standards in conformity with the International standards.

At the programme implementation stage:
• Use of International conceptual frameworks like the System of National Accounts (SNA).
• Communication of the statistical standards.
• Set deadlines for the development of applications.
• Make statistical standards accessible to all.
• Share the statistical standards with all the stakeholders.

Supporting mechanisms:

• A Central Unit should be set up at QSA to lead and coordinate the development of standards.
• The integrated and conceptual framework should be based on statistical standards.

- Active participation of data users and data providers in the development of statistical standards is required.
- Active participation with other national and international organizations in development, review, promotion and implementation of statistical standards is also needed.

3b. Managing the Institutional Environment:

3b.1. Assuring Professional Independence:

The QSA will develop, produce and disseminate statistics without any political or other interference or pressure from other government agencies or policy, regulatory or administrative departments and bodies, the private sector or any other persons or entities which may be considered as potential conflicts of interest. Such professional independence and freedom from inappropriate influence ensures the credibility of official statistics.

- Law - Law Number 2 of 2011 on Official Statistics grants QSA the authority to conduct censuses and surveys and provides that any other entity that wishes to do a survey needs to have permission from QSA. The law charges QSA with the responsibility to protect data so that the identification of any person or business will not happen without their permission. There are penalties stipulated in the law for anyone not complying.

- Head of statistical agency - The head of the agency, the President, is appointed by the Prime Minister for an indeterminate amount of time and does not report to any other Ministry. The President is charged with conducting censuses and surveys "related to social, economic, environmental and climatic aspects, work force, and everything related to the status of the society and its activities including the data related to the licenses, budgets, final accounts, reports, documents and records related to the status and activities."

- Survey methodology documentation – Survey documentation is available online and also in survey publications. Documentation includes definitions, sampling plans, data collection methodology, and editing and tabulation methodology.

3b.2. Assuring Impartiality and Objectivity:

QSA will develop, produce and disseminate statistics respecting scientific independence and in a manner that is professional, transparent, neutral and unbiased, in which all users are treated equitably.

- Code of conduct – The QSA follows statistical standards in all its work using the UN Principles and Recommendations and other recognized international guidelines. A code of conduct is implied and the statistical law requires compliance or there are severe penalties.

- Recruitment and hiring – Recruitment is based on relevant aptitude and expertise   in statistics or other relevant subject matters. Promotions are based on merit.
- Data dissemination policy – Data dissemination is based on statistical   considerations and international standards using the most relevant technology.
- Release calendar – A release calendar is on the QSA website. Updates are done as necessary.
- Errors identified – Errors in data releases are identified with new releases.

3b.3. Assuring Transparency:

QSA's policies and practices are documented and available to users, survey respondents and the public. Products of QSA are clearly identified as such.

- Terms and conditions – QSA will supply information on how statistics are   developed, produced and disseminated to the public.
- Pre-release access to data – If there is any pre-release of data the QSA will identify to whom it does this.
- Legal basis and confidentiality – QSA identifies the authority for surveys in each household, establishment or other survey it conducts. Confidentiality is protected and each respondent is provided with information on the protection of their responses.
- Statistical products are identified – All QSA products are identified as such.
- Advance notice of changes in methodology – Advance notice is given of major changes in methodology, source data, and statistical techniques.

3b.4. Assuring Statistical Confidentiality and Security

QSA protects the privacy of data providers, their information is kept confidential, is not be accessible to unauthorized internal or external users, and is used for statistical purposes only. Statistics are not confidential if they allow statistical units or persons to be identified either directly or indirectly.

- Guarantee of confidentiality–The statistics law guarantees the proper   management of information from data providers. There are severe penalties for   any disclosure.
- Codes of practice and standards – Appropriate codes of practice are in place to ensure statistical data about individual respondents remain confidential and are only released in line with the statistics law and data dissemination policies.
- Data dissemination policy – The QSA has a data dissemination policy about how statistics are to be disseminated to users and under what circumstances micro   data may be made available for research and further analysis.
- Micro-data anonymization – The QSA ensures that micro data are not released   that identify any individual respondent.

- Penalties for release of confidential data – The statistics law provides severe penalties for any statistical staff or other personnel that are found guilty of activities leading to the release of confidential data.

3b.5. Assuring Quality Commitment:

The QSA will assure quality in its work and systematically and regularly identify strengths and weaknesses to continuously improve process and product quality. Processes, staff and facilities are in place to ensure that data produced are commensurate with quality objectives.

- Quality policy will be made public - The data quality assurance framework will be available to anyone on the QSA website.
- Culture of continuous improvement – There is systematic documentation of methodology and processes as well as the exchange of good statistical practices including the monitoring assessment and improvement of statistical operations.
- Quality office – Quality is the responsibility of each employee.
- Guidelines for quality management – Statistical processes are described in the methodology for each survey or census and there is also a description of the methods for monitoring quality in each stage.
- Periodic reviews of product processes – Periodic reviews of key products are made to ensure adherence to internal guidelines and international standards.
- Staff training on the importance of quality – Staff are trained to ensure their awareness of the statistical quality policy.

3b.6. Assuring Adequacy of Resources

Financial, human and technological (IT) resources are available to QSA and are adequate both in magnitude and quality, and sufficient to meet the needs of the development, production and dissemination of statistics.

- Financial and human resources sufficient – These are sufficient to implement the statistical work program.
- Technological resources sufficient – These resources (hardware, software, etc.) are available to support the statistical production process.
- Standardized production and dissemination systems – The QSA makes every effort to standardize production processes to enable better use of resources and technology.

3c. Managing Statistical Processes:

3c.1. Assuring Methodological Soundness

The QSA will use sound statistical methodologies based on internationally agreed standards, guidelines and best practices consistent with established scientific principles.

- Ensure the use of statistical methodologies consistent with international standards, guidelines and established practices.
- Document the processes used for the development, collection, compilation and production of statistics and regularly review to assess their relevance, efficiency and effectiveness.
- Organize training and development programmes for the staff to acquire methodological knowledge.
- Establish a core group of experts to update methodologies and train staff in the statistical production units.
- Establish a software policy.
- Publish quality guidelines, standard operating procedure manuals and recommended practices handbooks for the use of staff. Additionally, establish a procedure for periodical validation, adaptation and sign-off of these standard manuals.

3c.2. Assuring Cost-Effectiveness:

The QSA will make effective use of resources for the conduct of statistical activities to achieve the objectives at the most optimal cost.

- Prepare guidelines and promote and implement standardized solutions that increase cost-effectiveness and efficiency.
- Ensure central monitoring of human and financial resources.
- Search possibilities for pooling of resources and investments.
- Develop and update an appropriate IT architecture.
- Make an assessment of administrative data sources prior to launching new surveys and encourage the use of administrative data.
- Develop procedures to measure and manage respondent burden.
- Conduct staff opinion surveys.

3c.3 Assuring Soundness of Implementation

QSA will implement statistical activities based on international standards and guidelines and the application of sound and scientific methodologies. The implementation process refers to all activities which lead to the production of statistics including design and preparations, data collection, data processing, assessment and compilation.

- Give more emphasis to technical competencies in human resource recruitment and capacity building programmes.
- Ensure risk management policies to analyze and respond to the uncertainties that may arise at different levels of implementation of a statistical process.
- Develop strategies for reporting quality measures related to the implementation process such as data collection, data capture and processing errors and non-sampling errors to officials and users.
- Develop a system for documentation, storage, retrieval and archiving all documents produced during the implementation process.
- Ensure the availability of cost-efficient hardware and software.

3c.4. Managing Respondent Burden:

The QSA will be knowledgeable of the burden placed on respondents in providing information. Policies should be developed to keep response rates high in surveys.

- Make use of all available sources of data including data items that are already collected or available from other surveys.
- The burden on respondents is measured in providing necessary survey information.
- Make use of sample surveys instead of censuses. Make sure that advanced sampling techniques are used to minimize sample sizes to achieve the prescribed level of accuracy.
- Offer multiple modes of collection of data to respondents and collect the data at the most appropriate time of day or year.
- Conduct surveys from central registers or other common frames to better record, assess and control response burden.
- Ensure respondents of confidentiality of the information provided by them.

3d. Managing Statistical Outputs:

Quality Assurance of statistical outputs means to assure relevance, accuracy and reliability, timeliness and punctuality, accessibility and clarity, coherence and comparability and providing metadata for all the products produced by national statistical offices.

3d.1. Relevance:

The relevance of the statistical information refers to the degree to which the product is meeting the current and emerging needs of current/potential users and stakeholders. The first step is to assess that the statistics currently produced by the agency are in fact needed and useful and also that statistics needed by users/stakeholders are produced. Some important steps to move forward in this regards are to:

- Set up an advisory council to get advice on overall statistical priorities.
- Develop a mechanism to identify data users, their needs.
- Set up procedures to prioritize user needs.
- Periodic consultations through advisory councils to assess the usefulness of data produced and to identify emerging needs.
- Set up a plan for coordination among different agencies to harmonize and standardized concepts, definitions, classifications.
- Measure user satisfaction.
- Metadata made available to users.

3d.2.Accuracy and Reliability:

The information collected for a specific purpose is correct and consistent over time. The accuracy of the data is measured by comparing data with other sources and also by the amount of sampling errors (errors due to sampling) and non- sampling errors (errors due to coverage, measurement, non-response and processing) present in the data produced. The reliability concerns whether the statistics consistently over time measure the reality that they are designed to represent. Some of the main steps to consider include:

- Apply statistical procedures, definitions, classifications that are internationally recognized.
- Measure and document sampling and non-sampling errors.
- Prepare methods and tools to prevent and reduce non-sampling errors.
- Set up a data revision policy including the timing and nature of revisions.
- Prepare guidelines to rectify errors in published reports.

3d.3.Timeliness and Punctuality:

The statistical agencies should minimize delays in making data available to data users/stakeholders. Timeliness refers to, how fast after the end of the reference period, data are released and punctuality means, whether data are delivered on announced/advertised dates. Following are some important steps that a statistical agency should take in order to assure timeliness and punctuality:

- Prepare release calendar in consultation with data users/providers.
- A policy distinguishing different statistical products and release procedures for each kind of product along with timeliness targets.
- Put procedures in place to inform users in case of any modifications in release calendar.
- Set up a policy for timeliness in accordance with the IMF data dissemination standards.
- Set up procedures to regularly monitor and evaluate the punctuality of every release.

- Set up procedures to ensure timely receipt of data from the data providers including follow up procedures.
- Develop quality indicators on timeliness to be regularly calculated, monitored and published.

3d.4.Accessibility and Clarity:

Provide all the products in a way that can be easily understood and accessible to all users. For appropriate use and proper understanding of data/statistics produced, information should be made available on underlying concept and definitions, data source, variables and classifications used, methods of data collection and indicators of quality of the information.

Main steps include:

- Develop a dissemination strategy.
- Consult data users to decide about modes of dissemination.
- Establish a user support service/center to handle specific data requests and provide answers to questions on results.
- Set up a policy to give access to micro data for researchers ensuring confidentiality.
- Provide users a product/publication catalogue.
- Produce methodological documents on concepts, classifications, statistical techniques etc.
- Archiving procedures for using statistics and metadata.
- User-friendly web access facilitating self-tabulations in different formats.

3d.5.Coherence and Comparability:

Produce statistics that are internally consistent and comparable over time using common standards with respect to scope, definitions, classifications and units. It should be possible to combine and make joint use of related data from different sources. Following are some of the steps to be assured:

- Set up a common repository of concepts, definitions and classifications.
- Set up procedures to ensure and monitor internal coherence and consistency.
- Set up standards regarding use of the same concept, definitions, classifications in all departments to make it possible to combine data from different sources.
- Develop a mechanism to assess/monitor that definition/concepts/classifications used are internationally acceptable and comparable.

3d.6.Managing Metadata:

Information about data that enable the user to understand all the attributes of the data. Statistical agencies should provide information about the data regarding underlying concepts, classifications used, methodology of data collection and indications of the quality of the information. The agency should:

- Develop guidelines for maintenance and dissemination of metadata.
- Prepare glossary of statistical terms to be available for data users.
- Arrange training program for staff on metadata.

4. Quality Assessment and Reporting.

The National Quality Assurance Framework for QSA will contain a section related to *"Quality Assessment and Reporting"*, in line with the guidelines of the UN Generic NQAF.

Methods will be set up both for evaluating the quality, for reporting on quality, and at a later stage, for the labeling of QSA's products. Such a framework would enable any assessor (self/internal/external auditor/peer reviewer) to make use of the same procedure to evaluate the quality of QSA's statistics both from the statistical production process and product point of view.

Having a solid system for the assessment of quality will support QSA's mission of being professional and credible as a producer of high-quality data. The establishment of a system of quality assessment and reporting will help with the development of a quality culture and greatly contribute to the accomplishment of QSA's mission and claim of being professional as a producer of high-quality official statistics.

The steps to follow for measuring product and process quality are as follows:

Step 1: Provide clear definitions of the quality concepts applicable to the statistical processes and products, for the following five components:

- Relevance.
- Accuracy and Reliability.
- Timeliness and Punctuality.
- Accessibility and Clarity.
- Coherence and Comparability.

Step 2: Define and develop quality indicators to measure each of the above components. Quality indicators are specific and measurable elements of statistical practice that can be used to characterize the quality of statistics.

Step 3: Set quality targets. Quality targets are the levels of requirements for the quality indicators.

4.1 Some examples of quantitative indicators in respect of process are:

- Resources and time used.
- Response rates.
- Response burden and
- Error rates during editing.

The use of quantitative indicators of quality helps in the monitoring and assessment of processes and products, over time. With such a transparent method, users can by themselves assess the quality of the statistical products.

4.2.Communicating about quality and the preparation of quality reports:

Communicating about the quality of a statistical process or product is accomplished through the preparation of reports that explain the characteristics of the process and the products, in terms of the selected criteria: relevance, accuracy, reliability, timeliness, punctuality, coherence, comparability, accessibility, etc. The results should be summarized in regular "quality reports". The Reports should also follow a standard structure in order to facilitate comparability of the quality indicators.

4.3.Obtaining feedback from users:

The next set of information required is users' feedback. Together with the producers of the statistics, users are key stakeholders in the data produced. Statistical agencies normally consult its users to collect information on their needs and perceptions of quality, through meetings and user satisfaction surveys. The results of this exercise provide inputs to the quality assessment and to the statistical auditing activities. The tools normally used are:

- Standardized questionnaires.
- Qualitative interviews.
- Web-based surveys.

The choice will depend on the resources available.

4.4. Conducting assessments: labeling and certification

Evaluation can be done in the form of:

- Self-assessments are comprehensive, systematic and regular reviews of the agency's activities and results referenced against a model framework. Self-assessment check lists are developed to be used for systematic assessment of the quality of the statistical production processes.
- Quality Audits are systematic, independent and documented processes for obtaining quality evidence concerning the quality of the statistical process and evaluating it objectively to determine the extent to which policies, procedures and requirements on quality are fulfilled. Such audits can be carried out by internal quality auditors, external auditors or by a suitably qualified expert.
- Peer reviews are a type of external audit which aims to assess a statistical process at a higher level not to check conformity with requirements item by item. It is a systematic examination of performance by another organization.

On the basis of all the information collected for the evaluation of process and product quality, some statistical offices would develop a system for the labeling of the products.

- Labeling of statistics conveys a message about the extent to which a set of quality standards is met.
- Certification is an activity which assesses whether a particular product, service, process or system complies with requirements defined by an internationally recognized standard or other formal criteria. Certification to ISO Standards is an advanced method/tool of process quality management. It requires the documentation, quality reports, quality indicators, self-assessment and audit.

4.5. Assuring continuous quality improvement:

The implementation of a quality approach following the different approaches described above will provide the necessary framework for continuous quality improvement. Further, if the new information on quality that becomes available is fed back into the statistical outputs and statistical production processes, a cycle of continuous improvement of the quality of the statistics produced will be established at QSA, as an integral part of its working practices.

Annex-1

CLASSIFICATION OF STATISTICAL ACTIVITIES (CSA REV. 1 - October 2009)

Domain 1: Demographic and social statistics:

1.1   Population and migration

1.2   Labour.

1.3   Education.

1.4   Health.

1.5   Income and consumption.

1.6   Social protection.

1.7   Human settlements and housing.

1.8   Justice and crime.

1.9   Culture and Sport

1.10   Political and other community activities.

1.11   Time use.

Domain 2: Economic statistics:

2.1   Macroeconomic statistics.

2.2   Economic accounts.

2.3   Business statistics.

2.4   Sectoral statistics.

2.4.1   Agriculture, forestry, fisheries.

2.4.2   Energy.

2.4.3   Mining, manufacturing, construction.

2.4.4   Transport.

2.4.5   Tourism.

2.4.6   Banking, insurance, financial statistics.

2.5   Government finance, fiscal and public sector statistics.

2.6   International trade and balance of payments.

2.7   Prices.

2.8   Labour cost.

2.9   Science, technology and innovation.

Domain 3: Environment and multi-domain statistics:

3.1   Environment.

3.2   Regional and small area statistics.

3.3   Multi-domain statistics and indicators.

3.3.1   Living conditions, poverty and cross-cutting social issues.

3.3.2   Gender and special population groups.

3.3.3   Information society.

3.3.4   Globalization.

3.3.5   Indicators related to the Millennium Development Goals.

3.3.6   Sustainable development.

3.3.7   Entrepreneurship.

3.4   Yearbooks and similar compendia.

Domain 4: Methodology of data collection, processing, dissemination and analysis:

4.1   Metadata.

4.2   Classifications.

4.3   Data sources.

4.3.1   Population and housing censuses; registers of population, dwellings and buildings.

4.3.2   Business and agricultural censuses and registers.

4.3.3   Household surveys.

4.3.4   Business and agricultural surveys.

4.3.5   Other administrative sources.

4.4   Data editing and data linkage.

4.5   Dissemination, data warehousing.

4.6   Statistical confidentiality and disclosure protection.

4.7   Data analysis.

Domain 5: Strategic and managerial issues of official statistics:

5.1   Institutional frameworks and principles; role and organization of official statistics.

5.2   Statistical programmes; coordination within statistical systems.

5.3   Quality frameworks and measurement of performance of statistical systems and offices.

5.4   Management and development of human resources.

5.5   Management and development of technological resources (including standards for electronic data exchange and data sharing).

5.6   Coordination of international statistical work.

5.7   Technical cooperation and capacity building.

CLASSIFICATION OF STATISTICAL ACTIVITIES (CSA REV. 1)
EXPLANATORY NOTES (October 2009)

1.   The Classification of Statistical Activities (CSA) is used to classify the statistical activities undertaken by national and international statistical organizations. It is used as the basis for the Database of International Statistical Activities1, and for the list of subject matter domains in the Content-oriented Guidelines, produced by the SDMX (Statistical Data and Metadata eXchange) initiative.

2.   The classification has three levels. The five "domains" form the first level, and relate to the broad type of statistical activities. The second level specifies "activities" within these domains and the third level covers more detailed "subject areas". The third level is used only where necessary, and is not meant to provide an exhaustive breakdown of an "activity".

3.   Domains 1 to 3 relate to subject-matter activities, typically resulting in data outputs, but also including methodological work aimed at developing or revising standards, and activities related to technical cooperation or training specific to a subject area. Domains 4 and 5 cover substantive cross-cutting issues which do not relate directly to outputs, but are more process and organization oriented (e.g. general census or survey methodology, statistical coordination, statistical information systems, etc.).

1. Demographic and social statistics

1.1 Population and migration

Population and migration – covers work in population and demographic statistics, topics like demography, vital statistics, population structures and growth, demographic projections, families and households (marriages, divorces, household size), migration, refugees and asylum seekers.
Excludes:
- Causes of death (1.4).

1.2 Labour

Labour – covers statistics on labour force, labour market, employment and unemployment; the more detailed topics include economically active population, labour conditions, health and safety at work (accidents at work, occupational injuries and diseases, work-related health problems), working time and other working conditions, strikes and lockouts, job vacancies, job creation.

Excludes:
- Migrant workers (1.1).
- Unemployment insurance and unemployment benefits (1.6).
- Trade union membership (1.10).
- Unpaid work (1.11).
- Statistics on earnings, wages and salaries (2.8).
- Labour cost (2.8).

1.3 Education

Education – includes educational participation, illiteracy, educational institutions and systems, human and financial resources invested in education, lifelong learning, vocational training and adult learning, impact of education, assessments of student performance, etc.

1.4 Health

Health – covers the health and mortality related statistical activities, including topics like life expectancy, health status, health and safety, health determinants (including lifestyle, nutrition, smoking, alcohol abuse), health resources and expenditure, health care systems, morbidity and mortality (including infant and child mortality), hospital admission, causes of illness and death, specific diseases (e.g. AIDS), disabilities, pharmaceutical consumption and sales, health personnel, remuneration of health professions, environmental health status, health inequality, health accounts.

Excludes:
- Work related health and safety (1.2).
- Victimization from criminal behavior (1.8).
- Traffic accidents and injuries (2.4.4).

1.5 Income and consumption:

Income and consumption – covers statistics on household income and expenditures from household viewpoint (all types of income and expenditure), including topics like distribution of incomes, in-kind income, income transfers received and paid, income- or expenditure-based measures of poverty, consumer protection, consumption patterns, consumer goods and durables, household wealth and debts.

Excludes:
- Social protection schemes against various risks (1.6).
- Tax schemes (2.5).
- Poverty in a multidimensional sense (3.3.1).

- Living conditions (3.3.1).
- Social inclusion/exclusion (3.3.1).

1.6 Social protection

Social protection – deals with statistics on measures to protect people against the risks of inadequate incomes associated with unemployment, ill health, invalidity, old age, parental responsibilities, or inadequate income following the loss of a spouse or parent, etc., includes statistics on pension beneficiaries, social security schemes, social protection expenditure, etc.
Excludes:
- Insurance companies as economic actors (2.4.6)
- Pension funds as actors in financial markets(2.4.6)

1.7 Human settlements and housing

Human settlements and housing – covers statistical activities on housing, dwellings and human settlements
Excludes:
- Rents (2.7)

1.8 Justice and crime

Justice and crime – activities including crime, convictions, operation of criminal justice systems, justice, safety, victims, clear-up rates, prison population, illicit drug production, trafficking and use, etc.

1.9 Culture

Culture – statistics dealing with cultural activities in society, like theatre, cinemas, museums, libraries, mass media, book production, sports, etc., including expenditure and financing of culture.

1.10 Political and other community activities

Political and other community activities – statistics on voting turnout, participation in political and other community activities, trade union membership, social dialogue, civil society, social capital, etc.

1.11 Time use

Time-use – statistics on the use of time by individuals, often related to work-life balance (reconciling family responsibilities and paid work); unpaid work.
Excludes:
- Working time (1.2)

2. Economic statistics

2.1 Macroeconomic statistics:

Macroeconomic statistics – all activities that are dealing with economy wide statistics at macro level that go beyond, or are different from National Accounts, whether annual, quarterly or monthly. Examples are macroeconomic databases that combine national accounts and other macroeconomic indicators like Main Economic Indicators (OECD), Principal European Economic Indicators (Eurostat), etc. ; business tendency and consumer opinion surveys, economic growth, stability and structural adjustment, cyclical indicators, statistics for business cycle analysis.
Excludes:
- Methodology and frameworks of National Accounts (2.2.).
- Collection and dissemination of national accounts and productivity data not linked to other macroeconomic statistics (2.2).

2.2 Economic accounts

Economic accounts – covers work on National Accounts in both current and constant prices, dealing with topics like implementation of the 1993 System National Accounts (1993 SNA), update of the 1993 SNA, European System of Accounts (ESA95),Gross Domestic Product (GDP), Gross National Income (GNI), non-observed and informal economy, measurement of capital, input-output tables, balance sheets, etc.
Excludes:
- Agricultural economic accounts (in 2.4.1).
- Tourism satellite accounts (in 2.4.5).
- Detailed general government accounts (2.5).
- Financial accounts (2.5).
- Price statistics (2.7).
- Environmental accounts (3.1).

2.3 Business statistics

Business statistics – economy wide statistics on the activities of enterprises, covers work on economic statistics across different sectors (as opposed to 2.4 that deals with specific individual sectors), deals with topics like statistics on economic activities of enterprises, business demography, business investment, business services, demand for services, industrial performance, enterprises by size class, industrial production, commodities, structure of sales and services, outputs of the service industries, non-profit institutions.

Excludes:
- Business tendency surveys (2.1).
- International trade (2.6).
- Prices (2.7).
- Labour cost (2.8).
- Science and technology (2.9).
- ICT (3.3.3).
- Activities of foreign affiliates and multinational companies (3.3.4)

2.4 Sectoral statistics

Sectoral statistics – statistical activities dealing with one of the specific branches of industry or services mentioned at the three digit level of the classification.

Excludes:
- Education (1.3).
- Health (1.4).
- Social security (1.6).
- Culture (1.9).
- Statistics covering the whole industrial sector (2.3).
- Statistics covering the whole service or market service sector (2.3).
- Distributive trade (2.3).
- Government and public sector statistics (2.5).
- Research and development (2.9).
- Telecommunication statistics (3.3.3).

2.4.1 Agriculture, forestry, fisheries:

Agriculture, forestry, fisheries – includes all agriculture, forestry and fishery related statistics, e.g. agricultural monetary statistics (agricultural economic accounts), agricultural structures (farm structure), trade in agricultural products, agricultural labour input, crop and animal production,

agricultural commodities, agro-industry statistics (including food production and safety), organic farming and organic food, government expenditure for agriculture, fishing and forestry, products source and use tables, forest and forest product statistics, forest resource assessment and forest fire, trade in forest products, fisheries.
Excludes:
- Agricultural and similar prices (2.7).
- Rural development (3.2).

2.4.2 Energy

Energy - energy supply, energy use, energy balances, security of supply, energy markets, trade in energy, energy efficiency, renewable energy sources, government expenditure on energy.
Excludes:
- Energy prices (2.7).

2.4.3 Mining, manufacturing, construction:
Mining, manufacturing, construction – statistics on specific industrial activities, e.g. steel, shipbuilding, and on construction, trade in specific products related to mining, manufacturing and construction.
Excludes:
- Prices of manufactured products (2.7).
- Construction prices (2.7).

2.4.4 Transport
Transport – covers statistics on all modes of transport (air, rail, road, inland waterways, sea), includes topics like transport infrastructure, equipment, traffic flows, personal mobility, safety, energy consumption, transport enterprises, passengers and freight transport, transport sector trends, road traffic accidents.
Excludes:
- Transport prices (2.7).

2.4.5 Tourism

Tourism – covers statistics regarding visitor activity (such as arrivals/departures, overnight stays, expenditures, purpose of the visit, etc.) associated to different forms of tourism (inbound, domestic and outbound), tourism industries activity and infrastructure, employment and tourism satellite accounts.
Excludes:
- Prices for tourist services (2.7).

- Environmental impacts (3.1).

2.4.6 Banking, insurance, financial statistics

Banking, insurance, financial statistics – money, banking and financial market statistics, including financial accounts, money supply, interest rates, exchange rates, stock market indicators, securities, bank profitability, private sector insurance and pension fund statistics, Financial Soundness Indicators.

Excludes:
- Beneficiaries of private pension funds (1.6).
- Financing of state pension and of other state social security schemes (2.5).

2.5 Government finance, fiscal and public sector statistics

Government finance, fiscal and public sector statistics – all statistics related to the government sector, including debt and deficit, revenue and expenditure, accounts of the government sector, central government, tax rates and revenues, tax and benefit systems, financing of state pension and other state social security schemes, public sector employment.

Excludes:
- Government expenditure in specific areas, like health (1.4), education (1.3), research and development (2.9), etc.

2.6 International trade and balance of payments

International trade and balance of payments – deals with statistics on all cross- border transactions recorded in the balance of payments, includes topics like trade in goods and services, external positions and debt, foreign direct investment, foreign affiliated trade, tariffs, market access, foreign aid, development assistance, resource flows to developing countries.

Excludes:
- Trade in specific commodities/services mentioned (in 2.4.1 to 2.4.5)
- Multinational companies and activities of foreign affiliates (3.3.4)

2.7 Prices

Prices – covers any statistical activity dealing with prices, including Purchasing Power Parities (PPPs) and international comparisons of GDP, covers topics like Consumer Price Indices (CPI), inflation, Producer Price Indices (PPI), price indexes for specific products and services (e.g. Information and Communication Technology products).

Excludes:
- Interest rates (2.4.6).
- Wages (2.8).

2.8 Labour cost

Labour cost – statistics activities on labour cost, earning and wages, both for structural and short-term statistics.
Excludes:
- Wages as part of total income of private households (1.5).

2.9 Science, technology and innovation

Science, technology and innovation – includes Research and Development (R&D), innovation, patents, human resources (in science, technology and innovation), high tech industries and knowledge based services, biotechnology, financing of R&D and innovation.
Excludes:
- Information and communication technologies (ICTs) (3.3.3).

3. Environment and multi-domain statistics

3.1 Environment

Environment – includes topics like climate, climate change (including measurement of the socio-economic aspects of climate change impacts, vulnerability and adaptation), biodiversity, environment and health, natural resources, soil, water, air, landscape, waste, environmental expenditure, expenditure for the protection of the environment, environmental accounts, agri-environmental indicators, environmental pressure, environmental impact of industry, transport, energy etc., environmental monitoring, material flow analysis, environmental decoupling indicators, pollution, ecosystems, land use and cover, environmental protection, nationally protected areas.
Excludes:
- Environment as part of sustainable development (3.3.6)

3.2 Regional and small area statistics
Regional and small area statistics – activities dealing with regional statistics and statistics referring to sub-national areas or areas based on administrative units, urban and rural statistics, rural development, regional accounts, regional typologies, and regional disparities.

3.3 Multi-domain statistics and indicators

Multi-domain statistics and indicators – deals with conceptual or data work based on a specific thematic approach to outputs that cut across several economic, social or environmental subject

areas; the two-digit-level of the classification covers activities dealing with such type of issues that are not explicitly mentioned at the three-digit level.

Excludes:
- Multi-domain statistics based on a regional approach (3.2)
- Yearbook type of compendia or similar products by international organizations not following a specific thematic approach (3.4)

3.3.1 Living conditions, poverty

Living conditions, poverty and cross-cutting social issues – includes work on multidimensional methods to measure poverty, living conditions in the broad sense, social inclusion/exclusion, social indicators, and social situation.

Excludes:
- Purely monetary approach to poverty (1.5).

3.3.2 Gender and special population groups

Gender and special population groups – their living conditions and role in the society: comparisons men/women and situation of special population groups like children, youth, women, elderly, disabled, minority groups, etc.

3.3.3 Information society

Information society – statistics allowing to assess the use and impact of information and communication technologies on society, includes access and use of ICTs (including Internet), ICT expenditure and investment, ICT infrastructure, telecommunication networks, electronic communications, e-government, electronic commerce, e-learning, broadband penetration, ICT services, communication tariffs, network infrastructure, revenues, expenses and investment of operators, Internet indicators, trade in telecommunications equipment.

3.3.4 Globalization

Globalization – deals with measuring the economic activities of multinational companies, as well as with attempts to measure globalization through a variety of components from other subject areas.

3.3.5 Indicators related to the Millennium Development Goals

Indicators related to the Millennium Development Goals – work on sets of indicators to monitor the achievement of the Millennium Development Goals agreed upon at the UN Millennium Summit.

3.3.6 Sustainable development

Sustainable development – work on indicators and frameworks to monitor the economic, social and environmental dimensions of sustainable development.

3.3.7 Entrepreneurship

Entrepreneurship – the measurement of the determinants, performance and impact of entrepreneurial activities of people and organizations.

3.4 Yearbooks and similar compendia

Yearbooks and similar compendia – multi-domain statistical publications, databases and other data products without specific thematic or issue-oriented focus.
Excludes:
- Multi-domain statistical products based on specific thematic approaches, like sustainable development, MDGs etc. (under 3.3.1 to 3.3.5)

4. Methodology of data collection, processing, dissemination and analysis

4.1 Metadata

Metadata – covers developing, harmonizing and standardizing metadata models, structures and frameworks in the context of statistical information processing and dissemination, deals also with harmonizing the statistical terminology and definitions.
Excludes:
- Standards for electronic data exchange in statistics (5.5).

4.2 Classifications

Classifications – activities related to developing, managing, maintaining and harmonizing economic, social and environmental classifications.

4.3 Data sources

Data sources – dealing with different methods of data collection from respondents and different forms of data sources at national level. Includes activities on electronic data reporting and Internet reporting which are not directly related to specific censuses or surveys. The two digit-level includes only activities that cannot be allocated to a three-digit item, as well as sources other than censuses, surveys or administrative records, such as satellite images or other observation type sources

Excludes:
- Methods by which international organizations collect data from national producers (5.6).

4.3.1 Population and housing censuses; registers of population, dwellings and buildings

Population and housing censuses; registers of population, dwellings and buildings – methodology and organization of population and housing censuses, including register based censuses, development and maintenance of statistical registers of population, buildings and dwellings covering and following the whole resident population.

Excludes:
- Collection of national statistical results from population censuses by international organizations and subsequent dissemination of international statistics (1.1. or other relevant area of Domain 1).
- Civil and vital events registers (4.3.5).
- Administrative sources on persons generated by the social security system or kept for special population groups in their use for other statistical activities than 4.3.1 (4.3.5).

4.3.2 Business and agricultural censuses and registers

Business and agricultural censuses and registers – methodology and organization of economic and agricultural censuses, development and maintenance of statistical business and agricultural registers.

Excludes:
- Administrative sources on subsets of agricultural holdings or businesses and their activities in their use for other statistical activities than 4.3.2 (4.3.5).
- Collection of national statistical results from the sources in 4.3.2 by international organizations and subsequent dissemination of international statistics (2.3 or other relevant area of Domain 2).

4.3.3 Household surveys

Household surveys – methodology and organization of household sample surveys including sample designs; international surveys with direct data collection from households such as Living Standard Measurement Survey or World Health Survey.

Excludes:

- Dissemination of international statistics based on direct survey activities of international organizations (relevant area of domain 1).

4.3.4 Business and agricultural surveys

Business and agricultural surveys – methodology and organization of business and agricultural surveys, including sampling, and international surveys with direct data collection from businesses.

Excludes:

- Dissemination of international statistics based on direct survey activities of international organizations (relevant area of domain 2).

4.3.5 Other administrative sources

Other administrative sources – addresses the suitability of administrative sources for official statistics, the legal, organizational and conceptual problems of accessing administrative sources, the use of registers and other administrative sources in other contexts than censuses

4.4 Data editing and data linkage

Data editing and data linkage – methodological, organizational and legal issues related to data quality control at the collection phase, including data editing and imputation and use of geo-referenced data.

4.5 Dissemination, data warehousing

Dissemination, data warehousing – policies, strategies, methods and techniques of data dissemination, design and organization of output databases and data warehouses, including feedback from users, communicating with the media, work of NSO press offices, data and metadata presentation, electronic dissemination (Internet), statistical portals.

Excludes:

- Multi-domain databases as products (3.4).

4.6 Statistical confidentiality and disclosure protection

Statistical confidentiality and disclosure protection – legal, organizational and technical measures to safeguard confidentiality of statistical data, methods of releasing microdata while protecting against disclosure of individual data.

4.7 Data analysis

Data analysis – methods of data analysis in official statistics for other purposes than editing/quality management, e.g. seasonal adjustment, methods for constructing composite indicators, identification of causal factors, extrapolation, scenario and model building etc.

5. Strategic and managerial issues of official statistics

5.1 Institutional frameworks and principles; role and organization of official statistics

Institutional frameworks and principles; role and organization of official statistics – activities dealing with developing, harmonizing and revising the institutional framework and principles of official statistics at national and international level, like fundamental principles of official statistics, organizational and legal aspects of national statistical systems, functioning and coordination of the statistical systems, organization of statistical offices, promotion of official statistics.

5.2 Statistical programmes; coordination within statistical systems

Statistical programmes; coordination within statistical systems – compiling the statistical work programmes of statistical organizations, coordinating the work within national and international statistical organizations (e.g. coordination of activities between headquarters and organizations in the field, coordination of decentralized statistical organizations), processes for setting up national statistical programmes, including relationship with users and respondents etc.
Excludes:
- Coordination between international statistical agencies (5.6).

5.3 Quality frameworks and measurement of performance of statistical systems and offices

Quality frameworks and measurement of performance of statistical systems and offices – implementation of quality models, development and use of quality management tools,

harmonization of quality assessment frameworks, performance indicators for statistical organizations.

5.4 Management and development of human resources

Management and development of human resources – organization of human resources management and training in national and international statistical agencies.

5.5 Management and development of technological resources (including standards for electronic data exchange and data sharing)

Management and development of technological resources (including standards for electronic data exchange and data sharing) – includes electronic data processing, IT infrastructure, data exchange standards (like EDIFACT/GESMES and SDMX), ICT strategies for statistics at national and international level.

Excludes:
- Metadata (4.1).
- Electronic data reporting (4.3).
- Data editing (4.4).
- Output databases and data warehouses (4.5).

5.6 Coordination of international statistical work

Coordination of international statistical work – coordination of statistical activities across international and supranational statistical organizations, includes work on the
Database of International Statistical Activities, work of the Conference of European Statisticians, Statistical Commission and the Coordinating Committee of Statistical Activities

5.7 Technical cooperation and capacity building

Technical cooperation and capacity building – covers general bilateral and multilateral technical and capacity building activities.

Excludes:
- Technical cooperation in specific subject areas (given under the relevant areas in Domains 1-3).

Annex 2

Quality Management / Metadata Management								
1 **Specify Needs**	**2** **Design**	**3** **Build**	**4** **Collect**	**5** **Process**	**6** **Analyse**	**7** **Disseminate**	**8** **Archive**	**9** **Evaluate**
1.1 Determine needs for information	2.1 Design outputs	3.1 Build data collection instrument	4.1 Select sample	5.1 Integrate data	6.1 Prepare draft outputs	7.1 Update output systems	8.1 Define archive rules	9.1 Gather evaluation inputs
1.2 Consult & confirm needs	2.2 Design variable descriptions	3.2 Build or enhance process components	4.2 Set up collection	5.2 Classify & code	6.2 Validate outputs	7.2 Produce dissemination products	8.2 Manage archive repository	9.2 Conduct evaluation
1.3 Establish output objectives	2.3 Design data collection methodology	3.3 Configure workflows	4.3 Run collection	5.3 Review, Validate & edit	6.3 Scrutinize & explain	7.3 Manage release of dissemination products	8.3 Preserve data and associated metadata	9.3 Agree action plan
1.4 Identify concepts	2.4 Design frame & sample methodology	3.4 Test production system	4.4 Finalize collection	5.4 Impute	6.4 Apply disclosure control		8.4 Dispose of data & associated metadata	
1.5 Check data availability	2.5 Design statistical processing methodology	3.5 Test statistical business process		5.5 Derive new variables & statistical units	6.5 Finalize outputs	7.4 Promote dissemination products		
1.6 Prepare business case	2.6 Design production systems & workflow	3.6 Finalize production system		5.6 Calculate weights		7.5 Manage user support		
				5.7 Calculate aggregates				
				5.8 Finalize data files				

Reference Manuals

1. UN Statistical Commission, Forty-third session . Guidelines for the template for a Generic National   Quality Assurance Framework (NQAF). 2012.
2. UN Statistical Commission , Thirtieth session , New York , 1-5 March 1999
3. IMF Data Quality Assessment Framework (DQAF), 2003 & 2006
4. South Africa Statistical Quality Assessment Framework , Second edition , Statistics South Africa , 2010
5. Australia Bureau of Statistics Data quality Framework, May 2009

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