Statistical Indicators Metadata Preparation Guide

Table of Contents

Introduction

This manual is intended to introduce the key elements needed to store the metadata of indicators in accordance with specific standards in order to facilitate their recovery and use, and to reduce the effort required to re-input metadata in different systems. In the long run, it aims to provide a convenient means to link statistical indicators whose metadata are published with the aim of increasing the clarity of these indicators to users.

A statistical indicator is the description of economic, social and other characteristics of a certain phenomenon at a specified time and place. The indicator may be an absolute number, percentage, rate or other statistical measure. Indicators help decision makers to evaluate plans and create development programs in line with their desired objectives.

The manual concentrates on the reference metadata for the indicators. The Indicator metadata system comprises the set of descriptive elements which contains information related to indicators, in addition to elements for monitoring the changes made in the metadata of indicators and their management in order to guarantee the coherence and consistency of the time series of indicators.

The manual is based on international principles and manuals, mainly the initiative of Statistical Data and Metadata exchange (SDMX), Dublin Core Metadata Initiative (DCMI), and ISO 19115.

The manual describes obligatory elements, recommended elements and conditional elements. However, it is strongly recommended all elements are completed where possible in order to increase the benefit and clarity of the metadata.

1 | Metadata Management

The Metadata management concept is concerned with the content, structure and design of statistical data and processing from the preparation phase to the statistical dissemination phase. Metadata management requires a clear, well-defined understanding of the objectives and uses of metadata. It also requires the designation of the agencies responsible for updating the various types of metadata and users of these data. In addition, it provides the necessary tools for data management, accessibility and use during the production and dissemination of statistics in order to ensure proper employment of these statistics for decision making and policy making.

The good management of metadata is necessary for the effective execution of the statistical operation. Therefore, the collection of metadata must be performed throughout all stages and operations of statistical activities for data collection, processing, analysis and dissemination. Statistics centers, therefore, should prepare a clear strategy for metadata management and publication in order to guarantee the effectiveness of the statistical system.

2 | Elements of Metadata for Indicators

Indicators are described by a set of elements that may come from one source, or many different sources, in a separate table in the metadata system. Table (1) below illustrates a list of the elements of indicator metadata. These elements are classified into five categories:

- Main elements.
- Statistical elements.
- Time elements.
- Accessibility elements.
- General elements.

> The level of mandate is determined for the incorporation to the Statistical Metadata System of the elements of metadata as follows:
>
> - Mandatory: This element must be filled.
> - Conditional: Response to this element is required under certain conditions and circumstances or on basis of the response to another element in some cases.
> - Recommended: Non-mandatory element, but completion is recommended.

Each of these elements will be defined in the following sections of the manual in order to explain its meaning and how to complete it.

Table (1): Metadata elements for the indicator

Element Category	Element Code	Element Name	Mandate
Basic Elements	Element 1	Indicator Code	Mandatory
	Element 2	Indicator Name	Mandatory
	Element 3	Alternative Name	Conditional
	Element 4	Disaggregation/Details Level	Mandatory
	Element 5	Category	Mandatory
	Element 6	Data Source	Mandatory
	Element 7	Dataset Name	Mandatory
	Element 8	Language	Mandatory
Statistical Elements	Element 9	Definition	Mandatory
	Element 10	Calculation Method	Mandatory
	Element 11	Statistical Measurement	Mandatory
	Element 12	Measurement Unit	Mandatory
	Element 13	Multiplier	Mandatory
	Element 14	Methodology	Recommended
	Element 15	Quality	Conditional
	Element 16	The Indicator's Parts	Recommended
	Element 17	Main Use	Recommended
	Element 18	Indicator's Variables	Recommended

Element Category	Element Code	Element Name	Mandate
Time Elements	Element 19	Update Frequency	Mandatory
	Element 20	Reference Period	Mandatory
	Element 21	Calendar Issue Date	Mandatory
	Element 22	Dataset Availability Date	Recommended
	Element 23	Approval Date	Recommended
	Element 24	Issue Date	Mandatory
	Element 25	Modified Date	Recommended
Accessibility Elements	Element 26	Creator	Mandatory
	Element 27	Creator Details	Mandatory
	Element 28	Contributor	Conditional
	Element 29	Contributor Details	Conditional
	Element 30	Mandate	Recommended
	Element 31	Mode of Dissemination	Recommended
	Element 32	Location	Recommended
	Element 33	Audience	Mandatory
General Elements	Element 34	Key Words	Recommended
	Element 35	Comments	Conditional
	Element 36	Additional Metadata	Recommended
	Element 37	The Last Date of Amendment of Core Metadata	Recommended

3 | Description of the Metadata Elements for the Indicator

The following is a description of each of the above-mentioned metadata elements:

3-1 Basic Elements

Element Code	(1)
Element Designation:	Indicator Code
Definition:	It is a unique number of the indicator. The indicator code can represent the domain and subject to which the indicator belongs. The last part of the indicator code can be the serial number of the indicator. The code can be numeric or letters or both.
Mandate of Element:	Mandatory
Example:	The code EC 21 expresses Indicator No. 21 within the economic statistics field EC.

Element Code	(2)
Element Designation:	Indicator Name
Definition:	The official name of the indicator which is approved by the preparing agency. Names of indicators must be clear and understood.
Mandate of Element:	Mandatory
Example:	Unemployment Rate

Element Code	(3)
Element Designation:	Alternative Name
Definition:	The alternative name / names of the indicator which can be exchanged. The element "alternative name" is used in case the indicator is known by another name, or in case "the name" is lately changed while the indicator continues to be known by the former name.
Mandate of Element:	Conditional
Example:	Sex ratio as an alternative name to Gender ratio.

Element Code	(4)
Element Designation:	Disaggregation/Details Level
Definition:	A range of variables used to classify the indicator in case of the need for more details on published indicators.
Mandate of Element:	Mandatory
Example:	Social gender (Male - Female) Region (Abu Dhabi – AL Ain – Western Region)

Element Code	(5)
Element Designation:	Category
Definition:	Classification of statistical subjects and themes to which the indicator belongs. A category includes the theme and subject to which the indicator belongs.
Mandate of Element:	Mandatory
Example:	Theme: Economy Subject: National Accounts

Element Code	(6)
Element Designation:	Data Source
Definition:	This element describes the source of the indicator's data. The different types of sources are given in Appendix No. (1).
Mandate of Element:	Mandatory
Example:	Surveys – Administrative Records

Element Code	(7)
Element Designation:	Dataset Name
Definition:	The title or name of the dataset or database from which the indicator is calculated.
Mandate of Element:	Mandatory
Example:	Census 2011 Database

Element Code	(8)
Element Designation:	Language
Definition:	The language in which the indicator is available to describe its data and content.
Mandate of Element:	Mandatory
Example:	Arabic – English

3-2 Statistical Elements

Element Code	(9)
Element Designation:	Definition
Definition:	A statement describing the basic concept of the indicator
Mandate of Element:	Mandatory
Example:	Marriage rate indicates the number of marriages (not the number of married people) to every 1000 people of the region / country's population in the reference period.

Element Code	(10)
Element Designation:	Calculation Method
Definition:	The mathematical method or formula used to calculate the indicator.
Mandate of Element:	Mandatory
Example:	The relative change in the added value: the added value of economic activities at the current rates for the current year divided by the added value of economic activities at the current price for the previous year multiplied by 100%.

Element Code	(11)
Element Designation:	Statistical Measurement
Definition:	The name of the statistical measure used in the calculation of the indicator, such as (percentage, rate, intermediate, arithmetic average, total summation) or other statistical measurement. See Appendix No. (2)
Mandate of Element:	Mandatory
Example:	Percentage

Element Code	(12)
Element Designation:	Measurement Unit
Definition:	The unit used in the measurement of the indicator
Mandate of Element:	Mandatory
Example:	One death per every 1000 of the population, inch. Millimeter. cm, … etc.

Element Code	(13)
Element Designation:	Multiplier
Definition:	The Factor to be multiplied by the unit used for the calculation of the indicator. See Appendix No. (3)
Mandate of Element:	Mandatory
Example:	Million, Thousand, etc.

Element Code	(14)
Element Designation:	Methodology
Definition:	The special approaches for data collection, processing and analysis, and calculation of indicators. The methodology file - for the preparation of source data from which the indicator is calculated - can be attached.
Mandate of Element:	Recommended
Example:	The document on the "methodology of the Labor force Survey 2016".

Element Code	(15)
Element Designation:	Quality
Definition:	An explanation of the quality of the preparation of the indicator's source data in accordance with quality standards or dimensions. It is recommended to include the most important quality indicators in this element. See Appendix No. (4)
Mandate of Element:	Conditional

Element Code	(16)
Element Designation:	The Indicator's Parts
Definition:	The other statistical indicators on which the calculation of the required indicator depends.
Mandate of Element:	Recommended

Element Code	(17)
Element Designation:	Main Use
Definition:	This element includes the description of the importance of the indicator and its potential uses by the user.
Mandate of Element:	Recommended
Example:	The Index number is an objective standard, an important economic indicator to calculate inflation rates, and an important source of data for many economic institutions when formulating monetary policies and economic plans, and also for measuring the standard of living.

Element Code	(18)
Element Designation:	Indicator's Variables
Definition:	All variables used in the calculation of the indicator.
Mandate of Element:	Recommended
Example:	The number of employees is a variable that is used in the calculation of average of employees' compensations Indicator.

3-3 Time Elements

Element Code	(19)
Element Designation:	Update Frequency
Definition:	The time period between updates to the indicator's data. If the update periodicity of the indicator is changed, the year of change of this periodicity is to be given. This should be mentioned under the element heading of "Comments". See Appendix No. (5).
Mandate of Element:	Mandatory
Example:	Annual – quarterly – monthly

Element Code	(20)
Element Designation:	Reference Period
Definition:	The reference period, or time coverage, to which the indicator's data refers and shows the period associated with the indicator's data.
Mandate of Element:	Mandatory
Example:	September 2016

Element Code	(21)
Element Designation:	Calendar Issue Date
Definition:	The specified date for data dissemination of which the user was informed in advance as part of the statistical release calendar
Mandate of Element:	Mandatory
Example:	January 2017

Element Code	(22)
Element Designation:	Dataset Availability Date
Definition:	The actual date of the availability of the indicator's dataset from the source, or the date of providing data for internal use. It is not necessarily processed and approved.
Mandate of Element:	Recommended
Example:	7/1/2017

Element Code	(23)
Element Designation:	Approval Date
Definition:	The date of approval and final accreditation of data, i.e. when data become available for analysis and calculating of indicators.
Mandate of Element:	Recommended
Example:	1/6/2017

Element Code	(24)
Element Designation:	Issue Date
Definition:	The actual date of publication and issue of data after its approval.
Mandate of Element:	Mandatory
Example:	1/7/2017

Element Code	(25)
Element Designation:	Modified Date
Definition:	Date of amendment of the indicator's value after publication, if any.
Mandate of Element:	Recommended
Example:	15/9/2017

3-4 Accessibility Elements

Element Code	(26)
Element Designation:	Creator
Definition:	The creator entity that is responsible for the preparation of source data for the indicator.
Mandate of Element:	Mandatory
Example:	Statistics Centre – Abu Dhabi (SCAD)

Element Code	(27)
Element Designation:	Creator Details
Definition:	Contact information of the (Government) agency responsible for preparation of the indicator. Personal information included in this element in the metadata should be considered privacy information.
Mandate of Element:	Mandatory
Example:	<table><tr><td>Agency</td><td>Statistics Centre – Abu Dhabi</td></tr><tr><td>Address</td><td>Abu Dhabi – Abu Dhabi Gate district</td></tr><tr><td>Phone Number</td><td>+971 2 8100000</td></tr><tr><td>Email</td><td>www.scad.ae</td></tr><tr><td>Remarks</td><td></td></tr><tr><td>Focal Person</td><td>Ahmed</td></tr></table>

Element Code	(28)
Element Designation:	Contributor
Definition:	The agency contributing or participating in the preparation of the indicator's source data
Mandate of Element:	Conditional
Example:	Judicial Department

Element Code	(29)	
Element Designation:	Contributor Details	
Definition:	Contact details of contributing agency in the preparation of the indicator.	
Mandate of Element:	Conditional	
Example:	Agency	Judicial Department
	Address	Abu Dhabi – Zayed Sports City District
	Phone Number	+971 2 8100000
	Email	www.scad.ae
	Remarks	
	Focal Person	Zaid

Element Code	(30)
Element Designation:	Mandate
Definition:	The legal document or text which gives the indicator's creator entity the legitimacy to issue the indicator.
Mandate of Element:	Recommended
Example:	SCAD conducted the Census in October 2011 in abidance with the decision and directives of the Executive Council as per Decree. 4C No. 2009 /21dated 23 July 2009 regarding the approval of the Proposed Draft Plan and Budget for conducting the Population Census of Abu Dhabi.

Element Code	(31)
Element Designation:	Mode of Dissemination
Definition:	The type of media used to publish the indicator. There is difference between the media through which the indicator is published and the means of archiving and storage of this indicator. See Appendix No. (6)
Mandate of Element:	Recommended
Example:	Through the Website

Element Code	(32)
Element Designation:	Location
Definition:	The determination of the indicator's archiving and storage place, in a database or any other place for storage of the indicator.
Mandate of Element:	Recommended.
Example:	Central Database – Shared folder.

Element Code	(33)
Element Designation:	Audience
Definition:	The category of people authorized to see the indicator, and who are expected to benefit from the indicator. The use of the Audience element supports the identification of the community sector using the indicator's data.
Mandate of Element:	Mandatory.
Example:	SCAD – Government – General

3-5 General Elements

Element Code	(34)
Element Designation:	Key Words
Definition:	Any of the search words indicative of, and associated with, the indicator. The key words can include the equivalents that point to the indicator or the study population targeted by the indicator, and which help to search for the indicator.
Mandate of Element:	Recommended.
Example:	Gross Domestic product; GDP , Gross National Product, GNP.

Element Code	(35)
Element Designation:	Comments
Definition:	Any recommendations or comments on the indicator that lead to its use in a better and clearer way.
Mandate of Element:	Conditional.
Example:	To mention the cases or exceptions relating to the indicator within this element.

Element Code	(36)
Element Designation:	Additional Metadata
Definition:	Any additional information that helps to use and understand the indicator in a better way.It should include any recommended information to be adding it to the indicator's metadata.
Mandate of Element:	Recommended

Element Code	(37)
Element Designation:	The Last Date of Amendment of Core Metadata
Definition:	The date of the last amendment in the core metadata, which includes the change in the indicator's name, indicator's definition, indicator calculation method, multiplier unit and measurement unit. If there are different versions of the indicator, the last version of the metadata should be considered.
Mandate of Element:	Recommended.

4 | Appendices

Appendix No. (1): The Indicator's Source

Ser. No.	Type of Source	Definition
1	Administrative Records	The dataset which generated as a result of administrative operations provided by different agencies, especially government agencies, to individuals, institutions and society.
2	Statistical Survey	It aims to provide statistical data about certain characteristics of a statistical community. Survey sample selected from specific population using probability sampling techniques.
3	Census	A comprehensive counting and data collection in order to provide demographic, economic, and social data for all individuals at a specific moment.
4	Others	The indicator can be derived from special arithmetic operations.

Appendix No. (2): Statistical Measurements

Ser. No.	Standard	Definition
1	Ratio-Rate-Proportion	Is the number which expresses the ratio between two values; i.e. the result of dividing x by y. Example: Gender ratio (number of males / number of females) – population density (population size/ Area of the region) – dependency ratio
2	Percentage	Is a special case of ratio in which the product of the ratio is multiplied by 100 to obtain the percentage. Example: (Total number of males / total population) x 100%.
3	Average (arithmetic mean)	The arithmetic mean is one of the most important measures of central tendency, which is most often used in different cases. It is generally known as the sum of observation values divided by total number of observations. Example: the average compensations of employees – average family income.
4	Median	The number or value that separates the upper half of the ordered distribution of a variable from the lower half. If the number of these values is even, the median is calculated by dividing the sum of the two median numbers. Example: median age.
5	Index number	It is a statistical indicator that measures the relative change that happens to a certain phenomenon, price, quantity, value or wage, in relation to a certain basis, which may be a certain time period or a certain geographic location. It has values as a basis for calculation of the record number. The time or place to which the phenomenon is attributed is named as the base period or place, while the time or place attributed to a time or place is called the comparison.

Ser. No.	Standard	Definition
6	Probability	A mathematical measure of the chance of an occurrence of an event. It is a special case of ratio when the denominator is the total number of the sample space in the beginning of the observatory period. Example: 10 people died in one year from a community comprising 1000 persons at the beginning of the year. The probability of death during that year will be 10 ÷ 1000 or 0.01.
7	Maximum value	The highest value of a statistical distribution of a variable.
8	Minimum Value	The smallest value of a statistical distribution of a variable.
9	Range	The difference between the maximum and minimum values of a variable.
10	Variance	The average of the squares of value deviation from their arithmetic mean.
11	Standard Deviation	The square root of the variance.
12	difference / change	The difference between two values.
13	Quarters	The values that divide the elements of a distribution, which are in ascending order, into 4 equal parts, giving: – The First Quarter (Q1): the value which is higher than the first quarter of elements, and smaller than the three quarters of items. – The Second Quarter (Q2): the value which is higher than the half the value of elements, and smaller than the other half. – The Third Quarter (Q3): the value which is higher than the three quarters of the values, and smaller than the other quarter.

Appendix No. 3: Multiplier

Ser. No.	Multiplication Coefficient	Definition
1	1	One
2	10	Ten
3	100	Hundred
4	1,000	Thousand
5	10,000	Ten thousand

Ser. No.	Multiplication Coefficient	Definition
6	100,000	A hundred thousand
7	1,000,000	Million
8	10,000,000	Ten million
9	100,000,000	A hundred million
10	1,000,000,000	Billion
11		Other than that (Specify)

Appendix No. 4: Quality Standards (Dimension)

Ser. No.	Name	Definition
1	Institutional arrangements supportive quality	This standard measures the appropriateness of the organizational structure and the institutional environment, and the efficiency of data exchange and coordination in statistical operations management in a professional.
2	Relevance	This dimension measures the extent to which statistical data meet users' requirements.
3	Clarity and soundness of Methodology	This dimension measures the consistency of the study methodologies with international, national, and local standards and use of scientifically accepted best practices.
4	Data Accuracy	This standard measures data efficiency and the ability to measure the phenomenon under study. Accuracy is defined in relation to the degree of closeness between the estimated values from the survey and the real values for the population.
5	Consistency and Coherence	This standard measures the consistency of the collected data with the published statistics so that they can be easily compared or integrated, in addition to the comparability between the statistics issued in different periods.
6	Accessibility (of statistics)	This dimension measures how easy it is to access statistical data, results and information, taking into account various means and suitability for all users.
7	Timeliness and punctuality	This dimension measures the time length between the reference time and the reference period. In addition, it includes the punctuality of the released publication according to the approved approve statistical calendar of releases.

Appendix No. (5): Update Frequency

Ser. No.	Name	Definition
1	Daily	Data is updated daily.
2	Weekly	Data is updated weekly.
3	Biweekly	Data is updated biweekly.
4	Monthly	Data is updated monthly.
5	Quarterly	Data is updated quarterly
6	Half-yearly	Data is updated every six months.
7	Annual	Data is updated annually.
8	Every five years	Data is updated every five years.
9	Every specific number of years	Data is updated periodically based on the number of specified years.
10	Irregular	Data is updated in different periods as needed.
11	Non-specified	No date or period is specified for updating data; or it is unknown when it will be updated
12	Not available	in case no information is available about the periodicity of update of the indicator.

Appendix No. (6): Publication Medium

Ser. No.	Name	Definition
1	Online	On the internet
2	Table builder	A tool used to make dynamic tables.
3	Maps	Topographic and geographic maps.

مـركـز الإحـصـاء
STATISTICS CENTRE

الرؤية: ببياناتنا نمضي نحو غدٍ أفضل
Vision: Driven by data for a better tomorrow

www.scad.gov.ae

adstatistics