# GOVERNMENT GAZETTE

## OF THE

# REPUBLIC OF NAMIBIA

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## General Notice

**NAMIBIA STATISTICS AGENCY**

No. 484 2022

NAMIBIA NATIONAL STATISTICS SYSTEM STANDARD
FOR STATISTICAL QUALITY INDICATORS

The Namibia NSS standard for Statistical Quality Indicators was issued by the Statistician-General in line with the provisions of Part VI dealing with the NSS Coordination, section 36 dealing with standards, of the Statistics Act, 2011 (Act No. 9 of 2011).

1. Purpose
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GUIDELINE FOR COMPUTING QUALITY INDICATORS

ACRONYMS



## 1. Purpose

It is important to continually assess, improve and report on the quality of statistical outputs. As such, the "Statistical Quality Indicators Standard" prescribes a standardised method of quality reporting to be followed by all data and statistics producers when releasing statistical products. This is to ensure that the statistical outputs are of high-quality and reliable, and in line with the Namibia Quality Assurance Framework for Statistics (NQAFS).

## 2. Scope and applicability

This standard focused on the indicators required to implement Section D: Managing statistical outputs of the Guidelines for Quality Assurance of a Statistical Undertaking, in the Namibia Quality Assurance Framework for Statistics (NQAFS). The standard is applicable to all data and statistics producers in the NSS who are responsible for producing data and statistics for public consumption.

## 3. Normative reference

The following documents are requisite for the application of this standard:

3.1 Statistics Act, 2011 (Act No. 9 of 2011)
3.2 Namibia Statistics Policy, 2015
3.3 Data Collection, Processing and Dissemination Policy and Practice, 2015
3.4 Code of Practice: Professional and Ethical Standards applicable to Statistics Producers, 2015
3.5 Namibia Quality Assurance Framework for Statistics, 2020

## 4. Glossary

For the execution of this standard, the following definitions applies:

### 4.1 Accessibility

ease and conditions with which statistical information can be obtained.

### 4.2 Accuracy

closeness of estimates to the exact or true values that the statistics were intended to measure.

### 4.3 Coherence

ability to reliably combine statistics and data sets in different ways and for various uses. Consistency is often used as a synonym for coherence.

**4.4 Comparability**

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.

**4.5 Clarity**

availability of appropriate documentation relating to the statistics and the additional assistance that producers make available to users.

**4.6 Punctuality**

time lag between the release date and the target date by which the data or statistics should have been delivered.

**4.7 Timeliness**

lapsed time between the end of a reference period (or a reference date) and the dissemination of data or statistics.

**4.8 Quality**

fitness for use.

**4.9 Relevance**

extent to which the statistics satisfy the needs of the users.

**4.10 Reliability**

closeness of the initially estimated value(s) to the subsequent estimated value(s) if preliminary figures are disseminated.

**5. Requirements**

The following statistical quality indicators referred to as quality indicators shall be used to quantify the level of quality of individual statistical components in numerical values:

**5.1 Relevance**

Quality Indicators:
a) User Satisfaction Rate

**5.2 Accuracy and Reliability**

5.2.1 Sampling Errors

Quality Indicators:
a. Standard Error (SE)
b. Coefficient of Variation (CV)
c. Confidence Interval (CI)

5.2.2 Non-sampling Errors

Quality Indicators:
a. Over-coverage Rate
b. Survey Response Rate
c. Item Non-response Rate

**5.3 Timeliness**

Quality Indicators:
a. Timely release of statistical products

**5.4 Accessibility and Clarity**

Quality Indicators:
a. Metadata Publication
b. Accessibility

**5.5 Coherence and Comparability**

Quality Indicators:
a. Methodological soundness
b. Methodological consistency

## GUIDELINE FOR COMPUTING QUALITY INDICATORS

**ACRONYMS**

| | |
|---|---|
| DQA | Data Quality Assurance |
| NQAFS | Namibia Quality Assurance Framework for Statistics |
| NSA | Namibia Statistics Agency |
| NSS | National Statistics System |
| QI | Quality Indicators |
| SG | Statistician-General |

**1. Introduction**

The Namibia Statistics Agency (NSA) was established in terms of the Statistics Act No. 9 of 2011, with the mandate among others to collect, produce, analyse and disseminate official and other statistics in Namibia. In addition, the Act empowers the NSA to coordinate the National Statistics System (NSS) and for the Statistician-General (SG) to develop and issue statistical guidelines and standards necessary to produce quality statistics for possible designation as "official" statistics. The Data Quality Assurance (DQA) and NSS Coordination department is then tasked with the responsibility to develop and maintain statistical standards, coordination of the NSS and facilitate the assessment process leading to possible designation of statistics as "official" statistics.

It is against this background that the DQA and NSS Coordination department developed a Statistical Quality Indicators (SQI) Standard that prescribes a standardised reporting of quality indicators to be followed by all data producers when releasing statistical products. This is to ensure that the statistical outputs produced conforms to quality as outlined in the Namibia Quality Assurance Framework for Statistics (NQAFS). This guideline is therefore issued as a complementary to the SQI standard. In particular, the guideline seeks to provide

guidance to data producers on quality indicators' descriptions, computational procedures and applicability of the stated quality indicators in the standard. The SQI standard requires data producers to release a set of quality indicators of their statistical outputs as stipulated in the Namibia Quality Assurance Framework for Statistics (NQAFS).

## 2. Quality Indicators' Requirements

In this section, there requirements referred to the set of variables that are required to fully identify and enumerate the indicators. These requirements are listed as follows:

a. Indictor description,
b. Calculation procedures,
c. Applicability and
d. Acceptable level.

Therefore, the quality Indicators are presented following the above requirements.

### 2.1 Relevance

| **2.1.1 User Satisfaction Rate Quality Indicator (USRQI)** | | |
|---|---|---|
| a. | Description | The level at which users are satisfied with the specific statistical product, expressed in percentage.<br><br>The National Statistics System (NSS) division of the Data Quality Assurance and National Statistics System (NSS) Coordination department at the Namibia Statistics Agency (NSA) will be responsible to carry out the "User Satisfaction Survey" on behalf of the institutions within the NSS, including the NSA production departments, as a co-ordination body. |
| b. | Calculation procedure | $\text{USRQI} = \left( \frac{\text{Total number of satisfied users}}{\text{Total number of users in the survey}} \right) * 100\%$ |
| c. | Applicability | User satisfaction rate should be determined for all statistical products, to gauge the relevance of the product to the users. |
| d. | Acceptable level | USRQI ≥ 60% |

### 2.2 Accuracy and Reliability

| **2.2.1 Sampling Error Quality Indicators (SEQI)** | | |
|---|---|---|
| a. | Description | This indicator is the square root of the variance of the estimator. It is to a great extent determined by the sampling error; during the implemen-tation of the survey also random errors contribute to the standard error. A sampling error occurs in survey based or random - based samples. It is the result of the fact that the entire population is not observed in the survey but only a sample thereof. In general, the size of the random error depends on the estimator and sampling design used.<br><br>The standard error is often presented in the form of a Coefficient of Variation (CV) or Confidence Interval (CI).<br><br>The coefficient of variation (CV) is a measure of relative variability, while a Confidence Interval (CI) estimate a range of values defined around a sample statistic. The population parameter is expected to lie within this interval with a specified level of confidence. |

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|---|---|---|
| b. | Calculation procedure | The procedure for calculating sampling errors is defined by the sampling design and the estimator used. Assume a simple random sample of size n was selected from a population with N units and that we would like to estimate the mean value of the variable Y on the basis of the sample. If the unbiased estimator of the mean $\hat{\bar{Y}} = \frac{1}{n}\sum_{i=n}^{n} Y_i$ , is used as the estimator, the unbiased estimator of the sampling error of this estimate is:<br>$\hat{Var}(\hat{\bar{Y}}) = (1 - \frac{n}{N})(\frac{s^2}{n})$,<br>where $s^2 = \frac{1}{n-1}\sum_{i=n}^{n}(\bar{y} - y_i)^2$ , the sample estimation of the population variance of the variable Y.<br><br>Sampling error indicators can be presented in different forms; for this purpose, the standard error, the coefficient of variation and the confidence interval shall be used.<br><br>i. The standard error of the estimate is equal to the square root of the sampling error:<br>$se(\hat{\bar{Y}}) = \sqrt{\hat{Var}(\hat{\bar{Y}})}$<br>ii. The coefficient of variation is defined as the ratio between standard error of the estimate and the estimate itself:<br>$cv(\hat{\bar{Y}}) = \frac{se(\hat{\bar{Y}})}{\hat{\bar{Y}}}$<br>iii. The lower ($L_{lower}$) and the upper ($L_{upper}$) limits of the confidence interval can be further calculated as follows:<br>$L_{lower} = \hat{\bar{Y}} - (1\text{-}\alpha)(se(\hat{\bar{Y}}))$,<br>$L_{upper} = \hat{\bar{Y}} + (1\text{-}\alpha)(se(\hat{\bar{Y}}))$,<br>$\alpha$ is the level of significance |
| c. | Applicability | i. Sampling error is the difference between the actual population parameter value and its sample statistic.<br>ii. Sampling errors can only be computed to statistical processes based on probability samples or other sampling procedures allowing computation of such information. |
| d. | Acceptable level | i. $se(\hat{\bar{Y}}) \leq \alpha$, the smaller $se(\hat{\bar{Y}})$ the more accurate the estimator is<br>ii. $0\% \leq CV \leq 15\%$<br>iii. $90\% \leq C.I.(Level) < 100\%$, based on the level of significance $(\alpha)$ used |

| **2.2.2 Non-sampling Error Quality Indicators (NSEQI)** | | |
|---|---|---|
| a. | Description | i. Over-coverage Rate is the proportion of units accessible via the frame that do not belong to the target population (out-of-scope), calculated as weighted or un-weighted depending on the level of inference sought.<br><br>ii. Survey Response Rate is the number of respondents who completed a survey questionnaire out of the sample total number, expressed as a percentage.<br><br>iii. Item Non-response Rate for a given variable is defined as the (weighted) ratio between in-scope units that have not responded and in-scope units that are required to respond to the particular item. |

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|---|---|---|
| b. | Calculation procedures | i. Over-coverage Rate<br>The rate has three main versions written in one and the same formula as the weighted over-coverage rate $OCr_w$<br>$OCr_w = \frac{\sum_O w_j + (1-\alpha)\sum_Q w_j}{\sum_O w_j + \sum_E w_j + \sum_Q w_j}$,<br>Where;<br>O: set of out-of-scope units (over-coverage, resolved and not belonging to the target population);<br>E: set of in-scope units (resolved units belonging to the target population; eligible units);<br>Q: set of units of unknown eligibility;<br>$W_j$: weight of unit j, described below; and<br>α: the estimated proportion of cases of unknown eligibility that are actually eligible. It should be set equal 1 unless there is strong evidence at country level for assuming otherwise.<br><br>The three main cases are:<br>- Un-weighted rate: $w_j = 1$<br>- Design-weighted rate: $w_j = d_j$ where basically $d_j = 1/\pi_j$, meaning that the design weight is the inverse of the selection probability.<br>- Size-weighted rate: $w_j = d_j\, x_j$ where $x_j$ is the value of a variable X.<br><br>The variable X, which is chosen subjectively, shows the size or importance of the units. The value should be known for all units. X is auxiliary information, often available in the frame.<br><br>For the over-coverage rate the un-weighted and the design-weighted alternatives are the ones mostly used, see Interpretation below.<br><br>The design-weighted rate is mainly used for samples surveys, but it may apply also, e.g., for price index processes or processes with multiple data sources. The weight $d_j$ is a "raising" factor when unit j represents more than itself. Otherwise $d_j$ is equal to one. Hence, when dealing with administrative sources the un-weighted and the size-weighted versions of the rate are normally the interesting one.<br><br>ii. Survey Response Rate<br>$\text{Survey RR} = \frac{\text{Responding Total Number}}{\text{Sample Total Number}} * 100.0\%$<br>The indicator is computed as the total number of the responding item out of the sampled items. This is applicable to the "Sampling without Replacement" procedure, which is recommended for sample-based statistical collection.<br><br>iii. Item Non-response Rate<br>The rate has three main versions written in one and the same formula as the weighted item non-response rate $NR_Yr_w$, which is calculated as follows:<br>$NR_Yr_w^{REQ} = 1 - \frac{\sum_{R_Y} w_j}{\sum_{R_Y} w_j + \sum_{NR_Y} w_j}$,<br>where;<br>$R_Y$: the set of eligible units responding to item Y (as required);<br>$NR_Y$: the set of eligible units not responding to item Y although this item is required. The denominator corresponds to the set of units for which item Y is required. (Other units do not get this item because their answers to earlier items gave them a skip past this item; they were "filtered away".)<br>$W_j$: weight of unit j, described below<br><br>The three main cases are:<br>- Un-weighted rate: $w_j = 1$<br>- Design-weighted rate: $w_j = d_j$ where basically $d_j = 1/\pi_j$, meaning that the design weight is the inverse of the selection probability.<br>- Size-weighted rate: $w_j = d_j$ where $x_j$ is the value of a variable X.<br><br>The variable X, which is chosen subjectively, shows the size or importance of the units and should be known for all units. X is auxiliary information, often available in the frame.<br><br>For the over-coverage rate the un-weighted and the design-weighted alternatives are the ones mostly used, see Interpretation below.<br><br>The design-weighted rate is mainly used for samples surveys, but it may apply also, e.g., for price index processes or processes with multiple data sources. The weight $d_j$ is a "raising" factor when unit j represents more than itself. Otherwise $d_j$ is equal to one. Hence, when dealing with administrative sources the un-weighted and the size-weighted versions of the rate are normally the interesting one. |
| c. | Applicability | **i.** The rate of over-coverage is applicable to all statistical processes, including administrative records.<br><br>**ii.** The Survey Response rate is applicable to all sample-based statistical collection.<br><br>**iii.** The item non-response rate is applicable to all statistical processes (including direct data collection and administrative data; the terminology varies between statistical processes, but the basic principle is the same. |

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| d. | Acceptable level | **i.** Over-coverage rate<br>**o** Social Statistics 5%<br>**o** Economic Statistics 5%<br><br>**ii.** Survey Response rate (Unit-level response rate)<br>**o** Social Statistics RR = 80%<br>**o** Economic Statistics RR = 60%<br>**o** Telephone Survey RR = 40%<br><br>**iii.** Item non-response rate<br>**o** Social Statistics 10%<br>**o** Economic Statistics 10% |

## 2.3 Quality Components: Timeliness

| **2.3.1 Timely Release of Statistical Products Quality Indicator (TRSPQI)** | | |
|---|---|---|
| a. | Description | The indicator measures the time difference between the actual date of the release of the statistical product and the initial date published in the Advance Release Calendar. The indicator does not consider the postponement date, if there's any. |
| b. | Calculation procedure | Let $D_0$ be the date published in the Advance Release Calendar and the publication date of the statistical product is $D_1$, then the indicator is calculated as: TRSP = $D_1 - D_0$ |
| c. | Applicability | The indicator is applicable to all statistical processes. |
| d. | Acceptable level | TRSPQI $\leq 0$ |

## 2.4 Quality Components: Accessibility and Clarity

| **2.4.1 Metadata Publication Quality Indicator (MPQI)** | | |
|---|---|---|
| a. | Description | The indicator assesses whether the published statistical product is accompanied by a completed metadata template. |
| b. | Calculation procedure | The measure involves determining if the Metadata for a statistical product has been published within the prescribed period as per the Data and Statistics Dissemination Standard (within 24 hours). The measure is "Yes" (1) or "No" (0). |
| c. | Applicability | The indicator is applicable to all statistical undertakings. |
| d. | Acceptable level | MPQI = 1 |

| **2.4.2 Accessibility Quality Indicator (AQI)** | | |
|---|---|---|
| a. | Description | The accessibility refers to the ease and conditions with which statistical information can be obtained. |

| | | |
|---|---|---|
| b. | Calculation procedure | The indicator is measured using a set of three (3) questions that track accessibility of statistical information on a website. These are:<br>i. Was the statistical report uploaded on the institutional website or other dissemination platforms within a period of 24 hours from its official release?<br>ii. Was microdata uploaded on the website within 24 hours after the official release of the statistical report?<br>iii. Was a metadata uploaded on the website within 24 hours after the official release of the statistical report?<br><br>The indicator is computed as follows, where n is the total number of applicable questions (n = 3).<br>$\text{AQI} = \left(\frac{\text{Total number of "Yes"}}{3}\right) * 100\%$ |
| c. | Applicability | The indicator is applicable to all statistical undertakings. |
| d. | Acceptable level | AQI = 100% |

## 2.5 Quality Components: Coherence and Comparability

| **2.5.1 Methodological Soundness Quality Indicator (MSQI)** | | |
|---|---|---|
| a. | Description | This indicator refers to the extent at which the methodology used to compile statistics complies with the relevant national and international standards and best practices. |
| b. | Calculation procedure | This indicator is measured using a set of five (5) questions. These questions are drafted to track various aspects related to compliance with relevant national and international standards, classifications and guidelines. The basis for the measure are a '"Yes (1)" or "No (0)". The questions are as follows:<br><br>Was a national or international standard, classifications and guidelines adopted for:<br><br>i. Concepts and definitions?<br><br>If Yes, list them:……<br><br>Classifications (for example: ISIC etc.)?<br><br>If Yes, list them:…….<br><br>Unit of collection (for example: Individuals, households, etc.)?<br><br>If Yes, list them:…….<br><br>Unit of analysis (for example: Individuals, households, etc.)?<br><br>If Yes, list them:……<br><br>Sampling methods (where applicable)?<br><br>If Yes, list them:……<br><br>The indicator is computed as the total number of "Yes" to the above questions by the total number of applicable questions, "n = 5" or "n = 4" if sampling methods is not applicable.<br>$\text{MCQI} = \left(\frac{\text{Sum of "Yes"}}{\text{n}}\right) * 100\%$ |

| | | |
|---|---|---|
| c. | Applicability | The indicator is applicable to all statistical undertakings. |
| d. | Acceptable level | MCQI = 100% |

| **2.5.2 Methodological Consistency Quality Indicator (MCQI)** | | |
|---|---|---|
| a. | Description | This indicator refers to the consistency in the use of national and international standards, classifications and guidelines between identical statistical reports over time (replication/repetitiveness). |
| b. | Calculation procedure | The indicator is traced using eight (8) questions focused on different aspects of a statistical methodology. For consistency it is expected that for a particular statistical report, the indicator retains a "Yes (1)" to all questions as opposed to having a "No (0)". The questions are as follows:<br><br>Are there any changes in:<br>i. Concepts and definitions?<br>ii. Classifications?<br>iii. Unit of collection?<br>iv. Unit of analysis?<br>v. Sampling methods (where applicable)?<br>vi. Data collection procedures (where applicable)?<br>vii. Data processing procedures?<br>viii. Data analysis procedures?<br><br>With n = 8, or n = 7 or n = 6, depending on what questions are applicable. The indicator is computed as follows:<br>$\text{MCQI} = \left(\frac{\text{Total number of "Yes"}}{\text{n}}\right) * 100\%$<br>Where the response is a "No", a proper and valid must be provided as to what necessitates the change in methodology (only those that speaks to changes due to changes in the national or international standards would be valid, e.g. change in the national definition of an informal settlement or new introduced international classifications of goods and services etc.). In the above cases, the response "No" does not necessarily mean inconsistency. |
| c. | Applicability | The indicator is applicable to all statistical undertakings. |
| d. | Acceptable level | MCQI = 100% |

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