# PART I

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# Nature, objectives and development of ISCO-08 1

1.1 Overview of ISCO-08

1. The International Standard Classification of Occupations 2008 (ISCO-08) provides a system for classifying and aggregating occupational information obtained by means of statistical censuses and surveys, as well as from administrative records. It is a revision of the International Standard Classification of Occupations 1988 (ISCO-88), which it supersedes.
2. ISCO-08 is a four-level hierarchically structured classification that allows all jobs in the world to be classified into 436 unit groups. These groups form the most detailed level of the classification structure and are aggregated into 130 minor groups, 43 sub-major groups and 10 major groups, based on their similarity in terms of the skill level and skill specialization required for the jobs. This allows the production of relatively detailed internationally comparable data as well as summary information for only 10 groups at the highest level of aggregation.
3. The classification was adopted by a tripartite Meeting of Experts on Labour Statistics on updating the International Standard Classification of Occupations (ISCO) held from 3 to 6 December 2007. This meeting was convened by the Governing Body of the International Labour Office in accordance with a resolution, in 2003, of the Seventeenth International Conference of Labour Statisticians (ICLS). In this resolution, endorsed by the Governing Body in March 2004, the International Labour Office (ILO) was requested to update ISCO by late 2007 and convene a tripartite Meeting of Experts to adopt the classification and make appropriate recommendations to the Governing Body (ILO, 2004; the full text of the resolution is provided in Annex 1).
4. The resolution of the Meeting of Experts was endorsed by the Governing Body in March 2008. It was also presented to both the United Nations Statistical Commission at its 39th session in February 2008, and the EighteenthICLS held from 24 November to 5 December 2008. ISCO-08 is thus fully supported by the international community as an accepted standard for international labour statistics.
5. Each group in the classification is designated by a title and code number and is associated with a definition that specifies the scope of the group. The definitions also summarize the main tasks and duties performed in occupations included in the group, and provide a list of the occupational groups included or, in the case of unit groups, examples of the occupations. The ISCO-08 hierarchical structure, comprising the group titles and codes, is presented in Part II. Part III presents the complete definitions of all ISCO-08 unit groups, minor groups, sub-major groups and major groups.
6. This introduction describes the ISCO-08 development process, its history, conceptual basis, structure and other methodological considerations. General advice is also provided on the application of ISCO-08 in data collection activities in national contexts, including discussion on some of the more difficult distinctions made between categories.
7. The main differences between ISCO-08 and ISCO-88, and the reasons for these differences, are summarized in Chapter 3 below. A detailed specification of the correspondence between the old and new classifications is provided in Part IV, which comprises correspondence tables in ISCO-88 code order and ISCO-08 code order.
8. Volume 2, *Index of occupational titles,* provides supplementary information on the occupations included in each group, linking real job titles used in the world of work with the categories in the classification structure. It may also serve as a model to assist in the development or adaptation of national indexes of occupation titles where alignment with ISCO-08 is required. Volume 2 is a replacement for the index of occupational titles presented at the back of the ISCO-88 publication and includes 4-digit ISCO-08 and ISCO-88 codes for each occupational descriptor.
9. All of the information contained in Volumes 1 and 2 is available on the ISCO website: <http://www.ilo.org/public/english/bureau/stat/isco/index.htm>. It is planned that this information will be supplemented by an ISCO-08 *Implementation guide* that will provide advice and guidance on adapting ISCO-08 for national use and for the production of internationally comparable information.

1.2 Main objectives of ISCO

1. Globalization of the labour market has increased the demand for internationally comparable occupational data for both statistical and administrative purposes. ISCO-08 aims to satisfy this demand by providing:
2. a contemporary and relevant basis for the international reporting, comparison and exchange of statistical and administrative information about occupations;
3. a useful model for the development of national and regional classifications of occupations; and
4. a system that can be used directly in countries that have not developed their own national classifications.
5. ISCO seeks to facilitate international communication about occupations by providing statisticians with a framework to make internationally comparable occupational data available, and by allowing international occupational data to be produced in a form that can be useful for research as well as for specific decision-making and action-oriented activities, such as those connected with international migration or job placement.
6. It should be emphasized that, while serving as a model, ISCO-08 is not intended to replace any existing national classification of occupations, as the occupation classifications of individual countries should fully reflect both the structure of the national labour market and information needs for nationally relevant purposes. However, countries whose occupational classifications are aligned to ISCO-08 in concept and structure will find it easier to develop the procedures to make their occupational statistics internationally comparable.
7. Therefore, the ideal situation is that countries develop national classifications that are tailored to meet both national and international requirements (see Chapter 5). It is recognized, however, that some countries may not have the capacity to develop national classifications in the short to medium term. In these circumstances it is advisable for countries initially to focus limited resources on the development of tools to support implementation of ISCO in the national context, for example a national index of occupational titles.
8. Classifications of occupations are used in national contexts for the collection and dissemination of statistics from sources such as population censuses, labour force surveys and other household surveys, employer surveys and other sources. They are also used by governments and companies in activities such as matching jobseekers with job vacancies, educational planning, reporting of industrial accidents, administration of workers’ compensation, and the management of employment-related migration.
9. In order to satisfy the full range of user requirements implied by the applications outlined above, many countries will wish to provide, in their national classifications, finer structural and definitional details than those contained in ISCO-08. In national classifications based on ISCO this can be achieved either by dividing some unit groups into two or more smaller unit groups, or by providing more detailed occupational groups at a fifth hierarchical level in the national classification. In certain cases, countries may also wish to include descriptive or coded information on job content, skill requirements, linkages to national competency frameworks, and detailed occupational descriptions. This type of information may be of interest for wage settlements, vocational guidance and training, development of vocational training programmes, job placement services, or analysis of occupation-specific morbidity and mortality, but is beyond the scope of ISCO-08.
10. It is important to note that, although useful in facilitating the provision of standard information for decision-making on occupational issues, ISCO-08 is not a framework for administrative regulation of occupations. The designations employed and the presentation of descriptive and definitional material in ISCO do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal or regulatory status of any occupational group.

1.3 Historical background

1. The development of the International Standard Classification of Occupations (ISCO) goes back many decades and has always been closely connected with the work of the International Conference of Labour Statisticians, which meets under the auspices of the International Labour Organization. The need for an international standard classification of occupations was discussed as early as 1921, at the first ICLS (ILO, 1923 and 1924, Resolution 1, para. 1).
2. Work to develop ISCO was initiated in 1947 at the Sixth ICLS and the first positive step towards its establishment was the adoption of a provisional classification of nine major groups by the Seventh ICLS in 1949. In 1952 the ILO published the International Classification of Occupations for Migration and Employment Placement, with detailed descriptions of 1,727 occupations based on the national classifications of eight industrialized countries. At the Eighth ICLS (1954) a provisional list of minor groups was approved. The Ninth ICLS (1957) completed the work by endorsing the major, minor and unit groups of the first ISCO, which was published by the ILO in 1958 and hence is known as ISCO-58. It had been recognized at the Ninth ICLS that ISCO-58 would need to be revised after a certain time. The Eleventh ICLS considered and adopted a revised edition of ISCO (ISCO-68).
3. ISCO-68 was superseded by ISCO-88, adopted in 1987 by the Fourteenth ICLS. ISCO-88 represented a significant break from the two previous versions, in that it used the concepts of skill level and skill specialization as criteria to arrange similar occupations into progressively larger groups. The previous versions of ISCO, as well as many national classifications at that time, did not use the concept of skill level to distinguish between groups at the most aggregate level of the classification. Occupation classifications at the time had a stronger focus on the goods and services produced and were frequently quite similar in structure to industrial classifications of economic activities.
4. Since its adoption ISCO-88 has been widely used as the basis for development of national and multinational classifications and for the dissemination of international data classified by occupation. Early in the first decade of the 21st century, it became clear, however, that there was a need to update ISCO-88 to reflect changes in the occupational structure of the workforce, as well as to address a number of problems that had been identified during its use in statistical and other applications. There were particular concerns about the need to reflect changes resulting from the impact of developments in information and communications technology on the workforce.
5. At the 34th Session of the United Nations Statistical Commission in March 2003, the ILO was asked to develop a timetable for the updating of ISCO-88 that would allow sufficient time for the updated classification, or national adaptations of it, to be available for use in the 2010 round of national population censuses (UN, 2003). In December 2003 the Seventeenth ICLS also discussed the timing of the work to update ISCO-88, as well as the nature and scope of the work to be done, and requested (ILO, 2004) the Governing Body of the ILO to:

ensure that the ILO, as the custodian of the International Standard Classification of Occupations (ISCO-88), will have the capacity to:

(1) undertake the research and consultations necessary to formulate the modifications and updates of ISCO-88 that are necessary to ensure that it can continue to serve as a good model for national occupational classifications to be used for statistics as well as for client-related applications;

(2) complete this work not later than the end of 2007 for the results to be taken into account in national preparations for the majority of population censuses that are to be undertaken in the 2010 round.[[1]](#footnote-1)

1.4 Overview of the updating process and consultations

1. In conducting the work to update ISCO, the ILO consulted as widely as possible with stakeholders and interested parties. The mandate from the ICLS to proceed with the updating of ISCO-88 was informed by a report commissioned by the ILO presenting arguments for and against different paths based on recent experiences with national occupational classifications in a number of countries (Budlender, 2003). Many of the issues raised in this report were further explored, along with others, by means of two questionnaires that were sent to all countries through their ministries of labour, national statistical institutes, employment services, vocational training institutes, and employers’ and workers’ organizations. Successive drafts of the updated classification structure were sent for comment. The ILO also consulted with a range of specialized agencies, workers’ and employers’ organizations, and stakeholders with an interest in those occupational areas where most updating was needed.
2. An important component of the work was the establishment of a Technical Expert Group for Updating ISCO (TEG/ISCO), to provide the ILO with advice on and assistance with the updating work. This group, comprising experts in occupation classification from all regions of the world and experts from a number of relevant international agencies, met six times during the development of ISCO-08. These meetings were supplemented by the use of ongoing electronic discussions.
3. The major issues that were addressed in the updating work included but were not restricted to:

* the impact of information and communications technology (ICT) on the occupational structure of the labour market;
* the need for improved coverage of health occupations;
* user requests for more detail in agricultural, forestry and fisheries occupations;
* the need to improve the groupings for managerial occupations;
* concerns that ISCO-88 was very detailed for some technical and manufacturing occupations but had much less detail, especially at intermediate levels of aggregation, for clerical and services-related occupations where a large percentage of employed persons were female;
* concerns about the existence of parallel groups at different skill levels for occupations that involved the performance of similar or identical tasks;
* the need for improved coverage of occupations that predominate in the informal sector and of occupations with low skill requirements;
* the development of thematic (or alternative) views of the classification based primarily on the goods or services produced, independently of skill level;
* the need to refresh and update definitions of all categories; and
* the need for the ISCO index of occupational titles to be improved and updated.

1. The first, exploratory questionnaire on updating ISCO-88 sought advice on a number of conceptual issues as well as on the treatment of specific occupational groups. The replies to this questionnaire were analysed by the ILO and summarized in a paper that formed the basis for discussions about ISCO at the meeting of the United Nations Expert Group on International Economic and Social Classifications held in New York in June 2005 (ILO, 2005). Following the inaugural meeting of the TEG/ISCO in November 2005, the ILO developed an updated draft classification structure. Detailed examination of this draft by both the ILO and members of the TEG/ISCO led to the identification of a number of new concerns about the ISCO-88 structure and to a series of further proposals for change. A further updated draft classification structure was developed and the ILO sought the views of countries on the draft, and on a range of outstanding issues, through a second questionnaire circulated in August 2006.
2. On the basis of the responses to the second questionnaire and of advice provided by the TEG/ISCO, the ILO prepared a “close-to-final” draft classification structure which was made available for comment on the ILO website in February 2007. Comments on this draft were sought from all countries, together with a summary of the main changes. The United Nations Expert Group on International Economic and Social Classifications reviewed the draft at its meeting in April 2007 and discussed a number of areas where significant changes to ISCO-88 were proposed. The ILO then prepared a final draft ISCO-08 structure which was presented as an Annex to the draft resolution concerning updating the International Standard Classification of Occupations, for consideration at the Meeting of Experts on Labour Statistics held in December 2007. At this meeting a small number of amendments to the draft were made and the amended classification structure was adopted as the International Standard Classification of Occupations, 2008 (see ILO, 2008).

1.5 Scope of the updating work

1. The resolution of the Seventeenth ICLS on ISCO requested the updating and overall improvement of ISCO-88 with the objective of making available a more effective classification, which could be used by countries in the next round of population censuses, as well as in national employment services and other client-oriented applications. It also imposed some limitations on the nature and extent of the revisions that could be made by specifying that:

… the basic principles and main structure of ISCO-88 should not be changed, but that nevertheless modifications are necessary in some areas, both to make improvements in light of experience gained in many countries using ISCO-88-based classifications, and as a consequence of developments in the world of work over the last 15 years …

1. Within the framework of this general restriction the ILO determined, in consultation with the TEG/ISCO and the UN Expert Group on International Economic and Social Classifications, that the nature of the structural and methodological changes that might be made to ISCO-88 would be limited to the following specific types of change:

* The classification was to be reviewed from the point of view of the relative size and diversity of groups at different levels but, because of the wide differences in national circumstances, it would not be possible to impose strict guidelines on the size of groups.
* Occupations with the same job content but with different formal education requirements in different countries were to be classified in a single unit group, thus eliminating the need for “parallel groups”.
* The ISCO-88 major groups were to be merged, deleted or otherwise changed only in exceptional circumstances. In practice the 10 major groups were not fundamentally changed although some occupations were moved from one major group to another and the names of some major groups were changed to improve clarity.
* There was a need for more comprehensive explanatory and methodological notes than those provided with ISCO-88.
* Sub-major and minor groups should be split or merged only if there had been significant growth or decline in the numbers of people employed in them, and/or where groups at a lower level were split or merged. Sub-major groups should, however, contain sufficiently large numbers to allow the production of meaningful summary statistics. The total number of sub-major groups should not decrease dramatically or grow beyond about 40.
* Unit groups could be split or merged and new groups could be created to reflect occupational change and newly identified requirements. Unit groups could also be split, where necessary, to support aggregation of data according to a set of proposed thematic views (see section 2.6 below).
* Unit groups were not to be created for occupations that were very small in numbers of workers, or that existed only in a small number of countries. Such occupations are included as part of a unit group containing similar occupations, or in a suitable “not elsewhere classified” category.
* The content of residual (not elsewhere classified) groups was to be reviewed. Where such groups were unavoidable, the main occupations classified there were to be listed as part of the definition of the group and in the index.

1. In addition to changes of this type, it was recognized that there would be a need to develop definitions of all groups in the classification that were new or modified, to update and refresh the definitions of those groups that had not changed, to update the index of occupation titles, and to provide correspondence tables showing the relationship between ISCO-88 and ISCO-08.

1.6 Definitions of groups

1. The process of developing the ISCO-08 structure resulted in the splitting or merging of a number of ISCO-88 unit groups. In some cases, completely new unit groups were created. There was also structural change at the minor and sub-major group levels, including both splitting and merging of groups and movement of unit groups from one part of the classification to another. These changes created the need for definitions of new groups to be developed and of other groups to be reviewed, to make sure they adequately reflected the content of the group.
2. The definitions of those groups that were not changed were also reviewed and updated, as the ISCO-88 definitions were almost 20 years old, and there had been significant change in both technology and the organization of work tasks within occupations since the late 1980s.
3. At its meeting in April 2007, the TEG/ISCO agreed on a set of principles for developing or updating definitions of ISCO categories. In particular it was agreed that the overall structure of the definitions should be similar to that used in ISCO-88. Some problems were, nevertheless, identified with the structure and content of ISCO-88 definitions, including the following.

* Notes, footnotes and references to the definitions of categories were used to explain the boundaries and differences between other categories, meaning that some definitions were not capable of standing on their own.
* Some definitions of unit groups in ISCO-88 Major Group 2 focused excessively on research and theoretical work, with insufficient reference to practical tasks.
* There was repetition in many definitions of similar phrases that added little in the way of descriptive information and made it difficult to identify the key differences between groups.
* There was a lack of clarity about whether the task statements were meant to characterize the main tasks typically performed in an occupational group, or whether all tasks were to be performed in all jobs classified in the group.

1. The ILO worked closely with TEG/ISCO members and others to develop up-to-date definitions of all ISCO-08 classification categories. To the extent possible, definitions of categories in recently revised national occupation classifications were used as source material. The use of single-source material was avoided and cross-checking was undertaken wherever possible to avoid the risk of producing descriptions that were biased towards those countries with the most developed occupational information systems.
2. Draft definitions of all groups were made available on the Internet for comment, particularly by countries that were in the process of updating national classifications to facilitate comparability with ISCO-08. This consultation process provided the opportunity to improve both the quality and clarity of the definitions.

1.7 Index of occupational titles

1. The entries in the ISCO-08 *Index of occupational titles* (Volume 2) include a text description for a wider variety of terms used to describe occupations than is possible in the classification structure. It provides a map between “real world” terms used to describe jobs and the formally named titles of groups defined in the classification structure. Similar indexes are used in national settings as tools to assign classification codes to responses to questions (coding) on occupation in statistical and administrative data collections. It is important to note that national indexes of occupations need to be based on terms used in response to questions in data collections in the national context.
2. In considering requirements for an updated index of occupational titles, the TEG/ISCO concluded that the main purposes and likely uses of the ISCO-08 index were the following:

* to clarify the occupational content of each ISCO unit group;
* to help users of ISCO to find particular categories in the classification and determine where particular occupations are classified;
* to assist in understanding the relationship between categories in old and new versions of the classification;
* to serve as a model for, and act as a starting point in, the development of national indexes of occupations, for national classifications based on ISCO;
* to be used directly to assign responses in statistical collections to ISCO in situations where no national index exists, and where countries are not able to develop a national index in advance of data processing.[[2]](#footnote-2)

1. The ISCO-88 index did not fully support these uses for a number of reasons. For example, many commonly used occupational titles did not appear in the index. The ILO agreed with the TEG/ISCO on a process to address these concerns and produce an index for ISCO-08, using the ISCO-88 index as a starting point but drawing on terms used in a range of national indexes of occupations. Each entry includes a text descriptor as well as the most appropriate ISCO-08 and ISCO-88 codes. The entries are organized as in the ISCO-88 index, with keywords appearing first, allowing qualifying information to be specified in a structured manner when occupation titles alone relate to more than one ISCO unit group.
2. The ISCO-08 *Index of occupational titles* is published as ISCO-08, Volume 2, in alphabetical order and in code order for both ISCO-88 and ISCO-08. It may be obtained in electronic form on the ISCO website: <http://www.ilo.org/public/english/bureau/stat/isco/index.htm>, or by sending an email to: [ISCO@ilo.org](mailto:ISCO@ilo.org). It may be used as a starting point in the development of national coding indexes without breach of ILO copyright.

Conceptual framework, design, structure and content of ISCO-08 2

2.1 Underlying concepts

1. The framework and the concepts underpinning ISCO-08 are essentially unchanged from those used in ISCO-88. The definitions of these concepts have been updated and guidelines for their application to the design of the classification have been strengthened and clarified, where necessary, to address deficiencies in ISCO-88.
2. The framework used for the design and construction of ISCO-08 is based on two main concepts: the concept of *job*, and the concept of *skill*.

### 2.1.1 Definitions of job and occupation

1. A *job* is defined in ISCO-08 as “a set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self employment”.
2. *Occupation* refers to the kind of work performed in a job. The concept of *occupation* is defined as a “set of jobs whose main tasks and duties are characterized by a high degree of similarity”. A person may be associated with an occupation through the main job currently held, a second job, a future job or a job previously held.

### 2.1.2 Skill level and skill specialization

1. *Skill* is defined as the ability to carry out the tasks and duties of a given job. For the purposes of ISCO-08, two dimensions of skill are used to arrange occupations into groups. These are s*kill level* and s*kill specialization.*
2. *Skill level* is defined as a function of the complexity and range of tasks and duties to be performed in an occupation. Skill level is measured operationally by considering one or more of:

* the nature of the work performed in an occupation in relation to the characteristic tasks and duties defined for each ISCO-08 skill level;
* the level of formal education defined in terms of the International Standard Classification of Education (ISCED-97) (UNESCO, 1997) required for competent performance of the tasks and duties involved; and
* the amount of informal on-the-job training and/or previous experience in a related occupation required for competent performance of these tasks and duties.

1. The concept of skill level is applied mainly at the top (major group) level of the classification, giving more emphasis to the first of these operational measures, the nature of the work performed, than to the formal and informal education and training requirements.
2. Bearing in mind the international character of the classification, only four broad skill levels are defined. As a result, eight of the ten major groups in ISCO-08 contain occupations only at one of four skill levels. For example, ISCO Major Group 2: Professionals includes only occupations at the highest ISCO skill level, Skill Level 4. All groups below the major group level contain occupations at only one skill level.
3. *Skill specialization* is considered in terms of four concepts:

* the field of knowledge required;
* the tools and machinery used;
* the materials worked on or with; and
* the kinds of goods and services produced.

1. Within each major group, occupations are arranged into unit groups, minor groups and sub-major groups, primarily on the basis of aspects of skill specialization. In the case of ISCO-08 Major Group 1: Managers, and Major Group 0: Armed Forces Occupations, the concept of skill level is applied primarily at the second hierarchical level.

2.2 Definitions of the four ISCO skill levels

1. Definitions of each of the four ISCO-08 skill levels are provided below. These definitions do not change the boundaries between the skill levels used in ISCO-88. They serve to clarify these boundaries and to deal with cases where formal educational requirements may not be the most suitable method of measuring the skill level of a particular occupation. Each definition provides examples of:

* the typical or characteristic tasks performed at each skill level;
* the types of skill required (in broad terms); and
* the typical occupations classified at that skill level.

### 2.2.1 Skill Level 1

1. Occupations at Skill Level 1 typically involve the performance of simple and routine physical or manual tasks. They may require the use of hand-held tools, such as shovels, or of simple electrical equipment, such as vacuum cleaners. They involve tasks such as cleaning; digging; lifting and carrying materials by hand; sorting, storing or assembling goods by hand (sometimes in the context of mechanized operations); operating non-motorized vehicles; and picking fruit and vegetables.
2. Many occupations at Skill Level 1 may require physical strength and/or endurance. For some jobs basic skills in literacy and numeracy may be required. If required these skills would not be a major part of the work.
3. For competent performance in some occupations at Skill Level 1, completion of primary education or the first stage of basic education (ISCED-97 Level 1) may be required. A short period of on-the-job training may be required for some jobs.
4. Occupations classified at Skill Level 1 include office cleaners, freight handlers, garden labourers and kitchen assistants.

2.2.2 Skill Level 2

1. Occupations at Skill Level 2 typically involve the performance of tasks such as operating machinery and electronic equipment; driving vehicles; maintenance and repair of electrical and mechanical equipment; and manipulation, ordering and storage of information.
2. For almost all occupations at Skill Level 2 the ability to read information such as safety instructions, to make written records of work completed, and to accurately perform simple arithmetical calculations is essential. Many occupations at this skill level require relatively advanced literacy and numeracy skills and good interpersonal communication skills. In some occupations these skills are required for a major part of the work. Many occupations at this skill level require a high level of manual dexterity.
3. The knowledge and skills required for competent performance in occupations at Skill Level 2 are generally obtained through completion of the first stage of secondary education (ISCED-97 Level 2). Some occupations require the completion of the second stage of secondary education (ISCED-97 Level 3), which may include a significant component of specialized vocational education and on-the-job training. Some occupations require completion of vocation-specific education undertaken after completion of secondary education (ISCED-97 Level 4). In some cases experience and on-the-job training may substitute for the formal education.
4. Occupations classified at Skill Level 2 include butchers, bus drivers, secretaries, accounts clerks, sewing machinists, dressmakers, shop sales assistants, police officers, hairdressers, building electricians and motor vehicle mechanics.

### 2.2.3 Skill Level 3

1. Occupations at Skill Level 3 typically involve the performance of complex technical and practical tasks that require an extensive body of factual, technical and procedural knowledge in a specialized field. Examples of specific tasks performed include: ensuring compliance with health, safety and related regulations; preparing detailed estimates of quantities and costs of materials and labour required for specific projects; coordinating, supervising, controlling and scheduling the activities of other workers; and performing technical functions in support of professionals.
2. Occupations at this skill level generally require a high level of literacy and numeracy and well-developed interpersonal communication skills. These skills may include the ability to understand complex written material, prepare factual reports and communicate verbally in difficult circumstances.
3. The knowledge and skills required for competent performance in occupations at Skill Level 3 are usually obtained as the result of study at a higher educational institution for a period of 1–3 years following completion of secondary education (ISCED-97 Level 5b). In some cases extensive relevant work experience and prolonged on-the-job training may substitute for the formal education.
4. Occupations classified at Skill Level 3 include shop managers, medical laboratory technicians, legal secretaries, commercial sales representatives, diagnostic medical radiographers, computer support technicians, and broadcasting and recording technicians.

### 2.2.4 Skill Level 4

1. Occupations at Skill Level 4 typically involve the performance of tasks that require complex problem-solving, decision-making and creativity based on an extensive body of theoretical and factual knowledge in a specialized field. The tasks performed typically include analysis and research to extend the body of human knowledge in a particular field, diagnosis and treatment of disease, imparting knowledge to others, and design of structures or machinery and of processes for construction and production.
2. Occupations at this skill level generally require extended levels of literacy and numeracy, sometimes at a very high level, and excellent interpersonal communication skills. These skills usually include the ability to understand complex written material and communicate complex ideas in media such as books, images, performances, reports and oral presentations.
3. The knowledge and skills required for competent performance in occupations at Skill Level 4 are usually obtained as the result of study at a higher educational institution for a period of 3–6 years leading to the award of a first degree or higher qualification (ISCED-97 Level 5a or higher). In some cases extensive experience and on-the-job training may substitute for the formal education, or may be required in addition to formal education. In many cases appropriate formal qualifications are an essential requirement for entry to the occupation.
4. Occupations classified at Skill Level 4 include sales and marketing managers, civil engineers, secondary school teachers, medical practitioners, musicians, operating theatre nurses and computer systems analysts.

2.3 Application of the four skill levels to the ISCO-08 major groups

1. The relationship between the ten ISCO-08 major groups and the four skill levels is summarized in table 1. Within Major Group 1, occupations in Sub-major Group 14: Hospitality, Retail and Other Services Managers are at Skill Level 3. All other occupations in Major Group 1 are at Skill Level 4. Within Major Group 0: Armed Forces Occupations, each of the three sub-major groups is at a different skill level.

Table 1 Mapping of ISCO-08 major groups to skill levels

|  |  |
| --- | --- |
| ISCO-08 major groups | Skill level |
| 1 Managers | 3 + 4 |
| 2 Professionals | 4 |
| 3 Technicians and Associate Professionals | 3 |
| 4 Clerical Support Workers  5 Services and Sales Workers  6 Skilled Agricultural, Forestry and Fishery Workers  7 Craft and Related Trades Workers  8 Plant and Machine Operators, and Assemblers | 2 |
|
| 9 Elementary Occupations | 1 |
| 0 Armed Forces Occupations | 1 + 2 + 4 |

1. In those cases where formal education and training requirements are used as part of the measurement of the skill level of an occupation, these requirements are defined in terms of ISCED-97. A mapping between ISCO skill levels and levels of education in ISCED-97 is provided in table 2.

Table 2 Mapping of the four ISCO-08 skill levels to ISCED-97 levels of education[[3]](#footnote-3)

|  |  |
| --- | --- |
| ISCO-08 skill level | ISCED-97 groups |
| 4 | 6 Second stage of tertiary education (leading to an advanced research qualification)  5a First stage of tertiary education, 1st degree (medium duration) |
| 3 | 5b First stage of tertiary education (short or medium duration) |
| 2 | 4 Post-secondary, non-tertiary education  3 Upper secondary level of education  2 Lower secondary level of education |
| 1 | 1 Primary level of education |

1. The use of ISCED categories to assist in defining the four skill levels does not imply that the skills necessary to perform the tasks and duties of a given job can be acquired only through formal education. The skills may be, and often are, acquired through informal training and experience. In addition, it should be emphasized that the focus in ISCO-08 is on the skills required to carry out the tasks and duties of an occupation – and not on whether a worker employed in a particular occupation is more or less skilled than another worker in the same occupation.
2. Formal education and training requirements are thus only one component of the measurement of skill level and should be seen as indicative. The most important determinant of skill level is the nature of the tasks performed in a particular occupation in relation to the characteristic tasks defined for each skill level. In considering these tasks, however, it should be noted that the level of generic skills (those skills that are not specific to a particular occupational group and are required for many jobs) may differ significantly between occupations due to the nature of the job. For example, insurance representatives classified at Skill Level 3 may require a higher level of interpersonal communication skills than software developers at Skill Level 4, mainly due to differences in nature of the work performed.
3. Since the entity classified is the job, not the person who holds the job, it is not relevant to consider the skills or qualifications held by the person in order to classify the job. It is not necessary for a person to hold qualifications at a particular level in order for their job to be classified at a particular ISCO-08 skill level. Thus, for example, a person who is employed in a job that requires the performance of the tasks of a bricklayer should be classified in Unit Group 7112: Bricklayers and Related Workers, whether or not that person holds formal qualifications as a bricklayer or is a good, bad or indifferent bricklayer. Similarly, a person who is employed in a job that requires the performance of the tasks of a veterinarian should be classified in Unit Group 2250: Veterinarians, whether or not that person holds formal qualifications as a veterinarian or is competent to perform these tasks.
4. Finally, it should be noted that the concept of skill level is applied by considering the level of skill required for competent performance of the tasks required for *entry*-level jobs in a particular occupational group. Some individuals employed in occupations classified at a particular skill level may therefore possess higher or lower skills. The level of skill required for more senior jobs in a particular occupation may also be higher than that required for the occupation as a whole.

2.4 Occupations for which formal education requirements differ between countries

1. A particularly significant change in the application of the concept of skill level to the design of ISCO-08 reflects the principle that occupations that involve the performance of the same tasks should always be classified in the same place, even if the formal educational qualifications required or held may differ from one country to another.
2. A major problem identified by users of ISCO-88 related to occupations that required the performance of similar tasks and duties (or content) but had a different (higher or lower) skill level requirement, as measured in particular countries based on formal educational qualifications. This is because, given differences in national education systems, the same occupation requiring performance of broadly the same set of tasks and duties can be undertaken by individuals with different levels of formal education, without affecting the level of skill required for competent performance of the tasks.[[4]](#footnote-4)
3. The ISCO-88 guidelines recommended that occupations with higher or lower skill requirements, in the national context, than those assigned in ISCO-88 be classified to the major group corresponding to the skill level that was required for such jobs in the country concerned. This approach tended to reduce international comparability, as occupations with similar content in terms of the tasks performed were classified in different ISCO-88 major groups depending on the country. This was particularly the case when skill level was interpreted primarily in terms of the level of formal education and training required in the national context.
4. Two of the most obvious cases where this was a problem in ISCO-88 related to the treatment of *nurses* and *primary and pre-primary school teachers.* In some countries, nurses and teachers require a university degree while in others they do not. At the time ISCO-88 was adopted, this situation was resolved by assigning these occupations to parallel minor groups, in Major Groups 2 and 3. These occupational groups were to be used alternatively, that is, countries were to classify all teachers and all nurses either in Major Group 2 or in Major Group 3, except in cases where there were real differences within the country in the tasks and duties performed. Given that ISCO-88 descriptions for teachers and nurses were identical in both major groups, it is understandable that a number of countries made the distinction between professional and associate professional workers on the basis of the educational level of the job holder, or of the typical educational requirements in the country, and not on the basis of the tasks and duties actually performed.
5. For ISCO-08, this problem is addressed by giving job content (i.e. tasks and duties) priority over national education and training requirements. In other words, occupations that involve the performance of broadly the same sets of tasks and duties are always classified in the same category in ISCO-08, even in cases where national skill level requirements measured in terms of formal education are different. It is hoped that this will lead to an improvement in international comparability.
6. A set of principles and guidelines was developed to help decide what skill level should be assigned to occupations when education and training requirements differ among countries. These principles are outlined below and were applied *in order of precedence*in helping to determine where in the ISCO-08 structure certain occupations are classified.
7. The complexity and range of the tasks and duties involved in the occupation was considered in relation to the definitions for each skill level, with particular reference to the characteristic tasks and duties associated with each skill level.
8. Where the formal education requirements were different in only a small number of countries, the skill level was determined on the basis of the requirements that applied in a large majority of countries.
9. Where consideration of (a) and (b) above was inconclusive in distinguishing between Skill Levels 1 and 2, occupations that required, in some countries, completion of the first stage of secondary education (ISCED-97 Level 2) and, in other countries, completion of primary education only (ISCED-97 Level 1) were classified at Skill Level 1. This approach was taken because, in many highly industrialized countries, completion of the first stage of secondary education is more or less universal. In such circumstances those who have not completed the first stage of secondary education may not be able to find employment in even the most unskilled of jobs.
10. Where consideration of (a), (b) and (c) above was inconclusive, the situation that prevailed in industrialized countries was generally used to determine the skill level of an occupation, but only where there was a consistent approach across a clear majority of these countries. For example, if a degree was required for entry to an occupation for less than half of the countries that are members of the Organisation for Economic Co-operation and Development (OECD), but a two-year diploma was required in most other countries, then it may have been appropriate to assign the occupation to Skill Level 3. The size of countries as well as the number of countries was also taken into consideration in making judgements of this type. The reason for adopting this approach was that the prevailing situation in industrialized countries was considered likely to eventually become the norm in other countries. Moreover, the higher level of qualification was likely to be a requirement for many occupational migration purposes.

2.5 Classification structure and code scheme

1. ISCO-08 is designed so that occupations are arranged into one of 436 unit groups at the most detailed level of the classification hierarchy. It is intended that all jobs in the world can be assigned to one (and only one) of these unit groups. In general, each unit group is made up of several “occupations” that have a high degree of similarity in terms of skill level and skill specialization. Unit groups are in turn arranged into minor groups, minor groups into sub-major groups, and sub-major groups into major groups based on the concept of skill level and on successively broader applications of the concept of skill specialization.
2. All but two of the ISCO-08 major groups contain occupations at only one of the four ISCO skill levels. All 43 of the sub-major groups contain occupations at only one skill level. This means that data classified at sub-major, minor or unit group level of ISCO-08 can be aggregated by skill level only, if desired. This is achieved by creating three sub-major groups in Major Group 0: Armed Forces Occupations, for commissioned officers, non-commissioned officers and “other ranks”; and by arranging occupations in Major Group 1: Managers, so that all occupations not at Skill Level 4 are in a single sub-major group, at Skill Level 3. This is a departure from ISCO-88 in which occupations in Major Group 1: Legislators, Senior Officials and Managers, and Major Group 0: Armed Forces, were not assigned a skill level.
3. Looking at the hierarchical structure of ISCO-08 from the top down, each of the ten major groups is made up of two or more sub-major groups, which in turn are made up of one or more minor groups. Each of the 130 minor groups is made up of one or more unit groups. Each major group is denoted by a 1-digit code. Each sub-major group is denoted by a 2-digit code, comprising the major group code plus one digit. In the same way, minor groups are denoted by 3-digit codes and unit groups by 4-digit codes comprising the higher level code plus one digit in each case. This convention is illustrated by the following example:

**Major Group 5 Services and Sales Workers**

**Sub-major Group 51 Personal Services Workers**

Minor Group511 Travel Attendants, Conductors and Guides

Unit Groups 5111 Travel Attendants and Travel Stewards

5112 Transport Conductors

5113 Travel Guides

1. Other code conventions used in ISCO-88 have also been adopted in ISCO-08. In particular, where a minor group contains only one unit group the last digit in the unit group code is “0”. Where a unit group is a residual group it has the same name as the minor group followed by the words “not elsewhere classified” and its final digit is 9.
2. It is important to note that, while some ISCO-88 categories have not been changed, the code for a particular category may or may not have changed because of structural changes around it. Similarly the same code may refer to quite different categories in ISCO-88 and ISCO-08. All conversion or comparison of data between the two classification versions should, therefore, be undertaken by referring to the correspondence tables provided in Part IV.

2.6 Thematic views

1. In addition to the main classification structure, a set of standard “thematic groupings” or “views” of ISCO-08 is being developed for certain groups of occupations, where there is a need for a standardized approach towards the aggregation of occupational data according to a particular theme. These occupations are not grouped together in the ISCO-08 main structure because skill level takes precedence. Thematic views are thus a standard alternative way of aggregating occupational data classified at the 4-digit level of ISCO-08, according to aspects of skill specialization, primarily the goods and services produced. They are intended to provide guidance for classifying occupations according to these themes, in order to facilitate the compilation of internationally comparable statistics.
2. The thematic views are not intended to be mutually exclusive or jointly exhaustive. Some unit groups may therefore be listed in more than one thematic view, and some unit groups may not be included in any thematic view.
3. Thematic views, once finalized, will be released electronically on the ISCO website. It is proposed to develop thematic views of occupations in the areas listed below. The need for these particular groupings has been taken into account in the design of the ISCO-08 structure. Should the need for further thematic views arise these will be provided as required.

* Agriculture
* Construction
* Education
* Health
* Information and communication technology
* Tourism

2.7 Definitions of groups

### 2.7.1 Purpose of the definitions

1. The main purpose of the definitions of the groups in ISCO-08 is to concisely define the content of each group, so that countries can determine as consistently as possible where in the ISCO structure a particular occupational group should be classified. It is hoped that this will promote the accuracy and international comparability of data in statistical and administrative applications. A supplementary purpose is to provide general descriptive information about the nature of the work performed in the group of occupations concerned. There was no intention to create an occupational “dictionary” with detailed specifications of work to be performed in particular occupations.
2. To the extent possible, definitions of ISCO-08 groups are intended to be able to stand alone. In other words, the essence of a group should be able to be understood without making reference to the definitions of other categories.

### 2.7.2 Structure and content of the definitions

1. The overall structure of the definitions is the same as that used in ISCO-88, except that the use of both notes and footnotes as addenda to definitions has been replaced by an optional field for each definition called “Notes” (see para. 96 below).
2. All definitions therefore begin with a lead statement, which is followed by a statement of tasks performed and a list of inclusions and, where necessary, exclusions and notes. A similar approach is adopted for groups at all levels of the classification, although there are some differences in format and wording conventions.
3. The lead statement summarizes the scope and basic nature of the group and usually comprises one or two sentences. In general, the most important or key aspect of the work performed, that distinguishes the group concerned from other groups, is mentioned first. In some cases a sentence is added that refers only to some of the occupations classified in the group. It is not necessary for all jobs classified in a group to perform all kinds of work identified in the lead statement.
4. Statements of tasks performed indicate the main tasks typically, or usually, performed in occupations classified in the group. The statement does not generally include all tasks performed in all jobs classified in the group, but may include some tasks that are important in only some of the jobs classified there. In general, lists of tasks contain between five and ten items, but there are some cases where more or fewer items are required.
5. Tasks that are unique to a particular occupation within a group are included as separate items only if they are a particularly important component of the occupation concerned, and cannot be incorporated in a more general statement that also applies to other occupations. For example, the definition of Unit Group 2263: Environmental and Occupational Health and Hygiene Professionals, includes the following tasks that are specific to occupational health and safety advisers, because these are particularly important elements of the work of that occupation:
6. recording and investigating injuries and equipment damage, and reporting safety performance;
7. coordinating arrangements for the compensation, rehabilitation and return to work of injured workers.
8. When a sub-major or minor group contains only one group at the next level down in the hierarchy, the substantive content of the lead statement and task statement is identical for both groups.
9. For major, sub-major and minor groups, the list of tasks performed is followed by a list of the groups included at the next level down in the classification hierarchy. For unit groups the list of tasks is followed by a list of “examples of the occupations classified here”. These lists aim to give an indication of the occupations and job titles included in the group. They do not define a fifth hierarchical level of the classification. The occupations listed are not exhaustive and in some cases are simply commonly occurring occupational titles, which may in reality refer to the same or very similar occupations. More comprehensive information about the detailed content of each unit group is provided in the *Index of occupational titles*, sorted in code order. The purpose of the list of included occupations is informative rather than prescriptive, and it should be borne in mind that the usage of occupational titles in some countries may differ from the usage implied in ISCO-08.
10. An optional list of “related occupations classified elsewhere” is included where there is a potential for confusion between occupations with similar titles or work content.
11. Some definitions of groups contain additional “Notes”. The notes are used primarily to clarify the boundaries between related groups where this may not be entirely clear based on the descriptive material, where there is potential for confusion, or if there is a need for a comment about a particular occupational group. In general, similar or identical text appears in the notes added to all of the groups mentioned in a particular note, so that the definition of each group may stand alone.

# 3. Major changes between ISCO-88 and ISCO-08

3.1 Summary of changes and the reasons for them

1. Although the conceptual model used to guide the development of ISCO-08 has not been fundamentally changed from that used in ISCO-88, there are significant differences in the treatment of some occupational groups. These differences reflect the need to address concerns about specific difficulties experienced in the use of ISCO-88, as well as the need to reflect occupational change in the 20-year period since its development.
2. The overall system of major groups, sub-major groups, minor groups and unit groups used in ISCO-88 has been retained in ISCO-08. The ten major groups at the top level of the ISCO-88 structure can still be found in ISCO-08. The names of some of the major groups have been changed slightly so as to more clearly indicate their content, and some occupational groups have been moved from one major group to another. As a result, conversion of data directly from ISCO-88 major groups to ISCO-08 major groups is not possible.
3. A number of completely new sub-major groups, minor groups and unit groups have been introduced to ISCO-08, and several ISCO-88 groups at these levels have been merged with other groups or split into several groups.
4. These changes imply a break in series between statistics based on ISCO-88 and ISCO-08 at all levels in the classification hierarchy, although there is a one-to-one correspondence between some specific groups below the major group level. Full tables showing all correspondences at unit group level between ISCO-88 and ISCO-08 are provided in Part IV,. The tables are presented in both ISCO-88 and ISCO-08 order.
5. Many of the changes address concerns that ISCO-88 was seriously out of date in some areas, most notably as a result of the impact of developments in technology on professional, technical and clerical work associated with the use of computers and telecommunications. Some categories in ISCO-88 have therefore been merged, split or moved to reflect occupational and technological change in the labour market. New categories have been created to allow for the identification of new or emerging occupational groups. To assist time series analysis, ISCO-88 unit groups have not been split and joined to parts of other ISCO-88 unit groups, except where this was unavoidable.
6. In addition, there are some changes in the way the ISCO conceptual model is applied to the design of the classification. Most notably, the nature of the work performed has been given more emphasis than formal education and training requirements in determining the skill level of an occupation.
7. Other changes in the classification structure respond to concerns that ISCO-88 was excessively detailed in some areas and inadequately detailed in others, and that there was a wide variation in the size of some sub-major and minor groups. Wherever possible, efforts have been made to ensure that the level of detail provided in ISCO-08 is appropriate and useful considering its main purposes. It is intended that these changes will make it easier to produce estimates from sample surveys for ISCO-08 sub-major and minor groups than was the case with ISCO-88. Given the nature of the occupational distribution of the labour market at the international level, and the variety of uses of ISCO, these concerns about the size of groups and about differing levels of detail in different parts of the classification were important but not overriding considerations.
8. In some cases there were concerns that it was not feasible to make distinctions between certain categories in ISCO-88 on a consistent basis internationally, especially considering the kind of data that it is possible to collect in a census or in surveys. In such cases, for example the treatment of managerial occupations in agriculture, adjustments have been made in ISCO-08 to improve both consistency of reporting and international comparability.
9. Some of the more significant changes are summarized below.

* The sections of the classification dealing with managerial occupations have been reorganized so as to overcome problems experienced by users of ISCO-88.
* Some additional unit groups and one new minor group have been created for selected supervisory occupations, but only in areas where supervisors commonly perform significantly different tasks from the workers they supervise.
* Occupations associated with information and communication technology have been updated and expanded, allowing for the identification of professional and associate professional occupations in this field as sub-major groups.
* ISCO-88 included parallel groups appearing in different major groups to cater for cases where the education and training requirements for a particular occupational group differed between countries because of differences in responsibilities and degree of supervision. Parallel groups do not appear in ISCO-08 when the tasks performed are essentially the same.
* Occupations concerned with the provision of health services have been expanded, in order to provide sufficient detail to allow ISCO-08 to be used as the basis for the international reporting of data on the health workforce. These occupations have been grouped together, where possible, to provide two sub-major groups and a separate minor group devoted to occupations in health services.
* The section of the classification dealing with office clerks has been reorganized to reflect the increasing impact of information and communications technology and to provide more meaningful detail for occupations in which large numbers of women are employed.
* The aggregate groups for sales and service workers has been reorganized, including the provision of new sub-major groups for personal services workers, personal care workers and protective services workers.
* More detailed categories and greater clarity are provided for some occupational groups involved in agriculture.
* More detailed categories are provided for occupations involved in the provision of information and services to clients, including those related to tourism.
* The groups for plant and machine operators have been restructured and reorganized in response to concerns that this part of ISCO-88 was excessively detailed and out-of-date in some areas.
* The coverage and visibility of occupations that are significant in informal employment[[5]](#footnote-5) have been improved, leading to an associated increase in the number of sub-major groups in ISCO-08 Major Group 9: Elementary Occupations, compared to ISCO-88.

1. The result of these changes is a modest increase in detail at each level of the classification except at the top level. These changes are not distributed evenly across the classification structure however. Table 3 shows that the number of unit groups in Major Group 2: Professionals, and Major Group 5: Services and Sales Workers, has increased significantly, whereas the number of unit groups in Major Group 8: Plant and Machine Operators, and Assemblers, has significantly decreased.

Table 3 Numbers of groups at each level of **ISCO-08**

|  |  |  |  |
| --- | --- | --- | --- |
| Major group | Sub-major groups | Minor groups | Unit groups |
| 1 Managers | 4 (3) | 11 (8) | 31 (33) |
| 2 Professionals | 6 (4) | 27 (18) | 92 (55) |
| 3 Technicians and Associate Professionals | 5 (4) | 20 (21) | 84 (73) |
| 4 Clerical Support Workers | 4 (2) | 8 (7) | 29 (23) |
| 5 Services and Sales Workers | 4 (2) | 13 (9) | 40 (23) |
| 6 Skilled Agricultural, Forestry and Fishery Workers | 3 (2) | 9 (6) | 18 (17) |
| 7 Craft and Related Trades Workers | 5 (4) | 14 (16) | 66 (70) |
| 8 Plant and Machine Operators, and Assemblers | 3 | 14 (20) | 40 (70) |
| 9 Elementary Occupations | 6 (3) | 11 (10) | 33 (25) |
| 0 Armed Forces Occupations | 3 (1) | 3 (1) | 3 (1) |
| **Total ISCO-08 (ISCO-88)** | **43 (28)** | **130 (116)** | **436 (390)** |
| Note: Numbers for ISCO-88 are shown in brackets where different. | | | |

3.2 Managerial and supervisory occupations

### 3.2.1 Managers, senior officials and legislators

1. Managerial occupations classified in Major Group 1 were reorganized to overcome problems with the distinction between “corporate” managers and “general” managers experienced by users of ISCO-88. These changes address problems caused by the use, in ISCO-88, of categories based on classifications of industrial activities as well as a number of other technical and practical concerns.
2. In ISCO-08 managerial occupations are organized along functional rather than industrial lines. This means that managers with specialist functions such as human resources or manufacturing production are identifiable, irrespective of the industry they work in or of whether they manage a department in a large enterprise or manage a small enterprise whose business is to provide that function.
3. ISCO-88 Minor Group 121: Directors and Chief Executives appears in ISCO-08 as Minor Group 112: Managing Directors and Chief Executives. It was grouped with ISCO-88 Sub-major Group 11: Legislators and Senior Officials to form ISCO-08 Sub-major Group 11: Chief Executives, Senior Officials and Legislators. All jobs that require leadership and management of large and complex organizations, that typically have a hierarchy of managers, are thus classified in a single sub-major group, with more detailed breakdowns at minor and unit group levels.
4. The remainder of ISCO-88 Sub-major Group 12: Corporate Managers, and Sub-major Group 13: General Managers, are replaced by three new sub-major groups resulting in the following sub-major group structure for ISCO-08 Major Group 1: Managers:

**11 Chief Executives, Senior Officials and Legislators**

**12 Administrative and Commercial Managers**

**13 Production and Specialized Services Managers**

**14 Hospitality, Retail and Other Services Managers**

1. Jobs in both Sub-major Groups 12 and 13 generally require high levels of skill in specific fields, typically acquired as the result of an extended university education and several years of experience in a related occupation classified in Major Group 2: Professionals. These occupations are associated (along with those in Sub-major Group 11) with the highest ISCO skill level (Level 4). Occupations in Sub-major Group 14 are associated with ISCO Skill Level 3.
2. Sub-major Group 12: Administrative and Commercial Managers includes the managers of organizational units that typically provide services or support functions across organizations. They may be managers of departments within companies or government departments, or the managers of small companies that provide these services to other organizations. The recruitment manager of a large corporation and the manager of a small company that provides recruitment services to other organizations are both classified in ISCO-08 Unit Group 1212: Human Resource Managers, as they have primary skills in common. In ISCO-88 the former would have been classified in Sub-major Group 12: Corporate Managers, and the latter in Sub-major Group 13: General Managers. Managerial occupations that require high levels of skill in administrative, financial or commercial matters are thus now classified in a single sub-major group and are identifiable at unit group level according to the particular professional and technical skills required.
3. Sub-major Group 13: Production and Specialized Services Managers is for managers responsible for management of the production of the goods or services provided by the organization that they work in. Managers of departments in large organizations or managers of small organizations focused on the production of goods, or of specialized services (except administrative and commercial services), are thus included in a single sub-major group and organized into minor groups or unit groups according to the type of specialized production or service provision.
4. ISCO-88 Unit Group 1221: Production and Operations Department Managers in Agriculture, Hunting, Forestry and Fishing has been replaced with a new minor group containing two unit groups, as shown below. This group is restricted to those who manage production in large-scale enterprises such as ranches and plantations that typically have a hierarchy of managers.

**131 Production Managers in Agriculture, Forestry and Fisheries**

1311 Agricultural and Forestry Production Managers

1312 Aquaculture and Fisheries Production Managers

1. ISCO-88 Unit Group 1311: General Managers in Agriculture, Hunting, Forestry and Fishing has been removed from Major Group 1. The occupations included within this category were moved to ISCO-08 Sub-major Group 61: Market-oriented Skilled Agricultural Workers, or to Sub-major Group 62: Market-oriented Skilled Forestry, Fishery and Hunting Workers. They were merged with the relevant groups of skilled agricultural, hunting, forestry or fishery workers. The reason for this change is that the distinction, in ISCO-88, between this group and farmers that do not have a significant management function is not feasible in a number of countries. This led to significant inconsistencies in the international reporting of data.
2. Jobs in Sub-major Group 14: Hospitality, Retail and Other Services Managers generally, although not exclusively, involve management of relatively small organizations that do not have a hierarchy of managers. They do not normally require formal educational qualifications at professional level. It should be noted, however, that managers of large retail and hospitality establishments, such as large supermarkets, department stores or hotels, are also classified in the relevant unit groups in Sub-major Group 14. Although some such establishments may have a hierarchy of managers, it is neither practical nor useful to classify managers of very large supermarkets or hotels separately from the managers of medium-sized and small ones. Chief executive officers and specialized managers of hotel management companies, retail chains and hotel chains are nevertheless classified in the relevant unit group in Sub-major Groups 11, 12 or 13, if they are responsible for activities of groups of hotels or sales outlets.
3. It is also important to note that owner-operators and employee-operators of businesses are only classified in Major Group 1 if management tasks are a significant component of the work. Definitional notes are provided to make it clear that operators of shops, guest houses, cafés, restaurants, bars and similar establishments, for whom management and supervision of staff is not a significant component of the work, are classified elsewhere, usually in Major Group 5: Services and Sales Workers. Although this distinction is not conceptually different from the approach adopted under ISCO-88, the absence of explicit advice about the treatment of this group may have led, in some national applications or adaptations of ISCO-88, to the inclusion of relatively large numbers of operators of small business in ISCO-88 Sub-major Group 13: General Managers.
4. A new Unit Group 5221: Shopkeepers is provided for the particularly important group of workers who own and operate retail shops either independently or with support from a small number of others. Operators of guest houses, restaurants, cafés and similar establishments are classified according to the main tasks performed, for example as domestic housekeepers, cooks or waiters.

### 3.2.2 Supervisory occupations

1. In ISCO-88 supervisors were generally classified in the same unit group as the workers they supervised. Many countries, however, consider it important to distinguish supervisors from other workers, including managers, in specific sectors where supervisors do not mainly perform the same tasks as the workers supervised. To reflect this concern, unit groups for supervisory occupations are included in ISCO-08 for selected supervisory occupational groups.
2. Due to the additional skill level requirements for some supervisory jobs, a new Minor Group 312: Mining, Manufacturing and Construction Supervisors was created in Sub-major Group 31: Science and Engineering Associate Professionals. For similar reasons, a unit group for office supervisors is included in Minor Group 334: Administrative and Specialized Secretaries.
3. The supervisory unit groups in ISCO-08 are:

3121 Mining Supervisors

3122 Manufacturing Supervisors

3123 Construction Supervisors

3341 Office Supervisors

5151 Cleaning and Housekeeping Supervisors in Offices, Hotels and Other Establishments

5222 Shop Supervisors

1. All other supervisory occupations are classified in the same unit group as the most skilled workers supervised. Definitional material is provided for relevant categories, to ensure that the distinctions between managerial, supervisory and other occupations in ISCO-08 are as clear as possible.

3.3 Professional and technical occupations

### 3.3.1 Information and communications technology (ICT)

1. Technological change over the 20-year period since ISCO-88 was developed meant that ISCO-88 was particularly out of date with respect to occupations involved in the provision of goods and services related to information and communications technology (ICT). The significant update and expansion of categories for these occupations allows the identification in ISCO-08 of professional and associate professional occupations in ICT as sub-major groups at the second level of the classification, as shown below.

**25    Information and Communications Technology Professionals**

**251   Software and Applications Developers and Analysts**

    2511 Systems Analysts

    2512 Software Developers

    2513 Web and Multimedia Developers

    2514 Applications Programmers

  2519 Software and Applications Developers and Analysts Not Elsewhere Classified

**252   Database and Network Professionals**

    2521 Database Designers and Administrators

    2522 Systems Administrators

  2523 Computer Network Professionals

   2529 Database and Network Professionals Not Elsewhere Classified

**35    Information and Communications Technicians**

**351   Information and Communications Technology Operations and User Support Technicians**

    3511 Information and Communications Technology Operations Technicians

    3512 Information and Communications Technology User Support Technicians

    3513 Computer Network and Systems Technicians

    3514 Web Technicians

**352   Telecommunications and Broadcasting Technicians**

    3521 Broadcasting and Audiovisual Technicians

  3522 Telecommunications Engineering Technicians

1. The proposed thematic view for ICT occupations will include all of the occupations in Sub-major Groups 25 and 35 listed above, as well a**s** a number of other unit groups that primarily involve the production of ICT goods and services such as:

1330 Information and Communications Technology Services Managers

2152 Electronics Engineers

2153 Telecommunications Engineers

2166 Graphic and Multimedia Designers

2356 Information Technology Trainers

2434 Information and Communications Technology Sales Professionals

7422 Information and Communications Technology Installers and Servicers

1. The growing convergence between information and telecommunications technologies is reflected by including unit groups that are specific to telecommunications (including broadcasting) in the same minor groups as other occupations in ICT. In addition, some unit groups cover both information and telecommunications technologies where there is convergence in the skills required in the labour market including, for example, Unit Group 7422: Information and Communications Technology Installers and Servicers.
2. ISCO-08 includes many occupations that involve specialized skills in the use of ICT as a tool, or where the use of these technologies is a major component of the work. These occupations are not included in the two sub-major groups mentioned above, nor is it intended to include them in the proposed thematic view, as they do not primarily involve the production of ICT goods and services. Examples of ISCO-08 unit groups where the use of ICT as a tool is an important defining characteristic include the following:

3211 Medical Imaging and Therapeutic Equipment Technicians

4222 Contact Centre Information Clerks

5244 Contact Centre Salespersons

### 3.3.2 Health services occupations

1. The coverage of health services occupations has been extended to provide sufficient detail to allow ISCO-08 to be used as the basis for the international reporting of data on the health workforce to the World Health Organization (WHO).[[6]](#footnote-6) The changes also seek to address problems of comparability between countries caused by difficulties in distinguishing between certain occupational groups, particularly in nursing.
2. To improve the visibility of statistics on the health workforce, new sub-major groups for health occupations have been created in Major Groups 2 and 3. The structure of the new Sub-major Groups 22: Health Professionals and 32: Health Associate Professionals is presented below:

**22     Health Professionals**

**221   Medical Doctors**

    2211 Generalist Medical Practitioners

    2212 Specialist Medical Practitioners

**222 Nursing and Midwifery Professionals**

    2221 Nursing Professionals

    2222 Midwifery Professionals

**223 Traditional and Complementary Medicine Professionals**

    2230 Traditional and Complementary Medicine Professionals

**224 Paramedical Practitioners**

    2240 Paramedical Practitioners

**225   Veterinarians**

2250 Veterinarians

**226   Other Health Professionals**

    2261 Dentists

    2262 Pharmacists

    2263 Environmental and Occupational Health and Hygiene Professionals

    2264 Physiotherapists

    2265 Dieticians and Nutritionists

    2266 Audiologists and Speech Therapists

    2267 Optometrists and Ophthalmic Opticians

  2269 Health Professionals Not Elsewhere Classified

**32 Health Associate Professionals**

**321 Medical and Pharmaceutical Technicians**

3211 Medical Imaging and Therapeutic Equipment Technicians

3212 Medical and Pathology Laboratory Technicians

3213 Pharmaceutical Technicians and Assistants

3214 Medical and Dental Prosthetic Technicians

**322 Nursing and Midwifery Associate Professionals**

3221 Nursing Associate Professionals

3222 Midwifery Associate Professionals

**323 Traditional and Complementary Medicine Associate Professionals**

3230 Traditional and Complementary Medicine Associate Professionals

**324 Veterinary Technicians and Assistants**

3240 Veterinary Technicians and Assistants

**325 Other Health Associate Professionals**

3251 Dental Assistants and Therapists

3252 Medical Records and Health Information Technicians

3253 Community Health Workers

3254 Dispensing Opticians

3255 Physiotherapy Technicians and Assistants

3256 Medical Assistants

3257 Environmental and Occupational Health Inspectors and Associates

3258 Ambulance Workers

3259 Health Associate Professionals Not Elsewhere Classified

1. A number of other points of difference between ISCO-88 and ISCO-08 should be noted in the treatment of professional and associate professional occupations in health. In ISCO-08:

* Separate unit groups are provided for generalist and specialist medical practitioners.
* Separate unit groups are provided for nursing and midwifery occupations at both professional and associate professional level.
* The distinction between professional and associate professional nurses and midwives is made on the basis of the type of work performed and **not** on the basis of the qualifications held (or typically held) by individuals in the country concerned. The differences in the tasks performed have been made clear in the definitions of these categories.
* A new Minor Group 224: Paramedical Practitioners has been created. Jobs that were classified to ISCO-88 Unit Group 3221: Medical Assistants should be classified in this minor group, if they involve the provision of advisory, diagnostic, curative and preventive care services either working autonomously or under limited supervision of medical doctors.
* Veterinarians and veterinary technicians and assistants are included in the sub-major groups for health professionals and associate professionals respectively, because of the strong similarity with human health occupations in the field of knowledge required and tasks performed. They are identified at minor group level so that data on occupations that involve the provision of human health services can be compiled, by exclusion, from data reported at this level.
* Ambulance workers are classified in Sub-major Group 32, whereas in ISCO-88 they were included in Major Group 5: Service Workers and Shop and Market Sales Workers.
* Emergency paramedics are classified in the same unit group as ambulance officers, as it is difficult to distinguish them from ambulance workers in statistical collections in some countries.
* Medical and dental prosthetic and related technicians have been moved from ISCO-88 Major Group 7: Craft and Related Trades Workers to ISCO-08 Sub-major Group 32.

1. The changes in the classification of practitioners of traditional and complementary medicine are particularly significant. Practitioners of traditional medicine exist at professional level (ISCO Skill Level 4) in large numbers in many Asian countries, and are increasing in number in North America and Europe. These occupations generally require extensive formal education in both traditional and modern (allopathic) medicine. Minor groups were therefore created for traditional and complementary medicine professionals, and for traditional and complementary medicine associate professionals, replacing the single unit group in Major Group 3 provided in ISCO-88. A discussion on the boundaries between these two groups can be found in section 4.4 below.
2. In addition to the changes made for professional and associate professional occupations in health, a separate Sub-major Group 53: Personal Care Workers is also provided. This group replaces ISCO-88 Minor Group 513: Personal Care and Related Workers. Those involved in the provision of health services are identified separately at the minor group level from those involved in child care, as follows:

**53 Personal Care Workers**

**531 Child Care Workers and Teachers' Aides**

5311 Child Care Workers

5312 Teachers' Aides

**532 Personal Care Workers in Health Services**

5321 Health Care Assistants

5322 Home-based Personal Care Workers

5329 Personal Care Workers in Health Services Not Elsewhere Classified

1. It is intended that the occupations involved in the provision of human health services in Sub-major Groups 21, 31 and 53 (that is, excluding those minor groups relating to veterinary care and child care) will be included in the proposed thematic view for health occupations. A number of other unit groups that were not separately identified in ISCO-88 may also be included, in particular:

1342 Health Services Managers

1343 Aged Care Services Managers

3344 Medical Secretaries

### 3.3.3 Teachers

1. In ISCO-88, primary school teachers and pre-primary school teachers were classified in either Major Group 2: Professionals or Major Group 3: Technicians and Associate Professionals. The intention was that the distinction should depend on the specific tasks and degree of responsibility in executing them, as well as on the national education and training requirements. In practice the distinction was often based on the qualifications held by individuals, or on the qualifications predominantly held in a particular country. This approach is not consistent with the principle adopted for ISCO-08 that occupations that require the performance of similar tasks should be classified in the same group. Although in a number of countries these teachers do not require the same level of education and training as secondary school teachers, it was agreed that they should all be classified in Major Group 2. This reflects both the nature of the work performed and the requirement in many countries that primary and pre-primary school teachers should be educated at least to university degree level.
2. Categories have also been provided for vocational education teachers and for some specialized categories of teacher. Those who teach vocational subjects that prepare students for employment in a particular occupational group are classified in Unit Group 2320: Vocational Education Teachers, whether they work in a general secondary school or in a vocational or technical school or college.

### 3.3.4 Arts, entertainment, design and sports occupations

1. Occupations in arts, entertainment, design and sport were classified in ISCO-88 in Minor Groups 245: Writers and Creative or Performing Artists and 347: Artistic, Entertainment and Sports Associate Professionals. This meant that musicians and dancers, for example, were classified in different major groups depending on whether or not they performed in classical or less formal settings. This does not reflect the reality of contemporary employment in arts and entertainment.
2. In response to this and to a range of other concerns about the treatment of these occupations in ISCO-88, the following changes have been made in ISCO-08:
3. The arts- and media-related unit groups in ISCO-88 Minor Group 347 have been merged, where possible, with the equivalent unit groups from ISCO-88 Minor Group 245.
4. A new Minor Group 264: Authors, Journalists and Linguists has been created. This allows the separate identification at unit group level of authors and related writers; journalists; and translators, interpreters and other linguists.
5. The remaining arts workers are classified in a new Minor Group 265: Creative and Performing Artists, where additional detail is provided at unit group level by identifying actors separately from film, stage and related directors and producers.
6. ISCO-88 Unit Group 3471: Decorators and Commercial Designers has been split to form three new unit groups:

2163 Product and Garment Designers

2166 Graphic and Multimedia Designers

3432 Interior Designers and Decorators

1. A new Minor Group 216: Architects, Planners, Surveyors and Designers has been created in recognition that building, graphic, multimedia and other design occupations all require a combination of functional, creative and artistic skills.
2. A new Minor Group 342: Sports and Fitness Workers has been created.
3. Photographers are separately identified from other image and sound recording equipment operators (who are classified in Sub-major Group 35: Information and Communications Technicians).
4. A new Minor Group 343: Artistic, Cultural and Culinary Associate Professionals has been created and contains the new unit groups for photographers; interior designers and decorators; gallery, museum and library technicians; chefs; and a residual category.

### 3.3.5 Engineering professionals

1. ISCO-88 Minor Group 214: Architects, Engineers and Related Professionals has been split. This allows the inclusion of architects, cartographers, surveyors and town and traffic planners in the new Minor Group 216 mentioned above. A new Minor Group 215: Electrotechnology Engineers,includes separate unit groups for electrical, electronics and telecommunications engineers. Industrial and production engineers, and environmental engineers, are now separately identified as unit groups in Minor Group 214: Engineering Professionals (excluding Electrotechnology) along with the remaining unit groups from ISCO-88 Minor Group 214.

### 3.3.6 Specialized administrative occupations

1. New minor groups and unit groups are provided in Major Groups 1, 2 and 3 to allow for the better identification of occupations that involve the development, implementation and administration of government and corporate policy, and of administrative occupations requiring highly specialized skills. These include but are not restricted to:

**121  Business Services and Administration Managers**

    1211 Finance Managers

    1212 Human Resource Managers

    1213 Policy and Planning Managers

1219 Business Services and Administration Managers Not Elsewhere Classified

**122   Sales, Marketing and Development Managers**

    1221 Sales and Marketing Managers

    1222 Advertising and Public Relations Managers

    1223 Research and Development Managers

**242   Administration Professionals**

    2421 Management and Organization Analysts

    2422 Policy Administration Professionals

    2423 Personnel and Careers Professionals

    2424 Training and Staff Development Professionals

**334  Administrative and Specialized Secretaries**

    3341 Office Supervisors

    3342 Legal Secretaries

  3343 Administrative and Executive Secretaries

  3344 Medical Secretaries

1. These changes are aimed, in part, at addressing concerns that ISCO-88 catered inadequately for administrative occupations in government service. Whilst all of the occupations listed above are relevant for both the public and private sectors, some of them are particularly relevant for the public sector, most notably Unit Groups 1213: Policy and Planning Managers and 2422: Policy Administration Professionals.
2. With the exception of some very specific groups, such as those occupations included in Minor Group 335: Government Regulatory Associate Professionals, ISCO-08 makes no distinction between administrative occupations in the public sector and the private sector. Almost all ISCO-08 unit groups may therefore include jobs in both sectors. In determining the most appropriate ISCO-08 code for jobs in the civil service, therefore, it is important to consider the nature of the work performed rather than classifying jobs based only on the civil service grade or job title.

### 3.3.7 Sub-major and minor group structures for professional and technical occupations

1. The changes discussed in the sections above, combined with the provision of additional detail in a number of other areas of the classification, necessitated a significant reorganization of the structures of Major Group 2: Professionals and Major Group 3: Technicians and Associate Professionals. This reorganization was also guided by a desire to avoid retaining groups at the second and third levels of the classification hierarchy that were excessively small in terms of the total number of jobs counted in each group. The sub-major group structures for Major Groups 2 and 3 of ISCO-88 and ISCO-08 are compared in tables 4 and 5.

Table 4 Sub-major groups in Major Group 2: Professionals, ISCO-88 and ISCO-08

| ISCO-88 code | ISCO-88 title | ISCO-08 code | ISCO-08 title |
| --- | --- | --- | --- |
| 21 | Physical, Mathematical and Engineering Science Professionals | 21 | Science and Engineering Professionals |
| 22 | Life Science and Health Professionals | 22 | Health Professionals |
| 23 | Teaching Professionals | 23 | Teaching Professionals |
| 24 | Other Professionals | 24 | Business and Administration Professionals |
|  |  | 25 | Information and Communications Technology Professionals |
|  |  | 26 | Legal, Social and Cultural Professionals |

Table 5 Sub-major groups in Major Group 3: Technicians and Associate Professionals, ISCO-88 and ISCO-08

|  |  |  |  |
| --- | --- | --- | --- |
| ISCO-88 code | ISCO-88 title | ISCO-08 code | ISCO-08 title |
| 31 | Physical and Engineering Science Associate Professionals | 31 | Science and Engineering Associate Professionals |
| 32 | Life Science and Health Associate Professionals | 32 | Health Associate Professionals |
| 33 | Teaching Associate Professionals | 33 | Business and Administration Associate Professionals |
| 34 | Other Associate Professionals | 34 | Legal, Social, Cultural and Related Associate Professionals |
|  |  | 35 | Information and Communications Technicians |

3.4 Clerical, sales and services occupations

### 3.4.1 Office clerks

1. ISCO-88 Sub-major Group 41: Office Clerks has been split into three sub-major groups to reflect the impact of developments in ICT on the organization of work, and to provide more meaningful detail for occupations in which large numbers of women are employed. Sub-major Group 42: Customer Services Clerks has been retained. ISCO-08 Major Group 4: Clerical Support Workers thus comprises four sub-major groups:

**41 General and Keyboard Clerks**

**42 Customer Services Clerks**

**43 Numerical and Material Recording Clerks**

**44 Other Clerical Support Workers**

1. Other changes affecting office clerks include:

* a new minor group for general office clerks (411), in line with practice in a number of national occupation classifications;
* splitting ISCO-88 Minor Group 411: Secretaries and Keyboard-operating Clerks, to provide separate minor groups for those clerks who primarily operate keyboards and for general secretaries;
* the merging of four ISCO-88 unit groups into two ISCO-08 unit groups for keyboard operators – 4131: Typists and Word Processing Operators, and 4132: Data Entry Clerks;
* the separate identification of library clerks from filing and copying clerks; and
* a new unit group for personnel clerks.

### 3.4.2 Occupations involved in the provision of information and services to clients

1. The scope of ISCO-88 Sub-major Group 42: Customer Services Clerks has not been changed significantly, with the notable exception that the ISCO-88 Unit Group 4211: Cashiers and Ticket Clerks has been moved to ISCO-08 Sub-major Group 52: Sales Workers, because of the close relationship of the work performed in many jobs in this unit group with that performed by sales assistants. The group is also represented as a minor group, so as to improve its visibility in summary statistics.
2. More detailed categories are provided for occupations involved in the provision of information and services to clients, including those related to tourism. The number of unit groups in Minor Group 422: Client Information Workers (Client Information Clerks in ISCO-88) has, as a result, increased from 3 to 8.

**422   Client Information Workers**

    4221 Travel Consultants and Clerks

    4222 Contact Centre Information Clerks

    4223 Telephone Switchboard Operators

    4224 Hotel Receptionists

    4225 Enquiry Clerks

    4226 Receptionists (general)

    4227 Survey and Market Research Interviewers

    4229 Client Information Workers Not Elsewhere Classified

1. ISCO-88 Unit Group 3414: Travel Consultants and Organisers has been merged with Unit Group 4221: Travel Agency and Related Clerks, on the basis that the distinction between these groups was not clear. The resulting ISCO-08 Unit Group 4221: Travel Consultants and Clerks includes those who make travel and accommodation bookings, issue travel tickets, and/or provide advice and information on local attractions and accommodation. Workers who register passengers for check-in and departure at airports and other transportation facilities are also included in Unit Group 4221 as they require similar skills to travel agency clerks in issuing tickets, rearranging itineraries and so on, and are not distinguishable in practice from airline employees who sell and issue tickets.
2. Tour operators, who plan, design and organize package and group tours, and make bulk travel and accommodation bookings, were included in ISCO-88 Unit Group 3414. They have not been included in ISCO-08 Unit Group 4221 and are explicitly listed as an occupation included in Unit Group 3339: Business Services Agents Not Elsewhere Classified.

### 3.4.3 Sales workers

1. The number of unit groups in Sub-major Group 52 has increased from 3 to 13 and the minor group structure of the group has been modified. This increase is in part a result of the movement to Sub-major Group 52 of street food vendors (5212: Street Food Salespersons in ISCO-08), and door-to-door and telephone sales persons from Major Group 9: Elementary Occupations; and the movement of cashiers and ticket salespersons from Major Group 4: Clerks. Additional detail is also provided through the separate identification of the following unit groups:

    5221 Shopkeepers  
 5222 Shop Supervisors

5223 Shop Sales Assistants

    5242 Sales Demonstrators

    5243 Door-to-door Salespersons

    5244 Contact Centre Salespersons[[7]](#footnote-7)

    5245 Service Station Attendants

    5246 Food Service Counter Attendants

    5249 Sales Workers Not Elsewhere Classified

### 3.4.4 Personal and protective services workers

1. In addition to the creation of a separate sub-major group for personal care workers mentioned above in the discussion on health services occupations, ISCO-88 Sub-major Group 51: Personal and Protective Services Workers has been further subdivided to allow the creation of separate sub-major groups for personal services workers and for protective services workers. Additional detail is also provided at minor and unit group levels. These changes are illustrated in table 6 which compares the sub-major group and minor group structures of Major Groups 5 in ISCO-88 and ISCO-08.
2. The need for information about workers who provide sexual services on a commercial basis differs from country to country. In a number of countries there is a demand for data about this group, who may operate lawfully and be regulated by government authorities. In many countries, however, it is unlawful to pay for or receive money for sexual services, and there may be no requirement for information about those who provide such services. In ISCO-88 such workers were tacitly included in Unit Group 5149: Other Personal Service Workers Not Elsewhere Classified. In ISCO-08, a note has been added to the definition of Unit Group 5169: Personal Services Workers Not Elsewhere Classified, explaining that in countries where there is a requirement for the collection of data on sex workers they should be included in this unit group. Where separate identification of this group of workers is required at the unit group level, a Unit Group code 5168 is recommended for this purpose in national adaptations of ISCO-08 that follow the ISCO-08 code structure.

Table 6 Sub-major and minor groups in Major Group 5, ISCO-88 and ISCO-08

|  |  |  |  |
| --- | --- | --- | --- |
| ISCO-88 code | ISCO-88 title | ISCO-08 code | ISCO-08 title |
| **5** | **Service Workers and Shop and Market Sales Workers** | **5** | **Services and Sales Workers** |
| **51** | **Personal and Protective Services Workers** | **51** | **Personal Services Workers** |
| 511 | Travel Attendants and Related Workers | 511 | Travel Attendants, Conductors and Guides |
| 512 | Housekeeping and Restaurant Services Workers | 512 | Cooks |
| 513 | Personal Care and Related Workers | 513 | Waiters and Bartenders |
| 514 | Other Personal Services Workers | 514 | Hairdressers, Beauticians and Related Workers |
| 515 | Astrologers, Fortune-tellers and Related Workers | 515 | Building and Housekeeping Supervisors |
| 516 | Protective Services Workers | 516 | Other Personal Services Workers |
| **52** | **Models, Salespersons and Demonstrators** | **52** | **Sales Workers** |
| 521 | Fashion and Other Models | 521 | Street and Market Salespersons |
| 522 | Shop Salespersons and Demonstrators | 522 | Shop Salespersons |
| 523 | Stall and Market Salespersons | 523 | Cashiers and Ticket Clerks |
|  |  | 524 | Other Sales Workers |
|  |  | **53** | **Personal Care Workers** |
|  |  | 531 | Child Care Workers and Teachers' Aides |
|  |  | 532 | Personal Care Workers in Health Services |
|  |  | **54** | **Protective Services Workers** |
|  |  | 541 | Protective Services Workers |

### 3.4.5 Chefs, cooks and food preparation assistants

1. The ISCO-88 Unit Group 5122: Cooks included a wide range of occupations involved in the preparation of meals including chefs, cooks, short order cooks and fast food preparers. Kitchen helpers were classified in ISCO-88 Unit Groups 9131: Domestic Helpers and Cleaners and 9132: Helpers and Cleaners in Offices, Hotels and Other Establishments. ISCO-08 provides two minor groups and additional detail at the unit group level for these occupations, as outlined below. Chefs are identified as a separate unit group in Major Group 3: Technicians and Associate Professionals, reflecting the higher skill level requirements. The definitional notes provide guidance on the boundaries between the relevant groups

**343   Artistic, Cultural and Culinary Associate Professionals**

... ...

  3434 Chefs

**512   Cooks**

  5120 Cooks

**941   Food Preparation Assistants**

  9411 Fast Food Preparers

  9412 Kitchen Helpers

3.5 Occupations in agriculture, forestry and fisheries

1. A number of changes have been introduced to ISCO-08 with respect to occupations in agriculture, forestry and fisheries. The main changes can be summarized as follows:

* market-oriented agricultural workers are identified in a separate sub-major group from forestry and fishery workers;
* virtually all farmers are classified in Major Group 6, whereas ISCO-88 classified some farmers in Major Group 1;
* more detailed categories are provided for subsistence workers;
* more detailed categories are provided for agricultural, forestry and fishery labourers.

1. In Major Group 6: Skilled Agricultural, Forestry and Fishery Workers, ISCO-08 has three sub-major groups instead of the two included in ISCO-88. ISCO-88 Sub-major Group 61: Market-oriented Skilled Agricultural and Fishery Workers has been split to allow skilled agricultural workers to be identified at the second level of the classification, separately from market-oriented forestry and fishery workers.
2. Most jobs classified in ISCO-88 Unit Group 1311: General Managers in Agriculture, Hunting, Forestry and Fishing are now included in the relevant categories in ISCO-08 Sub-major Group 61: Market-oriented Skilled Agricultural Workers, or in Sub-major Group 62: Market-oriented Skilled Forestry, Fishery and Hunting Workers. The reason for this is that the distinction between these groups was not feasible in a number of countries. This led to significant inconsistencies in international reporting of data, as indicated above in the discussion on managerial occupations.
3. With respect to subsistence workers, there was extensive debate during the development of ISCO-08 about whether or not ISCO-88 Sub-major Group 62: Subsistence Agricultural and Fishery Workers should be retained. On the one hand there was concern that the boundary between subsistence and market-oriented activity could be difficult to draw, both in concept and from a practical point of view in statistical collections, as most subsistence farming involves the sale of a surplus. It was felt that the accurate collection of data on subsistence workers may require additional questions in censuses and surveys. In many countries employment in subsistence activity is very small or non-existent.
4. On the other hand, in many countries subsistence farming represents a large proportion of total employment and is seen as being qualitatively quite different from other types of employment. Whilst some experts felt that subsistence activity may be better identified in other international statistical standards such as the International Classification of Status in Employment, the removal of this group from ISCO would mean that this type of employment would no longer be identified in any current international statistical standard.
5. The group has therefore been retained as Sub-major Group 63: Subsistence Farmers, Fishers, Hunters and Gatherers. The single minor and unit group provided in ISCO-88 has been replaced in ISCO-08 with separate minor and unit groups for those producing crops only, livestock only, mixed crops and livestock, and for subsistence fishers, hunters, trappers and gatherers.

**63 Subsistence Farmers, Fishers, Hunters and Gatherers**

**631 Subsistence Crop Farmers**

6310 Subsistence Crop Farmers

**632 Subsistence Livestock Farmers**

6320 Subsistence Livestock Farmers

**633 Subsistence Mixed Crop and Livestock Farmers**

6330 Subsistence Mixed Crop and Livestock Farmers

**634 Subsistence Fishers, Hunters, Trappers and Gatherers**

6340 Subsistence Fishers, Hunters, Trappers and Gatherers

1. The definitional material for this group and for Sub-major Groups 61, 62 and 92 (Agricultural, Forestry and Fishery Labourers) has been improved to make it clear that:
2. workers engaged in agricultural, forestry and fisheries activities should be classified in Sub-major Group 63 if the main aim of the production is to provide goods (mainly food) for consumption by the worker’s own household;
3. those who perform only simple tasks requiring little judgement or experience should nevertheless be classified in Sub-major Group 92;
4. subsistence hunters, trappers and gatherers should be classified in Sub-major Group 63.
5. For countries and regions in which subsistence activities are virtually non-existent, Sub-major Group 63 can be excluded from national and regional adaptations of ISCO-08 without loss of international comparability.
6. More detailed categories have also been created in Minor Group 921: Agricultural, Forestry and Fishery Labourers. These categories reflect the minor group structure used in Sub-major Group 61: Market-oriented Skilled Agricultural Workers, and in Sub-major Group 62: Market-oriented Skilled Forestry, Fishery and Hunting Workers. In this way, those working on crop farms, livestock farms, and mixed crop and livestock farms can be identified separately, regardless of any national variations in practice for coding farm jobs as skilled or elementary in Major Groups 6 and 9 respectively. A separate unit group is also provided for garden and horticultural labourers. Hunting and trapping labourers are no longer included in the same unit group as forestry labourers, on the basis that they cannot easily be distinguished from skilled hunters and trappers.

**92  Agricultural, Forestry and Fishery Labourers**

**921   Agricultural, Forestry and Fishery Labourers**

    9211 Crop Farm Labourers

    9212 Livestock Farm Labourers

    9213 Mixed Crop and Livestock Farm Labourers

    9214 Garden and Horticultural Labourers

9215 Forestry Labourers

1. Fishery and Aquaculture Labourers
2. A new Unit Group 9624: Water and Firewood Collectors is also provided in ISCO-08. Although many water collectors are employed in agricultural settings, this unit group is included in Minor Group 962: Other Elementary Workers, as the activity does not necessarily involve agricultural production. Jobs in this unit group are common in urban as well as agricultural settings.

3.6 Occupations in crafts, repair and operation of machinery

### 3.6.1 Electrical and electronics trades workers

1. A new Sub-major Group 74: Electrical and Electronics Trades Workers has been created for ISCO-08. It comprises those jobs classified in ISCO-88 Minor Group 724: Electrical and Electronic Equipment Mechanics and Fitters and Unit Group 7137: Building and Related Electricians. Separate minor groups are provided for electrical and for electronics equipment installers and repairers. The unit groups reflect the growing convergence between computer and telecommunications technologies, and aim to provide a clear distinction between those working with high tension and low tension equipment.

### 3.6.2 Handicraft workers

1. The new ISCO-08 Minor Group 731: Handicraft Workers comprises most of the occupations included in ISCO-88 Minor Groups 731: Precision Workers in Metal and Related Materials; 732: Potters, Glass-makers and Related Trades Workers; and 733: Handicraft Workers in Wood, Textile, Leather and Related Materials. It also includes ISCO-88 Unit Groups 7424: Basketry Weavers, Brush Makers and Related Workers; 7431: Fibre Preparers; and 7432: Weavers, Knitters and Related Workers. Some of the unit groups moved to the new minor group have been merged, due to the very small numbers employed in many of these occupations and the difficulty in distinguishing between occupations such as “handicraft worker, reed weaving” and “basket maker”.

### 3.6.3 Printing occupations

1. The groups for printing occupations specified in Major Groups 7 and 8 in ISCO-88 had become outdated due to developments in printing technology. In particular, the distinction between machine operators and trades workers was no longer seen as meaningful. ISCO-08 provides a simplified arrangement, involving only three unit groups: pre-press technicians, printers, and print finishing and binding workers. These unit groups form a single Minor Group 732: Printing Trades Workers. This minor group is grouped with the new Minor Group 731: Handicraft Workers to form Sub-major Group 73: Handicraft and Printing Workers, reflecting the combination of manual dexterity, use of specialized tools, and artistic skill involved in both groups.

### 3.6.4 Plant and machine operators

1. The groups for plant and machine operators have been significantly rationalized and reorganized in response to concerns that this part of ISCO-88 was excessively detailed and out of date in some areas. There was also difficulty in distinguishing reliably between stationary plant operators and machine operators. Some occupations have been classified at a higher skill level due to technological developments and the automation of industrial processes controlled by technicians from a central control room or console.
2. The main features of the changes introduced to address these concerns are:
3. ISCO-88 Sub-major Groups 81: Stationary-Plant and Related Operators, and 82: Machine Operators and Assemblers, have been replaced by two new sub-major groups:

**81 Stationary Plant and Machine Operators**

**82 Assemblers**

1. some minor groups have been merged where there were parallel groups in related fields in ISCO-88 for stationary plant operators and machine operators;
2. a new Minor Group 313: Process Control Technicians has been created and a number of unit groups, or parts of unit groups, have been moved into this new group from ISCO-88 Sub-major Group 81: Stationary-Plant and Machine Operators, reflecting the need for these occupations to be classified at a higher skill level; and
3. a number of unit groups have been merged where there was concern that the categories in ISCO-88 were too detailed.
4. In addition, some groups in Major Group 8 have been merged with groups of related occupations in Major Group 7, where the distinction between craft and related trades workers on the one hand, and plant and machine operators on the other, was no longer meaningful. This was the case, for example, for printing occupations, mining occupations and for some machine tool setters and operators.

3.7 Improved identification of elementary occupations and of occupations predominant in informal employment

1. The need to identify occupations that are common in informal employment was taken into consideration in ISCO-88 primarily through the delineation of specific unit groups considered to be important in the informal sector. There was widespread concern, however, that coverage of such occupations remained inadequate. Statistics about employment in many of these occupations were not visible in internationally comparable data, as they were separately identified only at detailed levels of ISCO-88. For example, ISCO-88 included two unit groups for street vendors, an occupational group that is very commonly associated with informal employment. These two unit groups were included in the same minor group, however, as door-to-door and telephone salespersons, more frequently associated with formal employment.
2. The coverage of occupations that are predominant in informal employment has been extended in ISCO-08. Where possible, such occupations have been aggregated into minor groups and sub-major groups, to allow them to be more easily visible in internationally reported data. This is reflected, for example, in the creation of Minor Group 731: Handicraft Workers, mentioned above, and in a number of changes in the structure of Major Group 9: Elementary Occupations, discussed below.
3. Although jobs in informal employment can be found in all ISCO major groups, the structure of Major Group 9: Elementary Occupations, has been significantly affected by the changes mentioned above. In particular, there has been an increase from 3 to 6 in the number of sub-major groups in Major Group 9, including the creation of Sub-major Group 95: Street and Related Sales and Services Workers.[[8]](#footnote-8)
4. The ISCO-88 and ISCO-08 sub-major and minor group structures for Major Group 9: Elementary Occupations are compared in table 7.
5. ISCO-88 Minor Group 914: Building Caretakers, Window and Related Cleaners has been split. Building caretakers are identified in ISCO-08 as a unit group in Minor Group 515: Building and Housekeeping Supervisors. Separate unit groups are provided in ISCO-08 Minor Group 912 for hand launderers and pressers, vehicle cleaners, window cleaners and other cleaning workers.
6. With respect to ISCO-88 Minor Group 915: Messengers, Porters, Doorkeepers and Related Workers, the bulk of occupations classified in Unit Group 9152: Doorkeepers, Watchpersons and Related Workers are now included in ISCO-08 Unit Group 5414: Security Guards. The remaining unit groups in this minor group are now included in Minor Group 962: Other Elementary Workers.

Table 7 Sub-major and minor groups in Major Group 9: Elementary Occupations, ISCO-88 and ISCO-08

| **ISCO-88 code** | **ISCO-88 title** | **ISCO-08 code** | **ISCO-08 title** |
| --- | --- | --- | --- |
| **91** | **Sales and Services Elementary Occupations** | **91** | **Cleaners and Helpers** |
| 911 | Street Vendors and Related Workers | 911 | Domestic, Hotel and Office Cleaners and Helpers |
| 912 | Shoe Cleaning and Other Street Services Elementary Occupations | 912 | Vehicle, Window, Laundry and Other Hand Cleaning Workers |
| 913 | Domestic and Related Helpers, Cleaners and Launderers |  |  |
| 914 | Building Caretakers, Window and Related Cleaners |  |  |
| 915 | Messengers, Porters, Doorkeepers and Related Workers |  |  |
| 916 | Garbage Collectors and Related Labourers |  |  |
| **92** | **Agricultural, Fishery and Related Labourers** | **92** | **Agricultural, Forestry and Fishery Labourers** |
| 921 | Agricultural, Fishery and Related Labourers | 921 | Agricultural, Forestry and Fishery Labourers |
| **93** | **Labourers in Mining, Construction, Manufacturing and Transport** | **93** | **Labourers in Mining, Construction, Manufacturing and Transport** |
| 931 | Mining and Construction Labourers | 931 | Mining and Construction Labourers |
| 932 | Manufacturing Labourers | 932 | Manufacturing Labourers |
| 933 | Transport Labourers and Freight Handlers | 933 | Transport and Storage Labourers |
|  |  | **94** | **Food Preparation Assistants** |
|  |  | 941 | Food Preparation Assistants |
|  |  | **95** | **Street and Related Sales and Services Workers** |
|  |  | 951 | Street and Related Services Workers |
|  |  | 952 | Street Vendors (excluding Food) |
|  |  | **96** | **Refuse Workers and Other Elementary Workers** |
|  |  | 961 | Refuse Workers |
|  |  | 962 | Other Elementary Workers |

# Notes on specific issues and boundary problems 4

4.1 Purpose of these notes

1. Chapter 4 discusses and clarifies areas of ISCO-08 where the boundaries between related groups may be difficult to delimit consistently in national contexts. It discusses cases where practice and boundaries have changed between ISCO-88 and ISCO-08 and provides advice on a number of other situations where the process of determining the most appropriate ISCO-08 code for a particular job or occupation may be difficult. In all of these cases special care may need to be taken to ensure consistent interpretation in national adaptations and applications of ISCO-08.
2. The information presented here relates primarily to the conceptual boundaries between categories in the classification, in situations where all information about the occupations concerned can be known. In statistical and administrative data collection activities it is frequently the case, however, that only a limited amount of information is available about the work performed. Some information is provided, therefore, about the evidence that may be needed to differentiate between some of the more difficult groups. It is hoped that those responsible for the development of tools to support the implementation of ISCO and related national classifications will be able to use this information to help make decisions about how best to assign classification codes to commonly occurring occupation titles associated with these difficult cases.
3. ISCO-08 has been designed so that, for most statistical purposes, the responses to questions about (a) the occupation or job title and (b) the main tasks or duties usually performed by the worker should be sufficient to assign a 4-digit ISCO code.[[9]](#footnote-9) Chapter 6 provides general guidance on the design of questions and on the procedures that may need to be adopted to ensure sufficiently consistent and accurate assignment of occupation codes, based on the evidence that might be available in particular statistical and administrative contexts. These issues will be covered more comprehensively in the proposed ISCO-08 *Implementation guide*.

4.2 Boundary issues affecting a broad spectrum of occupations

### 4.2.1 Occupations with a broad range of tasks and duties

1. Occupational classifications – national as well as international – define occupations and occupational groups by reference to the most common combinations of tasks and duties. Problems may arise therefore when, in the case of some jobs, the range of tasks and duties performed does not correspond exactly to those specified in the classification. In such cases application of the following rules is suggested, in the order of precedence given below, when implementing ISCO-08 and related classifications.
2. In cases where the tasks and duties performed require skills usually obtained through different levels of training and experience, jobs should be classified in accordance with those tasks and duties which require the highest level of skills. For instance, a job which consists of driving a van, loading and unloading it and delivering goods by hand should be classified in Unit Group 8322: Car, Taxi and Van Drivers.
3. In cases where the tasks and duties are connected with different stages of the production and distribution of goods process, tasks and duties related to the production stage should take priority over associated ones, such as those related to the sales and marketing of the same goods, their transportation or the management of the production process. For example, a baker who bakes bread and pastries and also sells these products should not be classified as a salesperson, but as a baker, which means, in ISCO-08 terms, Unit Group 7512: Bakers, Pastry-cooks and Confectionery Makers.
4. Where the tasks and duties performed are both at the same skill level and at the same stage of production, jobs should be classified according to the predominant tasks performed. For example a “fire door installer” may assemble and install doors, door frames and fittings and also install and connect electrical wiring systems so that the door will close automatically in the event of a fire alarm. In this case, the job requires skills both as a carpenter and as an electrician, but the most time-consuming part of the work relates to carpentry. It should therefore be classified in Unit Group 7115: Carpenters and Joiners, rather than in Unit Group 7411: Building and Related Electricians.

### 4.2.2 Apprentices and trainees

1. In ISCO-08 apprentices and trainees are classified according to the occupation they are training for, if they are employed in the capacity of apprentice or trainee.[[10]](#footnote-10)
2. The ISCO-88 introduction (p. 11) stated: “Apprentices and trainees are classified according to the tasks and duties actually performed, and not, as is the case with some occupational classifications, according to their future occupation.” Most apprentices and trainees, however, perform the same tasks as those performed by fully qualified workers, but do so under varying degrees of supervision. Moreover, most data sources would not provide sufficient detail to allow us to determine whether the apprentice performs the same tasks or different tasks from those performed in the occupation for which he or she is training.
3. ISCO-08 therefore classifies workers in a formal learning status with an employer who instructs them in an occupation in the same way throughout the classification. Apprentice carpenters and apprentice electricians, for example, are classified as carpenters and electricians. Medical and legal interns are similarly classified as doctors and lawyers. Where trainees also have jobs in a related occupation, these jobs should be classified according to the work required to be performed, such as when medical or legal students, for example, are employed as ward attendants, medical assistants or legal clerks.
4. It should also be noted that responses in statistical collections frequently do not contain information about apprentice or trainee status, unless specific questions are asked to identify this group. If information about apprentice or trainee status is required, it may be more effective to treat this as a separate variable, with a separate question, rather than to attempt to identify apprentices and trainees as separate occupations in a national occupation classification.

4.3 Managers, supervisors and operators of businesses

### 4.3.1 Managers and supervisors

1. The distinction between managers and supervisors may frequently cause difficulties. This problem existed in ISCO-88 but is highlighted in ISCO-08 where some supervisory occupations are identified separately from the occupations they supervise. The critical difference is that supervisors are responsible only for supervision of the activities of other workers, whereas those classified in Major Group 1: Managers have overall responsibility for the operations of a business or an organizational unit.
2. Both managers and supervisors plan, organize, coordinate, control and direct the work done by others. In addition, managers usually have responsibility for and make decisions about:
3. the overall strategic and operational direction of a business or organizational unit (for example about the kinds, quantity and quality of goods to be produced);
4. budgets (how much money is to be spent and for what purposes); and
5. the selection, appointment and dismissal of staff.
6. It is not a necessary condition that managers have responsibility for all three of strategic and operational direction, budgets and staff selection and dismissal. The degree of autonomy they exercise may also vary.
7. Supervisors may provide advice and assistance to managers on these matters, especially in relation to staff selection and dismissal, but do not have authority to make decisions. They usually have experience as workers in one or more of the occupations they supervise, and do not usually supervise the activities of workers employed in a wide range of occupations.
8. Managers do not necessarily know how to perform the work of all of the staff employed in the units they manage, although in some circumstances they may. It is frequently the case that managers plan, coordinate and control the activities of workers employed in a wide range of occupations.

### 4.3.2 Managers and operators of small businesses

1. Self-employed workers, who operate their own business either independently or with assistance from a small number of others, frequently perform some management and administrative tasks as part of their normal activity. In ISCO-08 such jobs are only classified in Major Group 1: Managers if there is evidence that management, including supervision of staff, is the major component of the work performed. For example, a motor vehicle mechanic who owns and operates his or her own workshop and employs a small number of other mechanics, a receptionist and a cleaner, but spends most of the time repairing vehicles and/or supervising the work of the other mechanics, is classified in Unit Group 7231: Motor Vehicle Mechanics and Repairers.
2. It is important to note that ISCO-08, like its predecessor, does not take into consideration whether a worker is a working proprietor or not, as this and similar attributes of the labour force, such as being an employer or an employee, reflect status in employment and not the tasks and duties of the worker. It is better therefore to treat this characteristic of jobs as a separate variable, classified according to a classification such as the International Classification of Status in Employment (ICSE-93).[[11]](#footnote-11) Information related to status in employment should not generally be taken into consideration in assigning jobs to ISCO-08 categories. The fact that a worker is, for example, an owner of the business in which he or she is employed may have little or no relationship to the kind of work performed.

### 4.3.3 Size of the organization

1. There is an evident relationship between the size of the organization in which a worker is employed and categories in ISCO-08 related to management. For example, those occupations classified in Minor Group 112: Managing Directors and Chief Executives are usually senior managers in organizations that are large enough to have a hierarchy of managers. Similarly, most occupations classified in Sub-major Group 14: Hospitality, Retail and Other Services Managers are the managers of relatively small organizations that do not usually have hierarchies of managers. Workers classified in Sub-major Groups 12: Administrative and Commercial Managers and 13: Production and Specialized Services Managers, may be employed in large hierarchical organizations or in relatively small organizations that provide specialist services to other organizations.
2. Despite these relationships, information about the size of the organization in which an individual manager is employed is not generally relevant to decisions about the most appropriate ISCO-08 code. This is because ISCO-08 Major Group 1 is organized according to functional specialization and not according to the size of the organization managed.
3. Although most shop managers, for example, are responsible for relatively small establishments, the managers of large supermarkets and department stores are still shop managers. They are classified with other shop managers in Unit Group 1420: Retail and Wholesale Trade Managers. Taking another example, the key characteristics of chief executives, classified in Minor Group 112, are that they coordinate and direct the activities of other managers who have a range of specialized functions, and that they report to a board of directors. This is a result, primarily, of the way in which management and governance of the organization is arranged, and reflects the complexity of the organization’s functions as much as its size.
4. It is therefore **not** recommended to use information about the size of the organization in which a worker is employed, measured in terms of number of employees or turnover, or about the number of staff supervised, to differentiate between managers classified in the different sub-major groups of Major Group 1. Similarly, information about organization size should not be used to differentiate managers from operators of small businesses classified in other major groups. The most reliable way to make these distinctions in statistical and administrative collections is likely to be to collect information about both the **occupation or job title** and the **main tasks or duties** performed.

4.4 Related occupations at different skill levels

### 4.4.1 General principles

1. There are many cases, in both ISCO-88 and ISCO-08, where occupations that are relatively similar in terms of aspects of skill specialization are classified in different major groups because of differences in skill level. Whilst the distinctions between such occupations are frequently clear cut and well understood, there are some cases where care needs to be taken to ensure that specific occupational groups in the national context are mapped appropriately to ISCO-08 categories. In general, the following principles should be applied in making decisions about where in ISCO-08 to classify particular occupations with respect to skill level.
2. Decisions should be made on the basis of the tasks actually performed, rather than on the level of qualifications required in a particular country, or on the extent to which the occupations concerned are formally regulated. In this way, occupations that involve performance of the same tasks are always classified in the same ISCO-08 group, regardless of differences in national training or regulation.
3. The actual qualifications held by the person holding a particular job should not be taken into consideration.
4. Jobs held by experienced or highly qualified individuals are classified in the same group as those held by less well qualified individuals when the tasks performed are essentially the same, even though the more qualified individuals may sometimes perform more difficult or complex tasks. For example, master carpenters, senior carpenters, junior carpenters and apprentice carpenters, who build structures using wood and other materials, are all classified in Unit Group 7115: Carpenters and Joiners. Skill level is determined on the basis of the requirements for entry-level jobs for fully qualified workers.
5. The boundaries between occupations classified in Major Group 9: Elementary Occupations and those that are related in terms of skill specialization but classified in Major Groups 6, 7 and 8 may cause particular difficulty when occupation titles such as “farm hand”, “construction worker”, “process worker” or “factory worker” are used. The general principle to be adopted is that occupations classified in Major Group 9 typically involve the performance of simple and routine manual and physical tasks that require limited training and no more than basic skills in numeracy, literacy and interpersonal communication. Whilst the operation of complex machinery is not involved, the use of hand-held mechanical tools may be required.
6. Where boundary issues are of particular concern, guidelines are provided in the notes included with the ISCO-08 group definitions. Examples of occupation titles included in each group are also given. Where it is known, however, that the same or similar terms are used in different countries to refer to occupations classified in different occupation groups, these terms have not generally been listed in either the list of included occupations or in the *Index of occupational titles* (ISCO-08, Volume 2). In these and other cases, decisions will need to be made in the national context, based on the nature of the work performed. The examples discussed below may require particular attention and may serve to illustrate the points made above.

### 4.4.2 Nursing professionals, associate professionals and personal care workers

1. Occupations whose titles contain the word “nurse” or “nursing” may be found in Unit Groups 2221: Nursing Professionals and 3221: Nursing Associate Professionals, as well as in Minor Group 532: Personal Care Workers in Health Services.
2. The boundaries between these groups in terms of the tasks performed are defined in the group definitions and associated notes. In summary, nursing professionals assume responsibility for the planning and management of the care of patients, working autonomously or in teams with medical doctors and others. Nursing associate professionals provide basic nursing and personal care and generally work under the supervision or in support of medical, nursing or other health professionals. Personal care workers provide personal care and assistance with mobility and activities of daily living but do not provide nursing care beyond assisting patients with oral medications and changing dressings.
3. Occupational titles such as “nursing sister”, “registered nurse”, “charge nurse”, “enrolled nurse”, “assistant nurse”, “nursing assistant”, “auxiliary nurse” and “nurse aide” need to be mapped to the appropriate ISCO-08 unit group or minor group, based on the usage of these terms in the national context. Although some of these occupation titles are listed in the ISCO-08 group definitions and index, the scope of practice for such titles may vary between countries and within countries over time. It is necessary, therefore, to consider the tasks that workers in jobs with these titles are competent or authorized to perform in the national context, and to compare these tasks with those listed in the ISCO-08 group definitions, in order to determine where in the classification each title will be classified. In this way all relevant terms can be appropriately included in the national index of occupational titles.

### 4.4.3 Early childhood educators and child care workers

1. Occupations involved in the care and development of children below primary school age may be classified in Unit Group 2342: Early Childhood Educators; 5311: Child Care Workers; or 5312: Teachers’ Aides.
2. Jobs classified in Unit Group 2342 differ from those included in the other two unit groups in that they plan, organize and conduct educational and play activities that are intended to promote the development of children below primary school age. Although it is not advisable to consider the formal qualifications held by individuals, it should be noted that tertiary qualifications in education and early childhood development are normally required.
3. Child care workers provide care and supervision for children. Teachers’ aides perform similar duties and also perform a range of other non-teaching duties to assist teaching staff. Neither of these two groups generally plans and organizes structured play or educational activities, although they may assist in the provision of these activities.

### 4.4.4 Traditional and complementary medicine professionals and associate professionals

1. The distinction between occupations classified in Unit Group 2230: Traditional and Complementary Medicine Professionals, and 3230: Traditional and Complementary Medicine Associate Professionals, has the potential to be a source of uncertainty, especially in countries where this type of practice is not part of mainstream health service provision.
2. A key point is that traditional and complementary medicine professionals develop and implement treatment plans for human ailments by applying knowledge, skills and practices for which competent performance requires extensive study of theories, beliefs and experiences originating in specific cultures. Those occupations whose practice requires a less extensive understanding based on relatively short periods of formal or informal education and training, or acquired informally through the traditions and practices of the communities where they originated, are included in Unit Group 3230: Traditional and Complementary Medicine Associate Professionals.
3. A comprehensive list of the occupational titles included in each of these groups is included in the unit group definitions and in the ISCO-08 *Index of occupational titles* available on the ISCO website. Care should be taken, however, in interpreting these occupational titles in national contexts, as the scope of practice and nature of the tasks performed by individuals using these and similar occupation titles may vary from country to country. In some countries there may be a limited framework for the recognition of qualifications in the field of complementary medicine, or the regulatory framework may not allow the performance of certain tasks. As with other occupational groups, the distinction between these two groups should be made on the basis of the tasks performed in these occupations in the national setting, rather than on the qualifications held by individuals. For example, it may be appropriate to classify practitioners who administer treatments within the framework of a treatment plan established by others in Unit Group 3230 rather than in Unit Group 2230.

### 4.4.5 Occupations in food preparation

1. Occupations that mainly involve the preparation, assembly and presentation of food for immediate consumption may be classified in one of the following unit groups:

3434 Chefs

5120 Cooks

9411 Fast Food Preparers

9412 Kitchen Helpers

1. In determining the boundaries between these groups the following points are of particular relevance.
2. Chefs, classified in Unit Group 3434, plan and develop recipes and menus, create dishes and oversee the planning, organization, preparation and cooking of meals.
3. Whilst cooks, classified in Unit Group 5120, plan, organize, prepare and cook a range of dishes, they do so according to recipes or under the supervision of chefs. They do not generally develop menus or create new dishes.
4. Fast food preparers, classified in Unit Group 9411, prepare and cook to order a **limited range** of foods or beverages involving simple preparation processes and a small number of ingredients. The key point is that they prepare foods and beverages for which extensive training in food preparation is not required.
5. Kitchen helpers, classified in Unit Group 9412, mainly provide support to cooks, chefs and waiters by keeping kitchens and food service areas clean and tidy and assisting with basic food preparation tasks.
6. Jobs that combine simple preparation of food with a significant element of client service should normally be classified in one of the following unit groups as appropriate:

5131 Waiters   
 5212 Street Food Salespersons  
 5246 Food Service Counter Attendants

In this case the higher level of skill required for client service takes precedence over the simple food preparation tasks, in line with priority rule (a) specified in section 4.2 above.

1. Chefs and cooks who prepare more complex dishes and also provide direct service to clients should be classified as chefs or cooks, in line with priority rule (b) specified in section 4.2 above
2. Although the boundaries between these groups are relatively clear conceptually, it may be more difficult in practice to establish national rules on how to classify particular jobs based on limited information, such as the occupation title and a short task description. Occupation titles like “chef” and “head cook” may generally be coded with confidence to Unit Group 3434: Chefs.[[12]](#footnote-12) The term “cook” without further qualification or information would generally be coded to 5120: Cooks.
3. When the type of food cooked is specified it may be necessary to consider the cooking process used and whether, in the national context, such items are generally cooked according to a simple predefined process. For example, occupation titles such as “hamburger cook” would generally be coded to Unit Group 9411: Fast Food Preparers. In many cases information about the employer may be helpful in determining the most appropriate code. For example, it may be appropriate to consider “cooks” employed by certain well-known fast food chains, specializing in hamburgers or fried chicken, as fast food preparers.
4. Those cooks who specialize in preparing dishes according to a particular national or regional cuisine and generally prepare a wide range of dishes should be classified in Unit Group 5120: Cooks, even if the food is served in a fast food or take-away outlet.

### 4.4.6 Domestic housekeepers and domestic cleaners

1. Domestic Housekeepers, classified in Unit Group 5152, and Domestic Cleaners and Helpers, classified in Unit Group 9111, have a number of tasks in common. The key difference is that domestic housekeepers take responsibility for the organization and supervision of housekeeping functions in private households, as well as carrying out some or all of these functions themselves. Domestic cleaners and helpers, on the other hand, carry out these functions under the supervision either of a person employed as a domestic housekeeper or of a member of the household who takes responsibility for the organization of housekeeping functions.

4.5 Boundaries between occupational groups in agriculture, forestry and fisheries

1. In classifying occupations in agriculture, forestry and fisheries, particular attention may need to be paid to the boundaries between the following groups:

* agricultural production managers, farmers and farm managers;
* mixed producers of both crops and animals, and specialist producers of crops or animals;
* occupations classified in Sub-major Group 63: Subsistence Farmers, Fishers, Hunters and Gatherers and those classified in the “market-oriented” Sub-major Groups 61 and 62;
* skilled agricultural, forestry and fishery workers classified in Major Group 6 and labourers, classified in Major Group 9: Elementary Occupations.

### 4.5.1 Agricultural production managers, farmers and farm managers

1. Minor Group 131:Production Managers in Agriculture, Forestry and Fisheries is restricted to those who manage production in large-scale agricultural, horticultural, forestry, aquaculture and fishery operations. Such operations would include large plantations, large ranches, collective farms and cooperatives. Typically such enterprises have a hierarchy of managers and the production manager reports to a managing director.
2. “Farmers” on the other hand generally own and operate their own farm. They perform a range of management tasks as well as tasks directly associated with agricultural production. They are classified in the appropriate unit group in Major Group 6: Skilled Agricultural, Forestry and Fishery Workers, depending on the type of farm they operate.
3. Whilst the distinction between these two groups is conceptually quite straightforward, it may be difficult, in practice, to determine whether a job with an occupation title like “Farm manager” should be classified in Major Group 1 or Major Group 6. Such terms may most commonly be used in situations where the owner of a farm has engaged an employee to operate the farm. This employee effectively performs the same tasks as a farmer who owns and operates the farm and should be classified in Major Group 6. The distinction between the farmer and farm manager in such cases is primarily a function of status in employment (ILO, 1993) rather than occupation, defined in terms of the type of work performed, and is not generally relevant for determining the most appropriate ISCO-08 code to information about specific jobs (see Section 4.3 above).
4. There may be cases, however, where occupation titles such as “farm manager” and “ranch manager” may refer to the management of production in large-scale enterprises with hierarchies of managers. When this is the case, it may be necessary to consider the way in which agricultural production is organized at the national level, as well as the use of occupational titles in the national context, in order to develop suitable national approaches to the coding of such occupation titles.

### 4.5.2 Mixed and specialist crop and animal producers

1. The notes provided with the definition of Unit Group 6130: Mixed Crop and Animal Producers, state that agricultural workers whose tasks predominantly involve either raising animals or growing crops, but also involve some incidental activity in crop growing or tending animals, respectively, should not be included there. In statistical collections the boundaries between mixed producers and specialist producers may, however, pose some problems.
2. In some cases the occupation title used will be sufficient. For example, if the response to a survey question on occupation stated that someone was a “fruit and vegetable grower” or a “shepherd”, it should not be necessary to seek additional evidence. In many cases information about the main tasks performed will also provide satisfactory evidence. For example, a “farmer” whose main tasks are “raising sheep and growing wheat” or “operating a livestock and wheat farm” would be coded to Unit Group 6130: Mixed Crop and Animal Producers.
3. If information about the occupation title and tasks performed is inconclusive, information about the kind of economic activity (industry) of the establishment in which the person is employed may be helpful – but should be treated with caution. For example, it would be reasonable to assume that a skilled farm worker on a livestock farm should be classified to Unit Group 6121: Livestock and Dairy Producers. It is possible, however, that some individual workers on mixed farms may specialize in either animal production or crop production. Mixed farms may, for example, employ both shepherds and tree pruners.
4. Information about the kind of economic activity may be found either in the form of written information provided in response to questions about the establishment in which the person is employed, or in the form of information coded to a classification of economic activities. Particular care needs to be taken when using coded information on the kind of economic activity of agricultural establishments to help assign occupation codes for workers. This is because precedence rules used to determine the predominant activity, for the purposes of economic statistics, may not be compatible with the purposes of an occupation classification based on the kind of work performed, defined in terms of skill requirements. For example, the current version of the International Standard Industrial Classification of All Economic Activities (ISIC Rev. 4) specifies that “if either production of crops or animals in a given unit exceeds 66 per cent or more of standard gross margins, the combined activity should not be included” in Class 0150: Mixed Farming but allocated to crop or animal farming (UN, 2008, p. 72). Workers who specialize in crop or animal farming may thus be employed on mixed farms that have been classified to ISIC categories associated with crop or animal production.
5. Whilst it is not possible here to prescribe strict rules that could be applied in all situations and national contexts, it should be clear from the above that information about economic activity of the establishment should not normally take precedence over information given about occupation title and tasks performed in the job. The important point is that the skills required for performance in the job are the main consideration in determining the most appropriate occupation code. Thus, if skills associated with both animal raising and crop production are essential requirements, then the job should be classified as mixed crop and animal production.

### 4.5.3 Market-oriented and subsistence workers

1. Special attention may need to be given to the distinction between subsistence farmers and fishers and those working in market-oriented enterprises. As discussed in section 3.5 above, workers should be classified in Sub-major Group 63: Subsistence Farmers, Fishers, Hunters and Gatherers, if the main aim of production is to provide food, shelter and other goods for consumption by members of the worker’s own household.
2. In most cases of subsistence activity some goods are sold to provide a minimum of cash income. If no cash income or bartering is involved, all production of goods for own consumption should be counted as employment and treated as subsistence production. Similarly, if a large surplus is produced, and more goods are sold than consumed, but the main aim of production was for own consumption, the jobs should nevertheless be classified in Sub-major Group 63. Jobs should only be classified as market-oriented agricultural forestry, fishery or hunting if the main aim of the activity is to produce goods for the market.
3. In some (mainly industrialized) countries, subsistence farming may be rare or even non-existent, in which case there would be no need to make special provision or even to include a group for subsistence activities in national adaptations of ISCO-08. In many countries, however, subsistence farming represents a large proportion of rural employment and the distinction between market-oriented and subsistence activity may be important for a wide range of purposes associated with social, economic and labour market policies.
4. In countries where separate job titles are used for subsistence workers and market-oriented workers, these titles should be included in the national index of occupation titles, along with the appropriate classification codes. Where this is not the case, it is unlikely that information about the tasks performed would provide sufficient information to reliably identify subsistence workers, as they have many tasks in common with market-oriented workers. If subsistence farming is a significant concern, it may be necessary, therefore, to consider an additional question asking whether or not production is mainly for sale or mainly for own or family/household use. This question may be asked in the context of other questions on occupation (title and tasks) or in association with questions on economic activity and status in employment. Whenever such a question is included in a household survey or census, it is important to ensure that the responses are used in the occupation coding or editing process.
5. Suggestions for the design and testing of questions related to subsistence farming are included in Chapter 6.

### 4.5.4 Skilled farm workers (Major Group 6) and farm labourers (Major Group 9)

1. Workers in Sub-major Group 92: Agricultural, Forestry and Fishery Labourers perform a limited range of simple and routine manual tasks requiring limited training or experience. Those classified in Major Group 6: Skilled Agricultural, Forestry and Fishery Workers generally perform a wide range of tasks, typically involving skills acquired through extensive experience and/or training. It should be noted that routine manual tasks may involve the use of mechanized hand-held tools, for which limited training is required.
2. In some cases the occupation title alone may be sufficient to distinguish between skilled and elementary farm workers. For example, occupation titles where the key noun is “farmer”, “grower”, “shepherd”, “pruner”,or “shearer”would all indicate occupations that involve the performance of a wide range of tasks, or highly specialized skills requiring considerable training or experience, and are classified in Major Group 6. Similarly, occupation titles such as “farm labourer”, “fruit picker” or “cane cutter” would indicate routine or repetitive tasks requiring limited training or initiative.
3. Occupation titles such as “farm worker” or “farm hand”, however, may require more consideration, as they refer to the fact that the worker is an employee on a farm, rather than to the level of skill or responsibility required. In such cases it is necessary to consider the use of terminology in the national context and in particular agricultural settings. For example, the term “stock hand” may be used in some countries to refer to a worker who looks after the care and well-being of animals on a livestock farm, classified in Unit Group 6121: Livestock and Dairy Producers. An “orchard hand”, however, may be more likely to refer to someone who picks fruit and performs other routine manual tasks than to someone who prunes trees, checks crops for disease and ensures that fruit-bearing trees are healthy and productive.
4. The combination of occupation title with task information or other qualifying information may therefore be useful. For example a “dairy farm worker” who milks cows should be classified in Unit Group 6121: Livestock and Dairy Producers, whilst a “dairy farm hand” who cleans animal enclosures should be classified in Unit Group 9212: Livestock Farm Labourers. Where a combination of tasks is performed including some that involve higher skills or initiative, then Major Group 6 would be more appropriate.
5. It is also important to note that some elementary occupations that commonly occur in rural or farm settings also occur in non-agricultural settings and do not require direct involvement with animals or crops. Such occupations are classified in relevant groups outside Sub-major Group 92: Agricultural, Forestry and Fishery Labourers. For example, ditch digging labourers are classified in Unit Group 9312: Civil Engineering Labourers, and water carriers are classified in Unit Group 9624: Water and Firewood Collectors.

### 4.5.5 Operation of farm and forestry machinery

1. Finally, it should be noted that many skilled agriculture and forestry workers operate specialized machinery such as tractors and drive motorized vehicles as part of their normal duties. Jobs that require operation of machinery combined with a range of other skilled farm work are classified in Major Group 6. Workers such as harvester operators, who specialize in the operation of machinery but may perform other farm or forestry duties incidentally, should be classified in the appropriate unit group for the type of machinery operated. In most cases this would be Unit Group 8341: Mobile Farm and Forestry Plant Operators.

# Adapting ISCO-08 for national use and for the production of internationally comparable data 5

5.1 Scenarios for the adaptation of ISCO-08 for national use

1. Depending on national circumstances there are three main ways in which ISCO-08 may be adopted or adapted for national use:

* adopting ISCO-08 directly for national purposes (not recommended in most circumstances);
* development or review of a national classification based on ISCO-08;
* an existing national classification, different from ISCO-08, is mapped to ISCO-08 to facilitate the production of internationally comparable data.

1. This chapter provides general guidance on the use of ISCO-08 following each of these scenarios. More detailed advice will be provided in the proposed ISCO-08 *Implementation guide.*[[13]](#footnote-13)
2. As outlined in Chapter 1, the ideal situation is that countries develop national classifications that are tailored to meet national requirements whilst also facilitating the provision of internationally comparable information. This means that the development work should take into consideration requirements for international comparability, as well as reflect specific national requirements based on the occupational structure of the workforce and national priorities for information to support policy debate. As these requirements may not always be fully compatible with each other, difficult decisions may sometimes need to be made in weighing national priorities against the need for international comparability.

5.2 Adopting ISCO-08 directly for national purposes

1. In situations where countries do not have the resources, capacity or time to develop a national occupation classification (NOC) designed to suit the country’s own realities and requirements, there may be little choice other than to adopt ISCO-08 with minimal change, at least in the short to medium term. This approach is far from ideal, as the occupational structure of the national labour market, as well as national policy concerns, will vary greatly between countries. It is unlikely, therefore, that ISCO-08 without modification would fully satisfy the range of national requirements for occupational statistics and information.
2. Adopting ISCO-08 in this way does, nevertheless, involve a significant amount of preparation on the part of agencies wishing to use ISCO to collect data on occupations. This might include translating ISCO-08 into the national language or languages where necessary. It would also be necessary to determine where in ISCO-08 particular occupational groups in the country should be classified.
3. Countries would need to decide, for example, whether nursing occupations should be classified in Major Group 2: Professionals, in Major Group 3: Technicians and Associate Professionals, or whether some nursing jobs should be classified in one and some in the other of these groups. The decision would need to be based on knowledge about the nature of the work performed by different types of nurse in the country, and would therefore require some research on the part of those responsible for adopting and using ISCO in national applications.
4. There may also be some occupations in the country that do not commonly exist in other countries and are consequently not separately listed in ISCO-08. Countries would therefore need to collect information about the nature of the work performed in these occupations and their skill requirements, in order to identify the most appropriate ISCO-08 group in which to include them.
5. The most important task, where resources are limited, is to develop a national index of occupation titles, coded to ISCO-08 (and/or to the national adaptation of it). The purpose of this exercise is to accurately map terms used to describe occupations in national data collections to the standard occupation classification. Either the ISCO-08 index or an existing national index may be used as a starting point (see section 6.4 below).
6. The ISCO-08 index provides some common combinations of occupation titles, tasks performed and other qualifying information that may be of assistance in adapting ISCO-08 for national use. The use of these terms in the national context would need to be verified, however, by those developing national indexes of occupational titles. Terms used to describe occupations in the national context would need to be added to the ISCO index, following determination of the appropriate ISCO code.

5.3 Development or review of a national classification based on ISCO-08

1. The development or review of a NOC based on ISCO-08 may typically include, in addition to the items mentioned in section 5.2 above, the deletion or merging of categories that are either non-existent or unimportant in the country. It may also include the specification of nationally specific occupational groups, and of groups that are adapted to suit national circumstances. In all cases investigation is required to understand, firstly, the occupational structure of the national labour market and, secondly, the nature of the occupational data required to inform deliberations on nationally important policy issues.
2. This information is likely to be obtained in part through consultation with key users and producers of occupational information and in part through detailed analysis of existing data classified by occupation. This information is used to determine the extent to which the categories and structure of ISCO-08 reflect the reality of national circumstances and requirements. It may be necessary to split some ISCO-08 categories to provide more detail in some areas, or to create an additional more detailed hierarchical level, to satisfy some needs.
3. If the national classification is to be used in administrative or client-oriented activities such as matching jobseekers with job vacancies, as well as in statistical applications, the specific and potentially conflicting operational needs of agencies such as the national employment service and the national statistical office need to be taken into consideration. Employment services may typically require more detailed and more frequently updated information than is practical for use in statistical surveys. Those responsible for designing the classification need to collaborate closely, therefore, with the various national agencies that will use it.
4. Collaboration among those agencies that need to use occupational classifications for the production of data, for operational purposes and for policy analysis, may lead to a commitment among the agencies concerned to adopt a nationally consistent approach. Such collaboration may facilitate the provision of integrated occupational information, based on comparable quantitative and qualitative data from a range of statistical and administrative sources, if a single classificatory framework is used in all applications. Alternatively, a close linkage between different but complementary classification systems can be established. In either case, significant value can be added to the information collected if it is able to be integrated or compared meaningfully with data from other sources.
5. Where it is found necessary to merge ISCO-08 unit groups or higher level groups it should be borne in mind that this may impose limitations on the capacity of countries to map national data to ISCO-08. For example it may be possible to map data only from a detailed level of the NOC to a higher level of ISCO.
6. Where there is an existing NOC that is different from ISCO-08 it may, nevertheless, be desirable to review that classification to improve international comparability of national data, and to determine whether any of the features of the international standard may be useful for national purposes.

5.4 Mapping national occupation classifications to ISCO

1. Unless ISCO-08 is used directly at national level, the comparison of occupational information among countries or regions normally requires that national occupational statistics be converted to the international standard. This may be achieved by mapping the national occupational categories to ISCO-08 or by coding directly to the international classification, as described in section 5.5 below.
2. Mapping one classification into another is equivalent to coding each group in the first classification to the most appropriate group in the second. The validity and accuracy of the mapping will increase with the level detail at which the mapping is done. The mapping should be carried out, therefore, at the lowest possible level of aggregation of each of the two classifications, i.e. NOC and ISCO-08 (see Hoffmann, 1994). The mapping is generally represented in a correspondence table that shows the relationship between the categories in one classification and those in another.
3. In the process of mapping, the following three situations are the most frequently encountered:
4. The NOC group belongs unambiguously to one of the ISCO-08 unit groups. This is, of course, the simplest situation and, if the NOC is based on a conceptual model similar to that of ISCO-08, it is likely to be the most usual situation.
5. The NOC group, at the lowest level of aggregation, differs in occupational content from the most relevant ISCO-08 unit group, but the difference in the content does not prevent the NOC group from being validly mapped into an ISCO-08 group at one of the higher levels of aggregation. For example: the NOC classifies mobile farm, forestry and earthmoving plant operators in the same lowest level group, while ISCO-08 classifies these occupations in two separate unit groups, but in both classifications subsequent aggregation of these occupations is carried out in the same manner.
6. The way of grouping certain occupations is different in the NOC from that applied in ISCO-08, and, as a result, an existing NOC group cannot validly be mapped into any of the ISCO-08 groups. For example: at the lowest level of aggregation, the NOC classifies livestock farmers and livestock farm labourers in a single group, whereas ISCO-08 classifies these occupations in two separate unit groups belonging to different minor, sub-major and major groups.
7. If internationally available occupational statistics have to be produced at the minor group level of ISCO-08, or at any of the higher levels of aggregation, then few problems are likely to arise in the situation described under (b) above. If the information has to be produced at the level corresponding to ISCO-08 unit groups, and the situation described under (b) and (c) above applies, then the following rules, originally developed for ISCO-88, may also be applied for mapping to ISCO-08 in the order of priority given below.
8. The numerical dominance rule, according to which, on the basis of the additional information available from economic and other statistics, or from sectoral experts, estimates or judgement should be made concerning the relative importance of the occupations classified in the NOC group. If approximately 80 per cent or more of the jobs classified in the NOC group belong to a particular ISCO-08 group, then the whole NOC group should be classified in this ISCO-08 group.
9. The skill level rule, according to which the occupational mix of the NOC group should be analysed on the basis of the ISCO-08 skill-level concept. The mapping into an ISCO-08 group should then be carried out on the basis of the occupations found to be the most skilled.
10. The production rule, according to which, for the purposes of mapping into ISCO-08, in the occupational mix of a NOC group production occupations will have priority over sales or managerial occupations.
11. Use of the rules (a), (b) and (c) specified above for mapping categories in national classifications to ISCO-08 will inevitably have a negative impact on the accuracy of any exercise to convert national occupational data to ISCO-08. This may impose significant limitations on the validity of international comparisons. If this type of mapping is necessary it may be worth considering coding national occupational data directly to ISCO-08, as discussed below in section 5.5.

5.5 Coding to both the national occupation classification and ISCO

1. International comparability of occupational statistics can be achieved most accurately by coding the original responses to questions on occupation directly to the international classification system (Hoffmann, 1994, pp. 208–9). If this involves the recoding of census or survey responses that have already been coded to the national classification, the costs may be prohibitive. If, however, the coding index includes both ISCO-08 codes and NOC codes, then it is possible to assign codes for both classification systems. This allows dual coding to be done in a cost-effective manner using a single coding process at the time the survey or census data are originally processed. Where coding is done manually, this is likely to involve the relatively modest additional expense of key entering two sets of codes instead of one. Where computer-assisted or automatic coding is used, the additional costs are likely to be minimal.
2. The complexity of dual coding operations of this type will depend on how different the NOC is from ISCO-08. For example, if the NOC is closely based on ISCO-08 and uses a similar conceptual model, it may be relatively easy to assign both NOC and ISCO-08 codes to coding index entries.
3. If the two classifications have very different conceptual approaches, it is likely to be more difficult to design index entries that assign codes to both classifications. Additional index entries may need to be developed, for example to allow for the distinctions between categories in both classification systems to be made. It is precisely in this situation, however, that mapping from the national classification to ISCO-08 using a correspondence table may be least feasible. In such cases the extra effort involved in designing an index that will assign codes to both classifications may be the only effective way of producing valid internationally comparable data.

# Collection and coding of data for classifications based on ISCO-08 6

1. This chapter provides an overview of considerations involved in the collection of data on occupation. It also summarizes the procedures for assigning the responses to questions on occupation to classifications based on ISCO-08. These procedures are referred to as “coding”.
2. More detailed information about collecting and coding data on occupation can be found in *Measuring the economically active in population censuses: A handbook*,published jointly by the United Nations and the ILO in 2010. Much of the information provided in this handbook is relevant for household and other surveys as well as for censuses. Further advice will also be provided in the proposed ISCO-08 *Implementation guide*.

6.1 Information needed for coding

1. For accurate coding to any level of ISCO-08 and related national classifications, information is needed on the following:
   * Name or title of occupation
   * Main tasks or duties usually performed in the job
2. The following information may also be useful:
   * The type of economic activity of the establishment (industry)
   * Whether or not the main aim of the activity is own consumption (subsistence)
3. Information about the kind of economic activity (or industry) of the establishment in which a person is employed, and even the name of the establishment, may be helpful in some instances, when used in support of information about occupation title and/or tasks performed. Information on the industry of the establishment in which a person is employed is not normally useful, on its own, in assigning occupation codes.
4. If subsistence farming or fishing is significant in the country, or is a major policy concern, it may also be necessary to collect information about whether or not the worker produces goods mainly for the market or mainly for own household consumption.
5. Information about the level of skill or the formal qualifications held by an individual is not necessary and not useful. It is frequently the case that individuals hold higher qualifications than those required for the job in which they are employed or, conversely, that they do not hold any formal qualifications relevant to the job. The use of such information for occupation coding could therefore lead to error and introduce a bias in the relationship between data on occupation and level of education.

6.2 Types of question on occupation

1. Three types of question on occupation have typically been used in national censuses and household surveys:
   * One or two pre-coded (tick box) questions on the jobs that the individuals held (not recommended)
   * One write-in question to obtain occupation-relevant information about individuals’ jobs
   * Two or more write-in questions: a basic question on the title of the position held with follow-up on main tasks performed by the individual in the job
2. In establishment surveys and administrative data collections, a job description or duty statement may be coded directly to the occupation classification, using both the coding index and detailed text descriptions of the classification groups. The nature and detail of the information available from these sources may be quite different from the information provided in household-based collections.

### 6.2.1 Pre-coded questions

1. Closed-ended pre-coded questions have limited accuracy, as the names for groups in occupation classifications do not usually equate with “real world” terms used to describe jobs. In addition, since these questions are necessarily limited to a small number of categories they do not provide sufficient detail to meet the needs of most data users, even though they take up a large amount of space on census and survey forms.
2. The principal advantage of closed-ended questions on occupation is that responses can be processed quickly and at a low cost. If this approach is unavoidable due to cost limitations, separate response categories can be provided for high-priority groups. Accuracy can also be improved through testing and refinement of questions. It is important to note that the names of categories from broad classification groups should not usually appear on the questionnaire.

### 6.2.2 Open-ended questions

1. Open-ended questions, if designed well, can provide sufficient information to accurately assign a 4-digit ISCO-08 code. Adequate space must be provided for a written response of several words, and the question or questions should collect information about both the job title and the main tasks or duties performed. Examples of suitably detailed responses should be provided where possible, especially on self-enumerated questionnaires. Where data are collected by telephone or personal interview, good interviewer training is essential to ensure that responses are adequate.
2. The obvious disadvantage of using open-ended questions is that responses have to be assigned classification codes using an index of occupation titles (a coding index). This can be a costly process but is the only way of obtaining accurate and reliable statistical and administrative data on occupation. Relatively quick and cost-effective coding methods are possible, but are likely to require significant development effort.
3. A single question has frequently been asked in surveys and censuses such as:

* What is the main occupation of (the person) in this workplace?
* What kind of work does (the person) do?

1. This approach may provide adequate information from some **but not all** respondents. This type of question is likely, however, to yield responses such as “manager”, “consultant” or “farm work”. Such responses may not be able to be coded reliably to any level of ISCO-08. If this type of question is used, interviewers need to be trained thoroughly to probe when the information initially provided is insufficient.
2. The use of separate questions on job title and tasks performed is increasingly used by statistical offices and is the recommended approach for household surveys and censuses. The use of two questions generally assures that sufficient detail is provided. Asking for two different types of information will help the respondent to respond fully and to give more detail in the second question, for example:

* Title: Sales manager
* Tasks: Selling used cars
* Title: Customer services consultant
* Tasks: Selling used cars

6.3 Suggested questions recommended for testing and further development

1. Questions for use in statistical collections need to be tested for suitability in a particular data collection setting and in the national context. Testing should generally involve attempting to assign classification codes to the responses to survey questions (test coding), as well as conducting follow-up interviews with data collectors and respondents. The test coding process is also a useful method of developing, testing and refining the coding index.
2. The following questions are suggested as a starting point in the development of a national approach towards the collection of occupation data.

**1. In the main job held last week what was your work or occupation?**

*Please give full job title and be specific. For example:*

* + Fruit picker
  + Legal secretary
  + Restaurant manager
  + Secondary school teacher
  + Cattle farmer
  + Registered nurse

Occupation:

…………………………………………………………………………………………………………………………………………………………

**2. What are your main tasks or duties in that job?**

*Please give details. For example:*

* + Picking and carrying oranges and peaches
  + Preparing legal documents
  + Managing the operations of a restaurant
  + Teaching mathematics
  + Managing a cattle farm
  + Caring for the sick and administering medications

  Main tasks or duties:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Special attention may need to be given to subsistence farming and fishing. If this is a policy concern, or is thought to represent a significant proportion of employment, it may be advisable to ask an additional question to improve accuracy. The following approach is suggested.

**3. Do you produce goods mainly for sale or mainly for your own or family use?**

* + - * Only for sale
      * Mainly for sale but partly for own or family use
      * Mainly for own or family use but partly for sale
      * Only for own or family use

1. This question can generally be asked as a closed-ended question with response categories that ensure a clean separation between those who produce goods mainly for sale and mainly for family use. The four closed-ended response categories suggested above require the respondent to decide whether production is mainly for sale or mainly for own consumption. Selection of the third or fourth response categories would imply that an ISCO-08 code in Sub-major Group 63: Subsistence Farmers, Fishers, Hunters and Gatherers may be appropriate.
2. If information on subsistence activity is collected as part of a set of questions on status in employment or economic activity status, the responses should also be used in the occupation coding or editing process and adapted, if necessary, to ensure they are sufficiently consistent with the definition of ISCO-08 Sub-major Group 63.

6.4 Assigning classification codes to survey responses (coding)

1. Responses to open-ended questions have to be assigned to the appropriate category in an occupation classification. Whether or not the occupation classification is based on ISCO-08 this is not usually a simple process. Responses to questions on occupation (title and tasks), industry and name and address of workplace are relevant to the occupation coding process. Responses to any questions that collect data on subsistence activity should also be taken into consideration.
2. It is advisable to prepare three documents in advance of coding responses to open-ended questions on occupation. These are: (1) coding instructions specifying the procedures the coder is to follow; (2) a coding index; and (3) query resolution procedures, specifying how to deal with responses that cannot be coded using the index and the standard coding procedures specified in (1).
3. The coding index is the key instrument for matching responses to questions with ISCO-08 codes. It can take the form of a durable printed publication, a loose-leaf binder, computer printout, or a machine-readable file within a computer system. The same index can be used in all of these forms in manual, computer-assisted and automatic coding operations.
4. The index is needed because the formal names for classification categories (e.g. Education Manager) are not usually the same as terms normally used to describe jobs in natural language (e.g. head teacher, school principal, university dean, headmistress).
5. The index entries usually include a code for one or more classification systems, and one or more words based on responses given in censuses and surveys. Various devices such as slashes, underlining, and italics may be used to indicate whether specific words can be matched with information given as the occupation title, tasks performed or other supplementary information such as industry. The index is searched alphabetically but can also be sorted in code order for updating and query resolution.
6. In the absence of any national index or any other useful source to assess completeness of a national index, the ISCO-08 *Index of occupational titles*, published as ISCO-08, Volume 2, may be a good starting point to develop a national index. The national index, however, needs to reflect language as used in survey responses in the country concerned.
7. The ISCO-08 *Index of occupational titles* can be found in electronic form on the ISCO website: <http://www.ilo.org/public/english/bureau/stat/isco/index.htm>, or by sending an email to: [ISCO@ilo.org](mailto:ISCO@ilo.org), and may be used as a starting point in the development of national coding indexes without breach of ILO copyright.
8. In some statistical collections there has been a tendency to code data on occupation only to a particular aggregate level of the classification structure (e.g. the 3-digit level of ISCO). One argument for this is the perceived cost of coding to a larger number of categories in terms of errors and staff hours required. There may also be concern that the responses would not support coding to more detailed categories or that the detailed results may not be publishable due to sampling considerations.
9. The experience of many statistical agencies has shown, however, that the marginal costs of coding to a larger number of ISCO categories are small. Error rates do not significantly increase and may improve for aggregate groups. Many responses support detailed coding, while some do not. Coding to an arbitrary specific level of the classification may therefore involve unnecessary loss of information. With respect to sampling considerations, it is important to note that occupation classifications, including ISCO-08, are not generally designed so that categories at a particular hierarchical level are even in size. Some groups at detailed levels of classification may be larger than others at higher levels. Coding at a higher level will limit options for tabulation, international reporting, and for the production of flexible non-standard aggregations.

6.5 Coding of vague and inadequate responses

1. Whatever level of detail of the classification is used, some responses may be too vague and imprecise to allow the coder to determine to which category the job belongs. Such responses should be coded to the level in the classification structure supported by the information provided on the questionnaire. They should not be forced into any particular detailed category where only a small proportion of the jobs would fall if the responses were adequate. It is particularly important to ensure that residual groups (Not Elsewhere Classified) are not used for vague responses.
2. A common method of dealing with this type of response is to provide entries in the coding index for commonly occurring vague responses. Such responses are assigned the code for the relevant higher category, followed by trailing zeros. Alternatively, such codes can be assigned by specially trained coding staff or coding supervisors as part of a query resolution process. For example, if the only information available is that the person is a manager, the response can be assigned the code for Major Group 1: Managers, followed by three zeros and represented as: “1000: Managers Not Further Defined”.
3. A similar approach can be adopted when data can be coded only to the sub-major group level. If, for example, the only information is the job title “teacher”, it can be coded only to Sub-major Group 23: Teaching Professionals. The response can be assigned a code for what is effectively an artificial unit group (2300: Teaching Professionals Not Further Defined) by adding two trailing zeros.
4. When data can be coded only at the minor group level, a single trailing zero can be added to the 3-digit minor group code. If the only information is that somebody is a medical doctor, for example, it may not be possible to determine whether the response refers to a generalist medical practitioner (Unit Group 2211) or to a specialist medical practitioner (Unit Group 2212). The response can reliably be coded to Minor Group 221: Medical Doctors, and assigned code 2210: Medical Doctors Not Further Defined. Looking at another example, in the case of the response “engineer” with no other useful information, it may be appropriate to assign a code 2140: Engineering Professionals Not Further Defined.
5. In statistical outputs there are two main ways of dealing with these responses. One option is to allocate them proportionally to the more detailed categories in a transparent manner. Alternatively, they can be released in tables labelled as: (Group Name) Not Further Defined. For example, if 15 per cent of all responses coded to ISCO-08 Major Group 1 provide no more detailed information than:

Occupation title: Manager

Tasks and duties performed: Management and supervision of staff

it may be appropriate to represent these data in statistical output as Managers Not Further Defined with an ISCO-08 code 1000. In aggregate output, these vague responses are automatically included with data for the relevant aggregate group.

1. The use of codes with trailing zeros entails the creation of supplementary codes (and labels) for data processing and output. Although they are not substantive categories in the classification they need to be specified as valid codes for data storage and processing purposes, in advance of data processing along with other supplementary codes such as those for “inadequately described”, “not stated” and “not applicable” responses.

# ANNEX 1

# Seventeenth International Conference of Labour Statisticians: Resolution III

# Resolution concerning further work on the International Standard Classification of Occupations

The Seventeenth International Conference of Labour Statisticians,

Having examined the report to the Conference of the International Labour Office’s work with classifications,

Recognizing the valuable work that the International Labour Office (ILO) has carried out over the years to develop the current version of the *International Standard Classification of Occupations (ISCO‑88)* and to advise on its use as a model for national occupational classifications as well as on their effective and reliable use for statistics and in client-related applications,

Recognizing that some countries have national occupational classifications that differ significantly from ISCO-88 to well reflect their national circumstances,

Concluding that the basic principles and main structure of ISCO-88 should not be changed, but that nevertheless modifications are necessary in some areas, both to make improvements in light of experience gained in many countries using ISCO-88-based classifications, and as a consequence of developments in the world of work over the last 15 years,

Observing that the custodians of national standard occupational classifications as well as the users of such classifications and of occupational statistics significantly benefit from the technical advisory services that the ILO is uniquely qualified to provide, and

Recalling the request made by the Statistical Commission of the United Nations at its 34th session (March 2003) that the timetable for the revision of ISCO should meet the needs of the 2010 round of population and housing censuses;

Requests the Governing Body of the International Labour Organization to:

(a) ensure that the ILO, as the custodian of the *International Standard Classification of Occupations (ISCO-88)*, will have the capacity to:

(1) undertake the research and consultations necessary to formulate the modifications and updates of ISCO-88 that are necessary to ensure that it can continue to serve as a good model for national occupational classifications to be used for statistics as well as for client-related applications;

(2) complete this work not later than the end of 2007 for the results to be taken into account in national preparations for the majority of population censuses that are to be undertaken in the 2010 round;

(b) develop and implement mechanisms for this work to be done in cooperation and consultation with representatives of custodians of national occupational classifications as well as other experts and interested parties;

(c) convene an ILO meeting of experts to evaluate and make appropriate recommendations on the results to the Governing Body; and

(d) ensure that the ILO will have the capacity to provide the technical advisory services that will be needed particularly by the developing countries to ensure that national occupational classifications can be developed or improved correspondingly and be used effectively and reliably.

# ANNEX 2

# Resolution concerning updating the International Standard Classification of Occupations

The Tripartite Meeting of Experts on Labour Statistics on Updating the International Standard Classification of Occupations (ISCO),

Having been convened at Geneva by the Governing Body of the ILO and having met from 3 to 6 December 2007;

Recalling the Resolution of the Fourteenth International Conference of Labour Statisticians, made on 6 November 1987, endorsing the International Standard Classification of Occupations, 1988 (ISCO-88);

Recalling the request made by the Statistical Commission of the United Nations at its 34th session (March 2003) that the timetable for the revision of ISCO should meet the needs of the 2010 round of population and housing censuses; and

Concurring that, whilst the basic principles and main structure of ISCO-88 remain valid, significant modifications reflecting experience gained in many countries using ISCO-88-based classifications and new developments in the world of work are necessary to allow ISCO to continue to be a useful model for the development of national classifications and a basis for international comparison and exchange of information classified by occupation;

Recalling the recommendation adopted by the Seventeenth International Conference of Labour Statisticians in 2003 for the meeting to evaluate the work of the ILO to update ISCO-88 and to make appropriate recommendations on the results to the Governing Body; and

Having examined the report to the Meeting describing the work of the International Labour Office on updating ISCO-88;

Adopts, this sixth day of December 2007, the following resolution:

1. The occupational classification system of major, sub-major, minor and unit groups shown in the Annex to this resolution is endorsed by the Meeting of Experts in Labour Statistics and is designated the International Standard Classification of Occupations, 2008 (ISCO-08).

2. ISCO classifies jobs. A *Job* is defined for the purposes of ISCO-08 as *a* *set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self employment*.

3. An *occupation* is defined as a *set of jobs whose main tasks and duties are characterized by a high degree of similarity*. A person may be associated with an occupation through the main job currently held, a second job or a job previously held.

4. Jobs are classified by occupation with respect to the type of work performed, or to be performed. The basic criteria used to define the system of major, sub-major, minor and unit groups are the “skill level” and “skill specialization” required to competently perform the tasks and duties of the occupations.

5. In collecting and processing statistics classified by occupation (e.g. for use in fields such as labour market analysis, educational planning, human resource planning, occupational health and safety analysis, wages analysis, etc.), each country should endeavour to compile data that can be converted to the ISCO-08 system, to facilitate the international use and comparison of occupational information.

6. Countries should provide information to the ILO about how the groups defined in the classification (or classifications) of occupations used for national purposes can best be related to ISCO-08.

7. The Meeting of Experts notes that the ILO plans to:

1. publish ISCO-08 including definitions of the major, sub-major, minor and unit groups and an index of occupations in English, French and Spanish;
2. provide a manual and training material on how to adapt ISCO-08 for use in national and regional settings; and provide training on a regional basis through a series of regional workshops;
3. ensure that, as the custodian of the *International Standard Classification of Occupations (ISCO-08)*, it will have the capacity to provide the technical advisory services that will be needed particularly by the developing countries to ensure that national occupational classifications can be developed or improved correspondingly and be used effectively and reliably.

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1. The full text of the resolution is reproduced in Annex 1. [↑](#footnote-ref-1)
2. As there are wide variations in the usage and meaning of occupational terminology, even between countries that speak the same language, it is strongly recommended that countries develop national indexes based on words that are actually given, or are likely to be given, in response to questions on occupation in the national context. [↑](#footnote-ref-2)
3. At the time of publication it is understood that the revision of ISCED-97 may be completed in 2011. Whilst this would not imply any change in the boundaries between ISCO-08 skill levels, the ILO will provide information about the relationship between any new ISCED levels of education and ISCO-08 skill levels. [↑](#footnote-ref-3)
4. It may be assumed, nevertheless, that more highly qualified or experienced individuals might perform the same tasks with a higher level of competence than those who are less qualified. [↑](#footnote-ref-4)
5. For information on the definition of informal employment see *Guidelines concerning the statistical definition of informal employment* adopted by the Seventeenth ICLS in 2003, in ILO, 2004. [↑](#footnote-ref-5)
6. For a discussion on the use of classification schemes in health workforce analysis see Hunter, Dal Poz and Kunjumen, 2009. [↑](#footnote-ref-6)
7. Includes Internet salespersons. [↑](#footnote-ref-7)
8. Street food vendors are classified in ISCO-08 Unit Group 5212: Street Food Salespersons. [↑](#footnote-ref-8)
9. If there is a need to distinguish accurately between occupations classified in Sub-major Group 63: Subsistence Farmers, Fishers, Hunters and Gatherers, and other skilled agricultural, forestry and fishery workers, a separate question on subsistence activity may also be advisable. [↑](#footnote-ref-9)
10. Where students are undertaking work practice not as part of an employment arrangement, they are not classified according to economic activity status as employed, and their learning activity would therefore not normally be classified by occupation. As this situation may be fairly common in educational programmes for particular occupational groups, care should be taken to check economic activity status when considering occupational titles such as “student teacher” or “pupil nurse” in statistical collections. [↑](#footnote-ref-10)
11. See ILO, 1993. Current guidelines on the International Classification of Status in Employment can be found on the ILO website at: http://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/status-in-employment/current-guidelines/lang--en/index.htm. [↑](#footnote-ref-11)
12. In some contexts terms such as “chef” and “cook” may be used more or less interchangeably. In such cases alternative approaches adapted to national requirements may need to be considered. [↑](#footnote-ref-12)
13. See also Embury et al., 1997. [↑](#footnote-ref-13)