# SUSTAINABLE DEVELOPMENT GOALS

# Workshop of Quality on Statistics for SDG Indicators
# 23 - 25 April 2018, Chiba, Japan

conducted jointly by the Statistical Institute for Asia and the Pacific, the United Nations Statistics Division and
the Director-General for Policy Planning on Statistical Standards, the Ministry of Internal Affairs and Communications
of the Government of Japan, with support of the International Monetary Fund

# Session 1: UN NQAF

Matthias Reister, Chief
Development Data Section
Statistics Division, Development Data and Outreach Branch
United Nations Department of Economic and Social Affairs

---

# Definition of quality in Statistics

**Quality = "Fitness for use"**

**Degree to which a set of inherent characteristics fulfils requirements**
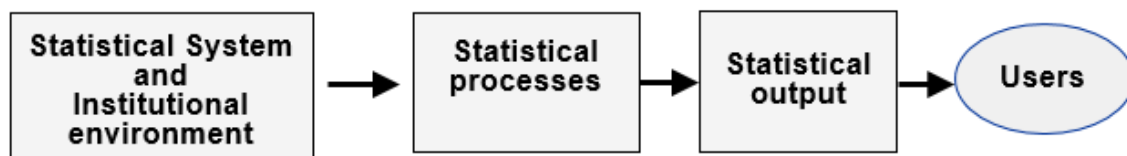
# Statistical quality frameworks

- Quality frameworks provide a coherent and holistic system of quality management
- The general quality frameworks inspired existing statistical quality frameworks such as the European Statistics Code of Practice, the IMF's Data Quality Assessment Framework (DQAF) and the OECD recommendations on good statistical practices.

# Generic UN Quality Assurance Framework
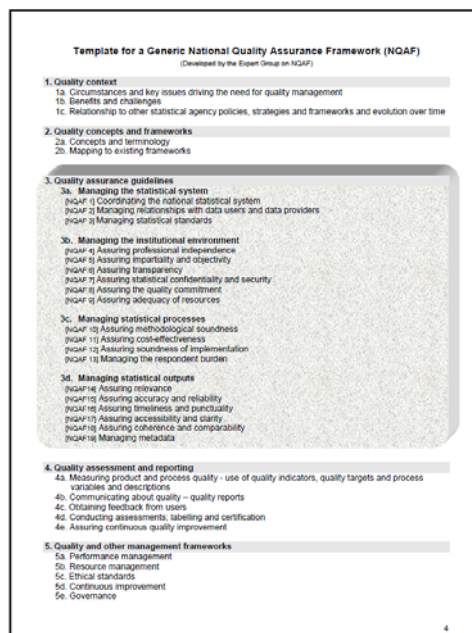
## Quality management framework of UN NQAF



UN NQAF was developed based on these statistical frameworks and in alignment with them follows the holistic model to quality management, starting from the statistical system and institutional environment and covering statistical processes and outputs

# Generic UN Quality Assurance Framework "Template" and "Guidelines"



GUIDELINES FOR THE TEMPLATE FOR
A GENERIC NATIONAL QUALITY ASSURANCE
FRAMEWORK (NQAF)
(PREPARED BY THE EXPERT GROUP ON NQAF)

Template for a Generic National Quality Assurance Framework (NQAF)
(Developed by the Expert Group on NQAF)

1. Quality context
   1a. Circumstances and key issues driving the need for quality management
   1b. Benefits and challenges
   1c. Relationship to other statistical agency policies, strategies and frameworks and evolution over time

2. Quality concepts and frameworks
   2a. Concepts and terminology
   2b. Mapping to existing frameworks

3. Quality assurance guidelines
   3a. Managing the national statistical system
   [NQAF 1] Coordinating the national statistical system
   [NQAF 2] Managing relationships with data users and data providers
   [NQAF 3] Managing statistical standards

   3b. Managing the institutional environment
   [NQAF 4] Assuring professional independence
   [NQAF 5] Assuring impartiality and objectivity
   [NQAF 6] Assuring transparency
   [NQAF 7] Assuring statistical confidentiality and security
   [NQAF 8] Assuring the quality commitment
   [NQAF 9] Assuring adequacy of resources

   3c. Managing statistical processes
   [NQAF 10] Assuring methodological soundness
   [NQAF 11] Assuring cost-effectiveness
   [NQAF 12] Assuring soundness of implementation
   [NQAF 13] Managing the respondent burden

   3d. Managing statistical outputs
   [NQAF14] Assuring relevance
   [NQAF15] Assuring accuracy and reliability
   [NQAF16] Assuring timeliness and punctuality
   [NQAF17] Assuring accessibility and clarity
   [NQAF18] Assuring coherence and comparability
   [NQAF19] Managing metadata

4. Quality assessment and reporting
   4a. Measuring product and process quality - use of quality indicators, quality targets and process variables and descriptions
   4b. Communicating about quality – quality reports
   4c. Obtaining feedback from users
   4d. Conducting assessments, labelling and certification
   4e. Assuring continuous quality improvement

5. Quality and other management frameworks
   5a. Performance management
   5b. Resource management
   5c. Ethical standards
   5d. Continuous improvement
   5e. Governance

4

**The "Template" is the table of contents of the "Guidelines"**

---

# Generic UN Quality Assurance Framework "Template" and "Guidelines"

**3a.  Managing the statistical system**

**NQAF 1:  Coordinating the national statistical system**

**Description:**

Coordination of the work of the members of the national statistical system is essential for improving and maintaining the quality of official statistics produced by the various statistical agencies.

**Elements to be assured:**

*At the national statistical system level*

- Does a law or other formal provision establish the national statistical system, specify the members of the system and designate a coordinating body?

- When the national statistical office has a role in coordinating the national statistical system, is the role legislated or de facto?

....

**Supporting mechanisms:**

The coordination of the national statistical system is likely to be more effectively managed if the following supporting mechanisms are in place:

- A statistical law or other formal provision that establishes the national statistical system and designates a coordinating body.

- Guidelines, methodological manuals and handbooks on recommended practices.

....

**Selected references:** *Click here to go to Annex 2, Selected references*

**The "Guidelines" provide information on the items of the "Template"**

# Quality Assurance Guidelines of UN NQAF = the quality management framework

## Managing the statistical system
[NQAF 1] Coordinating the national statistical system
[NQAF 2] Managing relationships with data users and data providers
[NQAF 3] Managing statistical standards

## Managing the institutional environment
[NQAF 4] Assuring professional independence
[NQAF 5] Assuring impartiality and objectivity
[NQAF 6] Assuring transparency
[NQAF 7] Assuring statistical confidentiality and security
[NQAF 8] Assuring the quality commitment
[NQAF 9] Assuring adequacy of resources

## Managing statistical processes
[NQAF 10] Assuring methodological soundness
[NQAF 11] Assuring cost-effectiveness
[NQAF 12] Assuring soundness of implementation
[NQAF 13] Managing the respondent burden

## Managing statistical outputs
[NQAF14] Assuring relevance
[NQAF15] Assuring accuracy and reliability
[NQAF16] Assuring timeliness and punctuality
[NQAF17] Assuring accessibility and clarity
[NQAF18] Assuring coherence and comparability
[NQAF19] Managing metadata

# Managing statistical outputs



[NQAF14] Assuring relevance

[NQAF19] Managing metadata

[NQAF15] Assuring accuracy and reliability

[NQAF18] Assuring coherence and comparability

[NQAF16] Assuring timeliness and punctuality

[NQAF17] Assuring accessibility and clarity
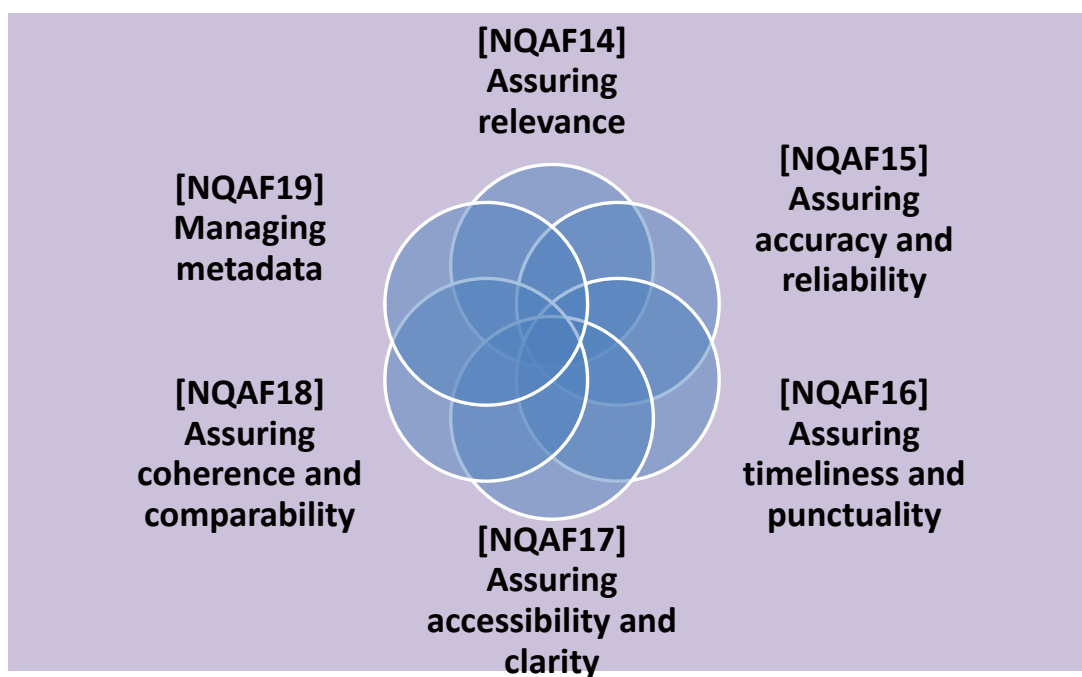
# [NQAF14] Assuring relevance

**Description:**

- The relevance of statistical information reflects the degree to which the information meets the current and/or potential or emerging needs or requirements of clients, users, stakeholders, or the audience.
  - Relevance therefore refers to whether the statistics that are needed are produced and whether those that are produced are in fact needed and useful, and shed light on the issues of most importance to users.
  - Relevance also covers methodological soundness, particularly the extent to which the concepts, definitions and classifications correspond to user needs.
- Assessing relevance is subjective and depends upon the varying needs of users.
  - The statistical agency's challenge is to weight and balance the conflicting needs of current and potential users in order to produce statistics that satisfy the most important and priority needs within given resource constraints.
  - Relevance can be seen as having the following three components: completeness; user needs; and user satisfaction.

# [NQAF14] Assuring relevance

**Elements to be assured:**

- Are procedures in place to consult users about the content of the statistical work programme?

- Is user satisfaction regularly measured and systematically followed up?

- Are the statistical dissemination products aligned with users needs?

- …

# [NQAF15] Assuring accuracy and reliability

**Description:**

- Statistical agencies should develop, produce and disseminate statistics that <u>accurately and reliably</u> portray reality.
- The <u>accuracy</u> of statistical information reflects the degree to which the information correctly describes the phenomena it was designed to measure, i.e. the degree of closeness of estimates to true values.
- It is usually characterized in terms of estimation of sampling and non-sampling errors. These errors are traditionally decomposed into variance (random error) and bias (systematic error) components, and reflect the major sources of error (e.g. errors linked to sampling, coverage, measurement, non-response and processing).
- <u>Reliability</u> concerns whether the statistics consistently over time measure the reality that they are designed to represent.

# [NQAF15] Assuring accuracy and reliability

**Elements to be assured:**

- Are source data, intermediate results and statistical outputs regularly assessed and validated?
- Are explanations about the timing, reasons for and nature of revisions made available?
- Are results compared with other existing sources of information in order to ensure validity?
- Are sampling and non-sampling errors measured, evaluated and systematically documented?
- ...

# [NQAF16] Assuring timeliness and punctuality

**Description:**

- Statistical agencies should minimize the delays in making data available.
- <u>Timeliness</u> refers to how fast - after the reference date or the end of the reference period - the data are released or made available, whether for dissemination or for further processing.
- <u>Punctuality</u> refers to whether data are delivered on the dates promised, advertised or announced (for example, in an official release calendar).

---

# [NQAF16] Assuring timeliness and punctuality

**Elements to be assured:**

- Is there a published release calendar to announce in advance the dates that statistics (at least the major ones) are to be released?
- Are quality indicators on timeliness and punctuality regularly calculated, monitored, published and followed up?
- Does the timeliness of the statistical agency's statistics comply with IMF data dissemination standards or other relevant timeliness targets?
- Is explicit consideration given to overall trade-offs between timeliness and other dimensions of quality (e.g. accuracy, cost and respondent burden) during the programme design stage?
- …

# [NQAF17] Assuring accessibility and clarity

**Description:**

- Statistical agencies should ensure that the statistics and metadata they develop, produce and disseminate can be found or obtained without difficulty, are presented clearly and in such a way that they can be understood, are available and accessible to all users on an impartial and equal basis in various convenient formats, and are affordable, if not offered free of charge.
- Provision should be made for allowing access to microdata for research purposes, in accordance with an established policy which ensures statistical confidentiality.
- Supplementary explanatory information and metadata, which are necessary for the proper understanding of the statistics and the appropriate uses to which they can be put, should be made available by the statistical agencies. This information should normally cover the underlying concepts and definitions, origins of the data, the variables and classifications used, the methodology of data collection and processing, and indications of the quality of the statistical information.

# [NQAF17] Assuring accessibility and clarity

**Elements to be assured:**

- Is data easily accessible and available in different including electronic formats that allow easy use and re-dissemination?
- Is there an "Open data" policy in place?
- Is access to microdata allowed for research purposes, subject to specific rules and protocols on statistical confidentiality that are posted on the agency's website?
- Are statistics and the corresponding metadata presented, and archived, in a form that facilitates proper interpretation and meaningful comparisons?
- …

# [NQAF18] Assuring coherence and comparability

## Description:

- Statistical agencies should develop, produce and disseminate statistics that are consistent internally and comparable over time and are produced 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.

# [NQAF18] Assuring coherence and comparability

## Elements to be assured:

- Are procedures or guidelines in place to ensure and monitor internal coherence (e.g. observance of arithmetic and accounting identities) and consistency?
- Are procedures or guidelines in place to ensure and monitor cross-sectoral coherence and consistency?
- Do common standards exist with regard to definitions, units and classifications in order to enhance the comparability of the statistics?
- Are deviations from international or national standards made explicit and are users informed about the reasons for such deviations?
- Are breaks in the series explained and the methods for ensuring reconciliation over a period of time made publicly available?
- …

# [NQAF19] Managing metadata

**Description:**

- Statistical agencies should provide information covering the underlying concepts, variables and classifications used, the methodology of data collection and processing, and indications of the quality of the statistical information

- In general, sufficient information to enable the user to understand all of the attributes of the statistics, including their limitations, for informed decision-making.

# [NQAF19] Managing metadata

**Elements to be assured:**

- Are procedures or guidelines in place for metadata maintenance and dissemination?

- Is a glossary of statistical concepts publicly available?

- Are staff training and development programmes in place on metadata management and related information and documentation systems?

- …

# Managing statistical processes

[NQAF 10] Assuring methodological soundness

[NQAF 11] Assuring cost-effectiveness

[NQAF 12] Assuring soundness of implementation

[NQAF 13] Managing the respondent burden

# [NQAF10] Assuring methodological soundness

**Definition:**

- In developing and compiling statistics, a statistical agency should use sound statistical methodologies based on internationally agreed standards, guidelines or best practices and consistent with established scientific principles.

- Effective and efficient statistical procedures should be implemented throughout the statistical production chain.

# [NQAF10] Assuring methodological soundness

**Elements to be assured:**

- Is the overall methodological framework of the statistical agency consistent with international standards, guidelines and good practices?

- If not, are divergences from international standards explained?

- Are procedures in place to ensure that standard concepts, definitions and classifications are consistently applied throughout the statistical agency?

- Has explicit consideration been given to overall trade-offs between accuracy, cost, timeliness and provider burden during the programme design stage?

- In respect of use of administrative records, is the population consistent with the statistical output requirements; are the classifications appropriate; are the underlying concepts appropriate; and are the records complete and up to date?

- …

# [NQAF11] Assuring cost-effectiveness

**Definition:**

- Statistical agencies should assure that resources are effectively used. They should be able to explain to what extent the set objectives were attained and that the results were achieved at a reasonable cost consistent with the principal purposes for which the statistics will be used.

# [NQAF11] Assuring cost-effectiveness

**Elements to be assured:**

- Are the costs of producing the statistics well documented at each stage of statistics production to assess their effectiveness?
- Are administrative data used instead of sample surveys when it is appropriate and possible?
- Before contemplating a new data collection, are there mechanisms to review whether current data sources can be utilized with minimal impact on their current purpose and quality?
- Is there a clear and documented justification for the specific programme?
- …

# [NQAF12] Soundness of implementation

**Definition:**

- In order to produce timely, reliable and accurate statistics, a statistical agency should carefully plan the implementation process of its statistical activities based on internationally agreed standards and guidelines and the application of sound and scientific methods.
- The implementation process refers to all activities which lead to the production of statistics including design and preparations, data collection, data processing (coding, editing, imputation, etc.), assessment and compilation.

# [NQAF12] Soundness of implementation

**Elements to be assured:**

- Does the agency have staff selection and training programmes that emphasize the importance of statistics that are fit for purpose?

- Has the data collection plan taken into consideration different sources of data such as administrative statistics instead of only traditional modes of data collection?

- When statistics are based on administrative data, the definitions and concepts used for administrative purposes are a good approximation to those required for statistical purposes.

- In the case of statistical surveys, questionnaires are systematically tested prior to the data collection.

- …

# [NQAF10] Managing the respondent burden

**Definition:**

- Individuals, households or businesses who provide data, upon which statistical products are based, are fundamental contributors to the quality of data and information. The requirement to collect information (user needs) should be balanced against production costs and the burden placed on respondents (supplier costs). Mechanisms to maintain good relationships with individual providers of data and to proactively manage the response burden are essential for improving quality.

- This difficult challenge is particularly topical with declining response rates in surveys. This decline lowers quality and increases the cost of surveys.

# [NQAF10] Managing the respondent burden

**Elements to be assured:**

- Are respondents provided with information about the purpose of the survey, the authority under which the survey is taken, the mandatory or voluntary nature of the survey, and confidentiality protection?
- Administrative sources are used whenever possible to avoid duplicating requests for information
- Statistical authorities promote measures that enable the linking of data sources in order to reduce reporting burden.
- …

# Managing the statistical system

[NQAF 1] Coordinating  the national statistical system

[NQAF 2] Managing relationships with data users and data providers

[NQAF 3] Managing statistical standards

# [NQAF 1] Coordinating the national statistical system

**Definition:**

- Coordination of the work of the members of the national statistical system is essential for improving and maintaining the quality of official statistics produced by the various statistical agencies.

# [NQAF 1] Coordinating the national statistical system

**Elements to be assured:**

- A statistical law or other formal provision establishes the responsibilities of the members of the national statistical system, including their coordination.

- There is a mechanism and body for the coordination of the national statistical system for activities at the national, regional and international level.

- There is a national statistical system wide technical body that discusses the use data and statistics produced by data providers outside the national statistical system.

# [NQAF 2] Managing relationships with data users and data providers

**Definition:**

- The statistical agencies should build and sustain very good relationships with all of their key stakeholders, including users, data providers, funding agencies, senior government officials, relevant community organizations, and the media.

# [NQAF 2] Managing relationships with data users and data providers

**Elements to be assured:**

- Mechanisms are in place to consult stakeholders and users regarding their requirements, such as user forums and advisory bodies.
- The statistical agency or statistical units responds to erroneous interpretation and misuse of statistics.
- The statistical agencies have the legal authority (permission and right) to obtain and access administrative records maintained by any government department that will be used for statistical purposes.
- The statistical agencies have the legal authority (permission and right) to obtain and access records maintained by corporation, business or organization that will be used for statistical purposes.
- Where statistical agencies do not have a legal right to obtain and access administrative and company records memorandum of understandings are in place that provide such access.
- The statistical agency provides support and guidance to all statistical data providers and producers of statistics.

# [NQAF 3] Managing statistical standards

## Definition:

- Standards refer to a comprehensive set of statistical concepts and definitions used to achieve uniform treatment of statistical issues within a survey or across surveys, and across time and space.

- Standards assist in maximising the effectiveness of statistical outputs and the efficiency of the production process in terms of inter-temporal, national and international comparability and coherence (i.e. the capacity for integration) of the statistics.

# [NQAF 3] Managing statistical standards

## Elements to be assured:

- The statistical agency or statistical unit develops and follows statistical standards.

- The statistical agency provides support and guidance to all statistical data providers and producers of statistics in the implementation of statistical standards.

- Divergences from the international, regional or national statistical standards documented and explained.

# Managing the institutional environment

[NQAF 4] Assuring professional independence

[NQAF 5] Assuring impartiality and objectivity

[NQAF 6] Assuring transparency

[NQAF 7] Assuring statistical confidentiality and security

[NQAF 8] Assuring the quality commitment

[NQAF 9] Assuring adequacy of resources

---

# [NQAF 4] Assuring professional independence

**Definition:**

- Statistical agencies should 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.  This should apply to national statistical offices and may or may not apply to statistical units within ministries, central banks, etc.

# [NQAF 5] Assuring impartiality and objectivity

**Definition:**

- Statistical agencies should 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.

# [NQAF 6] Assuring transparency

**Definition:**

- The statistical agencies' statistical policies and practices and the terms and conditions under which their statistics are developed (including the legal basis and purposes for which the data are required), produced, and disseminated (and, if applicable, subsequently revised) should be documented and available to users, survey respondents and the public.

- Products of statistical agencies/units should be clearly identified as such.

# [NQAF 7] Assuring statistical confidentiality and security

**Definition:**

- Statistical agencies should guarantee that the privacy of data providers (persons, households, enterprises, administrations and other respondents) will be protected and that the information they provide will be kept confidential, will not be able to be accessed by unauthorized internal or external users, and will be used for statistical purposes only.

- Statistics shall be considered confidential when they allow statistical units to be identified, either directly or indirectly, thereby disclosing individual information. Examples of purposes that are not exclusively statistical include administrative, legal or tax purposes.

# [NQAF 8] Assuring the quality commitment

**Definition:**

- Statistical agencies should be dedicated to assuring quality in their work, and systematically and regularly identify strengths and weaknesses to continuously improve process and product quality.

- Processes, staff and facilities should be in place for ensuring that the data produced are commensurate with their quality objectives.

# [NQAF 8] Assuring adequacy of resources

**Definition:**

- The financial, human, and technological (IT) resources available to statistical agencies should be adequate both in magnitude and quality, and sufficient to meet their needs with regard to the development, production and dissemination of statistics.

THANK YOU