

Statistical Systems and Standards

What are official statistics?

Official statistics are all statistics produced by government departments and specified conferring to UAE associated laws (Federal and local level).

UN standards:

The United National Fundamental Principle of official statistics provides the basic framework for official statistics in affiliate countries.

Determinants of official statistics:

- Not all statistics are defined as official
- Statistics are defined as official if they are:
 1. Produced by the government/linked entity
 2. Sustainable
 3. Significant, and
 4. Meet certain quality standard

Role of official statistics

Official statistics are used for a variety of purposes:

- Measure population characteristics, environmental issues, the rhythm of the economy thus allowing one to make comparisons with the past, with other countries and set standards for the future. They provide a meaningful description of the society and development.
- Facilitate the decision building processes of businesses and individuals. Businesses make speculation and employment decision on the basic of official statistics. They support decision making processes by wider community.
- Policy formulation, implementation and assessment by the government

- Resources allocation and targeting statistics helps people and constituencies in need and allow authorities to make and implement timely intrusions.

What is official statistics system?

The government wide system of policies, processes, underlying data sources and people that are involved in producing and disseminating official statistics.

Official statistics system

- A system is defined by the elements constituting it.
- The nature of the system is defined by the relations between these elements.
- The core statistical systems consist of all the statistics producing entities (independent units).
- The wider system also includes the data providers and the users.
- In collaborative system the elements work together on the basis of consensus and equal basis.
- In a hierarchical system one organization basically sets most of rules.
- Most statistical system are mixture of these two types (centralized and decentralized).

Although there is no official consensus at the United Nations—or among other international organizations—on the definition of a national statistical system (NSS), a generalized explanation is widely accepted: "the ensemble of statistical organizations and units within a country that jointly collect, process, and disseminate official statistics on behalf of the national government."

Accordingly, the objective of an NSS is to provide relevant, broad, accurate and objective statistical information that sheds light on the major social, economic and environmental apprehensions and challenges of the country in question.

Prerequisites of an effective national statistical system

An NS comprises four stakeholder groups: researchers and training institutes, data producers, data suppliers and data users. The following prerequisites must be met in order for an NSS to be effective:

- Adopt an approach centred on user needs: the information produced and circulated should be relevant and meet user needs and expectations.
- Develop statistical capacity and a facilitative frame: resources (legal context, physical infrastructure, human resources, information and budget), statistical methods and practices, and adapted information technologies; and appropriate professional and technical skills.
- Ensure statistical coordination, which includes collaboration between NSS actors, less duplication, shared information, and compact response burden.
- Provide effective governance in the public interest based on strong leadership and dense management structures and practices.
- Encourage government-wide engagement and enlistment.

National statistical system can be:

- Part of central government.
- Organization varies, but even when centralized may involve several agencies.

National statistical system has a dual role:

- To serve the need of government.
- To provide information to the community.

In general the structure includes:

1. National statistical agency.
2. Line ministries.
3. Regional and local offices.

Type of statistical systems: Centralized/ Decentralized

- No statistical system is entirely centralized or decentralized (international experience).
- In the broad spectrum from totally centralized to totally decentralized, some statistical organizations may find themselves either near the centralized (Canada, Netherlands, Australia) or near the decentralized (USA, Japan).

- But many are somewhere in between in between (Pakistan, India and Japan).
- Even in highly centralized statistical systems the central bank and line ministries usually play some role in the production of official statistics.
- However, many statistical systems are highly dominated by a single institution. Driver or the heart of the system.

Statistical systems are described as either centralized or decentralized depending on the extent to which responsibility for carrying official statistics across the range of government activities lies with the central institution. There are strengths and weaknesses to both the centralized and the decentralized models.

Statistical systems are said to be centralized when all, or most, of the products of the statistical system are produced and strewn by the central organisation. A good example of this is the Australian Bureau of Statistics which produces almost all of the country's statistics. The Bureau is an independent agency and has been given full authority by the Government to regulate what should be produced and in what manner. Contrariwise systems are said to be decentralized when statistics are produced by many different Ministries and Agencies conferring to which has responsibility for that sector – such as health statistics being formed by the Health Ministry. A striking example of a decentralized system is the United States of America where some eighty Federal agencies produce statistics and where there is no central statistical agency as such, although the Office of Management and Budgets takes on some of the coordination and policy roles. Most national systems lie between these two extremes: such as Mozambique where education and health statistics are produced by the respective Ministries but the central statistics office produces a large swath of the country's statistics and has overall responsibility for the statistical system.

Bill McLennan, when head of the Australian Statistical Service, concisely defined the basic quandary facing official statistics as “policy relevance versus statistical integrity”

Generally speaking, centralized systems are inherently strong on integrity but sometimes struggle on relevancy, particularly in social sectors, as they are secluded from the policy debate. For decentralized systems the reverse holds, as statistical services based within sector ministries are exposed to policy makers and often accountable to them for ensuring their products are relevant, timely and appropriate. However this exposure and line accountability leaves them subject to

political interference and pressure to present statistics relating to Ministerial policies and outcomes in a favourable light. Even if the statisticians tangled act impartially and with integrity their location counts against them in the eyes of outsiders who can treat them as guilty by association.

The advantages and disadvantages of the two models can be summarized as shown in the following table. Note that in addition to those factors explicitly mentioned there is bilateral symmetry in that factors which are an advantage to one model are often a disadvantage in the other, and vice versa.

	centralized	decentralized
advantages	<p>Ability to plan and coordinate across whole statistical system</p> <p>Ability to set long term priorities and divert funding to them</p> <p>‘One stop shopping’ for statistics</p> <p>Organizational focus on statistical issues emphasizes integrity and impartiality and common work ethos</p>	<p>Policy relevance</p> <p>Strong statistical linkage to administrative management and information system</p>
disadvantages	<p>Divorced from main Government users, perceived lack of responsiveness</p>	<p>Difficult to coordinate and plan system wide, sectoral interests take precedence over common good</p> <p>Open to political pressure, perceived if not actual</p> <p>Difficult to set common standards.</p>

Strategies, mechanisms and tools

The mechanisms and tools that characterize the worth of an NSS (whether centralized or decentralized) can be grouped into four major components:

1. The legal framework
2. The role of the Chief Statistician
3. The protection of fundamental values

4. Leadership and coordination with regard to four functions: NSS positioning, consultations and partnerships, national and international influence, and appropriate and relevant planning, management and control mechanisms.

1. The legal framework established by the Statistics Act

The legal framework is of significant importance to the effectiveness of an NSS. Through such a framework, leadership and coordination mechanisms are established, and the conditions surrounding the collection of information for statistical purposes are defined. It, therefore, serves as an operational framework and somewhat of a directional chart for all stakeholders.

In general terms, the Statistics Act grants two primary responsibilities to the statistical agency:

- data collection and production; and
- leadership and coordination with regard to statistics.

2. The role of the Chief Statistician

In carrying out the role of leadership and synchronization of a national statistical system, the Chief Statistician's role is just as important as the legal framework. Key factors in the sound operation of the statistical system include the Chief Statistician's role and power, his place in the hierarchy, his political independence and his public image.

3. The protection of fundamental values

Three fundamental values characterize all national statistical systems: credibility, legitimacy, and protection of confidentiality. Credibility is achieved through solid capability and the resulting quality and relevance of the statistical data. Information deemed not sound is neither considered nor used. Legitimacy is tied to the importance that society accredits to statistical activities, and to its understanding that such activities are in the public interest. As for the protection of confidentiality, the Statistics Act defines the agency's obligations and deliberates personal responsibility on each employee. Even the courts cannot have access to perceptible statistical data without informed consent from the person concerned.

4. Leadership and coordination

Four key functions of leadership and coordination are follows:

- Positioning the statistical system means making the necessary choices to optimize the relevance of the statistical information produced. It also means giving the statistical system direction by developing and communicating a vision, a mission, strategic orientations and clear values for their organization and the system as a whole.
- There are a variety of mechanisms and forms of consultation, the most valuable of which include deputy ministers' committees, the National Statistics Council, the Federal–Provincial–Territorial Consultative Council on Statistical Policy, and advisory committees.
- The first kind of influence requires the ability to continually make the case that statistics are a necessary element for societal advancement, and should be used more frequently in decision-making. It also requires the ability to rally all stakeholders around a shared vision of the direction that the system should take. Lastly, it requires relationship building across networks, seminars, expert groups and other formal and informal platforms at the national and international levels to ensure coherence, coordination and collaboration in statistical activities.
- To provide the appropriate foundations for a national statistical agency, implement planning, management and control mechanisms along with the infrastructure needed to achieve the desired results:
 1. Sound human resource management
 2. Effective communication networks within the organization
 3. Implementation and development of a transparent and effective planning process
 4. Budget management

Facing current challenges

- Its somehow as “statistical industrialization”
- A response to strategic challenges and opportunities due to:
 1. Data deluge: big data, open data...
 2. Competition: NGOs are not the only players in the market
 3. Changing needs and rising expectations from users.

4. Government expect efficiency (do more with less)

Developing national statistical system

Improving institutional coordination:

- Enhancing the integration and access to data between NSS components and companions.
- Strengthening the information system and institutional structure to support a modern and efficient statistical system: SDMX, GDDS, open data, NSDP, DATA ATLAS
- Starts, work and develop by cooperation
- Developing an proficient information management system
- Development and implementation of an operational structure (FEDNET, STAT NET)
- Incorporating Big Data and Open Data enterprise as a new developments in statistical and information new age.

Modernization of organization modules:

- Strengthening the statistical capability of the NS components on the national level.
- Reinforce its role on the regional and international level by joining experts clusters.
- Strengthening the legal framework to assure the access, use and rescue of data, and conserve the confidentiality and data security.

Pakistan Statistical system

Federal level

1. Statistical Division (FBS, PCO, ACO)
2. Statistical cells in different ministries/ division, SBP, FBR, etc

1. Statistics Division

- The peak body to embody statistical authority.
- Preparation policies and plans for statistical development
- Coordinates, consults with stakeholders and other producers of statistics.
- Controls and facilitates the following committed development:
 - i. Federal Bureau of Statistics (FBS)

- ii. Population Census Organization (PCO)
- iii. Agriculture Census Organization (ACO)

i. Federal Bureau of Statistics

- Directed to collect, compile and disseminated a range of primary and secondary data.
- Compile monthly /weekly statistical series viz. Mining & industrial production, foreign trade, WPI, CP, SPI.
- Accumulates national accounts of Pakistan.
- Undertake data processing of PCO, ACO, own surveys and other data review.
- Maintains sample design section to
 - a) Prepare and update sampling frame
 - b) Design sample/ other survey instructions
 - c) Help in monitoring and evaluation survey.
- Runs a training wing to impart training to
 - a) Working statisticians from different organization
 - b) IT professionals from speckled departments
 - c) Personnel of provincial governments and
 - d) Students and other contenders from private a official agencies.
- Conducts censuses and surveys.

Annual Surveys

- Pakistan social and living standard measurement
- Labor force survey
- Pakistan demographic survey
- Household integrated economic survey

Periodic Surveys

- Large-scale manufacturing industries survey
- Small-scale manufacturing industries survey
- Census of private educational institutions
- Collections on gender, environment and social institutions

Adhoc Surveys

- Economic census
- Education census
- Time use survey etc.

ii. Population census organization

PCO is responsible:

- Planning and implementation of decennial population & housing census.
- Processing and propagation of data in the form of census reports.
- Analysis of census data and demographic research.
- Evaluation of census results.
- Interdental sample studies / surveys in associated areas.
- Supply of census data to the data users.
- The first population and housing census in areas comprising Pakistan was held in 1881.
- After initiation of Pakistan, five censuses have been undertaken in 1951, 1961, 1972, 1981 & 1998.
- Sixth census conduct in 2019.

iii. Agriculture census organization

ACO undertakes the following activities:

- Agriculture census (decennial)
- Livestock census (decennial)
- Agriculture machinery census (decennial)
- Village census (Quinquennial)

Agriculture Census

It provides information on number and areas of farm by tenure, land use intensity, cropping patterns, irrigation, agriculture inputs etc. So far agriculture censuses have been conducted in 1960, 1972, 1980, 1990, 200 and 2010. Prepare and disseminates national and provincial reports.

Livestock Census

provides information regarding livestock population, poultry and their products. So far, four livestock census in 1976, 1986, 1996 and 2006 have been conducted.

Agriculture Machinery Census

provides information on agriculture equipment's i.e. tube tractors & other allied equipment's. So far, five censuses have been conducted in 1968, 1975, 1984, 1994 and 2004.

Village Census

It is conducted prior to agriculture and livestock censuses in order to update village sampling frame. The last village census was conducted in 2008.

Provincial level

1. Bureaus of statistics
2. Statistical cells in different departments

What is a statistical standard?

A statistical or data standard provides a comprehensive set of guidelines for surveys and administrative sources collecting information on a particular theme components of a standard include:

- Rationale
- Definition
- Classification
- Questionnaire module
- Output
- Related classification and standards
- Glossary and references.

Why have standard?

Statistical or data standards allow us to collect reliable statistics using reliable procedures. If we follow these standards, we can incorporate data over time and across different data sources, allowing data to be used beyond the instant purpose for which it was produced. Statistical standards also reduce the resources mandatory to develop and maintain surveys.

What is a classification?

Generally a statistical classification is a way a group a set of related categories in a meaningful, systematic, and standard setup.

The statistical classification:

- Is usually meticulous
- Has mutually exclusive and well described categories
- Has either a hither a hierarchical or a plat structure
- Usually contains codes and descriptors.

Why have a Classification?

Classification agrees us to group and organize information meaningfully and systematically, usually in exhaustive and structured sets of categories. Statistical classifications are normally developed to support policymaking and because of that, to organize and present statistics.

A primary purpose of a statistical classification is to offer a simplification of the real world and a useful framework for collecting and analyzing data from both statistical and administrative collections.

What is coding?

Coding is the process by which a description of an item or activity delivered as a survey response is matched to a coded category. The coded categories are defined in standard classifications.

