







# DATA QUALITY ASSESSMENT FOR PRODUCER PRICE INDEX 2023

# **TANZANIA MAINLAND**



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#### **Definition of terms**

**Dimension** highest level of data quality assessment according to IMF where

five broad data quality dimensions are commonly

**Element** second level of data quality assessment according to IMF where

granular quality dimensions are considered.

Indicator third level of data quality assessment where components of

quality elements are identified.

Focal issue provides more detail for each indicator that is tailored to the

dataset in question

**Key point** identifies quality features that may be considered in addressing

the focal issues. The key points are meant to be suggestive, not

exhaustive

**Relevance** the extent to which the statistics satisfy the needs of the users

**Accuracy** the closeness of estimates to the exact or true values that the

statistics were intended to measure.

**Reliability** the closeness of the initially estimated value(s) to the subsequent

estimated value(s) if preliminary figures are disseminated.

**Timeliness** the length of time between the end of a reference period (or date)

and the dissemination of the statistics.

**Punctuality** the time lag between the release date and the target date by which

the data or statistics should have been delivered.

**Clarity** the availability of appropriate documentation relating to the

statistics and the additional assistance that producers make

available to users.

**Coherence** the ability to reliably combine statistics and data sets in different

ways and for various uses. *Consistency* is often used as a synonym

for coherence.

Comparability the extent to which differences in statistics from different

geographical areas, non-geographical domains, or over time, can be attributed to differences between the true values of the

statistics.

**Full** could be defined as meeting at least 80 per cent of the applicable

**compliance** key points (only little room for improvement).

**Partial** 

compliance

meeting between 30 and 80 per cent of the applicable key points

(some major improvements are needed)

No compliance

meeting at most 30 per cent of the applicable key points (urgent

action is necessary).

Not applicable

an item is not part of the practice in the methodology or process

of the statistical product which is assessed.

Prerequisites of quality

Although not itself a dimension of quality, this group of "pointers to quality" includes elements and indicators that have an

overarching role as prerequisites, or institutional preconditions,

for quality of statistics.

Assurances of integrity

of This dimension relates to the adherence to the principle of objectivity in the collection, compilation, and dissemination of statistics. The dimension encompasses institutional arrangements that ensure professionalism in statistical policies

and practices, transparency, and ethical standards.

Methodological soundness

This dimension covers the idea that the methodological basis for the production of statistics should be sound and that this can be attained following internationally accepted standards, guidelines, or good practices. This dimension is necessarily dataset-specific, reflecting different methodologies for different datasets

Accuracy and reliability

and This dimension covers the idea that statistical outputs sufficiently portray the reality of the economy This dimension is also data specific, reflecting the sources used and their processing.

Serviceability

This dimension relates to the need that statistics are disseminated with an appropriate periodicity in a timely fashion, are consistent internally and with other major datasets, and follow a regular revision policy.

Accessibility

This dimension relates to the need for data and metadata to presented in a clear and understandable manner on an easily available and impartial basis, that metadata are up-to-date and pertinent, and that a prompt and knowledgeable support service is available.

#### Abbreviation

CAPI Computer Assisted Personal Interview

CPC Central Product Classification

DQA Data Quality Assessment

DQAF Data Quality Assessment Framework

GDDS General Data Dissemination System

IMF International Monitoring Fund

ITDM Information, Technology and Data Management

MEFMI Microeconomic and Financial Management Institute of Eastern

and Southern Africa

MoF Ministry of Finance

MoU Memorandum of Understanding

MTEF Medium-Term Expenditure Framework

NBS National Bureau of Statistics

NSS National Statistical System

OCGS Office of Chief Government Statistics

PAS Pan African Statistics

PEPMIS Performance Management Information System

PPI Producer Price Index

RSM Regional Statistics Managers

SADC Southern African Development Community

SDDS Data Dissemination Standard

SNA System of National Account

TDQAF Tanzania Data Quality Assurance Framework

TSMP Tanzania Statistical Master Plan

UNIDO United Nations Industrial Development Organization

#### 1. Introduction

The National Bureau of Statistics (NBS) has the responsibility of coordinating, producing, and disseminating official statistics. In addition, the NBS, as the mandated oversight institutions for producing statistics in Mainland Tanzania acknowledge the importance of providing relevant and quality statistics to users.

Through Tanzania Statistical Master Plan Phase Two (TSMP II) 2022/23-2026/27 a development goal has been set to strengthen the National Statistical System (NSS) in Tanzania to enable it to produce quality statistics for decision makers in an objective timely, and cost-effective manner. Production of high quality statistics depends on the assessment of data quality. Lacking of a systematic assessment of data quality, the Bureau will risk to lose control of the various statistical processes such as data collection, editing or weighting. Doing without data quality assessment would result in assuming that the processes cannot be further improved and that problems will always be detected without systematic analysis.

Given the varied quality of the official statistics and the increased demand for data use at all levels, the NBS embarked on this data quality assessment (DQA) to characterize the quality of routine data, and to identify factors associated with the quality and use of routine data in Mainland Tanzania. Understanding data quality, processes of data collection and the associated barriers to enhancing quality helps to formulate tailor-made strategies to improve data quality and use.

This report provides detailed information on indicators of statistical practices in the areas of the Producer Price Index (PPI) which was gathered from the assessment conducted by the department of research and standards and publicly available documents. The information was provided by the experts of the department of industrial and construction statistics and other supporting departments of the National Bureau of Statistics. This assessment was conducted in lines of the generic IMF - Data Quality Assessment Framework (DQAF) for the Producer Price Index and used to prepare the summary assessment of data quality elements based on a four-part scale of compliance which is full compliance, partial compliance, no compliance and not applicable.

The Data Quality Assessment Framework (DQAF) for the Producer Price Index identifies quality-related features of Governance statistical systems, statistical processes, and statistical products. It is rooted in the UN Fundamental Principles of Official Statistics and grew out of the Special Data Dissemination Standard (SDDS) and General Data Dissemination System (GDDS), the IMF's initiatives on data dissemination.

# 2. Objectives

The main purpose for conducting qualitative assessment for the Producer Price Index was to ensure that NBS is aware of the strengths, weaknesses (risks), and limitations of the PPI data performance as well as the extent to which the data can be trusted to influence management decisions and eventually, the identification of possible improvement actions.

# 3. Methodology

The Research and Standards Department in ensuring that data quality assessment for the PPI is undertaken successfully, the key procedures for conducting the assessment was followed including: issuing the roadmap for the assessment; undertaking orientation to the NBS Management and staff who are responsible for the production of PPI and other staff who were important to some of the assessed quality dimensions such as human resource officers, legal officers, planning officers, information and communication technology officers. After orientation the pre-assessment and actual assessment was conducted and the report was prepared and reviewed for finalisation.

#### 4. Scope

The assessment was based on levels whereby the first level covers the prerequisites of quality and five dimensions of quality including: assurances of integrity; methodological soundness; accuracy and reliability; serviceability; and accessibility. For each of these prerequisites and five dimensions, there are elements (two-digit level) and indicators (three-digit level). At the next level, focal issues that are specific to the compilation of the PPI were addressed.

#### 5. Detailed Assessment Results

The following are detailed results of the PPI assessment based on the four (4) levels of the assessment checklist which are dimension, element, indicator and focal issue with narration and links to relative supporting documents such as the Statistics Act CAP. 351, 2008 SNA, PPI Manual Theory and Practice 2004, Industrial Statistics Guidelines and Methodology 2010, Advance Release Calendar, NBS staff regulation, Scheme of Service, NBS strategic plan and statistical guidelines.

# 0. Prerequisites of quality

# 0.1 Legal and institutional environment

- 0.1.1 The responsibility for collecting, processing, and disseminating the statistics is clearly specified.
  - The primary responsibility for collecting, processing, and disseminating the statistics is clearly established.

The statistics Act CAP. 351 give mandate NBS to collect, compile, analyze and disseminate official statistics. The Statistician General delegate the powers to the government institutions/agencies to collect and publish official statistics subject to guidelines issued by the Bureau. The statistics produced by institutions/agencies shall qualify to be official statistics if they meet criteria set by the bureau and approved by the Statistician General. The bureau can also make any agreement with any agency to jointly collect official statistics as the need arises. The Statistics Act can be downloaded from https://www.nbs.go.tz/publications/acts-and-regulations

Producer Price Index is produced by NBS only. Other agencies are not producing PPI statistics, but they are providing inputs for the production of PPI. There are no any challenges of duplication of effort and reporting burden.

Conflicts or potential conflicts between the legal authority to produce the statistics and other laws or provisions (e.g. access to information law or bank secrecy laws) have been successfully resolved or reconciled with no major impairment to the data production as provided in section 46 of the Statistics Act CAP. 351.

Oversight of the NBS is conducted in order to ensure that statistical work accords with the laws or other provisions governing such work. This is stipulated in the section 26, 27 and 28 of the Statistics Act

		whereby NBS have the right to challenge statistical information from
		other source and every person have the right to challenge official
		statistics produced by NBS.
	0.1.2	Data sharing and coordination among data-producing agencies are
		adequate.
		<ul> <li>Arrangements or procedures exist to facilitate data sharing and coordination between the agency (agencies) with the primary responsibility for compiling the statistics and other data producing agencies.</li> </ul>
		Section 17 of the Statistics Act gives NBS the responsibility of coordinating the National Statistical System (NSS) with a view of having an integrated statistical system to ensure optimal utilization of available resources. The NSS includes data providers, producers and users of statistics such as NSO, MDAs, CSOs, research and academic institutions.
		The Act provides a comprehensive approach to statistical cooperation in Tanzania, including access to data for the purposes of official statistics production. In access to public or other records, the collection of statistics related to any matter may be obtained from any Government institution, agency, or user or producer of statistics. The Statistician General shall grant access to authorized officer or staff of the Bureau for the purpose of getting information.
		The Statistics Act empowers the Statistician General of NBS to share data at the request of any person or agency free of charge, provided the data shared is not about individual persons or entities.
		The law does not enforce directly on the flow of source data. Mostly Memorandum of Understanding (MoU) are used in data sharing. NBS has MoU with the key data providers and users to facilitate data sharing and ensure access of data in a standardized manner.
	0.1.3	Individual reporters' data are to be kept confidential and used for
		statistical purposes only
		• The confidentiality of individual reporters' data is guaranteed and that guarantee is widely known.

Sections 31, 33, 34, 35 and 43 of the Statistics Act CAP. 351 stipulate restrictions to disclosure of identifiable information and NBS cannot publish, or otherwise make available to any individual or organization, information that would enable the identification of any individual person or entity.

During the inquiries of prices from establishments, respondents are informed of their rights and obligations with regard to provision of information and they are informed that the information provided will be used for the purpose of producing PPI. The consent embedded in the questionnaire is used to assure the confidentiality of information provided by respondent from establishment.

# • Procedures are in place to prevent disclosure of individual reporters' data.

Any person other than staff of the Bureau who is employed in the execution of any duty relating to statistical production under statistics. Act are obliged to sign an oath of secrecy for the confidentiality of the statistics collected as stipulated in section 14. NBS Penalties for disclosure of information are also insisted in the Statistics Act CAP. 351 under section 43.

The Bureau also takes all necessary steps to ensure the security and confidentiality of the information provided where access to individual data is restricted to responsible staff and are kept in accordance with the provision of the Act.

Documentation for statistical products is always done in a secure manner. Staff responsible for production of PPI review all data prepared for dissemination for possible indirect disclosure of individual person or entity information and design tables and outputs in a way that prevents disclosure.

Information collected are stored in the NBS server and staff has password to prevent unauthorized access to individual or establishment data. For research purpose, the confidentiality of individuals and entity is protected by anonymization of all records.

Information is only disseminated in an aggregated manner through statistical releases and/or on the NBS website. *Statistics Act, CAP*. 351 Section 32, 34, and 43 (1) (b)

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	014	Statistical reporting is ansured through logal mandate and/or
	0.1.4	Statistical reporting is ensured through legal mandate and/or measures to encourage response.
		• A law or other formal provision provides for the reporting of information needed to compile the statistics.
		The Statistics Act CAP. 351 and regulation specifies how data and information should be collected to ensure adherence to statistical reporting. National and international frameworks to follow during data collection has been explained in the NBS strategic plan.
		<ul> <li>Other mechanisms are in place to provide for adequate reporting of data for compiling the statistics.</li> </ul>
		During the data collection, the burden placed on respondents is considered and measures are taken to reduce this burden. NBS policies and practices emphasize the importance of the authorized person (interviewer) to clearly explain the purposes of the survey or census to the respondent during the introduction. In the explanation, respondents are informed about the duration of the interview and asked if they are willing to participate.
		Data collection forms or questionnaire indicates contact person who can provide assistance in responding, as well as information on how to complete the questionnaire.
		Also, every questionnaire contains legally required information on the purpose of data collection, type, and scope, obligation to provide information, reporting unit, confidentiality, and other aspects of the quality in data collection. In particular, a reference to the Statistics Act CAP. 351 is given in surveys and statistical inquiries. (section 31 and 36).
		NBS provides data on the PPI to the respondents upon request and in
		conformity with established statistical confidentiality guidelines.
0.2	Resou	
	0.2.1	Staff, facilities, computing resources, and financing are commensurate with statistical programs.
		<ul> <li>Staff resources for compiling the statistics are adequate to perform required tasks.</li> </ul>

PPI estimates are compiled in the Industry and Construction Statistics department comprising a total of four staff (two (2) with master's degree, two (2) bachelor degree in statistics. PPI staff also have the requisite training from reputable institutions such as IMF, SADC, MEFMI, Pan African Statistics (PAS) and UNIDO etc. On job training is also provided to new staff of the department. They all have the required and sufficient compiling skills.

Levels of salary depends on the Government scheme of service and are adequate for the nature of the work and competitive with other public entities and private sector in the country. Staff are provided with incentives to motivate them.

For the purposes of monitoring and evaluation, staff are appraised weekly, monthly, semi-annually and annually through the Public Employee Performance Management Information System (PEPMIS) based on prior agreed targets derived from the work plan. All staff are recruited on the basis of professional qualifications, and in an open competition.

• Computing resources for compiling the statistics are adequate to perform required tasks.

Currently, Price data collection is conducted by using paper questionnaire and entered in the excel spreadsheet for compilation and processing but the department is planning to use Computer-Assisted Personal Interviews (CAPI) for data collection from the selected establishments.

Staff in the Industrial and Construction Statistics department have sufficient computing resources that are available for compiling and disseminating PPI. Management of database and back-up procedures is done by Information, Technology and Data Management (ITDM) department to ensure security of data.

• Physical facilities and other resources are adequate to perform required tasks.

NBS headquarter office building located in Dodoma and Regional Offices provide adequate working facilities such as lighting, cooling and office furniture and equipment to perform the tasks. The department of Industrial and Construction Statistics has conducive

environment in terms of offices, tables and other furniture that facilitate production of PPI.

• Other resources are adequate to perform required tasks.

The transport allowances are provided to data collectors in each Region. Regional statistics Managers (RSM) at regional offices are equipped with all facilities required to collect the information for PPI. Airtime is provided to RSM to facilitate communication with the respondents from the establishments selected.

• Funding for compiling the statistics is adequate to perform required tasks.

Funds for the PPI comes from government subventions provided under Other Charges (OC). Work plans are developed in consideration of the resource availability and cost benefit analysis to maximize on outputs and outcomes. PPI budget is reviewed every year and some components are increased to accommodate all emerging issues required in the production of statistics.

0.2.2 Measures to ensure efficient use of resources are implemented.

Management ensures that resources are used efficiently.

Management ensures activities for production of PPI are carried out and reviewed on the basis of the annual performance plan and efficient use of resources is monitored and evaluated on a quarterly basis by the Department of Planning, Monitoring and Evaluation. The staff performances are monitored by the Department of Administration and Human Resources using PEPMIS at NBS level and the President's Office, Public Service Management and Good Governance at Government level, whereby staff are given merits for promotion.

 Costing and budgeting practices are in place and provide sufficient information to management to make appropriate decisions.

Management ensures resources for carrying out PPI activities are enough and used efficiently. PPI activities are included in the NBS Strategic Plan 2021/22-2025/26, Action Plan and Annual Cash Flow. Funds are allocated by the Ministry of Finance (MoF) for ongoing PPI activities and allocation within NBS is based on the priorities and planned activities.

Activities are carried out and reviewed on the basis of the annual performance plan and efficient use of resources is monitored and evaluated on a quarterly basis by the Department of Planning, Monitoring and Evaluation.

NBS activities are guided by the Strategic Plan. Schedule of activities is drawn from the NBS Strategic Plan 2021/22-2025/26 annually. The annual work plan includes itemized budget which guide the timing of the activities as well as optimization of resources.

#### 0.3 Relevance

- 0.3.1 The relevance and practical utility of existing statistics in meeting users' needs are monitored.
  - Specific actions are taken to ensure that current statistics meet needs of data users.

Industrial and Construction Statistics department use the 2004 Producer Price Index Manual Theory and Practice and other agreed guidelines to produce PPI to ensure statistics adhere to national and international standards. The department conduct meetings with PPI users to discuss on their needs and monitor data needs from users to inform its plans for future developments of the PPI.

Views of users are collected through meetings, emails, letters, telephone calls and office visits and feedback are actively sought. Adhoc and periodic user satisfaction surveys are also conducted.

PPI stakeholders are informed on particular features of current data through NBS website, publications, workshops and meetings.

• Mechanisms are in place to identify new and emerging data requirements.

A structured and periodic consultation of process are conducted through users' advisory committee or Technical Working Groups meetings. Participants includes responsible Ministries, Departments and Agencies and other key data users, including academia and researchers. The meetings are used to assess the relevance of existing statistics and identify new and emerging data requirements. The agreed user needs are incorporated into the data collection tools.

Staff of the department participate regularly in statistical meetings and seminars organized by IMF, SADC, Pan African Statistics (PAS) and online training conducted by Microeconomic and Financial Management Institute of Eastern and Southern Africa (MEFMI).

# 0.4 Other quality management

# 0.4.1 Processes are in place to focus on quality.

• There is recognition throughout the organization that quality builds trust and thus is a cornerstone of statistical work.

NBS management emphasizes quality of statistics produced by the department by following the recommended and agreed international standards. In NBS organization structure, there is a Directorate and Department which is responsible for quality and standards. To ensure the quality of statistics produced by NBS, the standard menu is provided in the website (<a href="www.nbs.go.tz">www.nbs.go.tz</a>). Several quality guidelines for production of quality statistics are posted in the NBS website menu and disseminated to the stakeholders within National Statistical System. These guidelines are Tanzania Data Quality Assurance Framework (TDQAF) for Official Statistics, the Manual for Strengthening and Integrating Administrative Data into Official Statistics, a handbook of quality guidelines for production of statistics, Statistical methods and standard guidelines, concept and definitions for official statistics.

https://www.nbs.go.tz/publications/statistical-guidelines

The training programs that emphasize the importance of data quality are given to the staff who are producing PPI. This program emphasis on understanding on how quality may be achieved in all PPI production stages i.e. design, build, collect, process, analyse, disseminate and evaluate.

# 0.4.2 Processes are in place to monitor quality during the planning and implementation of the statistical program.

 Measures are in place for a systematic monitoring and review of quality.

Production of quality statistics to meet the demands of stakeholders in a timely manner is insisted in the quality guidelines, NBS strategic plan and Tanzania Statistical Master Plan II. Monitoring and Evaluation of NBS activities is conducted on quarterly and annual basis.

Industry and Construction Statistics department is using PPI manual of 2004 on the quality and strategies for improving data production of PPI statistics. Reviews are undertaken after the results of industrial production census which is usually conducted after ten (10) years. These reviews are also used to identify steps necessary to maintain quality requirements.

1.	Ass	urance	e of Integrity
	1.1	Instit	utional Integrity
		1.1.1	Statistics are produced on an impartial basis.
			<ul> <li>The terms or conditions under which the statistics are produced are in accordance with professional independence.</li> </ul>
			The Statistics Act CAP. 351 Section 9(1) gives the power to the President of United Republic of Tanzania to appoint a Statistician General on the recommendation of Minister of Finance. Section 5 of the Act stated that the Bureau shall excise professional independence in the collection, processing, analysing and dissemination of official statistics so as to enhance and protect the integrity and impartiality.
			Professionalism is actively promoted and supported within the organization.
			Staff are recruited and promoted based on expertise in statistics and other related fields, PEPMIS is used to evaluate the overall performance of the staff.
			The Bureau provides comprehensive training to staff to increase their skills and knowledge based on their professions as per Training Need Assessment, TSMP II Training Program and NBS training programs.
			Processes and activities planned for computation of PPI promote professionalism and NBS adopt methodologies from IMF as recommended in PPI manual theory and practice.
		1.1.2	Choice of data sources and statistical techniques as well as decisions about dissemination are informed solely by statistical considerations.
			The public is made aware of internal government access to statistics prior to their release to the public.

The choices of sources and statistical techniques data is made public to all users during its dissemination phase, it is made freely available and accessible to all, ensuring that everyone, regardless of affiliation, has equal access to the information. Decisions about dissemination are informed solely by statistical considerations. The decision about dissemination is based on when, how, and which PPI statistics or data to release without any external influences such as political, economic, or social pressures. NBS follows the planned dates on Advanced Release Calendar to release PPI statistics which is usually on quarterly basis. The PPI release is always uploaded in the NBS website. 1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics. The data-producing agency comments when its statistics are misinterpreted or misused. NBS always provides necessary clarification on erroneous interpretation and misuse of statistics produced through medias and NBS website. To reduce misinterpretation or misuse of statistics, NBS has a responsibility of educating the public on how to interpret statistics to ensure that the informed data is used and understood properly to the users. This ensures the Bureau maintain the integrity and credibility of their work and promote better-informed decision-making based on accurate and proper understanding of statistics. 1.2 **Transparency** 1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public. Information is available to the public about the terms and conditions under which the statistical series are compiled and disseminated, including the obligation to compile and disseminate the statistics, the confidentiality of individual reporters' data, and other key features. NBS operates under the Statistics Act CAP. 351 section 18 -20 and section 31 clarifies about the terms and methodological notes under which statistics are collected, processed, and disseminated. Also, awareness is given to the public through code of conduct under

		which official statistics are compiled and disseminated through
		website.
	1.00	https://www.nbs.go.tz/publications/acts-and-regulations
	1.2.2	Internal governmental access to statistics prior to their release is publicly identified.
		The public is made aware of internal government access to statistics prior to their release to the public.
		To maintain professional independence, the PPI is not released to
		any Government organization or agency prior to dissemination.
		There is no internal government access to PPI outside NBS before
		public release.
	1.2.3	Products of statistical agencies/units are clearly identified as such.
		<ul> <li>Statistical products are clearly identified so that the public is aware of what the data producing agency takes responsibility for.</li> </ul>
		PPI publications are clearly stated by name and logo of NBS to ensure clarity of the products that are produced by the institutions. Currently, there is no joint PPI publication and attribute request.
		Through clear identifications of statistical products and ensuring transparency in how data is collected and managed, the Bureau helps to ensure accountability, builds public trust, and provides a reliable foundation for informed decisions.
	1.2.4	Advance notice is given of major changes in methodology, source data, and statistical techniques.
		<ul> <li>Users of statistics are made aware in advance of major changes in methodology, source data, and statistical techniques.</li> </ul>
		NBS gives advance notice of any major changes in methodologies, data sources and statistical techniques used to prepare PPI to the data users. Public and key stakeholders are informed prior to any change through public notice, workshops, meetings in order to comment on the proposed new base methodology.
1.3	Ethic	al standards
	1.3.1	Guidelines for staff behaviour are in place and are well known to the staff.
l		

# • A clear set of ethical standards has been prepared.

The NBS has developed a comprehensive set of ethical standards such as staff regulation, code of ethics and conducts which are designed to guide management and staff. These set of ethical standards are documented and publicly available, ensuring transparency.

#### • Staff are made aware of the ethical standards.

NBS staff are made aware of ethical standard principles and guidelines set by the organization under the Code of Ethics and Conducts for Public Servant. The guiding rules and ethical standard provided and they are periodically reminded during the staff meetings to maintain the standard of office. However, during the recruiting the new staff, induction course is provided in order to understand public servant ethics.

#### 2. Methodological soundness

#### 2.1 Concepts and definitions

- 2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.
  - Concepts and definitions used to compile the PPI are in broad conformity with guidelines outlined in the 2008 SNA and the PPI Manual.

PPI is produced according to international standards recommended by the IMF PPI Manual. The NBS adheres to the concepts and definitions outlined in the manual and has developed its own concepts and definitions for official statistics, which align with the 2008 SNA. All documents serve as the methodological reference for producing PPI.

• Output estimates are compiled at a sufficient level of industrial and commodity detail.

The Producer Price Index (PPI) release is compiled using the International Standard Industry Classification (ISIC) Revision 4, which categorizes economic activities globally. The PPI is aggregated at the one-digit section and two-digit division levels of the ISIC classification to maintain confidentiality and protect sensitive data.

# 2.2 Scope

- 2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines or good practices.
  - The scope of the PPI is the maximum feasible fraction of the total output of resident establishments/enterprises.

The PPI covers domestic establishment as indicated in IRIS 2008, UNIDO Industrial Statistics guidelines and methodology and ISIC Rev 4, which include mining and quarrying, manufacturing, electricity, gas, steam and air conditioning supply, and water supply; sewerage, waste management, and remediation activities. It covers a total of 203 establishments and 68 activities of ISIC Rev. 4.

• The delimitation of the constituent units of the economy is in accordance with the 2008 SNA.

The NBS has adopted the principle that the scope of the PPI should encompass all domestic production of goods and services.

• Differences in the scope of coverage between the PPI and the 2008 SNA should be made public and known to users.

The inclusion or exclusion of products is aligned with international standards, and illegal market goods are excluded.

#### 2.3 Classification/sectorization

- 2.3.1 Classification/sectorization systems used are broadly consistent with internationally accepted standards, guidelines, or good practices.
  - The classification and sectorization used in the compilation of PPI are in broad conformity with internationally recommended systems.

To improve the comparability and reliability of economic statistics, a different classification system, in line with international recommendations, is used in compiling producer price statistics. The 2004 PPI Manual serves as the guide. However, the Industry and Construction Statistics Department utilizes the ISIC Rev. 4, to classify the economic activities of establishments.

#### 2.4 Other quality management

# 2.4.1 Market prices are used to value flows and stocks.

• The valuation rules used for recording flows and stocks are in accordance with the 2008 SNA.

The PPI weight is based on gross output derived from the Annual Survey of Industrial Production 2015, with a valuation at basic prices, which excludes taxes and transport costs. Transfer prices are included in the PPI compilation. The PPI does not use intermediate consumption to calculate weights.

2.4.2 | Recording is done on an accrual basis.

• The timing rules used for recording flows are in accordance with the 2008 SNA.

During data collection, output is recorded from sales of industrial and non-industrial services at basic prices, as well as the value of inventories of finished goods and work-in-progress are recoded in the period they are produced.

2.4.3 Grossing/netting procedures are broadly consistent with internationally accepted standards, guidelines, or good practices.

• The grossing/netting procedures are in accordance with the 2008 SNA.

The grossing and netting procedures are compiled in accordance with the SNA 2008 and UNIDO Industrial Statistics guidelines and methodologies. Transactions of goods and services between establishments belonging to the same enterprise are valued at basic prices due to the fact that the statistical unit for the PPI is an establishment and not enterprise.

#### 3. Accuracy and Reliability

#### 3.1 Source data

- 3.1.1 Source data are obtained from comprehensive data collection programs that take into account country-specific conditions.
  - The data collection programs employed to compile the producer price statistics are adequate.

The establishment list is developed during the rebasing exercise, with data collection conducted at the regional level. PPI weights are derived from the gross output in each ISIC Rev 4 group. A sample of establishments to be included is selected using a cutoff sampling procedure.

Sometimes, data are received from MDAs (e.g., the Ministry of Water, and TANESCO) to validate data collected from other authorities.

• Annual statistics are collected through a regular enterprise establishment survey program for compiling PPI output weights, intermediate input weights (input price index), and

# product weights.

The Statistical Business Register is used as the sampling frame for establishment-based surveys and is maintained through continuous updates of establishments. Maintenance is an ongoing process in which statistical units are regularly updated using administrative data.

The Annual Survey of Industrial Production (ASIP) is conducted after every two years. Administered questionnaires account for all variables needed for Producer Price Statistics. The current PPI uses weights from the ASIP 2015. However, not all annual surveys are conducted as planned due to financial constraints.

In the absence of a business register, a listing exercise is conducted using data from the Census of Industrial Production and lists of establishments obtained from administrative sources, such as the Ministry of Industry and Trade, Confederation of Tanzanian Industries, etc.

The PPI sample design ensures the establishments are represented properly which encompasses four sub-sectors of industry from ISIC Rev 4: Mining and Quarrying; Manufacturing; Utilities (Electricity, Gas, Steam, and Air Conditioning Supply); and Water Supply, Sewerage, Waste Management, and Remediation Activities.

The PPI questionnaire is designed following all necessary processes, including pre-testing and piloting, with any observed changes taken into account.

The value added of each sampled establishment is collected and then aggregated to the one-digit level across all four industrial subsectors.

 Monthly or quarterly price statistics are collected through a regular establishment/enterprise survey program to compile the PPI by activities and by products.

The PPI covers industrial activities as outlined in the IRIS 2008 and UNIDO Industrial Statistics guidelines and methodology. Establishments engaged in the four industrial subsectors were

selected from the Annual Survey of Industrial Production (ASIP) of 2015.

The value added of each sampled establishment is collected and then aggregated to the one-digit level across all four industrial subsectors. A cutoff sampling procedure was used for the Producer Price Survey.

The selected sample is regularly updated using administrative data from industrial stakeholders. The prices collected are entered into Excel at the four-digit level, then aggregated to the three-digit level and, finally, to the two-digit level.

The survey is of matched model pricing.

The PPI questionnaire includes the name of the commodity, unit of measure, and the price of the respective commodity, with data collected each quarter for easier comparison from quarter to quarter and year to year.

• Periodic (two or more years) surveys/censuses of output and intermediate consumption are conducted on a regular basis.

The PPI relies on the Census of Industrial Production, the Annual Survey of Industrial Production, and the Statistical Business Register, although they are not updated annually due to financial constraints.

The coverage of the Census of Industrial Production includes both small establishments (1-9 employees) and large establishments (10 or more employees), taking into account the four categories involved in industrial statistics as recommended in IRIS 2008 and PPI manual 2004. It covers four industrial activities as defined in ISIC Rev. 4.

• The data collection programs are sufficiently open and allow for versatility to new developments in sources.

The improvement of the basket of goods and services is achieved during the rebasing activity. During rebasing, new commodities and prices are collected for the development of the PPI. Before releasing the new PPI series, the NBS and key stakeholders meet to discuss updated information on producer price movements, industrial

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		activities involved, and the products covered.
		Press and research paper are not monitored. In the compilation of the Producer Price Index, international guidelines such as the PPI Manual and UNIDO guidelines are adhered to, including any necessary changes that need to be taken into account.
	3.1.2	Source data reasonably approximate the definitions, scope, sectorization, classifications, valuation, and time of recording required.
		<ul> <li>Source data approximate the definitions, scope, classifications, valuation, and time of recording required in the PPI.</li> </ul>
		The definitions, scope, and classifications of data sources for PPI statistics align with IRIS 2008, the PPI Manual 2004, Industrial Statistics Guidelines and Methodology 2010 (UNIDO, 2010), and ISIC Rev. 4.
		The price survey collects prices of selected commodities on a quarterly basis from sampled establishments, adhering to statistical procedures.
	3.1.3	Source data are timely.
		The data collection programs provide for the timely receipt of data.
		Data collection is completed within a month after the end of the quarter, and the PPI is disseminated within two months after the data collection month.
		During the initiation survey, NBS and owners of establishments agree on the submission due date for the questionnaire each quarter, which is then noted on the data collection form.
		Follow-up mechanisms are in place, where compilers either make phone calls or visit the establishments though sometimes there is delay of data submission from establishments.
3.2	Assess	sment of source data
	3.2.1	Source data including censuses, sample surveys, and administrative records are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide statistical processes.

Accuracy of the data from surveys is routinely assessed.

Reports of the Census and Annual Survey of Industrial Production are prepared and published on the NBS website, taking into account sampling errors, biases, and non-response.

To maintain the accuracy of the data collected, several procedures are followed, such as supervision during data collection, manual editing of questionnaires, and outlier checks during data processing. Outliers are identified by comparing prices from the previous quarter and the same quarter of the previous year. In some cases, prices of the same commodity are compared, and phone calls are used to seek clarification from establishments.

The accuracy of the data is verified through direct phone calls to respondents if outliers or extreme values are identified. No outliers are automatically deleted without confirmation.

Enumerators are trained and reminded to ensure that the form is accurately filled out before leaving the establishment.

Data is monitored, and if it is missing for three consecutive months, the product is replaced with one of the same characteristics. For temporarily missing values, imputation method is sometimes used.

• Accuracy of administrative data and other secondary sources is routinely assessed.

In some cases, administrative data is used to assess the accuracy of data collected for PPI.

• Appropriate measures are taken to make the source data consistent with PPI concepts.

Misreporting or underreporting is analyzed directly through phone calls to respondents or by checking the consistency of prices from the previous quarter.

# 3.3 Statistical techniques

Data compilation employs sound statistical techniques to deal with data sources.

 Adjustments are made to source data when concepts followed in their compilation are not consistent with price statistics.

Excel spreadsheet is used for data entry and compilation procedures. Prices collected are monitored during data collection to minimize errors, and data validation is performed during processing, where outliers, missing prices, and other issues are identified.

Unusual values are identified during data processing, and verification is done through direct phone calls to the respondents. For the issue of non-response, an imputation method is applied.

• Appropriate measures are taken to validate the source data.

Procedures for data sources, coverage, definitions, classifications, and valuation follow international guidelines, such as the PPI Manual and UNIDO guidelines.

Grossing-up factors are calculated by activity to produce population estimates that represent uncovered (non-response) activities. For establishments with 10 or more employees, the grossing factor is one.

• Internationally accepted statistical methods are used to handle missing prices and the introduction of new products that are within the scope of the PPI.

For temporarily missing prices, imputation is done using quarter-toquarter price changes. Missing prices for seasonal products are imputed using price relatives of the sub-group. New establishments producing the same products are used for the permanent unavailable products.

- 3.3.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.
  - Proper statistical techniques are used to address specific issues of output measurement for PPI weights.

Gross output, as defined in the 2008 SNA, is used for the development of weights. Work in progress and finished products are considered during the census or survey and is obtained through an inventory check (opening balance and closing balance).

The cash are converted to accrual by allocating them to the period to which they relate in particular for certain data related to government activities such as taxes and subsidies on products, government arrears, government revenue data and government expenditure data as aligned with SNA 2008.

• Calculation of the elementary (item) level indices.

In elementary aggregates (unweighted), the PPI is computed using the geometric mean of price relatives (Jevons formula). Weights are then applied to obtain aggregates for the high-level indices.

Aggregation of the higher-level indices.

The weight reference period is ASIP 2015, and the price reference period is 2018 quarter 4. Elementary price indices are aggregated to form higher-level indices using weights. The Laspeyres aggregation formula is used to compute these higher-level indices.

Weight reference period.

Weights should be updated every five years. The current weight reference period is ASIP 2015, and it will be updated after the completion of the CIP 2023. The current PPI was linked back to 2013 using a linking factor.

# 3.4 Assessment and validation of intermediate data and statistical outputs

- 3.4.1 Intermediate results are validated against other information where applicable.
  - Iintermediate results are validated against other independent data.

PPI data is not compared with comparable estimates from other sources such the national accounts statistics, export and import price indices.

- 3.4.2 Statistical discrepancies in intermediate data are assessed and investigated.
  - Unusual index movements arising from potential problems in price data are investigated and made available to users.

There is no unusual index movements observed.

- 3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.
  - Statistical discrepancies, if any, between PPI for economic activities and the PPI for products are investigated and made available to users.

The NBS releases the PPI for economic activities and not the PPI for products. However, before finalizing data processing, price data are reviewed to correct any discrepancies that arise in the PPI for economic activities.

#### 3.5 Revision studies

- 3.5.1 Studies and analyses of revisions and/or updates are carried out and used internally to inform statistical processes (see also 4.3.3).
  - Revision studies are undertaken on a regular basis.

Periodic weight updates in the PPI are essential to reflect current production and pricing patterns. The update is conducted every five years to incorporate changes in the economy.

After obtaining the new reference period and weights, the new PPI to be published need to be studied for five consecutive quarters to observe economic trends before they are made available for public use.

Errors or bias cannot be avoided in any survey, but they must be addressed to prevent them from distorting the true picture of the economy. In the case of nonresponse, the imputation method is applied to estimate missing data. For sampling errors, every five years, activities and products are reviewed to ensure representativeness, thereby reducing bias.

• Measures are undertaken to incorporate the findings from revision and/or update studies in data compilation.

Observations gained from past data revisions are used to improve and adjust both the initial data and the methods employed for future data collection. These observations help analyze errors, biases, or inefficiencies in the data collection process encountered in the past, allowing them to be identified and corrected. This ensures that future

	data is more accurate and better reflects the true picture of economic
	trends.

#### 4. Serviceability

# 4.1 Periodicity and timeliness

# 4.1.1 Periodicity follows dissemination standards.

• The periodicity of the statistics follows the IMF data dissemination standards (Special Data Dissemination Standard (SDDS) or General Data Dissemination System (GDDS)).

The PPI is compiled in quarterly basis, following the IMF's data dissemination standards: the Special Data Dissemination Standard (SDDS) and the General Data Dissemination System (GDDS).

#### 4.1.2 Timeliness follows dissemination standards.

• The timeliness of statistical series follows the IMF data dissemination standards (SDDS or GDDS).

The PPI is disseminated within two months after the end of the quarter following the IMF data dissemination standards (SDDS or GDDS).

# 4.2 Consistency

#### 4.2.1 Statistics are consistent within the dataset.

• Statistical series is internally consistent.

The Producer Price Index (PPI) is consistent as it follows 2004 PPI manual and other international recommendations guidelines. Producer prices are collected from the same selected establishments and commodities which covers all four industries sub sector by recoding the average prices of the quarter.

The price relatives of the selected commodities on each four-digit level of ISIC are computed. The first level of aggregation is the class 4-digit ISIC; these indices are the un-weighted Elementary Aggregate (EA) and are being compiled using the Jevons geometric mean aggregation formula which refers to Geometric Mean of the price relatives. The Elementary Aggregates indices are then being progressively combined to higher levels within the index structure using the Laspeyres formula.

	4.2.2	Statistics are consistent or reconcilable over a reasonable period of time.
		• The statistical series is consistent over time.
		For any significant changes in PPI trends (such sudden increase or
		decrease in prices, production or other indicators), the release
		provides analysis to help users understand the reason behind these
		changes.
	4.2.3	Statistics are consistent or reconcilable with those obtained through
		other data sources and/or statistical framework.
		<ul> <li>The statistics are consistent or reconcilable with other statistical frameworks.</li> </ul>
		The PPI are aligned with other key economic indicators e.g Consumer
		Price Index, Gross Domestic Product. This ensures that the PPI and
		related data provide an accurate picture of economic trends.
4.3 1	Revisi	on policy and practice
	4.3.1	Revisions and/or updates follow a regular and transparent
		schedule.
		• The practice of revisions (e.g., from provisional estimates, for weight updates, for changes in methodology) follows a predictable pattern of which users of statistics are informed.
		The revision is done after five (5) years to incorporate changes in the economy.
		The revision cycle is influenced by when the necessary data from
		comprehensive survey becomes unavailable for updating or revision.
		<ul> <li>The agency has adopted a clear and consistent revision policy.</li> </ul>
		The Bureau undertakes revision, though there is no clear and
		consistent revision policy that is in place.
	4.3.2	Preliminary and/or revised/ updated data are clearly identified.
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		• Users are informed about the preliminary nature of the data.
		There is no dissemination for preliminary of PPI data.
		Users are informed about the revised nature of the data.

		Once PPI data are disseminated, they are not subjected to any revision or updates.
	4.3.3	Studies and analyses of revisions and/or updates are made public.
		<ul> <li>Users are informed of the results and studies of the revisions and/or updates to the statistics.</li> </ul>
		Weight revision and data revision is done but users are not informed.  Analysis of differences between the revised data and preliminary data
		is not done but expected to be done after Census of Industrial
		Production (CIP) 2023.

5	5. Accessibility		
<b>J.</b>			accessibility
		5.1.1	,
			<ul> <li>The presentation of the statistics data is commensurate with users' needs.</li> </ul>
			The PPI release is published on a quarterly basis and includes a table displaying indices by sub-sectors and major groups, along with a line graph that presents the overall indices. This format helps readers and analysts interpret the data and draw conclusions more easily.
			Although the dataset for the PPI is available at the 4-digit level, as defined in ISIC Rev. 4, the release is published at the 2-digit level and in major groups of the ISIC Rev. 4.
			The PPI release contains details for the current period, including comparisons between the current quarter and the previous quarter's index. Additionally, quarterly indices are disseminated with time series data to assess trends over time, comparing quarter to quarter and year on year.
		5.1.2	Dissemination media and format are adequate.     Statistics are disseminated in formats to suit users' needs.
			The quarterly PPI release is disseminated in electronic copies (PDF format) and provides details at the 2-digit level and in major groups

		of ISIC Rev. 4 and can be accessed through the NBS website. Detailed current statistics and longer time series are available to the Bureau upon request for free.
	5.1.3	Statistics are released on a preannounced schedule.
		Statistics are released on the preannounced schedule.
		The NBS release calendar indicates the dates when the PPI will be available. The PPI is made available according to the pre-announced schedule.
	5.1.4	Statistics are made available to all users at the same time.
		• The statistics are made available to all users at the same time.
		The public is informed about the statistics being released and the procedure to access them through NBS website. The Index is available on the NBS website without any delays or preferential treatment. The statistics are made available to all users at the same time.
	5.1.5	Statistics not routinely disseminated are made available upon request.
		• Statistics not routinely disseminated are made available to users upon request.
		Users can obtain additional information free of charge by submitting a request to the Statistician General.
5.	2 Metad	lata accessibility
	5.2.1	Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from internationally accepted standards, guidelines, or good practices are annotated.
		The metadata give adequate information about the meaning of the data and about the methodology used to collect and process them.
		The PPI release includes a brief summary of concepts and definitions, the methodology used, and the classification procedures for obtaining the index.
		The PPI compilation adheres to accepted standards, guidelines, and best practices. It follows the PPI Manual and other relevant industrial guidelines.

	5.2.2	Levels of detail are adapted to the needs of the intended audience.
		Different levels of metadata are made available to meet users' requirements.
		The metadata for PPI statistics are available to meet users' requirements and can be accessed on NBS website. The metadata summarize the key information of statistics for easy understand of PPI indicators.
5.3	Assist	ance to users
	5.3.1	Contact points are publicized.
		Adequate assistance is given to users of statistics.
		Prompt and knowledgeable service and support are available to anyone who needs assistance on PPI products. The NBS address is provided at the end of the PPI release for easy access by users. PPI release information is posted at NBS website, and technical assistance is given to users through face-to-face interactions, phone calls, and emails.
		Outreach programs and participation on local and international exhibition is provided to raise awareness on the use of PPI.
	5.3.2	Publications, documents, and other services, including information on any charges, are widely available.  • Publications and other services are available to users of statistics.
		The PPI release document is available to users on the NBS website and it is updated on quarterly basis. The prices of commodities are disclosed free of charge upon request.

#### 6. Conclusion

In general, the assessment results reveal that the business processes for production of PPI complied to all dimensions as follows:

On **Prerequisites of quality**, the NBS has broadly effective legal frameworks (the Statistics Act, CAP. 351) to support the compilation and dissemination of PPI statistics.

On **Assurances of integrity** of NBS, the Statistics Act, CAP. 351 clearly assure the professional independence of the Bureau. Recruitment and promotion of staff are

mostly based on competence and expertise in specific subject areas. Staff are given every opportunity to take part in training courses and seminars.

On **Methodological soundness**, the general framework for compiling the PPI is the PPI Manual 2004.

On **Accuracy and Reliability**, several procedures are followed, such as supervision of data collection, manual editing of questionnaires, and outlier checks during data processing. Data sources from which prices are collected are sufficient to compile statistics on producer prices.

On **Serviceability**, the quarterly PPI is disseminated within two months after the end of reference quarter.

On **Accessibility of data**, PPI are published in a clear manner with charts and tables that make the data easily understood by users.

# 7. Recommendations

S/No	Dimension	Recommendation	
0.	Prerequisites of Quality	<ul> <li>Budget allocated for production of PPI should be prioritized, sufficient and ringfenced by the government.</li> <li>Continue providing more trainings on PPI and related field to staff so as to upgrade their skills and knowledge which will enable them to improve production of quality statistics.</li> </ul>	
1.	Assurances of integrity	<ul> <li>Continue creating awareness on ethical standards for the betterment and protection of statistics professionalism.</li> <li>Induction course for the new recruited staff should be emphasized and the copies of Staff Regulation and Codes of Ethics and Conduct documents should be provided to the staff.</li> </ul>	
2.	Methodological Soundness.	<ul> <li>Worksheet for PPI compilation should Include Central Product Classification (CPC) code to classify products.</li> <li>Prepare documents for each important activities decired the acceptibilities of PPI.</li> </ul>	
3.	Accuracy and Reliability	<ul> <li>Periodic studies and analyses of updates should be conducted and utilized internally to enhance statistical processes.         Findings from these studies, including insights into other sources of errors/ bias, should guide the determination of optimal revision cycle. This cycle should primarily be driven by the availability of key data sources, ensuring implementation of changes to the PPI.     </li> </ul>	
4.	Serviceability	<ul> <li>Efforts should be made to rebase the PPI every five years. This will increase the proper representation of price trends in this fast-changing world.</li> <li>Regular Studies and revisions should be done and shared to the public.</li> </ul>	

5.	Accessibility	•	Metadata should be updated during
			rebasing.
		•	The public should be informed whenever
			there is any adjustment and review of the
			PPI.

#### 8. References

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- 3. NBS Strategic Plan 2021/22-2025/26
- 4. Tanzania Statistical Master Plan 2022/23 2026/27 (TSMP II)
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- 6. Manual for Strengthening and Integrating Administrative Data into National Official Statistics of Tanzania 2024
- 7. The 2004 Producer Price Index Manual Theory and Practice
- 8. The System of National Accounts (SNA) 2008
- 9. Industrial Statistics Guidelines and Methodology 2010
- 10. Advance Release Calendar
- 11. NBS Staff Regulation, Scheme of Service

