THE UNITED REPUBLIC OF TANZANIA

TANZANIA DATA QUALITY ASSURANCE FRAMEWORK (TDQAF) FOR OFFICIAL STATISTICS

United Republic of Tanzania

TANZANIA DATA QUALITY ASSURANCE FRAMEWORK FOR OFFICIAL STATISTICS

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FOREWORD

In today's data-driven world, the quality of information we rely upon is paramount to the success of our endeavors. As we navigate through the complexities of modern business landscapes, ensuring the accuracy, reliability, and integrity of our data becomes not just a priority but a strategic imperative.

It is with great pleasure that Tanzania National Statistics Offices i.e the National Bureau of Statistics (NBS) and Office of the Chief Government Statistician (OCGS) introduce Data Quality Assurance Framework for the United Republic of Tanzania. This framework represents a significant milestone in our journey towards harnessing the full potential of Tanzania's data assets. It is a testament to our unwavering commitment to excellence and our recognition of the pivotal role that high-quality data plays in driving informed decision-making, fostering innovation, and achieving our strategic objectives.

At its core, this framework embodies a set of principles, processes, and practices designed to uphold the highest standards of data quality throughout its lifecycle. It is the result of extensive collaboration, drawing upon the collective expertise and insights of individuals across the National Statistical System (NSS). From data stewards and analysts to Information Technology professionals and business leaders, each contribution has been instrumental in shaping this comprehensive approach to data quality assurance.

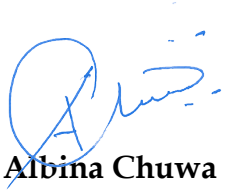
Quality Assurance Framework for official statistics is a dynamic and adaptive system that evolves in response to changing business needs, technological advancements, and emerging best practices. It serves as a cornerstone for fostering a culture of data excellence, where every member of NSS is empowered to take ownership of data quality and contribute to its continuous improvement.

As we embark on this journey, we invite each and every one to embrace the principles embodied in this framework and to play an active role in championing data quality within their respective domains. Together, let us leverage the power of high-quality data to drive innovation, enhance operational efficiency, and deliver exceptional value to our customers and stakeholders.

NBS and OCGS would like to express sincerely appreciation to all stakeholders who have contributed to the development of the Tanzania Data Quality Assurance Framework (TDQAF). Their dedication, expertise, and commitment to ensure the integrity and reliability of this framework have been invaluable.

Special thanks are extended to the Government of the United Republic of Tanzania for committing resources, leadership and guidance throughout this process and World Bank for their technical and financial support.

We also extend our gratitude to all staff members who have participated in developing quality assurance framework. We appreciate the contribution made by technical experts from Office for National Statistics of United Kingdom(ONS-UK) for reviewing this framework and provided valuable inputs and recommendations.



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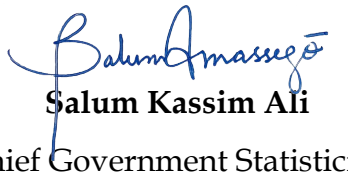

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ABBREVIATIONS AND ACRONYMS

API	Application Programming Interface
CAPI	Computer Assisted Personal Interviewing
COFOG	Classification of the Functions of Government
COICOP	Classification of Individual Consumption by Purpose
CPC	Central Product Classification
CPI	Consumer Price Index
CSPA	Common Statistical Production Architecture
DQAF	Data Quality Assurance Framework
EAC	East African Community
ESS	European Statistical System
FYDP	Five Year Development Plan
GAMSO	Generic Activity Model for Statistical Organizations
GDDS	General Data Dissemination System
GDP	Gross Domestic Product
GSBPM	Generic Statistics Business Process Model
HRP	Human Resource Planning
HS	Harmonized System
ICT	Information and Communication Technology
IMF	International Monetary Fund
ISCO	International Standards Classification of Occupations
ISIC	International Standard Industrial Classification
ISO	International Organization for Standardization
IT	Information Technology
IQMT	Internal Quality Management Team
LGAs	Local Government Authorities
MDAs	Ministries, Departments and Agencies
MOU	Memorandum of Understanding
NBS	National Bureau of Statistics
NGO	Non- Government Organization
NQAF	National Quality Assurance Framework
NSAs	Non-State Actors
NSDS	National Strategic Development Statistics

NSO	National Statistics Office
NSS	National Statistical System
OCGS	Office of the Chief Government Statistician
ONS-UK	Office for National Statistics-United Kingdom
PE	Personal Emoluments
PISCs	Public Institutions and Statutory Corporations
QSTWG	Quality Statistics Technical Working Group
RISDP	Regional Indicative Strategic Development Plan
ROSCs	Reports on the Observance of Standards and Codes
SADC	Southern Africa Development Community
SDDS	Special Data Dissemination Standard
SDGs	Sustainable Development Goals
SDMX	Statistical Data and Metadata eXchange
SNA	System of National Accounts
SSPS	Sector Strategic Plan for Statistics
SWG	Statistical Working Group
SWOC	Strengths, Weaknesses, Opportunities and Challenges
TDQAF	Tanzania Data Quality Assurance Framework
TDV	Tanzania Development Vision
TNADA	Tanzania National Data Archive
TQM	Total Quality Management
TSMP	Tanzania Statistical Master Plan
UN	United Nations
UN-NQAF	United Nations National Quality Assurance Framework
URT	United Republic of Tanzania
WB	World Bank
ZADEP	Zanzibar Development Plan

DEFINITIONS OF THE TERMS

Data Ecosystem: The entire network of data collectors, producers, analysts, and users in both state and non-state actors in Tanzania.

National Statistical System (NSS): The group of statistical organizations and units (statistical agencies) within a country that develop, produce, and disseminate official statistics on behalf of the Tanzania Government.

National Statistics Offices (NSOs): These are the National Bureau of Statistics of the United Republic of Tanzania and the Office of the Chief Government Statistician of Revolutionary Government of Zanzibar. NSO has a coordination role within the national statistical system and they are responsible for the development, production and dissemination of official statistics across multiple statistical domains.

Official Statistics: Statistics that are produced, validated, compiled and disseminated by the National Statistical System in accordance with the United Nations Fundamental Principles of Official Statistics or compiled by Statistical Units for their specific domain and certified by NBS or OCGS.

Quality: The degree to which a set of inherent characteristics of an object fulfils requirements. In the context of statistical organizations, the object is the statistical output or product, the process, the institutional environment or the statistical system.

Quality Assurance: Set of planned and systematic activities for ensuring quality in the processes by which products are developed, which starts from the designing stage, going through the implementation stage up to the post-collection stage to create products and services that meet the needs, expectations and requirements of customers.

Quality Assessment: the part of quality assurance that focuses on an assessment of how well quality requirements are fulfilled

Statistical agencies: These encompass members of the NSS, encompassing the NBS, OCGS, and other producers of official statistics. Statistical agencies other than the NBS

normally have other main purposes and tasks than the production of official statistics and only a section or a small group of people within the institution produces statistics.

Statistical Unit: An organizational entity within a government ministry, department, or agency, other than the NSO that develops, produces and disseminates statistics.

UN-NQAF: Checklist which sets out dimensions and elements under which quality of statistics can be assessed. The checklist identified 19 quality principles which cascades down to 87 requirements and down further to 257 elements.

CHAPTER ONE

BACKGROUND INFORMATION

1.0 Background

In recent years, the emerging of new data sources, widen the range of data providers and statistics producers, fueled by technological advances and new demands for detailed and timely data for policy and decision-making in the context of the 2030 Agenda for Sustainable Development and National Development Agenda. Many National Statistics Offices (NSOs) around the world have adopted national codes of practice and/or statistical quality assurance frameworks to capture the principles and best practices, and to safeguard public trust on statistics they produce. These principles and frameworks target national statistical organizations to meet the needs of users including that of the government. Statistics must be of good quality to ensure that it is complying with all the required dimensions of quality in order to be generally accepted as fit for purpose. The quality of statistical information covers a number of different dimensions including aspects such as relevance; accuracy; integrity; methodological soundness; timeliness; accessibility; and serviceability. These dimensions are overlapping and inter-dependent and the relative importance placed on any one of them depends on who is using the statistic and what it is to be used for.

Moreover, producers of statistics have been producing statistics that are sometimes conflicting. The situation has over the years brought difficulties for planners and decision makers in deciding which dataset to use as evidence-base. Furthermore, the increase in demand for both traditional and non-traditional data for policy and development agenda influenced the Government of Tanzania to review the mandate of NBS and OCGS to produce relevant, timely and reliable user-driven official statistics that facilitate informed decision-making. The Government of Tanzania mandated the NBS and OCGS to coordinate the NSS and make better provision in relation to their functions and related matters.

The NBS, OCGS and other stakeholders of the National Statistical System (NSS) prepare the guideline for assuring the quality of data in the country. This document sets out a framework for assuring and assessing the quality of official Statistics that are produced by the NSS. The development of Tanzania Data Quality Assurance Framework adopted

quality principles of the United Nations-National Quality Assurance Framework (UN-NQAF) manual of 2019 and other international quality frameworks such as the IMF's Data Quality Assessment Framework (DQAF). Besides, this quality framework is also based on widely accepted definitions of quality as applied to official statistics as well as the UN Fundamental Principles of Official Statistics and Principles of African Charter for Statistics.

1.1 Rationale for a Data Quality Assurance Framework

Most users do not have enough information to determine whether or not the statistical product fits for any particular purpose. The quality of statistics is defined in terms of its fitness for use, that is the high-quality product offerings that build trust and loyalty with customers in terms of how they were collected, concepts and classifications applied and how the statistics were computed. Moreover, good quality statistics is essential for informed public debate and decision-making. Therefore, objectivity and comparability in evaluating the quality of statistics requires broad cooperation and mutually approved and applied quality criteria. Official statistics that are produced and disseminated by any national statistical agency are used for many different purposes so it is important to ensure that statistics produced and disseminated by statistical authorities within the NSS meet national and international quality standards.

Furthermore, at the national, regional and global levels, there is now a greater emphasis on evidence-based policy and decision making to respond to the coordinated regional and global development frameworks. These frameworks include: - the Tanzania Development Vision (TDV) 2025, The Third National Five Year Development Plan 2021/22 - 2025/26 (FYDP III), Ruling Party Manifesto 2020 – 2025, Zanzibar Development Plan (ZADEP) 2021 - 2026, United Nations Agenda 2030 for Sustainable Development Goals (SDGs - 2030), the East African Community (EAC) Vision 2050, Southern Africa Development Community (SADC) Vision 2050; SADC Regional Indicative Strategic Development Plan (RISDP–2030) and the Africa Union Agenda 2063 constitute potential demand for national statistics.

The frameworks have also increased the demand for high-quality data. Demand for data has also reshaped the landscape for statistics production whereas there is more use of data from non-traditional sources into the statistical process to complement data from traditional sources. The use of non-traditional data sources introduces newer data producers into the NSS. This creates a need for a Quality Assurance Framework to support

the production of high-quality statistics and better guidelines for statistical operations across the new frontiers of the statistical system. The main benefits of having TDQAF for official statistics are:

a) It offers a mechanism for the systematic monitoring and ongoing identification of risks and quality issues across the NSS to develop timely corrective measures. It therefore supports quality improvements and their maintenance over time;
b) It supports NSS coordination by providing common guidance on quality assurance and reference materials for training;
c) It gives greater transparency to the processes by which quality is assured and reinforces the credibility of statistics producers within the NSS;
d) It serves as a common ground to promote dialogue on quality challenges and opportunities at the national, regional and international levels; It also describes to what extent statistical practices in Tanzania are in line with international recommendations and good practice; and
e) It provides a basis for creating and maintaining a culture of quality within the NSS by having more detailed information describing the processes and procedures used to produce particular sets of statistics

1.2 Objectives of Quality Assurance Framework

The quality assurance framework will serve to formalize both operational standards and criteria for evaluating the fitness of statistical data for their required purposes, as well as the methodologies used for data collection, data processing, analysis and dissemination strategy of official statistics which prevent or limit the occurrence of errors in all stages of the statistical process during production of official statistics.

Therefore, Quality Assurance Framework will:

a) Create greater transparency and clarity necessary to manage and respond to data users' expectations, queries and demands while reinforcing the credibility of the producer institute, accuracy, timeliness and accessibility;
b) Improve consistency, effectiveness and efficiency in the NSS by reducing duplication of efforts; normalizing the use of international concepts, definitions, classifications, standards, sampling frames, and methodologies, where appropriate; and creating datasets that are responsive to data sharing demands as well as interpretable that can be understood in its appropriate context;

c) Provide a systematic mechanism for facilitating the ongoing identification of quality problems and possible actions for their resolution;
d) Provide guidance for engagement with statistics producers and data providers outside of the NSS in the production of official statistics;
e) Support quality improvements and their maintenance over time; and
f) Provides a basis for creating and maintaining a quality culture within the organization and contains reference material that can be helpful for training.

1.3 Scope and Coverage

The framework describes the processes to be put in place in order to facilitate and ensure effective management of quality in all statistical programs and organizational initiatives. Therefore, it covers the various quality aspects of the entire statistical value chain (i.e. need, design, plan, collection, processing, analysis, report writing and dissemination), for all official statistics produced from both traditional, and non-traditional sources within the NSS.

This framework is designed to address the quality of official statistics as well as non-official statistics. Within this framework, there are set procedures to assess and attest any kind of statistics to see whether they suffice to be termed as official or not. The framework is prepared based on the policies and frameworks of Tanzania so its uses is purposively intended to be within the context of Tanzania's statistical system. However, it can be referenced anywhere since it adopts several best practices from regional and international contexts. Besides, this framework is developed to address quality management in survey data as well as administrative data. This encompasses also non-traditional data. Quality of data from all thematic areas (economic and socio-demographic) and also cross-cutting themes such as environment can be addressed using this data quality framework.

The TDQAF is designed to be used by producers of statistics whereby it sets criteria for high-quality data and how data quality is assessed. In addition, the framework can be used by users of statistics produced within the NSS to gauge their quality and fitness for use.

CHAPTER TWO

NATIONAL STATISTICAL SYSTEM IN TANZANIA

2.0 Coordination of National Statistical System

Achieving coordination of the work of different parties within the NSS is essential for improving and maintaining the quality of official statistics produced by various actors. The NSS in Tanzania has several actors, including data producers, providers, suppliers and users as well as statistical training institutions. These actors include Ministries, Departments and Agencies (MDAs); Local Government Authorities (LGAs); Public Institutions and Statutory Corporations (PISCs); as well as Non-State Actors (NSAs). The NSS therefore, must function efficiently and fulfill the requirements set on independence, integrity and accountability to produce quality official statistics to serve different user groups nationally and internationally.

The Statistics Act provides the legal basis for the NSS and establishes NBS and OCGS as the principal agencies of government responsible for the collection, compilation, analysis, publication and dissemination of statistical information. The Statistics Act also mandated NBS and OCGS to coordinate the NSS by collaborating with other agencies or organizations having duties related to the production of official statistics. Through this coordination mandate, NBS and OCGS;

i) Provide technical advice on statistics to other state entities;
ii) Promote coordination among producers and users of official statistics by forming appropriate sector committees;
iii) Control and coordinate all statistics activities in a view of having a statistical system and avoid duplication of effort in the production of statistics;
iv) Reduce the burden of respondents of providing data;
v) Ensure optimal utilization of available resources;
vi) Facilitate harmonization of concepts, definitions, classifications, sampling frames, and statistical methods and dissemination policies to make statistical outputs comparable across the NSS as well as in the wider data ecosystem;
vii) Conduct training for members of the system to update knowledge on the contents and application of recommended standards and methodologies; and

viii) Develop guidelines on quality management of statistics produced by outsourced agencies and implementation of mechanisms to allow the assessment and guarantee the quality of statistics produced by NSS members.

The planning of statistical programs in Tanzania NSS is achieved through the development and implementation of the National Strategy for Development of Statistics (NSDS) which is known as Tanzania Statistical Master Plan (TSMP) and Sectoral Strategic Plan. The Government of United Republic of Tanzania (URT) with the assistance of the Word Bank (WB), has developed the second Tanzania Statistical Master Plan (TSMP II) which intends to transform the NSS into three broader thematic areas, namely: -

a) Data harmonization, quality and dissemination;
b) Data production and development; and
c) Infrastructure and Institutional Development.

The NSOs as coordinators of the NSS must lead the process of ensuring that demands for quality statistics are met in a timely manner. Availability of quality statistics will facilitate evidence-based policy, planning, monitoring and evaluations that are key in tracking the realization of national and international development frameworks.

2.1 NSS Current Situation

This section assesses statistics situation in the NSS, in terms of data production, coordination, dissemination and use; and infrastructure. It highlights status and performance, while pointing to the strengths, weaknesses, opportunities and challenges (SWOC) that are addressed by Sector Strategic Plans for Statistics (SSPS) developed for each MDA.

The SWOC analysis which provides an overview of the identified Strengths, Weaknesses, Opportunities and Challenges (SWOC) is a powerful diagnostic tool used to assess the statistical production processes within the NSS and its environment. This analysis was carried out for understanding the current status of statistics in the determination of strategies concerning statistical quality. The analysis results are summarized in Table 2.1.

Table 2.1 SWOC Analysis

Strengths	Weaknesses
a) Availability of standard guidelines and strategies for the production of statistics; b) Enabling institutional and statistical systems for the production of statistics (Statistical databases, financial management system, recruitment system); c) Availability of the statistics legislation and associated regulations to govern the production of statistics; d) Existence of core competencies in most areas of statistics production; e) Good stakeholders' relationships; f) Existence of Statistics Units in some sectors for carrying out statistical work.	a) Inadequate staff in terms of number and skills, especially in advanced data processing and analysis, sampling, M&E, communication, marketing and dissemination; b) Inadequate ICT infrastructure; c) Inadequate financial resources for production and dissemination of statistics; d) Inadequate disaggregation of data to reflect the situation at lower sub-national levels; e) Limited coordination of the NSS, collaboration, networking and information sharing resulting in challenges of access to data; f) Inadequate Sector Management Information Systems; g) Lack of unified and comprehensive national statistical training curricula in the NSS. h) Inadequate capacity in some areas of statistics production within NSS; i) Inadequate statistical advocacy; and j) Insufficient use of administrative data and non-traditional data sources as a result of lack of frameworks and capacity.
Opportunities	**Challenges**
a) Availability of infrastructure and tools for the production and dissemination of statistics; b) Increased Government commitment to the development of statistics; c) Existence of local and international training, opportunities and expertise in statistics production; d) Increased demand for data to support national and international development planning and monitoring; e) Data revolution (Big Data, routine data, data science etc.) which has increased recognition and demand for statistical information; f) Existence of national and international standards, guidelines, classifications, methodologies and partnerships for the production of statistics; g) Existing and potential funding and technical assistance for statistics from development partners; and h) Recognition of sectorial statistics as the cornerstone for national statistical development.	a) Late disbursement of funds for implementation of planned statistical activities; b) Substandard and counterfeited goods and services received from suppliers; c) Conflicting and inconsistent statistics produced by some data producers; d) High cost for conducting censuses and surveys; e) Insufficient budgetary allocation for statistical production and development leading to high dependency on external support; f) Diverse actors within NSS involve many institutions, organizations, and stakeholders which creates significant coordination challenges; g) Use of external and unofficial statistics; h) Externalities such as pandemic disease, for example COVID-19 that disrupt statistical activities; and i) Advanced and fast-changing technology that requires continuous training of users.

CHAPTER THREE

DATA QUALITY ASSURANCE FRAMEWORK PRINCIPLES AND REQUIREMENTS

3.0 Introduction

Tanzania adopted the comprehensive framework for statistical quality principles and associated requirements from United Nations National Quality Assurance Framework (UN-NQAF) manual for official statistics. Tanzania also addresses quality assurance with regard to the development, production and dissemination of official statistics which consist of four levels, ranging from overarching institutional and cross-institutional management and statistical production processes to the outputs. The four levels are:

i. Level A: Managing the statistical system;
ii. Level B: Managing the institutional environment;
iii. Level C: Managing statistical processes;
iv. Level D: Managing statistical Outputs.

Each level contains a concise set of principles and requirements to guarantee quality in that aspect of quality assurance. These requirements are vital indicators that, when met, will ensure that provisions have been made to assure quality. A list of elements to be assured, which supports and assists the implementation of the principles and requirements are explained below.

3.1 Level A: Managing the Statistical System

The National Statistical System in Tanzania comprises the two statistical agencies known as NBS and OCGS within a country that develop, produce and disseminate official statistics on behalf of the Government. The coordination of this system and managing relations with all stakeholders is a precondition for the quality and efficient production of official statistics. Ensuring the use of statistical standards throughout the system is an important part of this management. Managing the Statistical System has three quality principles i.e

a) Coordinating the National Statistical System
b) Managing relationship with data users, data providers and other stakeholders
c) Managing statistical standards

3.1.1 Principle 1: Coordinating the National Statistical System

Coordination of the work of the members of the NSS is essential for improving and maintaining the quality of official statistics. Principle 1 is supported by principle 8 of the Fundamental Principles of Official Statistics. There are four quality requirements under this principle which are mainly concerned with ensuring the integrity of the statistical system in Tanzania and promoting the extent to which users trust official statistics as shown in the Table 3.1.

Table 3.1 Principle 1: Coordinating the National Statistics System

Requirement		Element to be assured	Description
1.1	A statistical law establishes the responsibilities of the members of the national statistical system including its coordination. Its members are identified in a legal or formal provision.	The coordination role of the NSOs or other body is defined in a statistical law	Statistic law and/or its Regulations should be used as reference documents
		The statistical law specifies the requirements for official statistics and the scope of the NSS	
		Members of the NSS are identified in a formal document.	
		Responsibilities of NSS members for the development, production, and dissemination of official statistics are clearly specified in the respective laws and regulations.	
1.2	There are a body and mechanisms for the coordination of the national statistical system for activities at the local, national, regional, and international level.	The NSOs or other body is tasked with the coordination of the NSS.	The Statistics Act or any other legal document should explicitly identify a body responsible for the coordination of the NSS and its function
		The NSOs and other statistical agencies have mechanisms to ensure coordination (including the exchange of data and statistics within the NSS) and the quality of official statistics.	
		An NSS-wide (central) coordination body (which is by default part of the NSS and is typically it is the NSOs) sets, monitors, and reviews guidelines for the development, production, and dissemination of official statistics.	
		A central coordination body establishes and maintains engagement with advisory bodies, academic institutions and other regional and international bodies as appropriate.	
		A central coordination body coordinates data collection to improve cost-effectiveness and reduce respondent burden, in particular coordinating sample surveys.	
		A central coordination body monitors the use of agreed standards, concepts, classifications and methods throughout the NSS.	
		A central coordination body promotes and enhances data sharing within the NSS and liaisons with members of the extended data ecosystem regarding the sharing of data.	
		A central coordination body promotes the sharing of technical knowledge and good statistical practices and ensures the provision of training, including on the production of official statistics and SDG indicators	
		Processes for evaluation of the quality of the statistics are developed and	

Requirement		Element to be assured	Description
		applied within the NSS.	
1.3	There is a mechanism for considering statistics produced outside the national statistical system, and if appropriate, for these statistics to become official.	The body coordinating the NSS evaluates statistics produced outside the NSS for use as official statistics or alongside official statistics. Examples of such statistics are some of the Sustainable Development Goal (SDG) indicators.	There should be manuals/ guidelines that explain procedures to be followed for statistics from other agencies to be accredited as official statistics
		The NSS-wide (central) coordination body or a task force composed of members of various statistical agencies can be given the responsibility for the evaluation of the quality of relevant statistics outside the NSS (e.g. some SDG indicators) as needed.	
		There is a unit such as a task force that discusses and provides support for the use of new data sources within the NSS.	
1.4	There is a national plan or program for the development and production of official statistics.	There is a multi-annual national plan for the development and production of official statistics which can take the form of NSDS.	Tanzania Statistics Master Plan or the National Strategy for Development of Statistics can be used as a guiding document
		The multi-annual national plan for the development and production of official statistics covers the entire NSS.	
		The multi-annual national plan should address quality assurance.	
		Annual plans for the NSS members supplement the multi-annual NSS-wide plan.	
		The multi-annual national plan is established in close consultation with statistics producers, users and data providers.	
		The multi-annual national plan for the development and production of official statistics is approved for implementation by an NSS-wide governance body and/or a higher-level government or a legislative body.	
		The programs and activities of the multi-year national plan are monitored on a regular basis by the NSS-wide (central) coordination body	

3.1.2 Principle 2: Managing Relationships with Data Users, Data Providers and Other Stakeholders

The NSOs should build and sustain good relationships with all its key stakeholders, including users, data providers, funding agencies, senior government officials, relevant community organizations, academia, and the media. NSOs should have access to all data necessary to satisfy the information needs of society in an effective and efficient way. Principle 2 is supported mainly by principles 1 and 5 of the Fundamental Principles of Official Statistics. Managing relationships with stakeholders has seven (7) requirements as shown in Table 3.2.

Table 3.2 Principle 2: Managing Relationships with Data Users, Data Providers and Other Stakeholders

Requirement		Element to be assured	Description
2.1	Stakeholders are identified and consulted regarding their interests, needs and obligations.	The statistical agencies clearly identify all their stakeholders.	Evidence of user-producer workshops being convened before and after particular statistics production should be documented
		There are processes in place to consult stakeholders on their concerns, interests, needs and obligations.	
		Stakeholders are kept informed on actions taken to address their needs and concerns.	
2.2	The statistical agencies have a strategy and institutional arrangements to engage with their users.	User needs and how to engage with users are reflected in the statistical agencies' strategies such as the strategy for the development of statistical outputs, the dissemination strategy as well as for NSS wide relevant strategies such as the NSDS.	There should be a user engagement/communication strategy or similar kind of guiding policy or strategy
		Service agreements or similar arrangements with the main users of the statistics are in place (e.g. with respect to what will be supplied by the agency, the quality of the statistics, the dissemination format etc.).	
		Statistical agencies have press offices, hotlines and a central email contact that responds to all user inquiries in a timely manner.	
		Users can engage with statistical agencies and request information in their preferred way of communication such as through telephone, email and other common means of communication.	
		There are processes and arrangements (such as a user committees) in place for users to advise statistical agencies about their emerging needs and priorities and during the development of new or review of existing statistics.	
		There are subject domain specific user committees	
2.3	The statistical agencies continuously maintain and develop cooperation with funding agencies, academic institutions and international statistical organizations, as appropriate.	The statistical agency's workplan and budget are shared with the funding agency as appropriate to ensure mutual understanding of funding requirements and trade-offs.	It is required to have MoUs, project documents or any legal binding documents agreed between NBS/OCGS and these institutions
		Statistical agencies maintain and develop cooperation with the scientific community to develop new statistics, improve methodology and to promote the use of statistics.	
		Statistical agencies cooperate with international and regional organizations in the area of statistics and with the statistical organizations of other countries	
2.4	The National Statistical Office	The statistical law provides appropriate provisions to guarantee the NSO and if	The Statistics Acts should have a provision that allows

Requirement		Element to be assured	Description
	and, if appropriate, other statistical agencies have the legal authority or some other formal provision to collect data for the development, production and dissemination of official statistics.	appropriate other statistical agencies the right to collect data for statistical purposes through surveys and censuses.	the NSOs to collect data
		Based on the legislation, the statistical agencies are able to apply appropriate sanctions such as fines if response to obligatory statistical surveys or censuses is not received.	
2.5	The National Statistical Office and, if appropriate, other statistical agencies have the legal authority or some other formal provision to obtain administrative data and adequate access to these data from other government agencies for statistical purposes.	The statistical law provides appropriate provisions to guarantee the NSO and if appropriate other statistical agencies the right to obtain or access administrative data in a timely manner.	Statistic Act and/or its associated regulations should have a provision that allows the NSOs to access administrative data from other government institutions
		Where statistical agencies do not have a legal right to obtain administrative data, memorandum of understandings are in place that provide such access.	
		The statistical agencies' access to administrative data are free of charge.	
		Agreements with owners of administrative data are in place to operationalize data access describing technical conditions for access and the possibility to link the data with data from other administrative data sources.	
		The statistical agencies are involved in the design and development of administrative data sets, in order to make them suitable for statistical purposes; this involvement extends to the possible discontinuation of such data sets.	
2.6	The national statistical office and, if appropriate, other statistical agencies have the legal authority or some other formal provision and related agreements to access and use data (including "big data") maintained by private corporations or	The statistical law provides appropriate provisions to guarantee the NSO and, if appropriate, other statistical agencies the right to timely obtain or access data held by private corporations or other non-governmental organizations (NGOs) for statistical purposes (e.g. all corporations that provide services to individuals and legal entities residing in the country).	Statistics Act and/or its associated regulations should have a provision that allows the NSOs to access data from non-state actors. Alternatively, there should be MoUs or other legal binding documents that allow for NSOs to access such data
		The statistical law foresees adequate sanctions to ensure access to privately-held data where appropriate (such as fines for not granting such access).	
		Where statistical agencies do not have a legal right to obtain access to data maintained by corporations or other NGOs, memoranda of understanding are in place that provide such	

Requirement		Element to be assured	Description
	other non-governmental organizations for statistical purposes on a regular basis, including for testing and experimentation.	access.	
		The statistical agencies consider the relevance and the scope of data requested	
		The access and use of privately-held data follow procedures agreed between the statistical agencies and owners or holders of the data	
2.7	The national statistical office cooperates with and provides support and guidance to data providers.	The NSO regularly consults with data providers and maintains cooperation with the providers of administrative data and with corporations, businesses and other organizations that hold data to strengthen the statistical value and usage of these sources	There should be MoUs, minutes of consultative meetings which justify existence of such cooperation
		Quality reports for administrative data are developed in cooperation with the NSO and the data owner and describe accuracy, completeness, timeliness, and punctuality, among other things	
		Holders of administrative data, businesses and other organizations receive feedback on the quality of the data provided allowing for further improvements	
		Partnership agreements with data providers are in place	

Principle 3: Managing Statistical Standards

Standards refer to a comprehensive set of statistical concepts, definitions, classifications and models, methods and procedures used to achieve the uniform treatment of statistical issues within or across processes and across time and space. The use of standards promotes the consistency and efficiency of statistical systems at all levels. This Principle is managed through the following three requirements, see Table 3.3:

Table 3.3 Principle 3: Managing Statistical Standards

Requirement		Element to be assured	Description
3.1	The statistical agencies cooperate in the development and implementation of international, regional and national statistical standards.	The NSOs actively works with other statistical agencies and international and regional statistical organizations in developing, reviewing, promoting and implementing statistical standards	NSOs either adapt or adopt the international, regional and national statistical standards and use them in statistics production
		The NSOs has an organizational unit responsible for facilitating and coordinating the adoption and development of international, regional and national statistical standards and for supporting statistical programs/domains in their efforts to adopt and develop such standards	
		All relevant staff in statistical agencies are aware of statistical standards and any changes made to them	
		There is a repository and a list of all standard classifications available in all statistical agencies	
		The process for originating, developing and approving statistical standards involves statistics producers, data providers and data users	
		The impact of the adoption of new statistical standards is assessed, documented and communicated to users; where applicable conversion tables are provided	
		The statistical agencies use conceptual frameworks, such as the System of National Accounts, that provide a basis for integrating statistical information	
		Statistical standards (concepts, definitions, classifications, etc.) are regularly reviewed.	
3.2	The National Statistical Office provides support and guidance to all	The NSOs monitors the extent to which statistical standards are used by data providers and producers of official	There should be manuals and guidelines for use by anyone who produces statistics. They should

Requirement		Element to be assured	Description
	data providers and producers of official statistics in the implementation of statistical standards.	statistics	guide on how to design and implement statistical programs
		Periodic reports are prepared with regard to compliance with international, regional and national statistical standards	
		Statistical standards are communicated and made available to all data providers and producers of official statistics	
		Plans and schedules for the development and application of new standards are communicated in advance	
		The NSOs assists other statistics producers and data providers in implementing international, regional, and national statistical standards as appropriate	
3.3	Divergences from the international, regional, or national statistical standards are kept to a minimum, documented and explained to all stakeholders.	Concordance tables to international, regional, and national standard classifications are developed and made available in case diverging standards are used	Deviations from the international, regional, or national statistical standards should be documented as part of the statistical reports that are produced and comparison/conversion methods be provided
		The adopted standards (concepts, definitions, classifications, etc.) are explained to all stakeholders	
		Stakeholders are informed about the compliance with international, regional and national statistical standards	

3.2 Level B: Managing the Institutional Environment

The institutional and organizational environment of the statistical activity significantly influences the efficiency and credibility of the National Statistical System in the production and dissemination of quality official statistics. The institutional environment covers the following six principles:

a) Assuring professional independence
b) Assuring impartiality and objectivity
c) Assuring transparency
d) Assuring statistical confidentiality and data security
e) Assuring commitment to quality
f) Assuring adequacy of resources

3.2.1 Principle 4: Assuring Professional Independence

NSOs and Statistical Units 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. The requirements for assuring professional independence are explained in Table 3.4.

Table 3.4 Principle 4: Assuring Professional Independence

Requirement		Element to be assured	Description
4.1	A law or other formal provision explicitly declares that statistical agencies are obligated to develop, produce and disseminate statistics without interference from other government agencies or policy, regulatory or administrative departments and bodies, including from within the statistical agencies, private sector or any other persons or entities.	The professional independence of the NSOs and other producers of official statistics such as statistical units within ministries, departments and agencies at the different levels of governments is guaranteed by the laws and regulations under which the ministries, departments and agencies operate.	There should be provisions in the Statistics Act or its Regulations that explicitly provide mandate to NSOs to develop, produce and disseminate statistics. Such provisions should also emphasize the independence of NSOs and freedom of interference from any other body
		If there is no law nor formal provision declaring the necessity of professional independence, there are traditions or cultures of professionalism, historical precedents or conventions which are clearly recognized as essential to the credibility of the statistical results of the statistical agencies.	
4.2	The appointment of the heads of the national statistical office, and other statistical agencies where appropriate, is based on professional criteria and follow transparent procedures. Reasons for dismissal cannot include reasons affecting professional independence. The heads of the statistical agencies are of the highest professional calibre.	National legislation provides clear and detailed description of the procedure for appointment and dismissal of the head of the NSOs.	There should be clear documented guidance on how the heads are appointed and also how they are dismissed. Such document include Statistics Act, Scheme of Service, Public Service Standing Order, Public Service Act and its Regulation
		The rules applied for appointing, assigning position and responsibilities and dismissing the heads of the statistical agencies are based on professional competence, transparent and free from political considerations.	
		Processes are in place to ensure that the heads of the statistical agencies are of the highest professional calibre	
		The head of the NSOs has sufficiently high hierarchical standing to ensure access to the political and administrative leadership of government bodies.	
		The heads of statistical units within other statistical agencies have the necessary qualifications, knowledge and capacity.	

Requirement		Element to be assured	Description
		The basis and process for the termination or removal of the head of the NSOs and statistical units within government producing official statistics are specified in the legal framework and administrative regulations. These cannot include reasons affecting professional or scientific independence.	
4.3	The head of the national statistical office and other statistical agencies where appropriate has sole responsibility over the decisions on statistical methods, standards and procedures, and on the content and timing of statistical releases.	The head of the NSOs and statistical units within government producing official statistics, decides independently and based on professional considerations on the statistical methods, standards and procedures for the development, production and dissemination of official statistics.	There should be a guiding document that explicitly set out roles and responsibilities of the heads. These roles should be solely on statistical management including ensuring standards and quality of those statistics. These includes Statistics Act, Job description, Scheme of Service, Public Service Standing Order
		The reporting of the NSOs to its administratively superordinate government bodies and to ministries, department and agencies does not affect its professional independence.	

3.2.2 Principle 5: Assuring Impartiality and Objectivity

NSOs and Statistical Units 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. This principle is supported by seven quality requirements as shown in Table 3.5.

Table 3.5 Principle 5: Assuring Impartiality and Objectivity

Requirement		Element to be assured	Description
5.1	There is a law or formal provision in force, which is publicly available, and which specifies that statistical agencies should develop, produce and disseminate statistics following professional standards and treat all users in the same way.	Professional cultures and traditions assure the impartiality and objectivity of the statistics produced by the statistical agencies independently from the existence or absence of any laws or formal provisions	There should be a provision in the Statistics Act that explains the mandate of the NSOs on the development, production and dissemination of statistics. The provision should be extended to emphasize adherence to regional and international professional standards. This Act should be available to the public. Equally important, the existence of code of ethics and conduct for statisticians serves the purpose of evidence
		The objectivity and impartiality of official statistics is recognized (and not disputed) by neutral observers and the public (e.g. measured by image studies)	
5.2	The statistical agencies implement a declaration or code of conduct or ethics which governs statistical practices, and compliance with it is followed up.	There are ethical guidelines or a code of conduct for assuring impartiality and objectivity	The NSOs should have code of ethics and conduct for statisticians which are in operation
		The guidelines are available to the public	
		The implementation of the guidelines is followed up	
5.3	Data sources and methodologies are chosen on an objective basis.	Data sources, concepts, methods and processes for the development, production and dissemination are chosen on the basis of statistical considerations, national and international principles and best practices.	The choice of data sources and methods must reflect the need for statistics. Higher-level decision minutes which are based on cost-effectiveness and value for money serve as evidence
5.4	Statistical releases are clearly distinguished from political/policy statements.	Statistical releases and statements made to the media are objective and strictly based on the available evidence and not taking any position on a political issue.	The statistical release should be disseminated without any political affiliation or preference
		Appropriate internal and external communication strategies exist that include recognizable logos, designs or formats for statistical agencies' products to identify them as not being associated with any political or policy bodies	
5.5	Statistical release dates and times are announced in advance.	A publicly available and easily accessible release calendar containing information on the releases	The release calendar needs to be disseminated to the public at the beginning of program implementation

Requirement		Element to be assured	Description
		planned in the upcoming 12-month period exists	period (preferably beginning of the financial year)
		Statistics are released at a fixed date and time	
		Changes in the release calendar are announced in advance and their reasons are explained	
		The sharing of statistical results ahead of the official release (privileged pre-release) is kept to a minimum, well-justified, strictly controlled and documented	
5.6	In the case that errors are detected, they are corrected as soon as possible, and users are informed about how they affected the released statistics.	There is an established policy on how to correct published data when errors are discovered. The error treatment policy is publicly available	NSOs should inform the public through Press Release or any relevant mechanism on any error observed in statistics produced
5.7	The statistical agencies comment publicly on statistical issues, misinterpretation and misuse of official statistics, as appropriate.	There is a formal policy or well-established custom entitling statistical agencies to comment publicly on statistical issues, criticisms, misinterpretations and misuses of official statistics	A Press Conference or Release can be used to inform the public on such statistical issues
		The statistical agencies respond, as appropriate, to negative media reporting to facilitate fair reporting of its positions	

3.2.3 Principle 6: Assuring Transparency

The NSOs shall inform users about sources and methods used to produce statistics. Also, to facilitate proper interpretation of data. This will be supported by Policies and management practices, and the terms and conditions under which statistics are developed, produced and disseminated and, if applicable, subsequently revised (including the legal basis and purposes for which the data are required), are documented and available to users, respondents, owners of source data and the public. This Principle is supported by two requirements which are explained in Table 3.6.

Table 3.6 Principle 6: Assuring Transparency

Requirement		Element to be assured	Description
6.1	The terms and conditions for producing and disseminating official statistics are available to the public.	There is a standard procedure for ensuring that respondents understand the legal basis for a survey and the confidentiality provisions for the data that are collected	NSOs should provide an official document to guide on such terms and conditions. These may include the Statistics Act and its Regulation, guidelines for the production of official statistics, data dissemination and access policy
		Information on data sources, statistical concepts and methods used for the development, production and dissemination of official statistics are publicly available	
		The information on statistical standards are available to the public	
		Advance notice of major changes in methodology, source data, or statistical techniques is given	
		The dissemination policy is shared with the public	
		It is disclosed if there is a privileged pre-release of statistical results	
6.2	The terms and conditions for the governance and management of statistical agencies are available to the public.	The procedures to be followed for the appointment and dismissal of heads of the statistical agencies and the hiring and release of staff are publicly available	NSOs should provide an official document to guide on such terms and conditions. These may include the Statistics Act and its Regulation, guidelines for the production of official statistics
		The reporting and dialogue of statistical agencies with administratively superordinate government bodies is well defined, established and known to the public.	
		The work programs of the statistical agencies and periodic reports to describe progress are made available to the public on a regular basis.	

3.2.4 Principle 7: Assuring Statistical Confidentiality and Data Security

NSOs and Statistical Units should guarantee that the privacy of data providers such as persons, households, enterprises, public institutions and other providers will be protected, and that the information they provide will be kept confidential, will not be accessed by unauthorized internal or external users and will be used for statistical purposes only. This principle is managed through six quality requirements elaborated in Table 3.7.

Table 3.7 Principle 7: Assuring Statistical Confidentiality and Data Security

Requirement		Element to be assured	Description
7.1	Statistical confidentiality is guaranteed by law.	There is a law or some other clear formal provision in force that mandates the proper management of information received from respondents and data providers to ensure statistical confidentiality and data security.	There should be a provision in the Statistics Act and/or its Regulation and such provision should be reflected in any data collection, processing and dissemination
7.2	Appropriate standards, guidelines, practices and procedures are in place to ensure statistical confidentiality.	Guidelines and instructions on the protection of statistical confidentiality throughout the statistical business process are provided to all staff of the statistical agencies	Oath of Secrecy to data collectors, consent from respondents and data protection and confidentiality measures should be well known to those who work for statistical assignments
		There are regular and continuous training programs for all staff on the concept of statistical confidentiality and best practices to ensure the privacy of the information provided	
		The organizational structure and arrangements for the development and implementation of practices for ensuring statistical confidentiality is adequate to cope with the needs	
		The staff sign confidentiality agreements upon their appointment, which is valid also after staff leaves the agency.	
7.3	Strict protocols to safeguard data confidentiality apply to users with access to microdata for research or statistical purposes.	Clear conditions for granting researcher access to confidential data for scientific purposes are set in the statistical law or other formal provision.	National, regional and international protocols of ensuring anonymity of data should be adhered prior to the dissemination of microdata. This may include the use of standard microdata dissemination platforms (e.g TNADA) and standard data exchange protocols (e.g SDMX)
		Confidentiality rules, disclosure control and microdata access procedures apply throughout the statistical business process.	
		The statistical agencies monitor the use of microdata sets to identify any circumstances in which data confidentiality may be breached, for example, through file matching, and take immediate corrective action to address such a situation.	
7.4	Penalties are prescribed for any wilful breaches of statistical confidentiality.	There are legal or other provisions in place that allow administrative, penal and disciplinary sanctions for the violation of statistical confidentiality.	Provisions for such penalties should be spelled in the Statistics Act and/or its Regulations
		Information on the provisions that allow sanctions for the violation of statistical confidentiality is shared with all staff and is available to the public.	

Requirement		Element to be assured	Description
7.5	Security and integrity of data and their transmission is guaranteed by appropriate policies and practices.	An IT security policy is in place and known to the staff.	National, regional and international protocols to be observed need to be clearly spelled out in policies such as ICT policy
		Following the IT policy, appropriate physical security measures and processes are in place to ensure data and database security, in accordance with best practices and international standards.	
		Regular security audits of the data security system are carried out.	
		All access to data repositories and transmission channels are monitored.	
		While data are being transferred, risk of a breach is assessed, and appropriate procedures are applied to eliminate or minimize this risk.	
7.6	The identification risk of individual respondents is assessed and managed.	There should be a balance between the acceptable level of risk of identification of individual respondents and usability of the data.	There should be a balance between such risk and loss of potential information to users
		Appropriate processes are in place to assess the risk of disclosure of sensitive information and the risk that individual respondents can be identified from the public release of statistics or of microdata, and procedures are applied in line with the data dissemination policy to minimize this risk.	
		All procedures that are taken to adequately reduce the risk of identification are properly documented and made available as part of the metadata related to the statistical dataset.	
		Users are made aware that procedures to reduce the risk of identification have been implemented and that this could lead to a loss of information.	

3.2.5 Principle 8: Assuring Commitment to Quality

NSOs and Statistical Units should be dedicated to assuring quality in their work, and systematically and regularly identify strengths and weaknesses to continuously improve process and product quality. This Principle is explained by eight requirements elaborated in Table 3.8.

Table 3.8 Principle 8: Assuring Commitment to Quality

Requirement		Element to be assured	Description
8.1	There is a quality policy or a statement of the statistical agency's commitment to quality, which is publicly available.	The statistical agency's policy, declaration or message about its commitment to quality of statistics is made publicly available and clearly conveys and promotes the shared concern for quality of all of its staff and includes information about trade-offs affecting the statistical work program.	A quality statement needs to be prepared by NSOs and made publicly available. This can be achieved through a provision from the Statistics Act and its Regulation or guidelines of quality management
		The statistical agency has quality guidelines that are made available to external users, at least in a summary version.	
8.2	The statistical agencies promote a culture of continuous improvement.	Methodology and processes are regularly documented.	NSOs should conduct evaluations, quality assessments and data audits for its statistical programs. Reports of assessment and data audits serve as evidence
		Good statistical practices are exchanged among and between statistical agencies.	
		Procedures are in place to ensure that the required documentation on quality is regularly updated.	
		A quality assurance plan or similar mechanism is in place that describes the work standards, the formal obligations (such as laws and internal rules) and quality control actions to prevent, monitor and evaluate errors and to control the statistical production process.	
		Work plans, schedules and standard forms or templates are used for facilitating the updating of the documentation of quality assurance procedures and actions in a consistent way	
		Statistical agencies use a national quality assurance framework (NQAF) as a basis for regular quality assessments (self-assessments and other assessments)	
		Statistical agencies use a NQAF which is based on one of the accepted global or regional framework	

Requirement		Element to be assured	Description
		General quality systems or frameworks such as Total Quality Management (TQM) and International Organization for Standardization (ISO) 9000 are utilized in conjunction with the NQAF	
		Quality initiatives of international and regional statistical bodies such as the European Statistical System (ESS) are followed up, as appropriate	
8.3	There is a specific body responsible for the quality management or the coordination of quality management within the statistical agency, and it receives necessary support to fulfil this role.	A quality manager, quality committee, unit or group of coaches or advisers is assigned responsibility for quality management	A unit, permanent task force or committee need to be established within NSOs or NSS for such responsibility
		An agency-wide data quality task force is established and meets regularly.	
		Quality issues are discussed with and by management regularly (for example at an annual quality review meeting)	
8.4	The national statistical system staff receives training on quality management.	Staff training and development programs are in place to ensure that staff are aware of the statistical agency's quality policy including the use of a NQAF, and that staff have an understanding as to how quality is assured	NSOs should prepare and implement Training Plan with a component of trainings on quality management
		A staff awareness "campaign" is undertaken to emphasize the statistical agency's commitment to quality	
8.5	Guidelines for implementing quality management are defined and made available to the public.	Guidelines for implementing quality management are produced and issued which: - • describe the quality principles and framework followed; • describe the entire statistical process and identify relevant documentation for each stage of production; • describe the methods for monitoring the quality at	There should be a DQAF which is available to all users and producers of statistics

Requirement		Element to be assured	Description
		each stage of the statistical production process; • identify the indicators (quality measures) for evaluating the quality of the main stages of production, including indicators for source data	
		The guidelines, methodological manuals and handbooks on recommended practices for quality assurance are made available to the public.	
		Mechanisms are in place to assure the quality of data collection (including the use of administrative data and other sources) and data editing.	
8.6	Indicators on statistical output quality are regularly measured, monitored, published and followed up to improve statistical products and processes.	Quality reports which are serving both producer and user perspectives are prepared, published as appropriate, and updated regularly.	Data quality assessments should be regularly conducted and their findings being reported and documented for follow-up
		Quality indicators are defined, measured and monitored for following up and improvements. Examples of quality indicators: • References in media, hits on website, results from user satisfaction surveys (relevance); • Standard deviations and other measures of accuracy, response rates (accuracy); • Number and size of revisions (reliability); • The length of time between the end of a reference period and dissemination of the statistics. (timeliness); • Rate of statistics published when announced (punctuality); • Respondent burden. •	

Requirement		Element to be assured	Description
8.7	Statistical products and processes undergo periodic reviews.	Periodic quality reviews of key products and processes to assess adherence to internal guidelines and international standards are performed.	This is especially for recurring exercises such as monthly, quarterly and annual publications. It also includes statistics produced from census and surveys, for example population projection
		Reviewing teams where both internal and external experts can participate are set up.	
		The statistical agency's internal reviewers are trained in auditing methods and tools.	
		Improvement actions arising from the result of quality reviews are defined and scheduled for implementation.	
		Top management is informed of the results of reviews to follow up improvement actions	
		Benchmarking of key statistical processes with other statistical agencies are carried out to identify good practices	
		Procedures are in place to monitor and manage the quality of different stages of the statistical production according to the Generic Statistical Business Process Model (GSBPM)	
		Trade-offs within quality are systematically examined (e.g. trade-offs between accuracy, timeliness and costs).	
		External experts (also from international organizations) conduct quality reviews, such as reviews of key statistical domains (for example International Monetary Fund's Reports on the Observance of Standards and Codes (ROSCs)) or other reviews such as peer reviews, external audits, and rolling reviews.	

Requirement		Element to be assured	Description
8.8	Risk analyses addressing the quality of important statistical products and processes are performed.	Risk and quality management are closely coordinated (e.g. by institutional arrangements and regular meetings if responsibilities for these activities are placed differently)	Quality assessment report should be presented and discussed at length to wider range of stakeholders
		Risks linked to core recommendations and principles of the NQAF (e.g. for lack of independence and confidentiality breaches) are analysed and measures taken if needed to improve compliance	
		Risk analyses addressing the quality of different stages of the statistical production are conducted according to the GSBPM.	
		Risk analyses addressing the quality of important statistical products such as population statistics and censuses, national accounts and Consumer Price Index (CPI) are performed (e.g. risk of poor accuracy expressed by errors, poor timeliness and lack of comparability)	

3.2.6 Principle 9: Assuring adequacy of resources

The financial, human, and technological resources available to NSOs and Statistical Units should be adequate both in magnitude and quality, and sufficient to meet the needs regarding the development, production and dissemination of statistics. This principle is explained by three requirements elaborated in Table 3.9.

Table 3.9 Principle 9: Assuring adequacy of resources

Requirement		Element to be assured	Description
9.1	Financial, human and technological resources are sufficient to implement the statistical work and development program.	A resource mobilization strategy such as a NSDS is in place.	NSOs should have resource management and mobilization policies or strategies that guide on mobilizing and use of such resources. The evidence documentation includes Human Resource Planning (HRP) and Personal Emoluments (PE)
		The annual work plan is feasible given the available resources.	
		Costs (staff costs and other costs) of each stage of the production processed are measured.	
9.2	Planning and management principles are aimed at the optimal use of available resources.	Information technology is employed to increase efficiency.	Cost and benefit analysis should be done to optimize the use of resources for achieving greater results
		Standardization, integration and automatization of statistical production and dissemination are pursued to increase efficiency of operations and to save costs.	
9.3	The statistical agencies' use of resources is reviewed.	Indicators on the use of human and financial resources are monitored centrally and regularly reported to management.	There should be regular reviews of the budget and implementation of work plans, for example mid-term reviews
		The use of human resources is evaluated annually based on established guidelines and procedures. The evaluation covers allocation, performance and training needs of staff.	
		Staff opinion/satisfaction surveys are conducted regularly.	

3.3 Level C: Managing Statistical Processes

International standards, guidelines and good practices are fully observed in the statistical processes used by the NSOs and Statistical Units to develop, produce and disseminate official statistics, while constantly striving for innovation. The credibility of the statistics is enhanced by a reputation for good management and efficiency. The relevant principles to be assured under this level focused on balancing between quality of statistics, cost and respondent burden. Managing statistical process has four principles:

a) Assuring methodological soundness
b) Assuring cost-effectiveness
c) Assuring appropriate statistical procedures
d) Managing the respondent burden

3.3.1 Principle 10: Assuring methodological soundness

In developing and compiling statistics, NSOs and Statistical Units 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. The following five quality requirements are recommended for assuring methodological soundness, see Table 3.10.

Table 3.10 Principle 10: Assuring methodological soundness

Requirement		Element to be assured	Description
10.1	The methodologies applied by the statistical agencies are consistent with international standards, guidelines and good practices and are regularly reviewed and revised as needed.	Organizational structures for the development and application of sound statistical methods are commensurate to the needs.	NSOs should have manuals which guides on the processes of statistics production and these guidelines need to be harmonized with international standards. For example, statistical classifications (ISIC Rev. 4, SNA 2008, COICOP etc.)
		There are review and reporting processes in place that allow the management of the statistical agency to be assured that sound methodological approaches have been adopted and applied throughout the production process.	
		The methodologies of surveys and the use of administrative data and other sources of data are evaluated periodically.	
		Sampling design is based on sound methodology	
		Proper follow-up procedures are planned and implemented in the case of non-response.	
		Statistical editing procedures and imputation methods are based on sound methodology.	
		When statistical modelling is used in the statistical production process (e.g. for seasonal adjustment), the validity of model assumptions is carefully considered and the impact on final estimates evaluated.	
		Statistical agencies review the methods used by external partners for the compilation of data and the production of statistics.	
10.2	The statistical agencies recruit qualified staff and have regular programs to enhance their methodological skills.	Staff of the statistical agency are recruited based on their academic background, qualifications and experience.	Recruitment of statistical staff should consider professionalism and there must be a program to train these staff regularly. Supporting evidence includes the Scheme of Services; Training Needs Assessment and Training Plan
		Appropriate qualifications requirements are specified for all posts.	
		Training and development programs are in place to ensure the staff acquires and continuously update their methodological knowledge.	
		Staff skills are regularly updated so that staff is able to utilize new data sources and tools, and able to easily change positions.	

Requirement		Element to be assured	Description
		Attendance of staff at relevant training courses and/or to national or international conferences is encouraged.	
10.3	Statistical agencies are to choose the data source with regard to accuracy and reliability, timeliness, costs, the burden on respondents and other necessary considerations.	The use of alternative sources of data, including existing surveys and census, administrative data, "big data" or other sources of data is constantly evaluated.	Data collection should be planned only when, and for items which are, necessary at a certain time. Choice of data source should consider all data quality dimensions including cost-effectiveness
		Quality has to be assessed when using administrative data or other data sources. Ideally, when using administrative data, it should be assured that: • The population is consistent with the statistical output requirements; • The classifications are appropriate; • The underlying concepts are appropriate; • The records are complete and up to date; • The geographical coverage is complete and the measurement units are appropriately defined/identified.	
		When using other data sources (such as big data), the specific methodological challenges such as the ones linked to the statistical population and the veracity and volatility of such data have to be considered.	
10.4	The registers and the frames for surveys are frequently evaluated and adjusted.	A systematic approach is in place for updating the survey frames to ensure accurate coverage of the target population.	NSOs must maintain and update sampling frames of households and establishments
		For all surveys the appropriate statistical population frames are updated regularly.	
		Information gathered during the conduct of surveys is used to assess and improve the quality of the frame, especially its coverage and the quality of the contact variables and the auxiliary information (variables used in the sampling design).	
10.5	The statistical agencies cooperate with the scientific community to improve methods and promote	Collaboration with the scientific community is in place, for example through conferences, workshops, task forces, and training/courses, to discuss relevant methodological and	There should be a formal collaboration agreement between NSOs, R&D and the scientific community

Requirement		Element to be assured	Description
	innovation in the development, production and dissemination of statistics	technological developments, e.g. in exploiting new data sources.	
		There are agreements with academic institutions on cooperation and the exchange of qualified personnel.	
		Staff collaborate on methodological issues with colleagues at international level.	
		Regular participation and presentations at relevant national and international conferences is encouraged for exchange of knowledge and experiences.	
		National and international conferences, seminars, workshops, or similar events with the participation of the scientific community are organized by the statistical agencies.	

3.3.2 Principle 11: Assuring cost-effectiveness

Principle 11 emphasizes the responsibility of NSOs and Statistical Units to ensure the effective and efficient utilization of resources. It is imperative for NSOs and Statistical Units to demonstrate the extent to which objectives have been met, the attainment of results at a reasonable cost, and the alignment of outcomes with the primary purposes of the statistics. This principle is managed by six quality requirements which are elaborated in Table 3.11.

Table 3.11 Principle 11: Assuring cost-effectiveness

Requirement		Element to be assured	Description
11.1	The costs of producing all individual statistics are measured and analysed, and mechanisms are in place to assure cost-effectiveness of statistical activities or processes.	There is a system for registering cost and time used for all statistical products, and it should be possible to estimate time used on the main processes.	Cost per unit individual should determine for each statistical activity and should be calculated for alternative methods of data collection. Concept notes and proposal may serve as evidence
		The costs of producing the statistics are well documented at each stage of the production process, and regularly reviewed and analysed across statistical products to assess the effectiveness of their production	
		Cost–benefit analyses are carried out to determine the appropriate trade-offs in terms of data quality.	
		The cost-effectiveness of every statistical survey is assessed.	
		The need for each survey variable to be collected is justified.	
		There is an ongoing review process that considers whether a particular program is still operating in the most cost-effective way to meet its stated requirements.	
		Data collection instruments are designed to minimize coding and editing cost and time.	
11.2	Procedures exist to assess and justify demands for new statistics against their cost.	Demands for new statistics are regularly registered and assessed by statistical experts with respect to the proposed methodology and associated costs, and discussed by management, based on inputs from users and in cooperation with other stakeholders.	User Satisfaction Survey, user feedbacks and user-producer forums can be used as a means of justifying demands for new data. Assessments and cost and benefit analysis reports need to be prepared
		Before contemplating a new data collection, there are mechanisms to review whether already available data sources can be utilized with minimal impact on their purpose and quality.	
		When introducing new statistics, a cost-benefit analysis is conducted.	
11.3	Procedures exist to assess the continuing	There are regular discussions by management on the usefulness of all statistics, based also on inputs from users such as the results of user satisfaction surveys.	NSOs must have a prioritization policy or guideline for statistics production.

Requirement		Element to be assured	Description
	need for all statistics, to see if any can be discontinued to free up resources.	The usage of different statistical products including statistical databases is monitored and assessed to evaluate their relevance.	Questionnaires for periodic surveys are reviewed regularly before undertaking of survey
		Users and stakeholders are informed and consulted about the possible discontinuation of statistical outputs.	
11.4	Modern information and communication technologies are applied to improve the performance of statistical processes.	An appropriate IT strategy exists and is regularly reviewed and updated to improve effectiveness and efficiency of the statistical processes.	NSOs have to ensure the use of ICT tools in planning, designing and implementing statistical activities at all stages. Primary statistical data collection are conducted using CAPI. Most of statistics are disseminated through websites, dashboards and social media
		The IT architecture and hardware infrastructure are regularly reviewed and updated, and possibilities for innovation and modernization are identified.	
		Routine clerical operations and statistical processes (e.g. data capture, coding, data editing, data validation, data exchange) are automated where possible and are regularly reviewed.	
		Centralized IT and methodological units exist and provide possibilities for pooling of resources and investments.	
11.5	Proactive efforts are made to improve the statistical potential of administrative data and other data sources.	Statistical agencies provide input in the legislative process to obtain and maintain access to administrative and other data sources for statistical purposes, if needed.	NSOs should have strategic actions to improve administrative data and other non-traditional data sources. TSMP II prioritizes improvement of administrative data as among NSS focus
		Appropriate arrangements (e.g. service-level agreements or national legislation) with owners or holders of administrative data and other data collections are made and updated as needed, specifying the access to and flow of data and metadata and other relevant aspects	
		An assessment of possible administrative data sources is carried out prior to launching any new survey.	
		Data-linking and integration methods are pro-actively pursued while ensuring data security and privacy.	
		Quality reports for administrative and other data used for official statistics are established by the responsible statistical agency in cooperation with the data owners or holders.	
11.6	The statistical agencies define, promote and implement integrated and standardized	The statistical agencies have developed strategies to move to a more integrated and standardized statistical production system within their organization.	NSOs should have a guideline which document all procedures to be followed during statistics production. Evidence is shown through Manual for Strengthening and
		The statistical agencies promote, share and implement standardized	

Requirement		Element to be assured	Description
	production systems.	solutions that increase effectiveness and efficiency.	Integrating Administrative Data in Tanzania NSS
		The statistical business architecture of the statistical agency is based on international standards and tools such as the GSBPM, the Generic Activity Model for Statistical Organizations (GAMSO), the Common Statistical Production Architecture (CSPA), and the Statistical Data and Metadata eXchange (SDMX).	

3.3.3 Principle 12: Assuring appropriate statistical procedures

Principle 12 underscores the significance of implementing effective and efficient statistical procedures across the entire statistical production chain. These procedures form the foundation of quality in statistical outputs. This principle emphasizes the importance of methodological rigor and adherence to established procedures to ensure the reliability and accuracy of statistical data at every stage of production. This principle has five quality requirements explained in Table 3.12.

Table 3.12 Principle 12: Assuring appropriate statistical procedures

Requirement		Element to be assured	Description
12.1	Statistical processes are tested before implementation.	The testing strategy is developed as part of the design phase of the statistical business process model	Pre-tests and pilots need to be conducted for each statistical activity and results be documented. Pilot reports serve as evidence for the practice
		Data capture procedures and data collection tools and instruments such as electronic systems are tested to ensure simplicity and minimal intrusion on privacy, and are adjusted if required before their implementation	
		Survey questionnaires are tested using appropriate methods (e.g., pilot survey, focus groups, etc.).	
		Collection systems for administrative and other data are tested before use	
		Data treatment and data processing procedures are tested and adjusted, if required and possible, prior to their actual application	
		Test results are taken into account in the implementation of the production process and are approved	
		In the case of integrating data from one or more sources, the quality of the linkage procedures is tested.	
12.2	Statistical processes are well established and regularly monitored and revised as required	The statistical agencies have documented procedures and guidelines that contain recommendations for appropriate methodologies to be used at different steps of the statistical production process	Recommendations from pre-test and pilot results as well as evaluation and quality assessment reports are useful inputs for revision of such processes. Documentation reports of changes serve as the evidence example Rebasing reports of National Accounts Statistics and CPI
		Documentation of production processes should follow the GSBPM	
		A policy for archiving data and statistics is in place and is followed	
		Statistical procedures employ internationally recognized statistical techniques	
		Data from all data sources are reviewed and validated to identify potential problems, errors and discrepancies such as outliers, missing data and miscoding	

Requirement		Element to be assured	Description
		When coding is done through an automated process, a team of well-trained coders is assigned to verify the automated coding and to handle un-coded cases	
		The effects of data editing and imputation are analyzed as part of assessing the quality of the data collection	
		All statistical databases are designed and arranged in a way that allows and facilitates data linkage, using unique identifiers for statistical units as appropriate while ensuring data security and privacy	
12.3	Procedures are in place to effectively use administrative and other data sources for statistical purposes .	Statistical agencies use tools and guidelines to assess the quality of the data of administrative and other data sources	Guidelines and manuals on managing administrative and other data sources need to be in place. The presence of metadata documentation and interventions on data utilization workshops in the Communication Strategy as evidence
		Appropriate processes and so ware applications for the collection, processing and analyses of data of administrative and other data sources have been developed and implemented	
		Owners or holders of administrative and other data sources inform the statistical agencies of any changes in the data production process	
		Metadata related to administrative or other data sources are available to the statistical agencies, including concepts and definitions, classifications, coverage compared to target population and other quality aspects	
		Documentation exists that describes how data from administrative and other sources meet the statistical requirements in terms of definitions, concepts and coverage, among other things.	
12.4	Revisions of statistics follow standard and transparent	A revision policy that follows international standards and recommendations exists and is made public	Involvement of key stakeholders and documentation of the revision process need to be done. Revision reports and stakeholder consultation reports serve as evidence
		Guidelines for revisions exist and are followed	
		Revisions of the published statistics are accompanied by	

Requirement		Element to be assured	Description
	procedures	metadata that provide necessary explanations	
		Indicators expressing the amount and types of revisions are computed and evaluated for improvement	
12.5	Metadata and documentation of methods and different statistical processes are managed throughout the processes and shared as appropriate.	There is a policy on metadata documentation linked to the statistical production processes	There should be standard methodology/ tools for documentation of metadata and methods. These methodologies and tools should be made available to users for their reference. Data dissemination platforms such as TNADA, TISP serve as evidence
		The policies and standards for maintaining and updating metadata are followed.	
		Work on preparing statistics and their related metadata should be done in parallel	
		Metadata are captured throughout the statistical business process following the GSBPM and stored in a metadata management system	
		Statistical methods and processes are documented in such a way that allows for the recreation of the entire statistical production process	

3.3.4 Principle 13: Managing the Respondent Burden

Individuals, households or businesses that provide the data upon which statistical products are based are fundamental contributors to the quality of data and information. The requirement to collect data should be balanced against production costs and the burden placed on respondents. Mechanisms to maintain good relationships with providers of data and to proactively manage the respondent burden are essential to improving quality. This Principle has four quality requirements which are elaborated in Table 3.13.

Table 3.13 Principle 13: Managing the Respondent Burden

Requirement		Element to be assured	Description
13.1	The range and detail of requested information is limited to what is necessary.	Availability and suitability of existing surveys and administrative or other data sources are explicitly considered before suggesting a new survey.	Questionnaires are designed in an optimum level that captures necessary required information from respondents
		Before establishing a new survey, it is examined whether the required data can be produced with less respondent burden by modifying or amending an existing survey or by linking the new survey with an existing survey (integrated survey system).	
		The collection of each data item of a survey has to be explained and justified.	
		The collection of any data items that are identical or similar to those collected in another surveys is limited to what is considered necessary for verification and possible data linkage purposes.	
		When possible, surveys or parts of the information to be collected in the surveys are extracted or derived from available administrative registers.	
		The burden on respondents is measured and included in a set of quality indicators and in the quality reports.	
13.2	Mechanisms are in place to promote the value and use of statistics to respondents.	Information packages that provide respondents with important and necessary information about the survey and that explain the value of official statistics are made available.	Presence of consent statement that state the importance and objectives of the survey; and respondents' obligation to participate in the survey
		Respondents are provided with the final reports or result of the census or sample survey in which they participated.	
		Initiatives with community groups, schools, business advocates and others are undertaken to raise awareness of the value of official statistics.	
		Electronic products are developed that give necessary statistical information to businesses and individuals, and these products are promoted through initiatives with	

Requirement		Element to be assured	Description
		communities and respondents.	
		Social media is being used to promote participation in surveys and censuses.	
		There are standard practices to obtain feedback from respondents and to respond to their requests and complaints in a regular manner.	
13.3	Sound methods including IT solutions are used in surveys to reduce or distribute respondent burden.	Appropriate sampling techniques are used to minimize sample sizes to achieve the target level of accuracy.	The introduction of CAPI in data collection reduces the respondent's burden considerably in terms of time taking and asking an inappropriate question
		Sample surveys are coordinated to distribute the burden on respondents.	
		Multiple modes of collection are offered to respondents, including electronic surveys.	
		Collection of data is done at the most appropriate time of the day and the year.	
13.4	Data sharing, data linkage and use of administrative and other data sources are promoted to minimize respondent burden.	Documentation of data already available within the NSS, including archived data, exists and is shared.	Strategies and intervention on systems integration and the use of non-traditional data sources (including big data) are part of the priority areas within TSMP II. This serves as evidence of effort on minimizing the respondent's burden
		Procedures and technical tools for data sharing and data linkage within the NSS (e.g. formal agreements, web services, common databases) exist.	
		Data repositories are shared between statistical agencies for production of official statistics and in compliance with confidentiality policies.	
		Information of the quality of data to be linked exists (e.g. on coverage and linkage possibilities).	
		Use of administrative and other data as an alternative to survey data for producing official statistics is promoted throughout the NSS	

3.4 Level D: Managing Statistical Outputs

Statistics serve the needs of national governments, research institutions, businesses, the general public and the international community. The output quality is measured by the extent to which the statistics are relevant, accurate and reliable, timely and punctual, readily accessible by and clear to users, and coherent and comparable across geographical regions and over time. The quality principles in managing statistical outputs are:

a) Assuring relevance
b) Assuring accuracy and reliability
c) Assuring timeliness and punctuality
d) Assuring accessibility and clarity
e) Assuring coherence and comparability
f) Managing metadata

3.4.1 Principle 14: Assuring Relevance

Statistical information should meet the current and/or emerging needs or requirements of its users. Without relevance, there is no quality. However, relevance is subjective and depends upon the varying needs of users. The challenge is to weigh and balance the conflicting needs of current and potential users to produce statistics that satisfy the most important and highest-priority needs within the given resource constraints. This Principle is explained by four requirements as elaborated in Table 3.14.

Table 3.14 Principle 14: Assuring Relevance

Requirement		Element to be assured	Description
14.1	Procedures are in place to identify users and their needs and to consult them about the content of the statistical work program.	There is the legislation or some other formal provision which includes an obligation to consult with the main users of the statistics.	There should be a register of users' groups and a regular consultation program with them. Establishment and operationalization of Sector Working Group and presence of Communication Strategy can serve for such purpose
		Structured and periodic consultation processes (e.g., advisory council and committees or working groups) with key stakeholders and users are in place to review the content of the statistical program and the usefulness of existing statistics, and to identify requirements for new statistics.	
		Feedback from user support service, center or hotline is analysed to understand and identify user needs.	
		Data on the use of statistics (for example web analytics, number and types of downloads, subscribers of reports) are collected and analysed to improve statistical outputs.	
14.2	Users' needs and requirements are balanced, prioritized and reflected in the work program.	Users' priority needs are met and reflected in the work program of the statistical agency.	Recommendations from users' consultations need to be taken into consideration during design of statistical work program. User consultation minutes during planning and designing of statistical program serve as evidence
		Procedures are in place to prioritize between different users' needs in the work program and strategic goals.	
		The data on the use of statistics are analysed to support priority setting.	
		A periodic evaluation of the work program is carried out to identify emerging needs and lower priorities.	
		There are processes in place to monitor and consult with stakeholders the relevance and practical utility of existing statistics (with respect to scope, level of detail, cost, etc.) according to current and emerging user needs.	
14.3	Statistics based on new and existing data sources are being developed in response	An innovation laboratory to consider and experiment with new data sources to meet emerging information needs is established.	There should be a strategy and guidelines of using different sources for statistics production. TSMP II

Requirement		Element to be assured	Description
	to society's emerging information needs.	Cooperation with the scientific community and owners or holders of new data sources is established to experiment with and pioneer the use of these data sources.	serves the purpose of existence of strategy for addressing the utilization of new data sources
		Possibilities of exploiting new data sources are regularly discussed by management.	
14.4	User satisfaction is regularly measured and systematically followed up.	User satisfaction surveys and user studies are regularly carried out and analysed.	There should be a schedule for conducting a User Satisfaction Survey regularly. The user satisfaction survey report serves as the evidence
		Improvement actions arising from the user satisfaction surveys and user studies are identified and implemented.	
		User satisfaction surveys include questions on the opinions of users about metadata availability.	
		Measures to assess satisfaction of main users with particular products are in place (e.g. specific user satisfaction surveys and indicators on product level).	

3.4.2 Principle 15: Assuring Accuracy and Reliability

NSOs and Statistical Units should develop, produce and disseminate statistics that accurately and reliably portray reality. The accuracy of statistical information reflects the degree to which the information correctly describes the phenomena it was designed to measure, namely, the degree of closeness of estimates to true values. This principle is achieved through three quality requirements as elaborated in Table 3.15.

Table 3.15 Principle 15: Assuring Accuracy and Reliability

Requirement		Element to be assured	Description
15.1	Source data, integrated data, intermediate results and statistical outputs are regularly assessed and validated.	Systems for assessing and validating source data, integrated data, intermediate results and statistical outputs are developed and managed.	Benchmarking, revisions, and rebasing need to be conducted whenever new data are available. Computations should rely on acceptable standards and methods. Benchmark and revision reports serve as evidence
		Data are systematically checked and compared with data from other sources and over time.	
		Results of statistics are compared with other existing information in order to ensure validity.	
15.2	Sampling errors are measured, evaluated and documented. Non-sampling errors are described and, when possible, estimated.	Procedures and guidelines are available on how to measure and manage (e.g. to reduce or balance) errors.	Each sampling survey program report should be accompanied with the technical report which explains errors committed during the program implementation
		Sources of possible sampling errors are identified and described.	
		Sampling errors are measured and evaluated.	
		Non-sampling errors (errors from all sources, such as response errors, coverage errors, errors linked to measurements, processing, analyses etc.) are identified, described and evaluated.	
		Errors are analysed to identify improvement measures.	
		Information about the sampling and non-sampling errors is made available to users as part of the metadata.	
15.3	Studies and analyses of revisions are carried out and used to improve data sources, statistical processes and outputs.	Preliminary and revised data and statistics are clearly identified.	Special new studies and further analysis of existing data need to be done when revisions, rebasing and benchmarking exercises are to be conducted. Trade margins, service surveys, NGOs survey are examples of this kind of studies
		Explanations about the timing, reasons for and nature of revisions are made available.	
		The revision policy follows standard and transparent procedures.	
		Information on the size and direction of revisions for key indicators is used to improve the statistical processes.	
		Information on the size and direction of revisions for	

Requirement		Element to be assured	Description
		key indicators is provided and made public.	

3.4.3 Principle 16: Assuring timeliness and punctuality

Principle 16 emphasizes the importance of timely and punctual dissemination of statistics by NSOs and Statistical Units. Timeliness pertains to the speed at which data and statistics are released to users following the reference date or period's conclusion, while punctuality concerns adherence to promised or advertised release dates. This principle is achieved through four quality requirements as explained in Table 3.16.

Table 3.16 Principle 16: Assuring timeliness and punctuality

Requirement		Element to be assured	Description
16.1	Timeliness of the statistical agency's statistics comply with international standards or other relevant timeliness targets.	The timeliness of the statistical agency's statistics complies with dissemination standards of international organizations such as the International Monetary Fund (IMF) or other relevant timeliness targets (e.g. requirements for Agenda 2030).	International, regional and other dissemination standards (SDDS, GDDS) should be adhered for statistics production. Examples of publications which comply with these standards are quarterly and annual GDP and monthly CPI
		Divergences from international timeliness targets are monitored and actions are taken to comply with these if targets are not met.	
		The overall trade-offs between timeliness and other dimensions of quality (e.g. accuracy, cost and respondent burden) are given consideration when setting targets.	
16.2	The relationship with data providers is managed with respect to timeliness and punctuality needs.	There are agreements with data providers on the planned delivery dates and delivery format.	Statistics release calendar could be used as a tool for communicating with data providers on when data are disseminated
		Procedures are in place to ensure the effective and timely flow of data from providers and to statistical agencies.	
		Follow-up procedures are in place to ensure timely receipt of data from providers.	
16.3	Preliminary results can be released when their accuracy and reliability is acceptable.	The possibility and necessity of releasing preliminary data for key statistics is evaluated, while also considering data accuracy and reliability.	Preliminary results need to be shared with key stakeholders for their validation before final release. Minutes confirm the undertaking of stakeholders' validation serve as evidence
		When preliminary statistics are released, they are clearly identified as such.	
		Users are provided with appropriate information on the quality of the preliminary statistics.	
		Preliminary results are revised according to the established revision policy.	
		Final results are clearly distinguished from	

Requirement		Element to be assured	Description
		preliminary results.	
16.4	Punctuality is measured and monitored according to planned release dates, such as those set in a release calendar.	Punctuality or the rate of punctuality (i.e. rate of statistics published on time) is measured according to what is set in the release calendar at least 3 months ahead of publishing the relevant statistics.	Statistics release calendar, schedule of work program and implementation reports can be used as a benchmark for assessing punctuality
		Information on the punctuality of the released statistics is discussed by management and made available to users.	

3.4.4 Principle 17: Assuring accessibility and clarity

Principle 17 underscores the imperative for NSOs and Statistical Units to ensure transparent and accessible dissemination of statistics, facilitating ease of discovery and retrieval. Statistics should be presented clearly, promoting understanding among users, and be equally accessible in diverse formats adhering to open data standards. Additionally, access to microdata for research, while upholding statistical confidentiality, should be facilitated through established policies. This principle is achieved through seven quality requirements as elaborated in Table 3.17.

Table 3.17 Principle 17: Assuring accessibility and clarity

Requirement		Element to be assured	Description
17.1	Statistics are presented in a form that facilitates proper interpretation and meaningful comparisons.	Statistics are presented in a clear and understandable manner.	Simple language and presentation should be used to disseminate statistics. Whenever available, trends should also be presented. Key finding reports are among the examples that facilitate easy interpretation of statistics
		Guidelines that describe the appropriate content and preferred formats and style (layout and clarity of text, tables, and charts) of the agency's outputs are available to authors of statistical publications and databases.	
		Published statistics are open for free use and re-dissemination, given that reference is made to the responsible agency.	
		Staff training and development programs are in place on writing about statistics (for press releases, publication highlights or other explanatory texts).	
		Up-to-date methodological documents (on concepts, scope, classifications, basis of recording, data sources, compilation methods and statistical techniques), as well as quality reports and the work program of the statistical agency are made available to the public.	
		Explanatory texts that accompany the statistics are reviewed for clarity and readability.	
		Meaningful comparisons are included in the publications when appropriate.	
		Preliminary and revised data are identified and explained in published statistics.	
		Metadata needed to understand and use the statistics are published together with the statistics.	
		A policy for archiving published statistics is in place.	
17.2	A data dissemination strategy and policy exist and is made public.	The public are made aware that custom-designed outputs, statistics not routinely disseminated, and longer time series can be provided on request when feasible, and they are instructed how the data can be ordered. These outputs are made public if possible.	A set of the following documents can serve for purpose: o Data dissemination and access policy

Requirement		Element to be assured	Description
		Catalogues of publications and other services are made available to users.	○ Communication strategy ○ Release Calendar All these need to be posted on the website
		While official statistics are normally free and accessible for everyone, statistics that need to be produced on request might have a cost corresponding to the extra work it requires. Pricing of special requests is fully transparent.	
		A strategy has been developed and agreed upon with stakeholders for the release of anonymized data and microdata.	
17.3	Modern information and communication technology is used for facilitating easy access to statistics	Statistics are disseminated in various ways suitable for all different users, with the agency's website providing a central entry point.	All statistical reports and data should be posted to a website, portals, dashboards following proper standards of disclosure and anonymization. The use of mobile device app to disseminate statistics also serve for purpose
		Users are able to extract data from statistical databases through public interfaces in the most appropriate and common formats (xlsx, csv, html, etc.).	
		Statistical data can be accessed via an Application Programming Interface (API).	
		Statistics are disseminated in ways that facilitate re-dissemination by the media.	
		The statistical agency consults users on a regular basis to find out about the formats of dissemination that they most prefer.	
		Agreements with key users are established for efficient and regular transmission of statistics and data.	
		Technical solutions for access to anonymized data are available.	
		Explicit consideration has been given to trade-offs between accessibility and confidentiality (i.e. level of detail in tables).	
17.4	Access to microdata is allowed for research purposes, subject to specific rules and protocols on statistical confidentiality that are posted on the statistical agency's website	The statistical agency controls or monitors the access of researchers to microdata by providing them in a secure environment.	The agency needs to have a specific platform for managing release of microdata. Guidelines should be in place on management and use of such data. These may include Data Dissemination and Access Policy, among others
		Researchers are regularly consulted about the effectiveness of the microdata access arrangements.	
		Remote access facilities are available for accessing microdata, with appropriate controls.	

Requirement		Element to be assured	Description
17.5	Mechanisms are in place to promote statistical literacy	The statistical agencies have a strategy to manage media relationships and maintain regular contact with the media.	Communication strategy and Training Plan should address the issue of statistical literacy especially among users of statistics
		The statistical agencies arrange regular training and outreach for journalists.	
		The statistical agencies arrange training for students on how to use statistics.	
		The publication of articles on statistical issues, and how statistics should be used properly, is encouraged.	
17.6	The statistical agencies have a dedicated focal point that provides support and responds to inquiries from users in a timely manner.	There are well-known user support services available to give prompt assistance to users to help them access and interpret the data.	The agency needs to establish a customer care center to deal with such inquiries
		User support services are appropriately staffed to support a wide range of users.	
17.7	Users are kept informed about the quality of statistical outputs.	Standard quality reports harmonized for the NSOs and as appropriate for the NSS, and tailored for different users' needs, are defined.	Data quality assessment reports need to be made publicly available through website and other media
		Published statistics are accompanied by standard quality reports, including information on the periodicity of the statistics, data sources, production methods and quality, i.e. about accuracy and reliability, timeliness and punctuality, coherence and comparability, accessibility and clarity.	
		Results from quality assessments or reviews are made public.	

3.4.5 Principle 18: Assuring coherence and comparability

Principle 18 highlights the importance of consistency in the development, production, and dissemination of statistics. NSOs and Statistical Units must ensure that related data, originating from various sources, can be seamlessly combined and utilized jointly. Moreover, statistics should maintain comparability over time and across different geographical areas. This principle is realized through three quality requirements as elaborated in Table 3.18.

Table 3.18 Principle 18: Assuring coherence and comparability

Requirement		Element to be assured	Description
18.1	International, regional and national standards are used with regard to definitions, units, variables and classifications.	Statistical agencies promote the adoption of national, regional or international statistical standards.	Adoption and adaptation to these guidelines need to be done by the statistics agency. The use of statistical classifications (ISIC, COICOP, COFOG, ISCO, CPC, HS) by NSOs serves as an evidence
		Guidelines, a common repository of statistical concepts, definitions of units and variables and classifications and other mechanisms exist.	
		The compliance with international, regional or national standards for statistical production are periodically assessed. Any deviations from these standards are made identified and included in the publicly available metadata, along with reasons for such deviations.	
18.2	Procedures or guidelines are in place to ensure and monitor internal, intra-sectoral and cross-sectoral coherence and consistency.	Statistics derived from different sources or with different periodicities (e.g. monthly, quarterly and yearly) are compared and any differences are explained and reconciled, as appropriate.	Active SWGs, meeting regularly with NSS stakeholders is among the key actions towards addressing such issues. The presence of schedule of meetings for SWGs, and stakeholders serves as a reference
		Cooperation and the exchange of knowledge between individual statistical programs and domains is promoted.	
		Process specific procedures and guidelines are available to ensure that outputs are internally coherent.	
		Before new statistics or statistical programs are being launched the conceptual and methodological relationship with existing statistics is analysed.	
		Statistical outputs are compared with results of other statistical or administrative sources that provide the same or similar information on the same subject matter, and divergences are identified and explained to users.	
		Internal procedures or guidelines are developed in order to ensure and monitor internal coherence and consistency.	
		Procedures and guidelines are developed in order to ensure that results from different sources can be combined. Compliance is periodically assessed.	

Requirement		Element to be assured	Description
18.3	Statistics are kept comparable over a reasonable period of time and between geographical areas.	Changes in methods of data compilation are clearly identified, described and analysed to facilitate the interpretation of the results.	Reports of statistical activities need to be kept consistent over time. The agency needs to have a specific report format for each type of statistical product. When revisions are made trends should be reproduced
		Quality reporting includes a section on the assessment of internal consistency and comparability over time and with related statistics.	
		Breaks in the series are explained and the methods for ensuring reconciliation over a period of time are made publicly available.	
		Effects of changes in methodologies on final estimates are assessed and appropriate information is provided to users.	
		Significant changes in the society and phenomena to be measured are reflected by appropriate changes to concepts, classifications, definitions and target populations.	
		Differences within geographical areas or at the country level due to different concepts or methodologies are explained.	

3.4.6 Principle 19: Managing metadata

NSOs and Statistical Units should provide information covering the underlying concepts and definitions of the data collected and statistics produced, the 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. This Principle is managed by three quality requirements as elaborated in Table 3.19

Table 3.19 Principle 19: Managing metadata

Requirement		Element to be assured	Description
19.1	The metadata management system of the statistical agency is well defined and documented.	A strategy, guidelines and procedures are in place for metadata management and dissemination.	The agency needs to have guideline for definitions of all indicators and key concepts. A compendium of statistics terms, concepts and definitions serves this purpose
		Metadata management is recognized as responsibility of all staff.	
19.2	Metadata are documented, archived and disseminated according to internationally accepted standards.	International, regional, national or internal standards are used for metadata documentation, management and archiving.	Some internationally recommended platforms for microdata and metadata dissemination such as NADA can be adopted. Tanzania adopted this platform for the management and dissemination of micro and metadata
		Procedures are in place to ensure that metadata are documented according to standardized metadata systems, and regularly updated.	
		Metadata are made available at the same time as the data and statistics to which they pertain.	
		The dissemination of metadata is tailored to different needs, such as those of producers and users of statistics.	
		A systematic way for archiving metadata is available which also ensures that they are accessible for reuse in the future.	
		A glossary of statistical concepts is publicly available.	
19.3	Staff training and development programs are in place on metadata management and related information and documentation systems.	Process managers are trained to properly document the data and describe the relevant processes.	The training plan should also address the issue of metadata management and documentation.
		Statistical agency staff participate in international metadata forums	

CHAPTER FOUR

IMPLEMENTATION OF QUALITY ASSURANCE FRAMEWORK

4.0 Quality Management

The management of quality is an integral part of the management of every program in the NSOs and an important component of management as a whole. Both statistics offices have the mandate to play the role as a co-coordinating agency, within the NSS to ensure that quality official statistics are produced. The NSOs and other stakeholders of NSS prepare the guidelines to ensure the production of quality statistics in the country. These NSOs are responsible for spearheading the development of the national quality assurance framework in consultation with the stakeholders in the national data ecosystem. The TDQAF will guide the production of statistics as well as outline the criteria for monitoring and assessing the quality of statistics produced in the country. It will be an assurance that the players in the data ecosystem commit to continually assess and improve the quality of statistics produced in the United Republic of Tanzania. NSOs are responsible to ensure that the framework is adopted and the national legislation and provision support its implementation across the national data ecosystem. It is anticipated that the Framework will be used in a different way by both providers and users of official statistics. For the producers of statistics, especially managers and staff responsible for different statistical processes, the framework provides a means of assessing the quality of different processes and products they are responsible for and identifying where improvements and changes are needed.

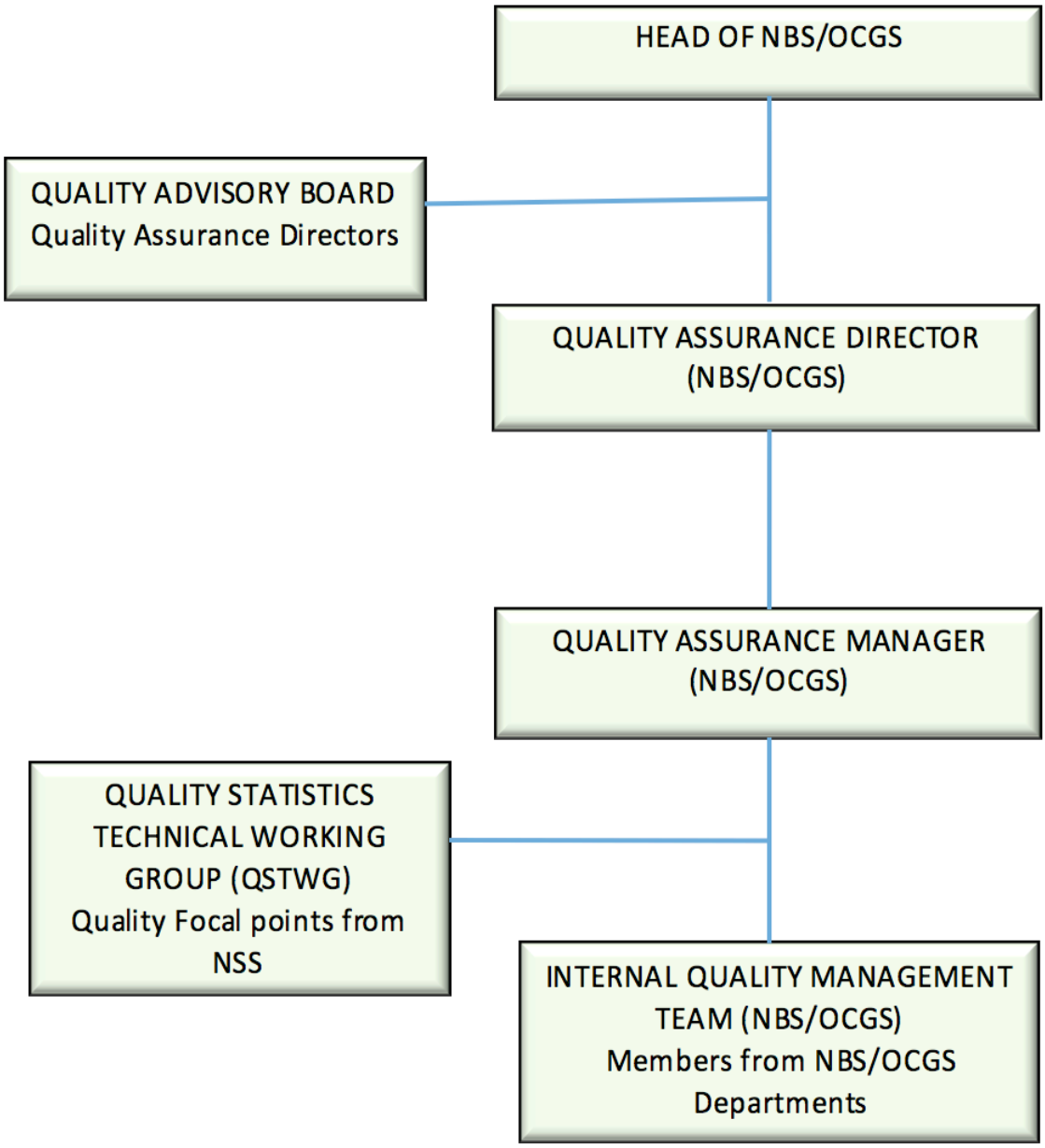
4.1 Institutional Arrangement

NSOs will set up specific institutional arrangements and roles for data quality management. This will involve identification of responsible staffs for quality as well their clear roles and responsibilities around quality management. The institutional arrangement will involve four levels of hierarchy.

The lowest level starts with Internal Quality Management Team (IQMT) in each statistics office (NBS/OCGS). The IQMT will operate under the supervision of the managers responsible for quality statistics issues who, in turn, work under the supervision of the directors responsible for quality statistics in both offices. The ultimate level in the hierarchy is the Statistician General for NBS and the Chief Government Statistician for

OCGS. The Quality Statistics Technical Working Group (QSTWG) comprises quality focal points from NSS will be established in each NSOs and chaired by the Manager or Directors responsible for quality. The NSS wide advisory board of the United Republic of Tanzania comprising members from NSS will be established and chaired by either head of Statistics Offices from NBS and co-chaired by OCGS and vice versa. A pictorial representation of this institutional arrangement is shown in the following diagram.

QUALITY COORDINATION STRUCTURE



4.2 Quality Unit

The quality unit is responsible for quality management or coordination within the NSOs in order to maintain sufficient capacity to lead and support the implementation of quality management initiatives throughout the NBS/OCGS and to support other NSS members and producers of official statistics if required. As per current organization structures, the quality unit in NBS is the Research and Standards section and in OCGS is the Division of Standard and Coordination of Statistics and Research. Other major statistics producers within the NSS will be encouraged to establish their own quality unit to support the work on quality within their organizations.

4.2.1 Internal Quality Management Team

In order to assure the quality of official statistics within NBS/OCGS, The Internal Quality Management Team (IQMT) comprised members from quality unit and NBS/OCGS departments will be established. The members of IQMT will serve as quality champions or focal points in their respective department and support TDQAF implementation throughout the NBS/OCGS. The IQMT will serve as a forum in which quality related issues in the various aspects of NBS/OCGS operations can be addressed at both the strategic management and the operational level. The IQMT will also serve as a mobilization mechanism for quality management initiatives, such as documentation workshops or specialized training workshops for improving quality, among other things.

Joint meeting between NBS and OCGS will be conducted to discuss on the quality issues for Tanzania. The meeting will be chaired by directors responsible for quality from NBS/OCGS. The issues that will be raised will be presented to Statistician General and Chief Government Statistician.

4.2.2 Quality Statistics Technical Working Group

In order to assure the quality of official statistics within NSS, the Quality Statistics Technical Working Group (QSTWG) will be established. The QSTWG comprised members from NSOs (internal quality management team comprises representative from each department) and respective representatives from NSS. The QSTWG will serve as:

- The quality champions or focal points in their respective department and support TDQAF implementation throughout the NSS;

- A mobilization focal point for quality management initiatives, such as conducting training workshops for improving quality in their respective sectors.

The QSTWG will meet on quarterly basis to discuss data quality issues for NSS. The meeting will be chaired by Managers or Directors responsible for quality from NBS/OCGS.

4.2.3 Quality Assurance Managers

To mainstream quality, the NSOs have designated the managers responsible for quality management as a Quality Assurance Managers and will be responsible for: -

a) Establishing the comprehensive quality assurance plan defining all the quality-related activities, quality assessment and quality indicators to be implemented in NSOs activities;
b) Prepare a budget for undertaking the planned assessments;
c) Mobilise resources for quality assessment;
d) Coordinate the QSTWG and IQMT;
e) Review quality assessment reports and submit to the director responsible for quality management;
f) Prepare training awareness on data quality assurance or management.

This intend to embed quality assurance directly into the core operations of each functional area under the NSOs by empowering the Quality Assurance Managers to ensure quality standards and practices are upheld and consistent throughout the NSS. Other major producers of official statistics will be encouraged to establish quality managers or quality focal points.

4.2.4 Quality Assurance Directors

The directors will be from the department which is overall in charge and management of issues pertaining to data quality management in NBS/OCGS. Usually, these directors are concerned with statistical standards and methods, among other issues. Under the aspect of quality management, the directors will be responsible for:

a) Ensuring that data quality assessments are conducted timely and reports produced accordingly;
b) Mobilizing resources and/or allocating budget required for undertaking planned data quality assessments during a specified time period;
c) Advising the Heads of NSOs regarding to the findings of the quality assessment report and recommending means of further improving the quality of statistics.

4.2.5 NSS Quality Governance Board

National Statistics Offices will establish a Quality Governance Board to ensure data quality throughout the entire NSS. Members of this group will compose directors from NSOs and respective representative directors from NSS. A primary task of this board is to ensure the statistical outputs meet the quality standards in all aspects of statistics development, production and dissemination. In this function, it may raise quality concerns, assess existing statistics or formulate requirements for additional statistics and analysis. Formulation of this board will regularly identify strengths and weaknesses; and continue to advise for more improvement.

4.3 Training of Staff

National Statistics Offices will undertake adequate training to the quality management team and representatives from each directorate in NSOs, respective representatives from NSS, Quality Assurance Managers, Quality Assurance Directors and the Quality Governance Board. The training will focus on providing knowledge on basic concepts, objectives and tools of data quality assurance and the assessment framework that show a clear understanding of the quality principles, requirements and elements that are applicable to statistical outputs and processes.

4.4 External and Internal Communication

National Statistics Offices will explicitly communicate its commitment to high quality and continuous improvement to its stakeholders in the form of a declaration on quality. The declaration will state the principles that guide the approach of NSOs to manage data quality, standards and commitments in the production of official statistics. The declaration on quality will be officially launched, be visible on the NBS/OCGS website and actively introduced and promoted internally and externally to all stakeholders through quality seminars, campaigns etc. An important instrument of communication such as external quality reports, which will address the needs of various user groups will be used.

4.5 Development of Implementation Strategy and Action

National Statistics Offices will develop a short-term action plan for quality improvements covering the next data production cycle of the financial year and parallel to a mid and long-term strategy and action plan. Generally, quality assurance will be applied at the

institutional level and/or at the process or product level. On the process or product level there will be an option to: (a) apply all relevant TDQAF principles to all processes or products; (b) apply selected principles to all processes or products. During implementation, NSOs will conduct a data user-producer dialogue to provide information on quality and use its findings and conclusions alongside results from quality assessments and audits. Through this meeting, all members of the National Statistical System will commit to continually assessing, improving and reporting on the quality of official statistics, as well as on the quality of data and statistics used in the production of official statistics as required. Tanzania Data Quality Assurance Framework will be implemented at the NSOs and throughout the entire NSS. The TDQAF will also be applied to all data and statistics produced outside of the NSS that are disseminated as deemed appropriate and required, extend to data and statistics that are disseminated jointly with other statistics producers that are not members of the NSS with the help and support of a member of the NSS or that are used for government decision-making, as deemed appropriate and required. NSOs will also develop or review the existing subject matter quality assurance frameworks accordingly. The selection quality management across NSS will be based on the Generic Statistical Business Process Model (GSBPM) as recommended by UN NQAF manuals and NSOs will support members of NSS on their use. GSBPM has been used for the description and quality assessment of process based on surveys, census, administrative records and other or mixed sources. (See Annex I).

4.6 Assessment and Reporting

The primary objective of quality assessment and reporting is to establish mechanisms designed to prevent, mitigate, and evaluate issues that may occur during the statistical process, which could affect the quality of statistical outputs. Implementing robust quality assessment approaches strengthens the organization's reputation as a professional and credible producer of high-quality data.

Methods and tools for statistical quality assessment will comprise quality indicators (for both products and processes), quality reports, user satisfaction surveys; and external and self-assessments while labelling and certification will be looked upon as advanced practices. The use of these methods in an efficient and cost-effective manner requires that they be used in combination with each other. NSOs will use quality reports as the basis for

audits and user feedback. Assessment and reporting of data quality will be done by considering the following components:

4.6.1 Quality Indicators

National Statistics Offices will identify quality indicators in order to measure compliance with the respective quality principles and requirements. The QSTWG will define and develop quality indicators to measure compliance with the respective quality principles and requirements. The specific and measurable elements of statistical practice will be used to characterize the quality of statistics. During the development of quality indicators, those linked to GSBPM, IMF DQAF, UN NQAF among others will be reviewed and used where applicable.

4.6.2 Quality Reports

The quality reports will typically examine and describe the outcome of quality assessment according to components or dimensions (quality principles) that NSOs have used to define their products' fitness for purpose. The reports will convey the necessary information to enable users to assess the quality of the product. Different user groups will be clearly identified and presented with different subsets of quality indicators. In the optimal case, quality reports will be based on quality indicators and presented according to a standard reporting structure to facilitate comparability.

4.6.3 Obtaining Feedback from Users

User feedback is a crucial element in the set of information needed for a comprehensive quality assessment. NSOs will regularly consult with its users about their needs and perceptions of quality, take them into account in the quality assessment exercise and follow up with the users, for example through meetings (e.g., focus group discussions) or in a more formal way by using user satisfaction surveys.

4.6.4 Conducting Assessments

Systematic self-assessments, external evaluations, internal and external quality audits, and peer reviews will be the primary tools used to conduct quality assessments within the NSS. The QSTWG will develop self-assessment checklists to facilitate a systematic evaluation of the quality of the statistical production process. The self-assessment will be

carried out by members within their respective functional areas at both the NSOs and NSS, with support from the QSTWG.

Regardless of the assessment context, the results will be used to measure the degree of compliance with established requirements and to identify both strengths and weaknesses. This information will then be leveraged to enhance the quality of statistics produced both within and outside the NSS. Moreover, this approach will demonstrate transparency regarding the extent to which data quality standards are being achieved across NSS.

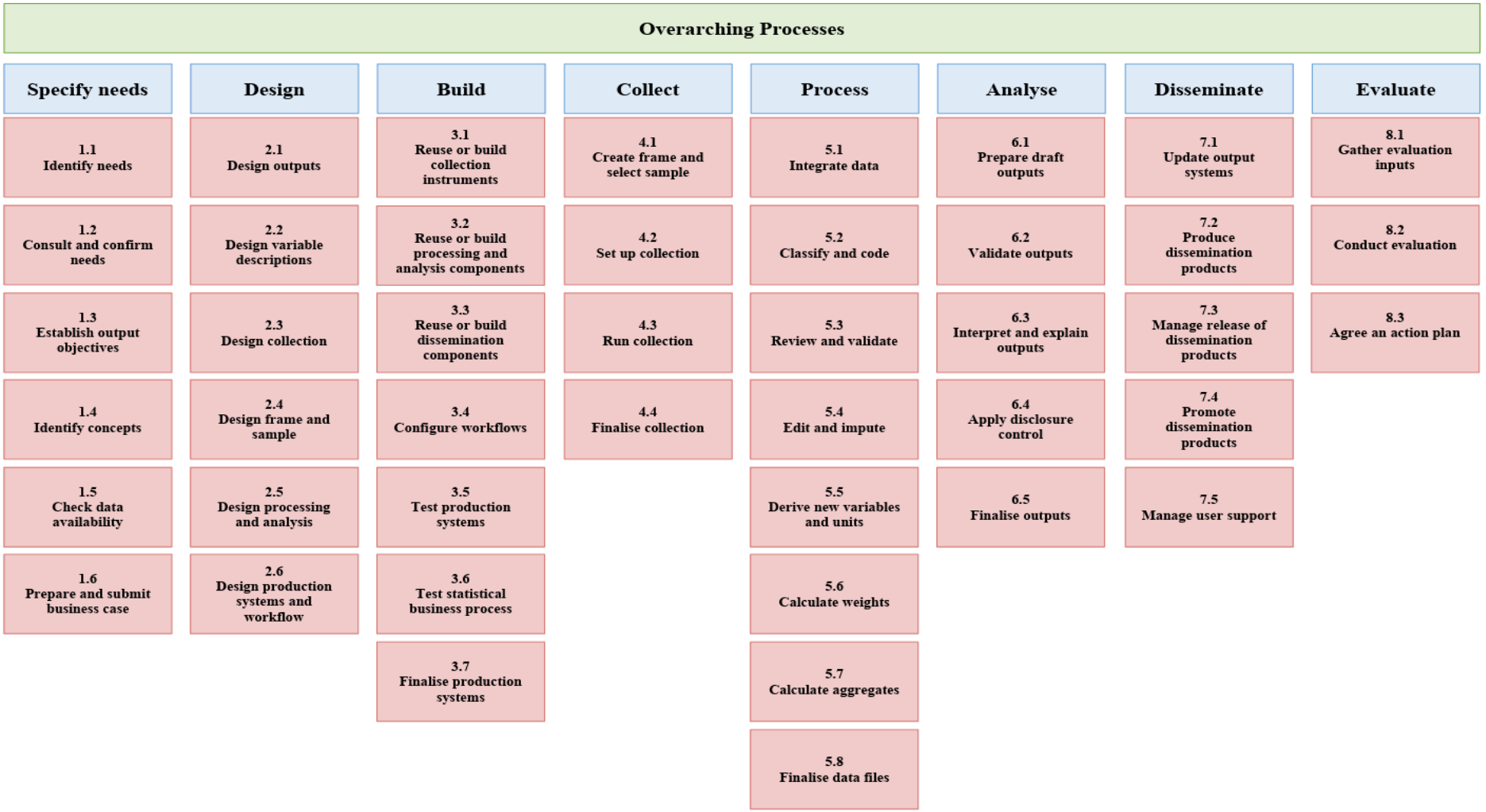
4.6.5 Labeling

Labelling indicates the extent to which a set of quality standards are adhered. The attachment of a label requires a procedure to guarantee that the information is appropriate and true. This is for designating statistics as official or assessing their adequacy in terms of quality reporting. Thereafter, predetermined labels will accompany the various levels of fulfillment of quality standards with corresponding explanatory notes for each label. The methods and procedures for labelling will be developed by NSOs.

4.7 Assuring Continuous Quality Improvement

By implementing a quality approach following the different processes described above, NSOs will define a framework for continuous quality improvement. If the new information on quality that becomes available will always be considered in the statistical outputs and statistical production processes. A cycle of continuous improvement of the quality of the statistics produced will be established as an integral part of the statistical agency's working practices.

ANNEX I: GENERIC STATISTICS BUSINESS PROCESS MODEL (GSBPM)



ANNEX II: PROCESSES DURING DATA QUALITY ASSESSMENT

The successfully of TDQAF need have a proper working modality whereby the Quality Unit will follow during the data quality assessment. The assessment will be done within 45 days by following these steps.

i) **Decision on the product to be assessed**: Statistics products to be assessed should be identified for every year;

ii) **Plan of the data quality assessment**: Quality unit should develop a plan for conducting assessment

iii) **Receive notification on the products to be assessed and readiness for the assessment**: the assessed department should receive notification on the products that will be assessed from the quality unit;

iv) **Roadmap for assessment exercise:** The quality unit will issue roadmap for assessed department on each product which is planned to be assessed;

v) **Undertake orientation before assessment**: The QATWG will get an orientation on Data Quality Assessment in order to get know and understand the items that will be needed during the assessment;

vi) **Undertake a pre-assessment**: This will be undertaken before the actual assessment in order to identify if the required items are available;

vii) **Conduct the actual assessment**: The quality assessment of the product will be undertaken by QATWG in order to be assured that the produced product follow 2024 Data Quality Assurance Framework;

viii) **Making a follow up**: After finishing actual assessment, the QATWG will follow all unfinished requirements to the responsible unit, division or department;

ix) **Compilation and report writing** where all necessary requirements will be compiled and the quality assessment report will be written;

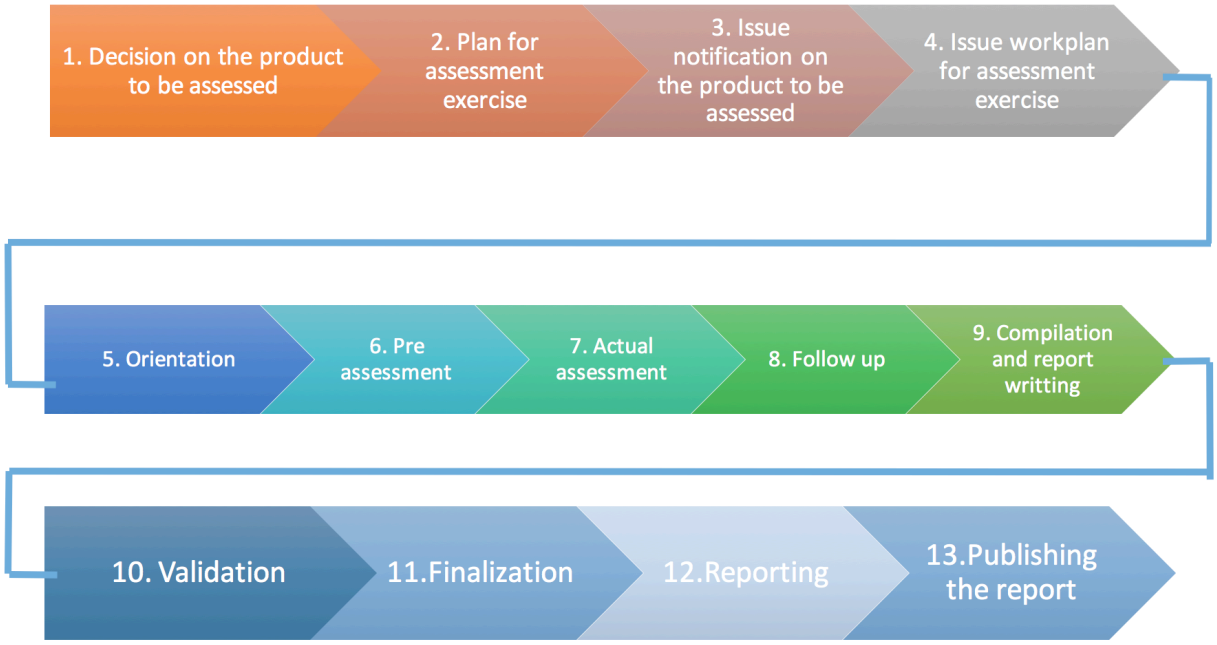
x) **Validation of the report by Data Quality Management**: This will involve quality assurance unit and key stakeholders;

xi) **Finalization of the report** one for any observations, comments or suggests which were proposed;

xii) **Reporting according to structure** in which the submission of the report will follow the reporting structure of the office;

xiii) **Publishing the final report** to the NBS/OCGS website.

The following diagram summarizes the work flow through which data quality assessment process will follow:



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