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Status of Implementation of Statistical Classifications in FAO Statistical System

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Statistics at FAO

FAO has a decentralized statistical system at Headquarters, with Regional Statisticians and FAO Country Representatives playing an important role in the statistical development and reporting activities between FAO and Member countries and with Sustainable Development Goals (SDGs) indicators compiled by a number of teams, both of statistical and of technical (non-statistical) nature.

The major statistics division in FAO is the Statistics Division (ESS) within the Economic and Social Development Department, followed by the FAO Statistics and Information Branch (FIAS) of the Fisheries and Aquaculture Department and the statistical unit within the Forestry Policy and Resources Division (FOA). Statistics are also produced to a lesser extent by the Trade and Markets Division, the Agriculture and Consumer Protection Department and the Deputy Director-General Climate¹.

Over the past years priority has been given by the Organization to the harmonization and coordination of statistical standards by way of an overhauled statistics accountability framework and the creation of a corporate Office of the Chief Statistician.

Implementation of CPC and HS in FAO

Significant work has been done in FAO over the past years to promote and harmonize the use of international classifications in the organization, also introducing international classifications in domains where FAO standards had been traditionally recognized as the reference. This with the aim to integrate agriculture with other statistical domains,

* The document is prepared in collaboration with Stefania Vannuccini (classifications for fisheries statistics) and Arvydas Lebedys (classification for forest products)

¹ More information available in the “FAO Statistical Programme of Work 2016-17” <http://www.fao.org/3/a-br622e.pdf>

moving away from the “silo-approach” that had often characterised agricultural statistics in the past.

To this end, guidelines for the use of international classifications for agricultural statistics have been produced by FAO, in partnership with the UN Statistics Division² and funded by the Global Strategy for Agricultural and Rural Statistics. The “*Guidelines on International Classifications for Agricultural Statistics*”³ were published at the end of 2015 with the aim to bring together comprehensive information on statistical classifications used for agricultural statistics, equip users with a better understanding of these schemes and to provide a convenient and practical reference framework for the application of international standards at national level.

One of the major results of this transition at FAO was represented by the introduction of product classifications such as CPC and HS in a number of domains, ranging from agriculture to forestry and fisheries, either as a replacement of the old standards or as additional standards in which format the user can now extract data from FAOSTAT⁴ and FishStat⁵ databases:

- data in CPC and HS are collected by FAO and disseminated through FAOSTAT (in place or together with the FAOSTAT Commodity List -FCL-) in the following statistical domains: production of crops and derived products, production of livestock and derived products, trade of crops and livestock, trade of live animals, producer prices
- to meet diverse user needs, also the FAO fisheries and aquaculture statistics are now accessible to external users at different levels of aggregations and in different international classifications, including CPC ver. 2.1 (for capture,

² Some members of the Expert Group have also participated in the peer-review of the guidelines.

³ “Guidelines on International Classifications for Agricultural Statistics” <http://gsars.org/wp-content/uploads/2015/12/Guidelines-for-Int-Classifications-on-Agricultural-Statistics-web.pdf>

⁴ FAOSTAT online database <http://www.fao.org/faostat/en/#data>; “FAO Statistical Yearbook” <http://www.fao.org/economic/ess/ess-publications/ess-yearbook/en/#.WZq3Z61aaRs>

⁵ FAO fisheries and aquaculture statistics are accessible through different tools: “*Yearbook of Fishery and Aquaculture Statistics*” <http://www.fao.org/fishery/statistics/yearbook/en>; search through the online query panels, which enable advanced users to extract customized information and reports <http://www.fao.org/fishery/topic/16140/en>; alternatively, data can be downloaded as Database-Cum-Software System called FishStatJ for fishery statistical time series <http://www.fao.org/fishery/statistics/software/fishstatj/en>

aquaculture, total production, production and trade of fisheries commodities), HS2012 and SITC Ver. 4.0 (for commodities production and trade)

To implement the CPC in FAO has required substantial work. Key to the success of this work has been the development of the expansion of Division 01 in CPC Ver.2.1, increasing detail on agriculture at the sixth level. The main source of information to expand CPC has been the FCL traditionally used in the FAOSTAT database⁶.

The “CPC expanded” has been conceived not only to meet the FAOSTAT needs but also to provide a detailed structure to countries engaged in the collection and dissemination of data on agriculture and food products. Countries are encouraged to expand even further CPC including local species and varieties at the lower level, while maintaining the official aggregates, thus improving comparability across countries, at the higher level.

Classifications for fisheries statistics

FAO is the only source of global fisheries and aquaculture statistics, which represents a unique asset for sector analysis and monitoring at the global level. FIAS is responsible for the collection, compilation, validation, analysis and dissemination of these statistics, which are structured around different data collections and namely: capture and aquaculture production, fisheries commodities production and trade, fishers and fish farmers, fishing vessels and apparent fish consumption.

Knowledge of the status and trends of fisheries production and fishery resources, including socio-economic aspects, is a key to sound policy-making and for assessing and tracking the performance of responsible fisheries management⁷. For better monitoring of trends in the fishery sector, it is important that classifications, and particularly those for production and trade statistics, are precise as far as possible and focused on the identity of fish species. Thus, the classifications used by FAO for the collection of

⁶ More information on the CPC expanded and FCL are available in FAO documents presented in previous Expert Group Meetings.

⁷ Based on FAO’s analysis of assessed commercial fish stocks, despite notable progress in some areas, the share of fish stocks within biologically sustainable levels decreased from 90 percent in 1974 to 68.6 percent in 2013. Thus, 31.4 percent of fish stocks were estimated as fished at a biologically unsustainable level and therefore overfished. Further benefits and the sustainability of fisheries can only be achieved through more cautious and effective fisheries management aimed at maintaining fully exploited fishery resources and recovering those that are overexploited or depleted. (“*The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all*” <http://www.fao.org/3/a-i5555e.pdf>)

production statistics (capture and aquaculture) and of production and trade of fisheries commodities need to be very detailed.

The classification system and structures used by FAO for fisheries and aquaculture statistics are agreed by FAO with the Coordinating Working Party on Fisheries Statistics (CWP)⁸ of which FIAS serves as the Secretariat.

The List of Species for Fishery Statistics Purposes

Capture and aquaculture production statistics are collected according to the *List of Species for Fishery Statistics Purposes (ASFIS)*⁹ that includes 12 721 species items in the 2017 version, selected according to their interest or relation to fisheries and aquaculture. For each species item stored in a record, the following descriptors¹⁰ are available:

International Standard Statistical Classification for Aquatic Animals and Plants code

- the ISSCAAP code classifies aquatic commercial species into 50 groups and nine divisions on the basis of their taxonomic, ecological and economic characteristics
- all species in ASFIS are classified by ISSCAAP group, except marine birds and snakes

Taxonomic code

- consists of five aggregation levels (main groupings, orders, families, genera and species) including information on: scientific name, author(s), family, taxonomic classification

3-alpha code

- available in different languages for tabulations, questionnaires and publications with limited space (and where full descriptor would not fit)
- assigned to a species item permanently (permanent reference to species)
- issued only for species of commercial significance
- owned by FAO which is the depository agency for the 3-alpha codes

⁸ Functional since 1960, under Article VI-2 of Basic Text of FAO, CWP provides a mechanism for the coordination of fishery statistical programs of regional fishery bodies and other inter-governmental organizations whose remit relates to fishery statistics. One of the CWP's main objectives is setting standard concepts, definitions, classifications and methodologies for the collection and collation of fishery statistics. The CWP Handbook of Fishery Statistical Standards includes comprehensive definitions of concepts and details of standard classifications. <http://www.fao.org/fishery/cwp/en>

⁹ <http://www.fao.org/fishery/collection/asfis/en>

¹⁰ http://www.fao.org/fishery/static/ASFIS/ASFIS_Structure.pdf

ASFIS structure

| ISSCAAP code | Taxonomic code | 3alfa code |
|---------------------|-----------------------|-------------------|
| XX | XXXXXXXXXX | AAA |

The International Standard Statistical Classification of Fishery Commodities

Production and trade of fisheries commodities are traditionally collected through the *International Standard Statistical Classification of Fishery Commodities (ISSCFC)*, which covers products derived from fish, crustaceans, molluscs and other aquatic animals, plants and residues. In ISSCFC commodities are classified according to the species and to the degree of processing undergone; the structure is based on SITC, with additional codes to include links to ISSCAAP, and breakdown by additional species and product forms. It is a hierarchical structure, with the maximum number of digits not fixed.

ISSCFC structure

| SITC | ISSCFC |
|-------------|---------------|
| XXX | XXX.X.X.X.X |

The International Standard Statistical Classification of Fishing Gear

The *International Standard Statistical Classification of Fishing Gear (ISSCFG)* is developed and adopted by the CWP in close collaboration with the International Council for the Exploration of the Sea (ICES)¹¹. It covers a general categorization of fishing gears and fishing methodologies based on the mechanism used to entangle aquatic species for harvesting. It may be used for fishing gears or fishing effort. ISSCFG was initially designed to improve the compilation of harmonized catch and effort data through questionnaires and fish stock assessment exercises. However, it has also proven to be very useful for fisheries technology and training fishers. In particular, it has been used as a reference in work dealing with the theory and construction of gear and for preparing specialized catalogues on artisanal and industrial fishing methods.

¹¹ The classification was developed and adopted by the CWP during the 10th Session of the CWP (Madrid, 22-29 July 1980). The 23rd session of the CWP (Hobart, 22–26 February 2010) decided to review and update this classification. The revision was made in accordance with the effort commenced in 2005 by the International Council for the Exploration of the Sea (ICES)/FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) to update the technical contents of the FAO Fisheries Technical Report 222/Rev.1 “Definition and Classification of Fishing gear categories” published in 1990 . The draft proposal of the revised classification was developed in October 2010 by the “Ad-hoc group for developing the draft version of CWP gear classification”, in which SEAFDEC was part of, held in close collaboration with the WGFTFB. The revised version of the ISSCFG was finally approved at the CWP 25 in 2016.

The current version adopts a two-level structure (categories, gears) comprising 11 main categories each one subdivided into gears types.

ISSCFG structure

| | |
|------|---------------|
| XX | Main category |
| XX.X | Gear |

The International Standard Statistical Classification of Fishery Vessels

The *International Standard Statistical Classification of Fishery Vessels (ISSCFV)* includes three classifications¹²:

- ISSCFV by the vessels *Gross Register Tonnage* (1977) with a two-level structure comprising 12 main divisions.

Structure of ISSCFV by GRT

| | |
|-----|---------------|
| XX | Main division |
| XXX | Group |

- ISSCFV by *Vessel Types*, based on gear type used by the vessels (1984) with a two-level structure comprising 17 groups each one containing a range of vessel types at the lower level.

Structure of ISSCFV by vessels type

| | |
|-------|-------------|
| XX | Group |
| XX.XX | Vessel type |

- ISSCFV by *Length Classes* (1982) with a two-level structure comprising 12 divisions.

Structure of ISSCFV by length classes

| | |
|-----|-----------|
| XX | Divisions |
| XXX | Groups |

¹² Until 1995, FAO fleet data on vessel tonnage were measured in accordance with the Convention for a Uniform System of Tonnage Measurement of Ships (Oslo, 1947), and were thus expressed by Gross Register Tonnage; since 1996, they have been measured according to the International Convention on Tonnage Measurement of Ships (London, 1969), and thus expressed in Gross Tonnage (GT). The ISSCFV currently in use is from 1984, a review of a previous version of 1977.

The classification applies to the collection and dissemination of fisheries statistics by FAO, regional fishery bodies and other intergovernmental organizations. It is used by countries when reporting and exchanging information based on international legal instruments such as High Seas Vessels Authorization Record (HSVAR), Highly Migratory Species (HMS), Port State measures¹³.

In particular, ISSCFV is used for fleet statistics. It was initially designed to promote the harmonized compilation of fleet statistics, and was defined strictly on the basis of the shape and structure of vessels. However, there is substantial confusion in using this classification, partly due to difficulties in distinguishing vessel structure from the fishing methods or gear used by these vessels, and partly because the multipurpose nature of vessel structures has increased.

Classification for the Census of Agriculture

In FAO's World Programme for the Census of Agriculture, a system of classifications is provided to help countries conduct agricultural censuses. These include classification of crops, classification of livestock, classification of machinery and equipment.

While maintaining specificities for censuses, these classifications, together with other concepts included in the WCA, are periodically reviewed and updated to maintain alignment with major international standards such as the CPC, ISIC and HS, allow linkage to other data sources (such as the population censuses and surveys), and finally enable the integration of statistics from agricultural censuses into the national statistical system.

Since the 1950s, the FAO Statistics Division has published the methodology for the WCA every ten years that include classifications on crops, livestock, and machinery¹⁴. The current version is the WCA 2020¹⁵. While FAO uses the classifications' standard structure to compile census data from countries all over the world and thus enable comparability, countries may further expand or customize the classification based on

¹³ These include the 1995 United Nations Agreement for the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks; the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas; the 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing.

¹⁴ Also include land use classification however land classifications are not included in this document as not part of the meeting agenda.

¹⁵ <http://www.fao.org/world-census-agriculture/wcarounds/wca2020/en/>

their specific needs. For all classifications in the census of agriculture, the common statistical unit is the agricultural holding.

The WCA 2020 classification of crops

The WCA’s classification of crops is the Indicative Crop Classification (ICC ver.1.1 in WCA 2020). The ICC reflects crops’ *growing cycle* (temporary or permanent) and *species*. Its structure takes into account the major crops at international level; however countries may also adapt its structure by adding local crops or reducing detail-based national needs. The ICC version.1.1 was updated in alignment with CPC Ver.2.1. The key difference between product and crop classifications is that the ICC refers to crops that are grown in agricultural holdings (i.e. to the plants), while the CPC refers to the products generated from the crops; for example, “mustard”(ICC, subclass 4.03.03) is an oilseed crop, whereas “mustard seed”(CPC, subclass 01442) is the oilseed product. In ICC, a given crop is classified only once in the classification, regardless of how the crop is used; for example, maize is assigned to Group 1, “Cereals”, without distinguishing whether the maize is used for flour or for oil, or other uses.

If a country wishes to identify the different uses of a crop (e.g. food or other uses) it has two options:

- further subdivide the crop in the crop classification according to end use
- include an additional item in the agricultural census on the crop’s end-use

To help countries use ICC, an alphabetical list of crops with botanical names and crop codes is also provided.

The WCA classification of crops 164 categories of crops, grouped into nine groups. It follows a four-level structure:

Structure of WCA2020 Indicative Crop Classification

| |
|-------------------|
| X Group |
| X.XX Class |
| X.XX.XX Sub-class |
| X.XX.XX.XX Order |

The WCA 2020 classification of livestock

The number of livestock is a fundamental item in an agricultural census, and is especially useful as a means to provide sampling frames for livestock surveys. The WCA classification of livestock covers all *livestock of any type being raised on the holding*; livestock refers to all animals, birds and insects kept or reared in captivity mainly for agricultural purposes (domestic animals such as cats and dogs are excluded, unless they are being raised for food or other agricultural purposes). The animals raised include those present on the holding, as well as those being grazed on communal grazing land or in transit at the time of enumeration; bees are counted in terms of number of hives. A holding raises an animal if it has primary responsibility for looking after the animal on a long-term basis and making day-to-day decisions about its use, *regardless of ownership*. If countries wish to subdivide a livestock type by breed or raising method, they may expand the classification accordingly. The classification of livestock in WCA 2020 is highly harmonized with CPC Ver.2.1.

The WCA classification of livestock features 26 categories of animals grouped into eight main categories. It adopts a two-level structure:

Structure of WCA2020 classification of livestock

X Group

XX Class

The WCA 2020 classification of machinery and equipment

The WCA classification of machinery identifies three main groups of machinery and equipment (manually operated, animal-powered and machine-powered) *used* on the holding, wholly or partly for agricultural production (machinery and equipment used exclusively for purposes other than agricultural production are excluded, as well as those owned by the holder but not used). A *broad concept* of machinery and equipment is used for the agricultural census, covering all machinery, equipment and implements used as inputs to agricultural production (including everything from simple hand tools, such as a hoe, to complex machinery such as a combine harvester).

The WCA classification of machinery envisages 72 types of machinery listed into three main groups, subdivided into five classes and four sub-classes. It follows a three-level structure (group, class, sub-class):

X Group

XX Class

XXX Sub-class

FAO Classification of Forest Products

The FAO reference classification for forest products statistics is the FAO Classifications of Forest Products (FAO CFP) that was first issued in **1973**¹⁶ as a result of the work of the Joint FAO/UNECE Working Party on Forest Economics and Statistics.

The first review of the FAO CFP was launched in 1979 by FAO Forestry Department in Rome with the Joint FAO/UNECE Agriculture and Timber Division in Geneva in consultation with national forestry agencies, the International Organization for Standardization (ISO) and with the advice of the FAO Committee on Wood-Based Panel Products and the FAO Advisory Committee on Pulp and Paper. After an ad hoc meeting in March 1981, and the 13th session of the Joint FAO/UNECE Working Party on Forest Economics and Statistics in June in the same year, the second edition was released in Arabic, English, French and Spanish in **1982**¹⁷ with the aim to ensure relevance at the global level and to align with the Standard International Trade Classification (SITC) and the Tariff Nomenclature at that time used by the Customs Cooperation Council.

Over the past thirty five years the FAO CFP has been regularly used in the Eurostat/FAO/ITTO/UNECE Joint Forest Sector Questionnaire (JFSQ) questionnaire to collect data on forest products dispatched on an annual basis at the global level. In 2015 FAO made a proposal to update classification to the 28th Intersecretariat Working Group of Forest Sector Statistics (IWG)¹⁸ Meeting in Yokohama (Japan), noting the need to reflect new wood products that had appeared in the markets and to align the classification with the most recent version of CPC and HS. The partner agencies

¹⁶ As a supplement 6 to Volume XXV of the Timber Bulletin for Europe (Geneva)

¹⁷ FAO Forestry paper 32, “*Classification and definitions of forest products*” <http://www.fao.org/3/a-ap410m.pdf>; summary description <https://tinyurl.com/y8tqgn9g>

¹⁸ The IWG consists of Eurostat, FAO, ITTO and UNECE as active members and OECD as observing member. Since 1994 the group has been meeting regularly and at least once a year; it carries out joint data collection through the Joint Forest Sector Questionnaire since 1999. Annual meetings take place in the beginning of the year to review results of the previous year’s collection cycle and to plan joint activities for the current year, including statistical capacity development and work on standards and classifications. For more information: <http://www.fao.org/forestry/statistics/iwg/en/>

supported the proposal and the review was launched in October 2015, co-funded by FAO and the Global Strategy to Improve Agricultural and Rural Statistics¹⁹. Subject-matter experts were consulted in the course of 2016 and a draft revised classification was published in December 2016. The document was discussed in the 4th Meeting of the FAO/UNECE Team of Specialists on Forest Products Statistics on 28 March 2017²⁰. A second consultation with subject-matter experts started in May 2017 and is currently underway.

The classification is designed to cover the whole spectrum of primary and secondary wood and paper products (it excludes non-wood forest products). It encompasses the more commonly produced and traded wood and paper products for which FAO, EUROSTAT, ITTO and UNECE collect statistics on a regular basis, as well as new wood-based products that have more recently appeared on the market.

The groups in the Classification of Forest Products have been selected to cover each principal stage of operation from the initial felling of the tree to the manufacture of the primary product suitable for consumption or further conversion. It takes into account the fact that the by-products from one stage of operation may be used as the raw material for another.

The classification's structure is hierarchical and includes 543 items organized in a six-level hierarchical structure comprising the following 14 sections:

- 01 Wood in the rough (Roundwood)
- 02 Wood simply worked or processed
- 03 Wood chips and particles, residues and recoverable wood products
- 04 Wood pellets and other agglomerates
- 05 Sawnwood
- 06 Veneer sheets
- 07 Wood-based panels (including panels from other ligno-cellulosic materials)
- 08 Wood pulp
- 09 Other pulp
- 10 Recovered paper
- 11 Paper and paperboard
- 12 Cork
- 13 Secondary wood products
- 14 Secondary paper products

¹⁹ <http://gsars.org/en/>

²⁰ <https://www.unece.org/index.php?id=44971>

Structure of FAO Classifications of Forest Products

| | | | |
|----------|------------|---------|------------------------------|
| 01 | Section | 2-digit | 14 items |
| 011. | Divisions | 3-digit | 56 items |
| 011.1 | Groups | 4-digit | 58 items |
| 011.11 | Subgroups | 5-digit | 270 items |
| 011.111 | Classes | 6-digit | 55 items |
| 011.1111 | Subclasses | 7-digit | 90 items (all in Section 01) |

Classifications in FAO statistical system

| | LIVE SPECIES | PRODUCTS | | EQUIPMENT |
|-----------------------------------|--|---|---|---|
| | | PRODUCTION | TRADE | |
| AGRICULTURE/ CROPS | WCA2020 Indicative Crop Classification | FAOSTAT list CPC2.1exp | HS2012 FAOSTAT list CPC2.1exp | WCA2020 classification of machinery and equipment CPC2.1exp |
| AGRICULTURE/ LIVESTOCK | WCA2020 classification of livestock | FAOSTAT list CPC2.1exp | HS2012 FAOSTAT list CPC2.1exp | |
| FORESTRY | <i>n/a in FAO</i> | FAO Classification of Forest Products CPC2.1 | FAO Classification of Forest Products HS 2012 | |
| FISHERIES | ASFIS | ISSCFC CPC2.1 | ISSCFC HS2012 SITC | |

Issues for the Expert Group (EG)

The contribution of the EG is sought in the following areas:

- Endorse the FAO classifications presented in the document (ASFIS, ISSCF, ISSCFG, ISSCFV, WCA2020 classifications, FAO Classification of Forest Products) as new members of the International Family of Classifications.
- Express view on the process to be followed to submit the FAO Classification of Forest Products to the UN Statistical Commission in 2018.
- Provide comments to the draft of "*Forest Products Classification and Definitions*" (2016) available at <http://gsars.org/wp-content/uploads/2016/12/WP-23.12.2016-Forest-Products-Classification-and-Definitions-MSALv4.pdf>

Resources

CPC Ver.2.1 expanded for agricultural statistics

http://www.fao.org/fileadmin/templates/ess/classifications/Correspondence_CPCtoFC_L.xlsx

FAOSTAT commodity list

<http://www.fao.org/waicent/faoinfo/economic/faodef/faodefe.htm>

ASFIS

http://www.fao.org/fishery/static/ASFIS/ASFIS_Structure.pdf

http://www.fao.org/fishery/static/ASFIS/ASFIS_sp.zip

ISSCF

ftp://ftp.fao.org/fi/document/cwp/handbook/annex/ANNEX_RII.pdf

ISSCFG

<ftp://ftp.fao.org/FI/DOCUMENT/cwp/handbook/annex/AnnexM2fishinggear.pdf>

<ftp://ftp.fao.org/FI/DOCUMENT/cwp/handbook/annex/AnnexM1fishinggear.pdf>

ISSCFV

<ftp://ftp.fao.org/fi/document/cwp/handbook/annex/annexL1ISSCFVgrt.pdf>

<ftp://ftp.fao.org/FI/DOCUMENT/cwp/handbook/annex/annexLII.pdf>

ftp://ftp.fao.org/fi/document/cwp/handbook/annex/ANNEX_LIV.pdf

WCA2020 classifications

ICC <http://www.fao.org/3/a-i4913e.pdf> page 165

Livestock <http://www.fao.org/3/a-i4913e.pdf> page 178

Machinery <http://www.fao.org/3/a-i4913e.pdf> page 179

(Land use <http://www.fao.org/3/a-i4913e.pdf> page 181)