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**THE 2007 REVISION OF ISIC AND CPC**

**A CONCEPTS PAPER**

Supporting paper submitted by the United Nations Statistics Department, New York\*\*

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\* Paper posted on Internet as submitted by the United Nations Statistics Department, New York.

\*\* This paper has been prepared by the Technical Subgroup of the Expert Group on International Economic and Social Classifications and has been discussed by the Expert Group. The purpose of this paper is to outline the view of the Expert Group on conceptual issues for the 2007 revision of the International Standard Industrial Classification of All Economic Activities (ISIC) and the Central Product Classification (CPC). The statements in this paper do not constitute a final decision or any final agreement on those issues. This concepts paper will be used as a basis for discussions with countries on the upcoming classification revisions. Feedback from countries on the opinions expressed in this paper is necessary to proceed with the revision process.

16 May 2003

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***I Introduction***

1. At its thirtieth session in 1999, the Statistical Commission agreed that the International Standard Industrial Classification of All Economic Activities (ISIC) and the Central Product Classification (CPC) should be revised every five years, thereby keeping the classifications relevant while avoiding major disruptions in time series. According to this revision cycle, the next planned revision for ISIC and the CPC will be in 2007.
2. The purpose and rationale for these revisions is to repair weaknesses in the classifications, to reflect changes in technology or economic organization, to respond to new and permanent demands for data and to achieve greater comparability or convergence among different classifications. The intended result is a set of forward-looking classifications that will serve national and international needs for the foreseeable future.
3. Three driving forces condition any revision: relevance, comparability and continuity. In every revision, each of these has a different importance. For example, for the 2002 revision of ISIC (ISIC Rev. 3.1), continuity was the most important factor. As the Statistical Commission has given clear direction to bring about greater convergence in the activity classifications used around the world, comparability will be a very important factor for the 2007 revision. It should be noted however that continuity is always a very important criterion and that changes should only be made where the benefits in terms of comparability or relevance outweigh the costs in terms of continuity. The application of these three driving forces still has to be considered under the broader goal of creating classifications based on a sound methodological concept.
4. In terms of relevance, the UN Statistical Division receives a steady stream of requests for small changes to both ISIC and the CPC, but no real pattern emerges from these requests. There has been, however, a strong demand for reflecting activities and products variously described as the Information sector, Information and Communications Technologies or the New Economy, in the classifications. Globalization, international trade and the changing organization of production are creating additional requirements for updating the classifications. Finally, the time has come to seriously consider a number of recurring requests to better reflect important activities and products in areas such as tourism, environmental industries and biotechnology.
5. In terms of comparability, the results of the Convergence project between the North American and European industry classifications will be a major input to the revision process. In addition, ISIC will take into account current or project revisions to other major national industry classifications such as ANZSIC (Australia and New Zealand), JSIC (Japan) and NatSIC (China).

6. Based on these general guidelines for the revision, this paper examines specific conceptual issues for both ISIC and CPC as well as initial structural options. For each conceptual issue, the current treatment in ISIC or CPC is described, along with alternative treatments, for example, the NAICS treatment where different. The consensus - of the Technical Subgroup of the Expert Group on International Economic and Social Classifications (TSG or Group) - achieved on the issues is given and a brief discussion follows to explain whether or not this consensus helps, hinders or is neutral with respect to convergence.
7. The following conceptual issues are addressed:  
For ISIC:
  - Purpose and criteria: activities versus industries
  - Statistical units
  - Classification principles: treatment of vertical integration, the top-down approach and the value added criterion
  - Principle of grouping and the production process principle
  - Activity - product links
  - Hierarchical structure and level to be adopted by countries
 For the CPC:
  - Purpose, scope and coverage
  - Aggregation structure and links to other classifications
8. In addition, an initial possible high-level structure for ISIC, with alternate options, is provided and discussed in separate document, with a view to obtaining feedback and further suggestions through the consultation process planned as the next phase of the revision process.

## ***II ISIC Conceptual Issues***

### **Scope and Purpose**

9. ISIC is an activity classification whose scope encompasses all “economic” activities, which has traditionally included “productive” activities, i.e. those that produce goods and services as recognized in the System of National Accounts (SNA) and the CPC. While one important use of ISIC is the SNA, ISIC has numerous other uses as well, such as identifying the activities in business registers. In addition, ISIC users have noted the need to be able to classify ancillary units and corporate headquarters by their main economic activities.
10. Already the draft ISIC has been broadened to cover services rendered through licensing of intangible non-produced assets like patents, franchise and trademarks. In other cases, units engaged in further leasing of leases and other contracts as intangible non-produced assets are not identified as carrying out economic activities in ISIC. For instance, the rental of buildings or other structures constitutes a service in the SNA, while leasing of land without going through a broker or a legally independent operational unit which is set up by the owner is fully recorded in the accounts of the households; the rents received are recorded as property income, no service is produced. Therefore, an ISIC restricted to classifying “productive” activities would not be applicable in such a case. Similar restrictions would apply to units such as own-account trust funds whose financial transactions may render property incomes like interest, dividends or rents, but not goods or services.

11. To accommodate other needs of the classification, it will be necessary to widen the scope of ISIC from productive activities, i.e. those that produce goods and services as recognized in the SNA and the CPC, to include all economic functions that do not produce goods and services. In the SNA, economic activities and other economic functions require economic transactions, which include the following types: transactions in goods and services (selling and purchasing), financial transactions (net acquisition of assets and net incurrence of liabilities) and distributive transactions (the payment and receiving compensation of employees, property income and current transfers). An extension of the scope of ISIC in this sense would therefore also require the extension of the CPC scope, by including non-financial and financial assets and liabilities, as well as distributive income, to be able to measure the whole range of transactions of these economic functions.
12. Other activities, such as the service producing activities of households for own use, which are not within the production boundary of the SNA, are of considerable importance to other users of the classification and will remain part of ISIC, as introduced in ISIC Rev.3.1.
13. With such an extended scope, ISIC will remain compatible with the current concept of a classification of productive economic activities. Its main purpose is to provide a set of activity categories that can be used for the collection and presentation of statistics according to such activities. Industries are then formed by grouping units with a common primary activity, according to specified similarity criteria. ISIC can then be used to produce statistics by activity or by industry, for enterprises as well as for establishments or kind of activity units. This approach will be maintained even with a widened scope of economic activities in ISIC.
14. Additional discussion papers on purpose and scope will be posted the classifications website (<http://unstats.un.org/unsd/class>).

### **Statistical Units**

15. The TSG confirmed that the ISIC Rev. 3.1 definitions relating to statistical units such as enterprises and establishments (based on the 1993 SNA definitions) remain suitable for ISIC 2007. The establishment is defined as an enterprise or part of an enterprise, that is situated in a single location and in which only a single (non-ancillary) productive activity is carried out or in which the principal productive activity accounts for most of the value added. It was noted that the possibilities for implementation of this concept may be different across countries (because of regulations, legal systems etc), or may be similar across countries but labelled differently (e.g. as a 'kind of activity' unit, or a 'type of activity unit'). In practice many countries find that the (smallest) unit that they are able to delineate and for which they compile production data, may engage in more than one activity, a principal activity and one or more secondary activities or be found to have more than one location. In some countries, this latter unit is also described as an establishment, in others it is described as a 'kind of activity' unit.

#### *Ancillary activity:*

16. The treatment of ancillary activities will follow the recommendations of the 1993 SNA. Ancillary activities are defined as supporting activities undertaken within an enterprise in order to create the conditions within which the principal or secondary activities can be carried out. Principal and secondary activities cannot be carried out without the support of a number of ancillary activities such as bookkeeping, transportation, storage, purchasing, sales promotion, cleaning, repair and maintenance, security, etc. At least some of these activities are found in every economic entity. See also chapter V.B of the 1993 SNA for further information and discussion.

17. Since processes are generally not viable without the support of a certain number of ancillary activities, the latter should not be separated to form separate entities even though the ancillary activities may be carried out in a separate legal entity or in a separate location and even though separate records may be available. Also, the ancillary activity should not count in determining the activity code of the entity to which the ancillary activities belong. The value of the ancillary activities should be allocated to the principal and secondary activities of the unit they serve. If no exact information on their distribution is available, they should be proportioned according to the value added of the principal and secondary activities.
18. However, while ISIC will maintain the above recommendation for classifying ancillary activities with the activity of their parent unit, there may often be a need to specifically account for the nature of activities carried out, irrespective of whom they serve. This is of interest when structural changes in the industry are being measured. To accommodate such needs, a dual coding of the ancillary unit is recommended, resulting in a code that corresponds to the principal activity of the unit whom the ancillary unit serves, as well as a code that corresponds to the actual activity carried out by the ancillary unit. This double coding allows users to make proper aggregations for their specific analytical interests.
19. This method of double coding is also of interest when ancillary units are organized in support of two or more entities of a multi-unit enterprise, constituting a central ancillary entity. In such cases, similarly to when there is a strong interest to cover some activities entirely regardless of whether they are carried out independently or by ancillary entities (e.g. computer activities), it could be expedient to make supplementary tabulations. Ancillary entities would for this purpose be classified according to their own activity besides their classification to the activity of their parent unit.
20. For example, a unit providing ancillary activities in the form of accounting services to its parent unit (enterprise), an automobile manufacturer, would be double coded to a) ISIC class 3410 and b) ISIC class 7412. Case a) corresponds to the recommended SNA treatment, used to describe the totality of activities carried out within the enterprise. Case b) would be applicable for the analysis of the overall provision of accounting services in the economy. In addition, if the ancillary unit starts to provide accounting services on the market, i.e. to units other than its parent unit, the treatment in case b) would allow for a continuing description of its performance.
21. NAICS does not entertain the concept of ancillary units, therefore always classifying units according to their activity, irrespective of the activity of the enterprise they serve. While this approach has advantages, it contradicts the current recommendations of the 1993 SNA.

### **Classification principles**

22. Many units simultaneously carry out activities classified in different categories in ISIC. While in the ideal case these units would be split into establishments carrying out a single activity (see para. 14), this is often not practical and no separate statistical information would be available for such theoretical units. In case where separate accounts are only available for a unit carrying out multiple activities, the following rules will be applied.
23. The Group considered that the present top-down approach for classifying units ensures the best consistency with aggregated data by avoiding different classification of a unit at different levels.
24. The principal activity of a unit should be determined by reference to the value added by the goods sold or services rendered. In practice it is often not possible to obtain the information on

value added for individual products. It is therefore recommended that in such cases, the principal activity be determined by other criteria as an approximation, such as:

- The proportion of the gross output of the unit that is attributable to the goods or services associated with these kinds of activity;
- Value of sales of those groups of products;
- Employment if that can be allocated approximately by kinds of activity;

25. The Group also considered the present treatment of vertical integration in ISIC where a unit with a vertically integrated chain of activities should generally be classified to the class indicated by the nature of the final product.
26. Since the classification of all other cases of multi-activity units are made according to the value added criteria, the Group strongly recommended that this also be the case for vertical integration.
27. This would be in line with the current treatment, which classifies according to the last stage in the production process, but uses exceptions to this general rule to account for cases, where the larger share of value added (and the most characteristic activity of the unit) represents an earlier production stage. The consequent use of the value added criteria would lead to the deletion of a number of exceptions and would ensure a coherent treatment. The group also noted that in practice this would further convergence with NAICS.
28. As a help to users, this treatment of multi-activity units should be supplemented by an extensive set of examples for guidance in the ISIC manual.

### **Principles for grouping**

29. Presently production units are grouped in ISIC either by input, process or output. The TSG considered the adoption of a single underlying principle for creation of both the elementary categories and the upper level aggregates of ISIC.
30. The Group considered the production process principle as used in NAICS and noted that for NAICS it made theoretical economic sense, made the whole system more coherent, made it much easier to do the work and put a stop to long drawn-out discussions.
31. Even in the NAICS process, most particularly for manufacturing industries, a rough rule was adopted that said industries would only be changed if there was some outside proposal, formal or informal, to do so, or if change was required to reach international comparability. The result is that the production function criterion was not universally applied during the development of NAICS.
32. The replies to the UN questionnaire showed that most respondents preferred a mixed approach.
33. The TSG therefore recommended that, as was done in the elaboration of NAICS, if a given grouping exists, and if everybody were content with it then it would not be touched. The revision of ISIC will focus on the production function as a conceptual underpinning within the constraints of relevance, comparability, and continuity. It was considered a tool to bring classifications together, and not a requirement for every grouping.

### **Activity-product link**

34. The Group agreed that in reality there is a link between activity and product classifications, since products were the output of industries, and that most products were the outcome of a single industry. Both activity and industry classification systems always contain lists of products that are the outputs of the production processes used in the industry. Lists of products are important, both for their own purposes (much data is collected on products, price indexes for example) and for classification work itself.
35. The TSG recommended that in view of the fact that there is a demand for such a link, which facilitates the statistical processing of data from the surveys for the National Accounts, it should be provided.
36. The nature of the link should in principle be a simple one-to-one relationship based on the industrial origin, as most products are the outcome of a single industry. However, some products are the output of several industries, others are not identifiable because of lack of detail in the underlying product classifications and others not the principal output of any specific industry. In such cases where a one-to-one relation is not possible a more flexible treatment should be developed.

### **Country adaptation of ISIC**

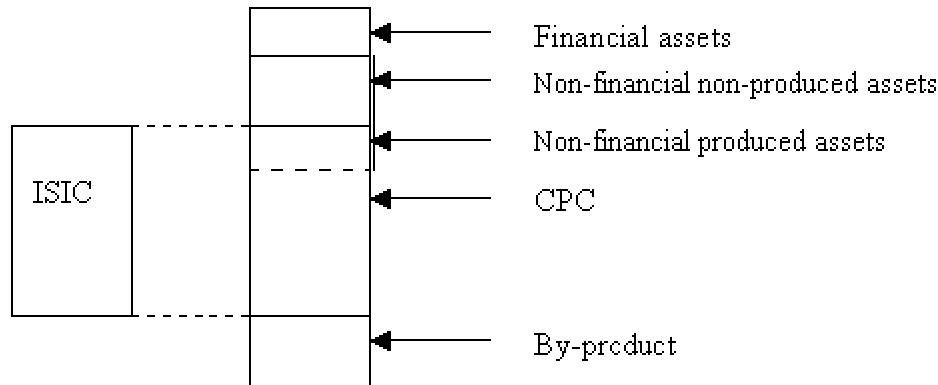
37. The current references to country adaptation in ISIC seem inadequate in conveying to all countries the rationale for and degree to which it is expected that ISIC should be implemented. It is therefore worth mentioning in the Introduction that, as ISIC is a reference classification, an optimal level of implementation should be prescribed so as to ensure international comparability of statistics using ISIC. A level comparable to the 2-digit level in ISIC Rev.3.1 would constitute such a level. It should nevertheless be clear, that ISIC can function as a national classification, either fully or to varying degrees. Strong suggestion should therefore be made that countries implement ISIC fully at this level, while allowing for varying degrees of adherence at the level comparable to three and four digit levels in ISIC Rev.3.1. It was also thought to spell this out to reduce the obligation for those countries, which may perceive it as an absolute imperative to implement ISIC fully down to the final detailed level. The new wording in the ISIC introduction should make it clear that countries should conform at the abovementioned level, but would explicitly note the latitude that countries have in their implementation of customizing ISIC in accordance with their specific economic realities at lower levels of their classifications. (Note: Whether this level will be second or third highest in the classification depends upon the decision to introduce, or not, a set of new high-level categories for which no comparable level in ISIC Rev.3.1 exists.)
38. Based on these principles, first suggestions on a possible high-level structure for ISIC to focus discussions are set out in a separate document.

### ***III CPC Conceptual Issues***

#### **Purpose, scope and coverage**

39. The question of an appropriate definition of the scope of the CPC has a strong impact on any subsequent decisions, such as structure and building blocks. Though some changes have been made in CPC v 1.1 there are still some questions to be resolved with respect to the scope of the CPC.

40. To reach a conclusion, further discussion is necessary to decide whether the CPC should primarily be designed to (a) serve as model for statistical classifications to be used in particular statistical programmes; or (b) serve as a central link to other existing product classifications, while also filling gaps in areas not covered by other product classifications.
41. The first option considered was to define the CPC as only covering production. It needs to be determined if a definition of production can be used to identify products. It also needs to be decided, whether the scope of the CPC should be restricted to the production boundary of the SNA.
42. It was agreed that in addition to a classification of produced products, both goods and services, the CPC should be complemented by a classification of produced and non-produced assets, and unintended by-products such as waste. Both new and used goods can generate revenues. In addition, to preserve the link to important international product classifications, such as the HS, products that are not a direct output of production need to be covered.



43. If the CPC was to be based on production, while other aspects were to be covered in separate classifications (listed in the diagram), such as produced and non-produced assets and unintended by-products of production, it may be useful to combine these classifications as a family in one publication, under one common introduction, rather than separating them. This would better reflect the role of the CPC as a "central" classification, as in (b) above, not just a collection of smaller individual ones. (There is an overlap between the "CPC" and "Non-financial assets" portions in the above diagram, as for instance machines are both being produced and become assets).
44. The classifications of financial and non-financial assets in this system would be derived from the updating process of the SNA and the BPM5, as well as the GFS.
45. While a system as outlined above is necessary, no decision has been taken yet on whether the term "Central product Classification" would refer to the production-related part of this system, or the system as a whole.

### Aggregation Structure

46. No clear consent on a proposal for restructuring the CPC has emerged yet. However, different uses of the CPC indicate requirements for different aggregation structures. In this context, two major approaches to a CPC aggregation structure could be considered: an industry of origin



based structure and a demand based structure. Both structures are useful and should be recognized.

i) ***Industry of origin – based structure***

47. The advantage of compiling statistics using product and activity classifications that are strongly linked is increased ease of use for a particular analytical purpose. Grouping products by industry of origin is the current approach for the supply and use tables of the production accounts of the National Accounts. A danger however, is that when aggregating from the level of products, the aggregates of products and activities look similar, which could lead to confusion. Also it was argued that a central product classification should serve more purposes than production statistics, and therefore the structure could be different from that of the activity classification. An example of the industry of origin structure can be found in the EU Classification of Products by Activities (CPA), which is linked to the activity classification NACE.

48. This approach would practically tie the CPC to the ISIC structure. However, some of the recommendations made for ISIC principles would result in a larger number of cases (as compared to previous ISIC versions), where the same product could be produced by different industries. This would create additional problems in creating such a structure. Example: the activity of “Manufacture of metal wire products” would be classified to 2899, if made from purchased wire, while being classified to 2710, if being made from own produced steel wire – using ISIC Rev.3.1 codes. In this particular case, no reasonable redefinition of the product(s) is possible and the product would need be linked to two different industries. This can be done through correspondence tables, but cannot be built into the structure.

ii) ***Demand – based structure***

49. The notion of a demand-based aggregation structure for the product classification receives growing attention. However, at this point, it is not clear what form or focus a demand-based structure should have. Two major directions seem to emerge: a) taking into account the structure of the classifications of expenditure according to purpose; in particular the Classification of Individual Consumption According to Purpose (COICOP); Classification of the Purposes of Non-Profit Institutions Serving Households (COPNI); and the Classification of the Outlays of Producers According to Purpose (COPP) and b) taking into account the work currently being undertaken for the North American Product Classification System (NAPCS).

50. The first approach would exploit similarities in the structures of COICOP, COPNI and COPP. This would provide closer links to other demand-based structures requiring product detail, such as Household expenditure surveys etc. Previously undertaken work to unify these classifications could serve as additional input. Further study would be needed to incorporate these structures into a possible high level CPC structure.

51. The second approach would take into account work done for the North American Product Classification System (NAPCS). However, it should be noted that at this point in time no results are available yet. It is therefore not possible to judge to what degree the future structure will be suitable for an international classification, or to quantify any advantages over the first approach above, or even the industry based approach. Different directions in this work include structures based for price statistics, for expenditure statistics and structure reflecting SNA concepts such as intermediate consumption, final consumption etc.

52. Presently NAPCS is being developed for the service sectors corresponding to the following NAICS sectors: 48-49 Transportation and Warehousing, 51 Information and Cultural Industries, 52 Finance and Insurance (excluding subsector 524 Insurance Carriers and Related Activities), 54 Professional, Scientific and Technical Services, 56 Administrative and Support, Waste management and Remediation Services, 61 Educational Services, 62 Health Care and Social Assistance, 71 Arts, Entertainment and Recreation and 72 Accommodation and Food Services.

*Next steps*

53. Both of the above options for a CPC aggregation structure are useful. Should both structures be developed simultaneously? This would provide for standardized aggregations that suit different purposes. However, each aggregation structure may put different restrictions on the type of detail possible and the type of detail required in the CPC. Whether one common set of building blocks can serve both aggregations, needs to be investigated before such a “double structure” can be implemented.
54. If there is a strong desire to follow the industry of origin-approach, the existing links between ISIC and CPC can be used as a starting point for this work and 2007 could remain as the target date for the revised classification.
55. If a demand-based approach is favored, more time will be necessary to complete such a structure. The development work on NAPCS should definitely be followed, even if a COICOP-COPNI-COPP approach is being used. However, as the NAPCS work is not yet completed, and no testing of this structure has been done, it seems not sensible to opt for a CPC revision along a demand-based approach for 2007. In that case, maintaining the status quo for the CPC structure for 2007 and focusing on a revision in the next cycle would be advisable.
56. Irrespective of the decision on the CPC aggregation structure, work to evaluate the CPC detail will continue for 2007. Sources to take into consideration will include links to other classifications (and their revisions), such as HS and EBOPS, but also requirements for product detail in emerging industries and specific product lists, if feasible. In this regard, countries are invited to make proposals for additional CPC detail to be considered for 2007.
57. Of course the outcome of the discussions on a high level structure for ISIC 2007 will influence the choice of the high level structure of CPC. The group noted that the line between goods and services is getting more difficult to recognize. In addition, the influence of links with the Extended Balance of Payments Services classification (EBOPS) must be taken into account. The Balance of Payments Manual is currently being revised with a target date of 2008. This will most likely include changes to the balance of payments classifications and the EBOPS. Proposals have been made to link the CPC and EBOPS at the top level(s). However, different scopes and purposes of both classifications make this difficult. A link at a medium level of the CPC, such as defining EBOPS components through aggregations of complete 3-digit CPC groups, would be another working option. In this area a closer working relationship and more consultation is needed.
58. More consultation with CPC users will be necessary to evaluate the options on scope and aggregation structure outlined here.