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# Best Practice Guidelines for Developing International Statistical Classifications

Draft version prepared by a working group of the Expert Group

# Contents

## Introduction

The purpose of this document is to provide guidelines for best practice in the development, maintenance and implementation of international statistical classifications.

Statistical classification best practice is defined in this document as the general principles and best practice guidelines used in the creation of international statistical classifications. It includes:

- Defining an international statistical classification;
- Describing what is an international statistical classification;
- Components of an international statistical classification;
- Definitions of what constitutes a review of an international statistical classification;
- Guidelines on principles to consider when developing an international statistical classification;
- Criteria for submitting an international statistical classification to become a member of the International Family of Economic and Social Classifications.

## Background

*Why have statistical classifications?*

It is a fundamental need for any Official Statistical System to have standard concepts, definitions and classifications. International statistical classifications are often developed and adopted by international agencies to ensure that there is a standardised and consistent approach to classifying a statistical variable.

Classifications group and organise information meaningfully and systematically usually in exhaustive and structured sets of categories. Classifications are generally developed to support policy making and because of that, to organise and present statistics. A primary purpose of a statistical classification is to provide a simplification of the real world and to provide a useful framework for collecting and analysing data from both statistical and administrative collections, as well as providing a framework for international comparability of and reporting on statistics.

What use is a statistical classification?

Statistical classifications can be used to:

- Collect and organise information;
- Aggregate and disaggregate data sets in a meaningful way for complex analysis
- Present statistical information in a standard way;
- Support policy and decision making

To coordinate the international work on statistical classifications, the United Nations Statistical Commission mandated that an Expert Group on International Economic and Social Classifications be the central coordinating body for “international classification revisions,

reviews of underlying principles and practical proposals to bring about the convergence of existing international and multinational classifications."[1]

[1] Mandate and Organization of the Expert Group on Interrnational Economic and Social Classifications, UNSD ESA/STAT/AC.190/Bk.3 1999

## Defining a statistical classification

This part of the document defines a statistical classification and introduces the essential components and guidelines for their use.

*What is a statistical classification?*

Generally a statistical classification is created to group a set of related categories in a meaningful, systematic and standard format. The statistical classification is usually exhaustive, has mutually exclusive and well-described categories, and has either a hierarchical structure or a flat structure. A statistical classification usually contains codes and descriptors.

*Definition of a statistical classification*

The United Nations Statistical Commission endorsed the following definition for use by national statistical agencies:

*"A statistical classification is a classification having a set of discrete categories, which may be assigned to a specific variable registered in a statistical survey or in an administrative file, and used in the production and presentation of statistics."*

Eurostat defines a classification as:

*"A classification is a set of discrete, exhaustive and mutually exclusive observations, which can be assigned to one or more variables to be measured in the collation and/or presentation of data. The terms "classification" and "nomenclature" are often used interchangeably, despite the definition of a "nomenclature" being narrower than that of a "classification."*

In simple terms a classification is a means of putting like things together in a logical and commonsense way that enables collection and production of statistics on a particular variable. Often the classification is the name which serves as an umbrella for the classification version(s).

*Practices and principles of statistical classifications*

The United Nations Statistical Commission has also endorsed the following set of principles surrounding why statistical classifications are developed or revised. (See 'Standard Statistical Classifications: Basic Principles' by Eivind Hoffmann, Bureau of Statistics, International Labour Office and Mary Chamie, United Nations Statistics Division)

These principles set out the basic established practices:

- The objectives and statistical priorities to be served must be clearly stated;
- The organisation responsible for the preparation and maintenance of a classification should be clearly identified and responsibilities stated;
- A timetable for the work must be well publicised and allow substantive experts who are users and producers of statistics, to contribute to the process at appropriate moments;

- A well-defined classification structure must be prepared. Depending on descriptive and analytical needs, aggregated categories of statistical classifications may be organised in a hierarchy representing different levels of detail for measurement of the variable;
- Descriptive definitions or exhaustive listings of the contents of the defined categories are needed. Listings will not be needed for aggregate groups when the codes are constructed to make transparent where the correspondent groups are located in the hierarchical structure;
- Instructions are needed on effective use of classifications for data collection and analysis;
- Guidance and training materials are a necessary part of the development process for a new or revised classification.

*Essential components of a statistical classification*

- A consistent conceptual basis;
- A flat or hierarchic structure;
- Categories are mutually exclusive and exhaustive;
- Definitions are clear and unambiguous;
- Is up-to-date and relevant;
- Is robust enough to last for a period of time;
- Meets user needs;
- Provides comparability over time and between collections;
- Provides guidelines for coding and output of data collected using it;

A statistical classification is one that follows prescribed rules and guidelines which are generally recommended and accepted. They ensure that the information is classified consistently and can be developed and/or owned by any international agency. For example, the International Standard Classification of Occupations (ISCO) is developed and/or owned by the International Labour Organisation; the International Classification of Diseases is developed and/or owned by the World Health Organisation.

## Criteria to become a member of the International Family of Economic and Social Classifications

In order for an international statistical classification to become a member of the International Family of Economic and Social Classifications the following criteria must be met:

### *1. Custodian of the classification*

There must be a custodian for the classification.

The custodian of an international statistical classification can be:

- the international agency or organisation that is responsible for the classification in a subject matter capacity, for example WHO for health classifications or UNESCO for education classifications;
- the international agency or organisation that is responsible for coordinating the development, review or implementation of the classification, for example UN Statistics Division, International Labour Organisation;
- or any combination of the above.

The classification custodian should work with other custodians of International Economic and Social classifications to improve the relationship between the agencies and organisations, and/or the classifications themselves. It is important that the custodians recognise commonalities across classifications to ensure consistency in treatment of specific categories or classes.

### *2. Primary use of the classification*

The primary use of the classification must detail the uses of the classification in both the statistical and non-statistical environment and the rationale for developing the classification.

In the statistical environment, the primary use of the classification is to provide a framework upon which data can be developed, produced and published.

In a non-statistical environment, a statistical classification may be used in a way for which it was not originally intended. For example, an occupation classification may be used by a job-seeker to ascertain information about specific occupations to assist them in obtaining a job, or for classifying skills within the labour force.

The rationale of the classification should detail what the classification is for, for example a framework for the compilation and analysis of industry statistics.

### *3. Underlying concepts used in this classification*

The major concepts that are used for developing the classification must be defined so that users are clear about what the classification is measuring.

This section should detail how the different levels of the classification are developed or defined i.e. what concepts are used to define each level. For example an industry classification will be built on a broad concept of production orientation or supply-based demand. The detailed industries that are assigned to each broad grouping will be differentiated by taking into account the inputs, process and technology of production, the characteristics of the outputs and the predominant activity etc

***4. Statistical Unit***

The statistical unit being measured by the classification must be clearly defined as this defines the scope of the classification.

Statistical units are the units of observation or measurement for which data are collected or derived.

The statistical unit must be suitable for data compilation and aggregation, and enable consistency across entities and be internationally comparable. Statistical units can be defined following many criteria and consist of an individual, household, activity, enterprise or product etc.

***5. Scope of the classification***

The scope of the classification must define what the classification is covering, for example the labour force, the economy, the population, sector etc, or a predetermined subset of those.

The scope must also identify consistencies with accepted international standards or practices. This is to facilitate international comparability and to enable use of international concepts and principles where applicable to the national context.

***6. Proposed structure of the classification***

The classification must either be a flat (one level) classification or a hierarchic (multi-level) classification.

***7. Number of levels for the classification structure***

A classification level is a set of categories which subdivide to the required detail of the population being classified.

The classification should only contain sufficient levels to enable accurate classification of the statistical units being classified. For hierarchic classifications the levels need to be able to be easily aggregated from detailed to broadest level and the structure should reflect exhaustive coverage of the categories required to meet the scope of the classification. Compromises may need to be made for reasons of statistical feasibility, statistical balance, compatibility with other statistical concepts and classifications, comparability with international standards in designing the number of levels.

### *8. Classification categories*

The names chosen for the categories must be precise and accurate and reflect relevance and user understanding. The titles should clearly articulate, if possible, the scope of the category.

The categories must be mutually exclusive and the classification itself should be exhaustive in coverage, or as exhaustive as is required.

### *9. Code structure*

The code structure for the classification must be easy to understand, consistent and follow a logical and sequential pattern for hierarchical classifications and reflect the number of levels required.

The simplest code structures are based on numeric sequences. However it is important to define whether the classification requires any special code conventions and should detail the rationale behind the code structure i.e. if it is alphanumeric, numeric or alpha and the reasons for choosing such a pattern.

The need for supplementary codes for operational purposes or residual categories needs to be clearly detailed. For example a classification code structure may need to incorporate categories to enable coding for non-response, outside scope or unidentifiable responses.

Supplementary codes may also comprise not further defined or not elsewhere classified codes.

### *10. Statistical balance*

Generally a classification used for disseminating statistics should not have categories at the same level in its hierarchy which are too disparate in their size. Where statistical balance is required or used then the criteria being used for this needs to be documented. Statistical balance usually minimises large variations in standard errors and the suppression of cells in statistical tables especially when outputting data from sample surveys.

In classifying the real world however it may not always be feasible to have a statistically balanced classification as in an international context one classification can be balanced for a country and unbalanced for another.

### *11. User consultation*

Full consultation with national statistical offices and relevant international agencies and classification experts must be undertaken to ensure that the classification meets the needs of the international community.

### *12. Testing of the classification*

The classification has to have been widely discussed and tested (generally by national statistical offices) using a broad range of international data to ensure suitability for use in developed and developing countries.

### *13. Concordances (or correspondences)*

In order for a classification to be accepted as a member of the International Family of Economic and Social classifications, concordances (or correspondences) must be established between relevant classifications.

The mitigation of time-series issues for users is an important criterion when introducing a new or revised classification.

The listing of appropriate concordances (or correspondences) should be considered and endorsed by the UN Expert Group.

### *14. Implementation Plans*

The classification must have a clear and timetabled implementation plan or strategy. This strategy should be initiated at the start of the development process for the classification. The implementation plan should ensure that:

- Stakeholders have confidence in the classification and users trust the statistics and analyses produced by the classification;
- Transition to a new classification is well coordinated and communicated;
- The classification is implemented in a coordinated way without impacting on data quality;
- There is material that supports the use of the classification and which is freely available to all users.

The Implementation Plan should also detail that the classification is:

- Implemented as an international standard classification;
- Implemented in a timely and quality manner using robust methods;
- Implemented by synchronising work with other custodians of international standard classifications and by leveraging off other international strategic initiatives;
- Implemented using common approaches;
- Implemented with agreement by a range of countries (as appropriate)

The process of decision should be well documented in order that the decisions taken are transparent.

### *15. Maintenance Schedule*

There must be a clearly articulated maintenance schedule established for the classification outlining the timeframe for reviews and/or the scope of such reviews (i.e. minor or major). The maintenance schedule should be created by the custodian of the classification in consultation with national statistical offices, the Expert Group on International Economic and Social Classifications, UN Statistics Division and subject to direction from the UN Statistical Commission or governing bodies of international agencies, based on the intended scope of the review.

Timings for reviews will depend on many circumstances. Often reviews are timed to coincide with the international round of population censuses (ten yearly cycle). Others may be on a four to five yearly review cycle e.g. Harmonised System. Major classifications (such as ISIC or ISCO) should be reviewed on a fifteen year cycle. Some reviews are based upon real world change

The timetable for maintenance and/or review should be communicated well in advance to international users to enable forward planning by national statistical offices to ensure that all appropriate changes are accounted for. This would include plans for updating or backcasting business registers; updating coding tools and/or dual coding options, survey weighting changes, sample frame size changes and time-series management.

The maintenance schedule must be endorsed by the UN Expert Group and/or approved by the UN Statistical Commission.

Refer to Appendix One for the scope of reviews.

### *16. Dissemination*

The classification and supporting guides, coding tools etc must be freely available either from a centralised website or from the custodians own website, if appropriate. Formats for dissemination should be discussed with relevant parties at the beginning of the development cycle for the classification.

## Guidelines on principles to consider when developing a statistical classification

This section provides guidelines on what principles to consider when developing a statistical classification.

Any statistical classification must be relevant and easily understood by all users. There must be

### *1. Custodians*

The custodianship of international statistical classifications generally resides with the United Nations Statistics Division. A number of major international classifications are owned and under the custodianship of key international agencies e.g. WHO, ILO, UNESCO, ISO.

In consultation with international statistical agencies, the custodians of international classifications are responsible for the development, maintenance of the classifications they own. The custodians are also responsible for overseeing the implementation of international classifications in relevant countries and national statistical agencies.

Custodians are required to present international classifications to the Expert Group on International Economic and Social Classifications to ensure that best practice principles are applied. The Expert Group will also ensure that the criteria to become a member of the International Family of Economic and Social Classifications are adhered to.

### *2. Conceptual basis*

It is important that for any statistical classification it is based upon sound and agreed concepts and principles. These must be sorted out before any development work is begun. The concepts form the basis of the explanatory notes for everything included in the statistical classification and explain why the approaches taken have in fact been undertaken.

- Concepts should be well defined and documented to enable users to understand what the classification is about;
- Concepts are used for categorising, interpreting and structuring the classification;
- Concepts are an essential component in enabling the creation of a sound and logical structure and for making sense of the classification;
- Concepts may be based on principles or concepts developed through international collaboration and the production of an agreed international standard – usually coordinated by the UN Statistics Division;
- Concepts may result from stakeholder agreement or agreement between statistical agencies;
- Concepts are mandatory for flat and hierarchic classifications.

### *3. Classification Structures*

Classifications are either structured as flat classifications (simple listing of categories) or hierarchic classifications (a logical hierarchy of categories range from detailed to broad levels).

There are no really hard and fast rules for when to use which type of classification. However the structure should be created in such a way that the most detailed categories are at the bottom or lowest level of an hierarchical classification.

*(a) Flat*

A flat classification has only one level to it i.e. it is a listing of categories. Flat classifications are usually developed when there is no need to group categories into more broad levels. Each category however must be mutually exclusive and the classification must be exhaustive or at least as exhaustive as necessary to meet the needs of the data users.

Examples of flat classifications are:

Age;
Sex.

A flat classification may also be referred to as a linear classification.

***Guideline:*** A flat classification should be used when a simple listing is required or when there is no requirement to aggregate or group categories into more meaningful categories.

*(b) Hierarchic*

A hierarchic classification is a statistical classification with more than one level. These are usually structured like a pyramid with the most general categories at the top and the most detailed categories at the bottom. Each level can be used for classifying a survey response independently of the other levels.

Examples of hierarchic classifications are:

International Standard Industrial Classification (ISIC);
Central Product Classification (CPC).

***Guideline:*** A hierarchic classification should be used when there is a requirement to aggregate or group categories into more meaningful categories, and when there is extensive detail needing categorising.

### *4. Classification Types*

*(a) International Classification*

An international classification is generally regarded as one developed by an international agency such as the United Nations Statistical Division (UNSD), International Standards Organisation (ISO), International Labour Organisation (ILO) or World Health Organisation (WHO).

The aim of international classifications is to provide a common framework for collecting information about a particular variable. This facilitates the comparability of data between countries and these classifications have generally had extensive international consultation during their development process.

***Guideline:*** An international classification may require modifying to meet country specific conditions as it is not always possible that the classification can be used as it was developed i.e there may be lots of categories put in for international use which don't apply in a country specific.

Concordances (which map or link classifications together) are mandatory between international classifications to facilitate international reporting requirements and to enable time-series management.

*(b) Harmonised Classification*

A Harmonised Classification is developed to make it possible to combine or compare data between countries using the same conceptual and structural base.

Generally harmonisation is done to the detailed level of a hierarchic classification however it may be that the classification is only harmonised to a particular level with divergence for country specific requirements at the lower levels. This latter step isn't a recommended approach.

A harmonised classification can be either a flat or hierarchic classification.

### *5. Mutual Exclusivity*

Categories in a statistical classification need to be mutually exclusive and exhaustive i.e. each member of a population, or each survey response is only able to be classified to one category without duplication or omission; and that all occurrences can be assigned a category in the classification.

A classification which is not mutually exclusive will enable a response or subject to be classified to more than one category, which will confuse users and not enable the statistical classification to be accurately used.

***Guideline:*** Mutual exclusivity is mandatory for both flat and hierarchic classifications.

### *6. Exhaustiveness*

Exhaustiveness should be obtained wherever possible although this will be framed by the requirement to meet user needs for the variable or subject being classified. Surplus or unnecessary categories often hamper the effectiveness and usefulness of the classification

***Guideline:*** A classification should be exhaustive only in the context that it enables classification of every occurrence of a category that occurs in a certain population or economy.

### *7. Statistical Balance*

Statistical balance is an optional attribute of a statistical classification. In general a classification should not have categories at the same level in its hierarchy which are too disparate in their population size. Statistical balance also allows a classification to be used effectively for the cross-tabulation of aggregate data.

***Guideline:*** Statistical classifications will not always be nicely statistically balanced. Forcing classification categories to conform to size limitations can mean that the categories will not always be meaningful or useful.

### *8. Statistical Feasibility*

The statistical feasibility of a statistical classification means that it is possible to accurately and consistently distinguish between the categories in the classification on the basis of responses to survey questions which can reasonably be asked in statistical collections.

***Guideline:*** Statistical feasibility is a fundamental aspect of a statistical classification. The majority of survey responses should be able to be easily classified to the classification.

### *9. Statistical Units*

Statistical units are the units of observation or measurement for which data are collected or derived. Statistical units can be people, products, businesses, geographic areas etc.

***Guideline:*** It is essential to clearly define the statistical unit being measured or classified as this then defines the scope (or coverage) of the classification i.e. what units are in scope compared to those which should be excluded, thus facilitating the design of the classification structure.

### *10. Time-Series Comparability*

In developing a statistical classification, consideration must be given to ensuring comparability over time between current and previous classifications. Extensive time-series breaks should be avoided but sometimes this is necessary. Time-series can be managed through the use of concordances (which map or link classifications together).

## Components of a Classification

This section outlines the components required when creating a standard classification.

*Classification Title*

The classification title is the formal title associated with the classification. Examples of naming are:

International Standard Industrial Classification (ISIC)
International Standard Classification of Education (ISCED)
Central Product Classification (CPC)
Standard International Trade Classification (SITC)

For display in a web environment where information is generally in a sequential list, examples to facilitate finding by a user, could be

Industry, International Standard Classification of
Education, International Standard Classification of
Products, Standard Classification of

***Guideline:*** Title conventions are as listed below:

"International Standard Classification of...."
"Standard International ..... Classification"

*Classification Identifier*

This is usually the abbreviation associated with the classification. Examples would be:

ISIC
ISCO
CPC
BEC

*Classification Version*

A classification version is a list of mutually exclusive categories representing the classification variable for a particular period of time. For a hierarchic classification, each level of the classification needs to be mutually exclusive.

A version is valid for a given period of time. Usually new versions are created on a frequency that doesn't provide too much time-series disruption but enables measurement of real world changes.

A new version usually only adds or deletes categories at the lowest level of a classification and does not reflect conceptual or principle changes. This latter aspect would result in a completely new classification.

A new version may be created:

(a) annually to allow for updates noted during the calendar year;
(b) on demand – which may be user-driven and occur frequently (e.g. monthly or annually);
(c) on a specified review period (e.g. five or ten years depending on the scope of changes.

Refer to Appendix One for definitions of updates and reviews.

The need for new versions after a ten yearly period often means that a new classification is required because the scope and principles may need reviewing. International classifications need to be reviewed on a regular cyclical basis with a maximum period between major reviews of 15 years.

A new version of a classification should be created to reflect real world change or where there is a change to structure or content. For example a new version should be created when new categories are required, old categories deleted, or where the statistical unit being classified changes.

***Guideline:*** A new classification should be developed when the scope, concepts or structure change, not just because of the addition of new or deletion of old codes and/or descriptors.

*Classification Levels*

A classification structure is composed of one (flat classification) or several levels (hierarchic classification). The bottom level is always the most detailed level i.e. has the most specific information for classifying the statistical unit. This detailed level should then be able to be aggregated into broader levels depending on the number of levels in the classification.

***Guideline:*** The number of levels required should be kept to a minimum if possible i.e. only have as many levels as required to give the users the detail they need. Hierarchic classifications usually require no more than 5 levels but cannot have more than 9 levels.

**NB:** It should be noted that code patterns become more difficult to create the more levels a classification has.

*Codes*

Codes consist of one or more alphabetical or numerical characters assigned to a category in a classification. A code may also consist of a combination of alphabetical or numerical characters.

There are no standard criteria for when to use alphabetical codes versus numerical codes. Numerical codes are more useful particularly when creating logical and sequential hierarchical classifications. However leading zeros might be required to ensure a standard code pattern.

Code patterns need to be consistent and logical for each level they are used. For level one of a hierarchic classification the code pattern should be 1; for level 2 it should be 12, for level 3 it should be 123 - i.e. a logical hierarchic structure. This does not preclude using other patterns but these provide difficulties in linking one level to another (e.g. the use of roman numerals followed by alpha characters followed by alpha-numeric characters would not be advisable.

Sometimes codes will have '.' in them. An example would be in the Harmonised System Classification. The '.' provides a delimiter at a specific level. It isn't required generally.

The code structure should be robust enough that the addition of new codes can be done in the future.

***Guideline:*** Every category in a classification must have a code and code patterns need to be consistent and logical for each level they are used.

*Descriptors*

Descriptors are usually a one line text describing the category of the classification. These should have a maximum length of 254 characters – this maximum is decided by operational constraints of computer systems but descriptors can be longer if required to clearly describe the category of the classification Classifications with longer descriptors sometimes have to be treated differently to accommodate the long descriptors.

The descriptor should be meaningful and illustrate with certainty the exact content of the category. Each descriptor should be meaningful on its own.

***Guideline:*** A default descriptor length is usually set at 80 characters with an ideal maximum of 254 characters but descriptors can be longer if required to clearly describe the category of the classification. However descriptors of more than 254 characters should be avoided if at all possible.

*Definitions*

Definitions provide supporting information about the classification category. Often they are statements clearly defining the category or they may be statements which assist users in determining the boundaries of the category. It may explain the content by giving examples of inclusions and exclusions, or provide rules or guidelines for how to use that particular category.

***Guideline:*** Definitions are optional for all classifications but are usually included in larger classifications such as industry or occupation where further definition of categories is required.

*Synonyms/codefiles*

Synonyms are probable survey responses and these are stored with the classification category to which they belong. Synonyms are used for generating or creating codefiles for processing survey responses.

A codefile is used to allocate a classification code to a survey response.

Codefiles usually contain descriptions obtained from a variety of sources which include specific survey responses and misspellings. Codefiles can be used for automated coding and operator intervention coding.

*Residual categories*

Residual categories capture responses that do not fit into the classification categories for the concept being classified. Examples of residual categories are outlined in Appendix 2 of this paper.

## Other Issues/Definitions

*Concordances/Correspondence Tables*

A concordance (or correspondence table) provides a linking between different versions of classifications or between different classifications. A concordance (or correspondence table) details how a category in one classification relates, or links to, the new classification. Sometimes the category doesn't change across classifications, sometimes the category splits into many categories in the new classification, and sometimes it disappears altogether.

A concordance (or correspondence table) can consist of the following relationships:

One to many (1:m)
Many to One (m:1)
Many to many (m:m)

A concordance (or correspondence table) is a mandatory requirement between versions of international classifications e.g. ISIC Rev 3 to ISIC Rev 4, or CPC V1.0 to CPC V2.0.

A concordance (or correspondence table) between different international classifications is mandatory where this is relevant and where there has been an existing history of creating them e.g. ISIC to CPC; ISIC to HS.

However the mapping of different international classifications to each other is also dependent on user need i.e. it s no point creating a concordance (or correspondence table) unless there is a demand for it e.g. SITC to BEC, or ISCO08 to ISCED.

*Units of Measure*

Units of measure are often associated with statistical classifications used for the production of trade and/or commodity data. Units of Measure are a way of quantifying the units being classified, and are part of the basic category definition. The units usually correspond to international standard codes and definitions for weights and measure based on ISO 1000 or the International System of Units (SI). The units may be associated with the classification units or the data produced from the classification.

*Alphabetic Indexes*

Published classifications should contain a comprehensive alphabetic index which provides a listing of the classification descriptors and related synonyms or phrases relating to the classification categories. The index can contain reverse entries if desired and will form the basis of any coding index used for survey processing.

*Coding Decisions/Case Law/Determinations*

It is essential to record and make easily available any coding decisions, case laws or determinations which assist users with using the classification. These decisions usually provide an agreed interpretation of:

- how to classify new classification categories which have arisen since the classification was released (and should be noted for inclusion at the next review);
- how to classify difficult or unusual categories that are not dealt with by the existing classification;
- how to classify categories for which there has been varied interpretations by users (i.e. to get consistent treatment);
- how to code specific survey responses using a coding index;
- administrative or legal interpretations through case law or legislation in a specific country.

## Glossary

*Classification Identifier:*
A classification identifier is usually the abbreviation associated with the classification.

*Classification Level:*
A classification structure is composed of one or several levels.

*Classification Title*
A classification title is the formal title associated with the classification.

*Classification Version:*
A classification version is a list of mutually exclusive categories representing the classification variable.

*Code:*
A code is an alphabetical or numerical character assigned to a descriptor in a classification.

*Codefile:*
A codefile is a listing of probable survey responses obtained from a variety of sources which include specific survey responses and misspellings.

*Concordance:*
A concordance provides a linking between versions or between classifications.

*Exhaustiveness*
The classification includes all the categories necessary to meet user needs for the variable or subject being classified.

*Flat Classification:*
A classification of only one level.

*Hierarchic Classification:*
A classification with more than one level.

*International Classification:*
An international classification is generally regarded as one developed by an international agency.

*Mutual Exclusivity:*
Mutual exclusivity is where each member of a population or each survey response is only able to be classified to one category without duplication or omission.

*Standard Classification:*
A classification that follows prescribed rules and guidelines which are generally recommended and accepted.

*Statistical Classification:*
A classification created to group a set of related categories in a meaningful, systematic and standard format for the collection and dissemination of statistical data.

*Statistical Balance*
Statistical balance means that categories in the classification are not too disparate in their population size.

*Statistical Feasibility*
Statistical feasibility means that it is possible to accurately and consistently distinguish between categories in the classification on the basis of responses to survey questions which can reasonably be asked in statistical collections.

*Statistical Units*
Statistical units are the units of observation or measurement for which data are collected or derived.

## Appendix One: Terminology for Revisions

There are three types of review that can be undertaken for any international statistical classification. These are:

- Classification Update
- Classification Minor Review
- Classification Major Review

An update is deemed to be an immediate change, a minor review is scheduled maintenance usually on a 4-5 year cycle, and major review is scheduled maintenance/development on a ten yearly cycle.

### Classification Update

A classification update occurs for operational reasons ie an immediate response to reflect needs in administrative collections or because of legislative change.

A classification update **does not** alter the conceptual base of a classification and should only have very minimal impact on the classification structure (particularly if a hierarchical classification).

An example of a classification update would be where a country changes its name but doesn't change its classification code; or where a minor correction for spelling may be needed.

### Classification Minor Review

A classification minor review occurs on a regular schedule as agreed with stakeholders and/or the international community, and as work programmes and resources allow. The scope of a classification minor review may include some or all of the following:

- clarification of category definitions including the addition or deletion within categories at the lowest level of a classification of primary activities, alternative titles or specialisations;
- inclusion of emerging and/or new categories at the lowest level of a classification to reflect real world change or, for example to split categories such as not elsewhere classified.

A classification minor review will usually occur on a 4-5 yearly cycle after a major review unless a shorter time-frame is required, and usually will occur between population censuses. A classification minor review **does not** alter the conceptual base of a classification, may change the classification structure at the lowest level (of an hierarchical classification) but does not change higher levels of a classification.

**Classification Major Review**

A classification major review occurs on a regular schedule as agreed with stakeholders or users and/or as the international work programme and resource allow, or if there is a need for a significant change to an international classification as a result of real world change.

A classification major review may include some or all of the following:

- conceptual changes
- structural changes
- definitional changes including clarification of category scope and revision of any inclusions or exclusions

A classification major review will occur on a ten - fifteen year cycle subject to stakeholder requirement/need, real world change, and/or an agreed review cycle/strategy as determine by the Expert Group on International Economic and Social Classifications, or UNSD.

## Appendix Two: Residual Categories

Residual categories may be broadly described as universal classification categories that capture particular types of survey responses. For example, non-response is common to all surveys, and a standard residual category descriptor may be used to identify this type of response (eg "not stated"). Where it is known a respondent purposefully chose not to respond, the residual category "refused to answer" should be used.

Residual categories are also used to describe several other common response types. These include:

- illegible responses ("response unidentifiable")
- responses which are vague, ambiguous, contradictory, or that contain insufficient detail to confidently code to a specific category ("response unidentifiable")
- meaningful responses outside the scope of the classification ("response outside scope")

In addition, the residual categories "not elsewhere classified" and "not further defined" are often used in conjunction with other terms to capture survey responses that cannot be specifically coded.

**Specific Residual Categories**

Not Further Defined (nfd)

This is used in hierarchical classifications for responses containing insufficient detail to be classified to the most detailed level of a classification, but which can be classified to a less detailed category further up the hierarchy.

Not further defined codes are usually constructed by taking the classification code for the level to which the category is being classified and adding trailing zeros for the remainder of the code. Thus, not further defined categories always end with a “0

Not further defined codes can be applied to all but the bottom level of any hierarchical classification if required.

Not Elsewhere Classified (nec)

This is a residual category used for responses for which no appropriate category exists. Such responses are usually infrequent or unanticipated.

Not elsewhere classified categories always end with a “9”.

Not Stated/Not Specified

This category is only used where a respondent has not given any response to the question asked, ie it is solely for non-response.

Refused to Answer

This category is only used when it is known that the respondent has purposefully chosen not to respond to the question.

Its use is most applicable in face-to-face or telephone interviews, but may be used in self-completed questionnaires if the respondent has clearly indicated they refuse or object to answering the question.

It is presented as "Refused to Answer" in classifications and output.

*Alternative titles*
"Object to answering this question" is an appropriate alternative title that can be used in classifications, question modules and output.

Response Outside Scope

This category is used for responses that are positively identified (ie the meaning and the intent are clear) but which clearly fall outside the scope of the classification/topic as defined in the standard.

Not applicable is an acceptable alternative titles.

Response Unidentifiable

This category is used when there is a response given, but:

- the response is illegible, or
- it is unclear what the meaning or intent of the response is - this most commonly occurs when the response being classified contains insufficient detail, is ambiguous or is vague, or
- the response is contradictory eg, both the yes and no tick boxes have been ticked, or
- the response is clear and seemingly within the scope of the classification but cannot be coded because no suitable option (particularly other residual category options such as "not elsewhere classified" or "not further defined") exists in the classification or codefile.

Repeated Value

Use of this category is discretionary. It is only used for questions that allow multiple responses. It is used when a respondent has given two responses that have the same code. This may be two written responses, or one tick box response and one written response.

Repeated value responses can also be an indication of dissatisfaction with tick box category labels.

Don't Know

Use of this category is discretionary. The use of a category capturing don't know responses is most applicable to household surveys where don't know may be a legitimate response to certain questions.

## Appendix Three: Questions to ask when considering creating a classification

- Why is this classification required?
- Where is the classification going to be used, for what purpose, and by whom?
- Would standardisation improve the quality of the data, or benefit the users of the data?
- Have users or producers of the statistics requested a standard classification?
- Do a range of collections or outputs use the variable?
- Could there be savings, improved data quality, greater use made of data across countries if a standard classification was applied to all international data sets?
- Are users frequently confused by terminology, output categories or definitions for this variable (excluding confusion created by lack of documentation)?
- Is it a completely new classification or a review of an existing classification?
- Is it important to maintain comparability between the new classification and the preceding one?
- How have national statistical agencies classified the variable?
- What are the user requirements?
- Identify and define the concepts and statistical unit being measured by the classification?
- How will the classification be maintained and supported?
- Who is the custodian of the classification?

## Appendix Four: Checklist for Developing a Statistical Classification

1. Status of the classification
   Is the classification a standard or survey specific classification?
   What should the name be?

2. Which surveys will use this classification?
   Is it survey specific?
   Will it be used in both sample surveys and censuses?
   Does it have non-statistical applications?

3. What are the underlying concepts used in this classification?
   How are the concepts defined?
   What are the statistical units being classified?
   What are the reporting units?
   Are there other concepts which are closely linked to the classification?

4. Scope of the classification
   What is the scope of the classification?

5. Primary uses of the classification
   Is the primary use of the classification as a collection and processing tool?
   Is the primary use of the classification as a tool for statistical analysis?
   Is the primary use of the classification as a framework for the organisation of information and as an information source in its own right?

6. User Consultation
   Should a reference group of key users be established? (This group determines content, scope and structure).
   Should a statistical advisory group of stakeholders be established? (This group determines the suitability of the data produced from the classification).
   How will conflicting user requirements or applications be resolved?

7. What are the classification criteria?
   Are they compatible?
   Why were they chosen?
   What compromises were made to meet special requirements of particular users of applications?

8. Structure of the classification
   Does the structure have the appropriate number of levels?
   What compromises are made for reasons of statistical feasibility, statistical balance, compatibility with other statistical concepts and classifications, comparability with international standards?

9. Are the proposed categories well defined?
   Are they mutually exclusive and/or exhaustive?

Are the names chosen for categories precise and appropriate?

10. Appropriateness of code structure
    Is the code structure appropriate?
    Are there any special code conventions proposed or required?
    Are supplementary codes required?
    Are residual categories used appropriately?

11. Relationship with other classifications
    Are there any relevant international standards?
    What is the relationship between the classification and any other classification?

12. Statistical Balance
    Will the classification result in output that is statistically balanced?
    Will the design of the classification include the setting of any ideal minimum sizes for categories at each level?