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Initial Reflections for a HS Strategic Review in support of the 2030 Agenda for Sustainable Development

Note by UNSD

Introduction

With the initiative of the United Nations (UN) Secretary General to create an UN network of economists came the renewed demand for broader measures of economic progress and performance to monitor the policy objectives of the 2030 Agenda for Sustainable Development. These broader measures of economic statistics should better incorporate the interlinkages between economic activity, well-being and environmental sustainability. For this purpose, the UN Statistical Commission, the apex entity of the community of official statistics, has initiated a review of the conceptual and institutional framework of economic statistics to better measure equitable and sustainable economic performance through a global and regional user consultation in 2019. Therefore, the Strategic Review of the Harmonized Commodity Description and Coding System (HS) is a timely activity that could also be framed in support of the broader measures of the *new economics for sustainable development*.

While the HS is used both as a tariff and statistical nomenclature, the perspective and needs of a review process can differ depending on the purpose of use. This note presents initial reflections for a modification of the HS from a statistical point of view in support of the broader measures of economic progress for the 2030 Agenda. The note is organized as follows. First, it is described how fundamental the HS classification is for the derived statistical product and activity classifications. The next section provides a description of potential priority areas for the strategic review of the HS classification for further aligning the HS classification with the demands of measuring global and digital production, emerging trade arrangements and the monitoring of progress for the 2030 Agenda for Sustainable Development. The subsequent section provides a summary of responses of a survey conducted among Comtrade users for understanding the users' preferences and perspectives on the various classifications used for the classification of merchandise trade statistics. In the next section, it is argued that the correspondences between the HS and other statistical classifications should be considered in the Strategic Review of the HS. In the last section, it is concluded that a strategic review of the HS would benefit from a closer dialogue and collaboration with the statistical community for which institutional arrangements should be explored.

Relationship between HS and other economic classifications

The HS is an established system used in more than 200 economies for more than 30 years. Currently, the World Customs Organization (WCO) debates structural modifications of the system. Over the decades, the HS classification has become more complex in its application, because of its ambiguity and increasing inability to adapt to new policy demand in a fast-changing trade landscape.¹ While these discussions are predominantly motivated by the main purpose of the HS to classify traded goods, the structural modifications will affect socio-economic and environmental analyses and the correspondences of HS with other product classifications used for statistical purposes.

Illustration 1 demonstrates the relationship of the HS with other product classifications such as the Standard International Trade Classification (SITC), the Classification by Broad Economic Categories (BEC), and the Central Product Classification (CPC) and the related economic activity classification, the International Standard Industrial Classification of All Economic Activities (ISIC). The link between HS and other statistical classifications is determined by correspondence tables, which are maintained and updated by the statistical community of official statistics and made available by UNSD. These other economic statistics related classifications are under regular review, of which the review of ISIC has recently been initiated. The ISIC review will also consider aspects of shifts in technology, trade and economic production arrangements since its latest revision and release as ISIC 4 in 2007. Moreover, the review will consider the link to the 2030 Agenda for Sustainable Development.

The UN Comtrade database contains trade data by various classifications and its various versions, notably HS, SITC, and BEC. Users requests for these representations of trade by these classifications depend on their analytical interest. In terms of shares of Comtrade users, the UN Comtrade 2018 query logs determined that the analytical interest for trade data classified in HS, SITC and BEC is expressed by 69%, 27% and 4% of the users, respectively².

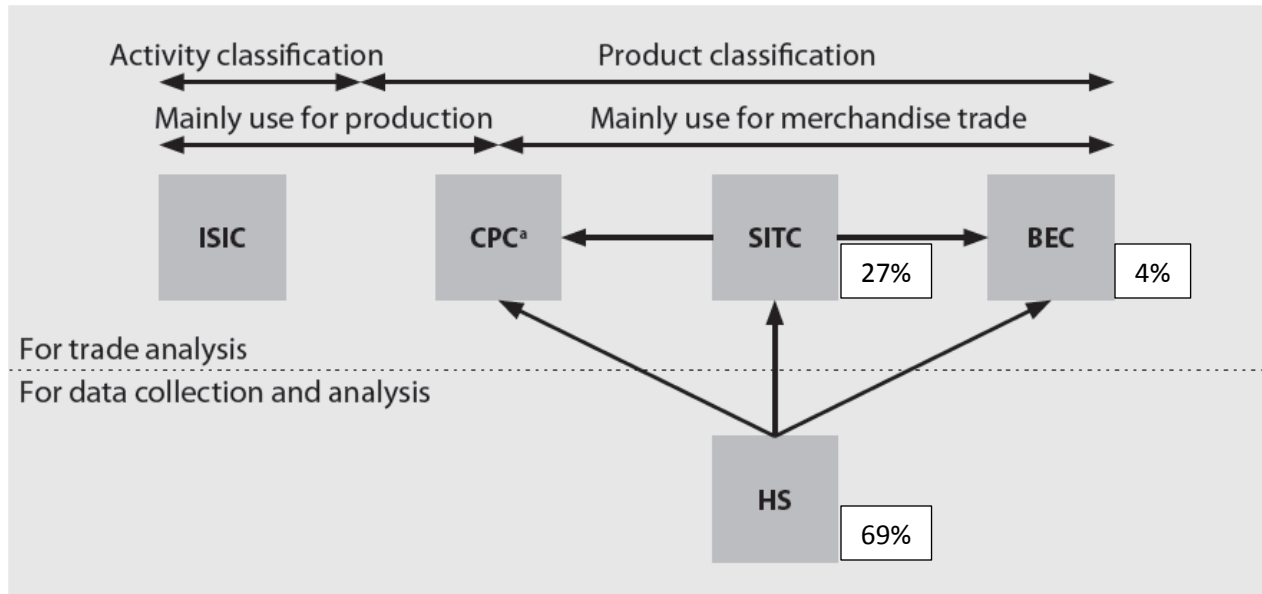
Separately from the query logs of Comtrade users, the regular International Merchandise Trade Statistics Survey administered globally among trade statisticians reveals that 90% of the national statistical compilers use HS as the basis for compiling their detailed commodity trade database.³ Therefore, both findings indicate that HS is an important merchandise trade classification both from an users' and producers' perspective.

¹ Revitalizing the Harmonized System: What is needed for a 21st Century Harmonized System? WCO Conference. 2-3 May 2019, Brussels.

² The numbers are known from and the illustration is calculated based on UN Comtrade 2018 query logs (around 60 million data requests).

³ See UN Comtrade decennial metadata survey result of section 13 on classification <https://comtrade.un.org/survey/Reports/byQuestion>

Illustration 1. Relationship between HS and other economic classifications



a Includes services.

Sustainable development perspective

HS Strategic Review could support and contribute to the broader measures of economic progress for the statistical framework on sustainable development being a foundational building block for related product classifications. It is noted that HS 2017 and its previous versions already incorporated considerations for environmental issues (e.g. extended coverage of endangered species, additional details for wood products in support of carbon and energy balances, etc.) and social issues (e.g. additional details in agricultural products for measures of food security; additional details in dangerous chemical substances, additional details in pharmaceuticals for anti-malaria treatment, etc.). Similarly, the HS nomenclature has been updated for technological progress (e.g. details of hybrid and electronic cars in the automotive industry). In the structural review of HS, further details could be provided for:

- Globalization of production arrangements would benefit from details in the end-use of goods such as in intermediate (specialized and generic product), capital or consumption goods. The current edition of the HS was not designed to distinguish end-use of goods even though for certain HS codes the explanatory notes may give some indications. Having a dedicated identifying code, within HS structure, to classify these dimensions would greatly assist in the analysis of global value chains. With these end use detail in the HS nomenclature further developed, the correspondence with BEC Rev.5⁴ classification (i.e. an end-use classification) would be facilitated.

⁴ <https://unstats.un.org/unsd/trade/classifications/bec.asp>

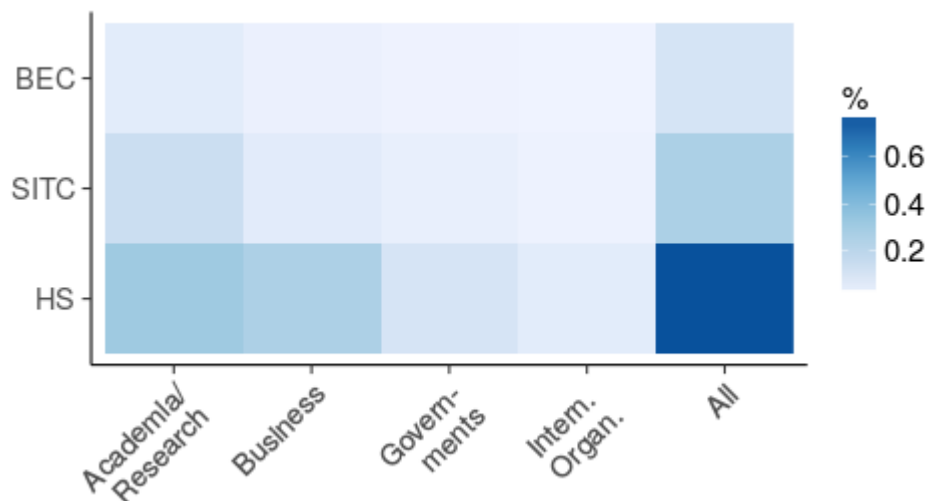
- Technology focusing on the high-technology content in traded goods would not only facilitate a measure of a country technological advancement⁵, but also the link with the end-use of products such as the use of capital goods in industrial production. Furthermore, additional details of the technology content in traded goods would reduce the misclassification in high-tech products and bilateral asymmetries⁶.
- Sustainability focusing on the Sustainable Development Goals (SDGs) framework would warrant further details in specific environmentally related content embedded in goods (i.e., CO2, water, energy) and trade in environmental goods. Unfortunately, current HS structure does not systematically indicate environmental footprints as it may impact a wide range of HS codes. Nevertheless, regular amendments of the HS edition introduced additional details for environmental goods such as biofuels and photovoltaic lightning. More systematic identification of the traded environmental goods is feasible based on reference list developed by statistical organizations for the compilation of the environmental goods and services accounts

It is understood that addressing the above priorities structurally in the HS nomenclature may prove to be a major challenge. Nevertheless, they will go a long way towards capturing 21st century arrangements of world trade and supporting the broader measures for socio-economic and environmental policies in an increasing global and digital economy.

Insights from ad-hoc user survey of UN Comtrade database users in the use of HS

An ad-hoc survey was recently conducted among users of UN Comtrade database consisting of users from the academic, government and private sectors. The purpose of the survey was to obtain a profile of the preferences for specific international trade classifications, including HS, BEC and SITC.

Graph 1. Users profile: Proportion of used classifications crossed with affiliation in %



⁵ See WIPO's Global Innovation Index <https://www.globalinnovationindex.org/Home>

⁶ <https://unstats.un.org/unsd/tradecb/Knowledgebase/50657/Bilateral-asymmetries>

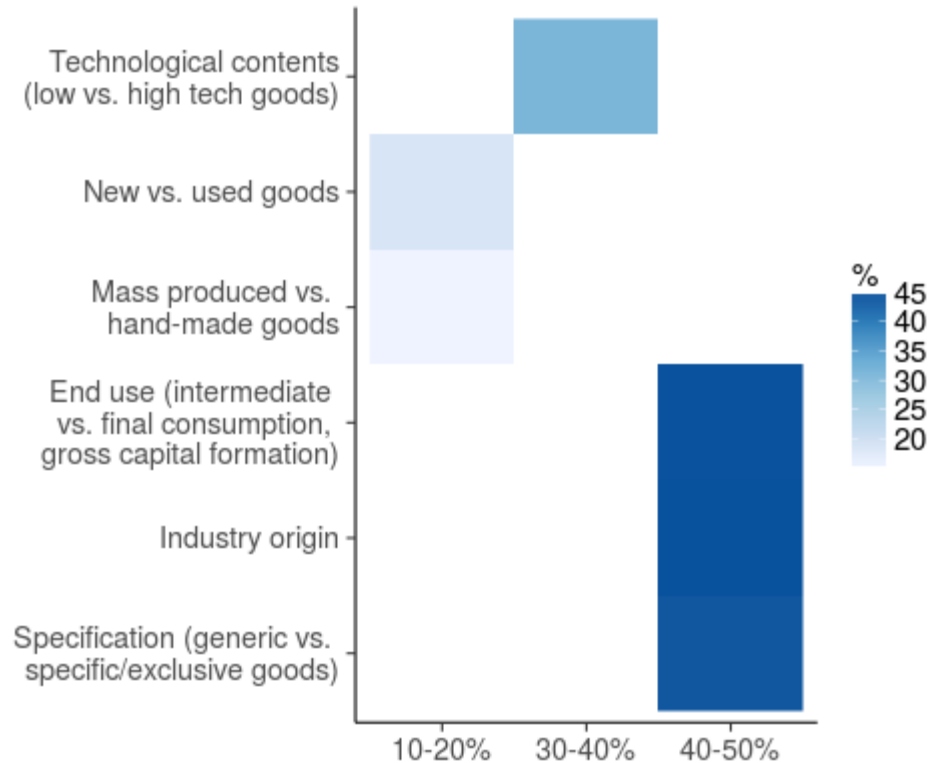
A typical respondent of the ad-hoc survey uses the HS system as the preferred classification and is affiliated with academic research institutes or businesses. At least half of the respondents is interested in very detailed data (6 or more digits) and 90% of the respondents are satisfied with the current way of product grouping in HS. However, more than 50% of the respondents would appreciate more detailed codes at the sub-heading levels. More specifically, respondents indicated that details should be added for the information and communications technology and healthcare sector in addition to details on technology contents and end-use as the present detail is too broad for their analyses.

Furthermore, 15% states to have difficulties in finding a relevant HS code for specific goods in more common and less technical language.⁷ The difficulty in identifying product descriptions in the classification lead to a lower quality of trade statistics, which in part explains the widening import-export asymmetries between countries. Another way to avoid misclassification is the promotion of the use of explanatory notes. For instance, a free download of the HS Explanatory Notes (HSEN) could be made available to increase the share of users applying the explanations, which currently stands at only 40% based on the ad-hoc survey. Similarly, sophisticated classification engines could be developed and made accessible to facilitate the link with and use of more common and less technical metadata such as “computer”.⁸

Graph 2. Additional HS classification criteria that is demanded by users in %

⁷ For examples: chicken, cellphone, undershirt, sofa, computer

⁸ <https://uscensus.prod.3ceonline.com> (works on HS6 level although shows the more detailed Schedule B, like our version shows CN8)



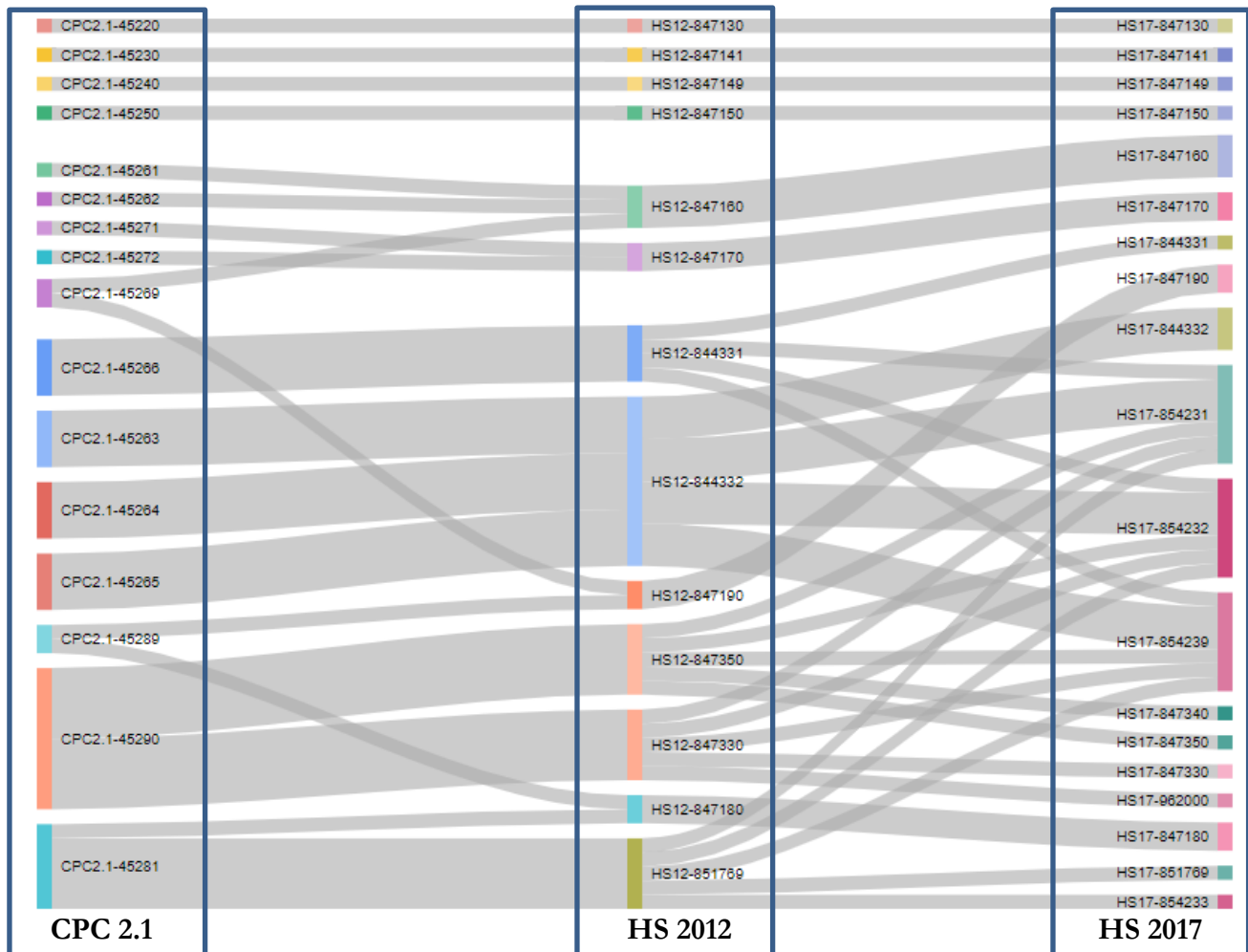
About half of the respondents requested information by end-use and specification dimensions (i.e. generic traded goods versus specific intermediate goods used in inter-firm trade in global value chains) and requested details of the origin by industry (for sustainability analysis). More than 30% indicated the need for more detail on the technological contents in goods. Others mentioned the importance of price or unit value homogeneity within a sub-heading of HS which would enable easier analysis for price/unit value indicators.

Keeping pace with the updates of economic classifications by maintaining correspondences among classifications

The present 5-year cycle of updates of HS classification may be compatible with the fast-changing trade patterns and rapid product innovations, but it impacts the consistency of the time series of statistics. For this purpose, the statistical community regularly updates the correspondences between HS editions and between HS and other statistical classifications. These correspondences are used to undertake data conversion and allow merchandise trade data in UN Comtrade to be made available in different HS editions over time. Nevertheless, due to the nature of the splitting and merging of product codes from one HS edition to the next, it is not always feasible to maintain backward compatibility of correspondences between the various HS editions. And in some cases, it may introduce break-in-series⁹.

⁹ See UNSD methodology on correspondence table at <https://unstats.un.org/unsd/classifications/business-trade/correspondence.asp#hs>

Illustration 2. Correlations between CPC 2.1 Group 452 “Computing machinery and parts and accessories thereof” and HS 2012/2017



The illustration above shows the complexity of the changes in scope and coding between CPC and HS 2012/2017 with merging and splitting codes to meet the demands of new trade patterns and emerging socio-economic and environmental needs of users. The CPC subclasses may reflect international trade patterns in the groupings and rearrangements of HS 2012 headings and subheadings¹⁰. However, CPC details may still differ in the detail of the product breakdowns compared to HS, because CPC reflects also production and consumption patterns and HS mainly international trade patterns. For example, HS 2012 subheading 844332 of “*Printing, copying, and facsimile machines; single-function printing, copying or facsimile machines, capable of connecting to an automatic data processing machine or to a network*” relates to three CPC codes 45263, 45264, and 45265 of “*inkjet printers*”, “*laser printers*” and “*other printers*”, respectively. At the same time, the illustration above shows that amendments between HS 2012 and HS 2017 have been introduced along similar lines as CPC 2.1 released in 2013. The example demonstrates that HS 2012 subheading 844332 “printers” has been split into four HS 2017 subheadings.

¹⁰ See <https://unstats.un.org/unsd/classifications/unsdclassifications/cpcv21.pdf>

Illustration 3. Correlations between CPC 2.1 Group 452 “Computing machinery and parts and accessories thereof” and ISIC 4.0 and HS 2017

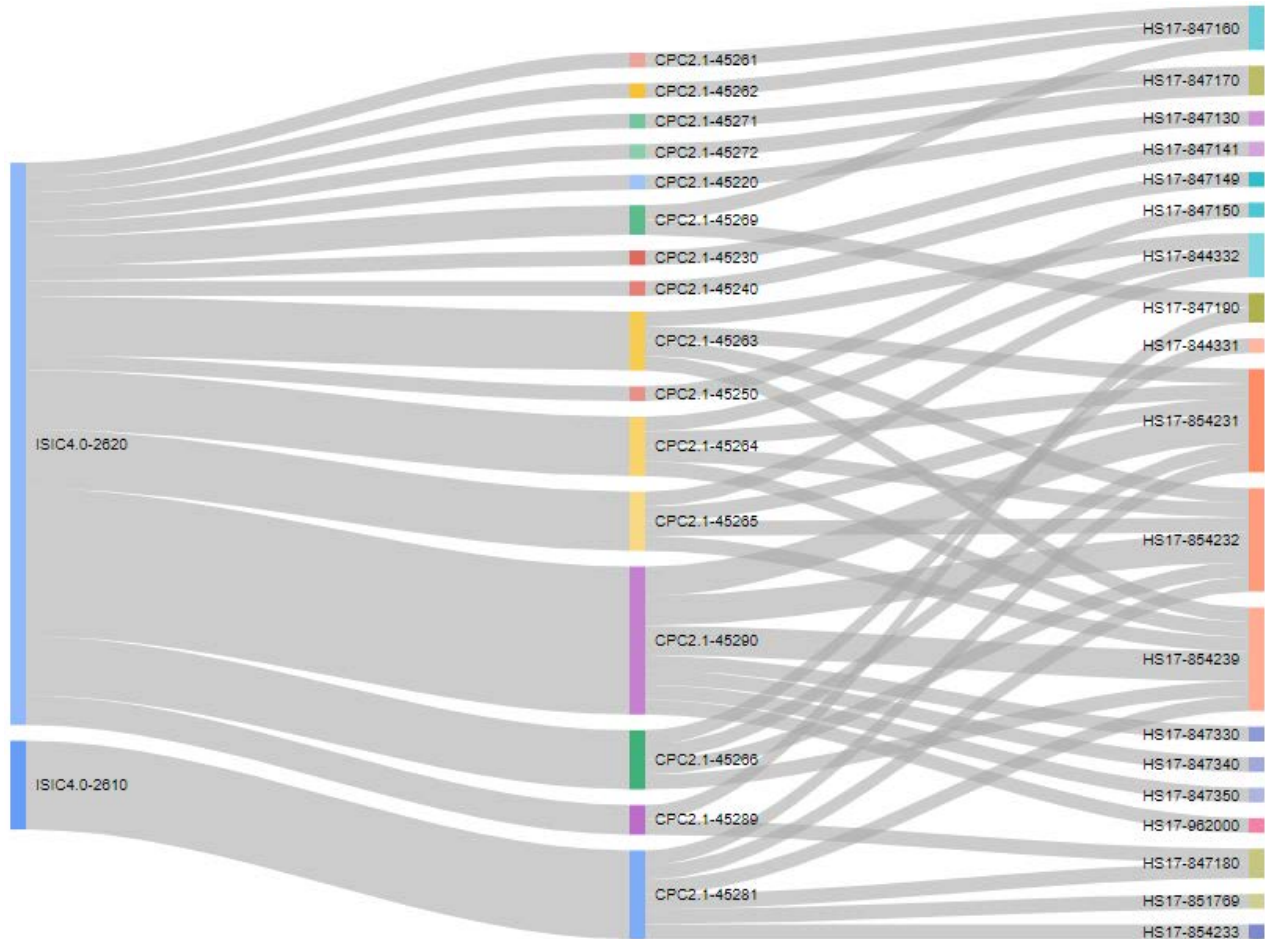
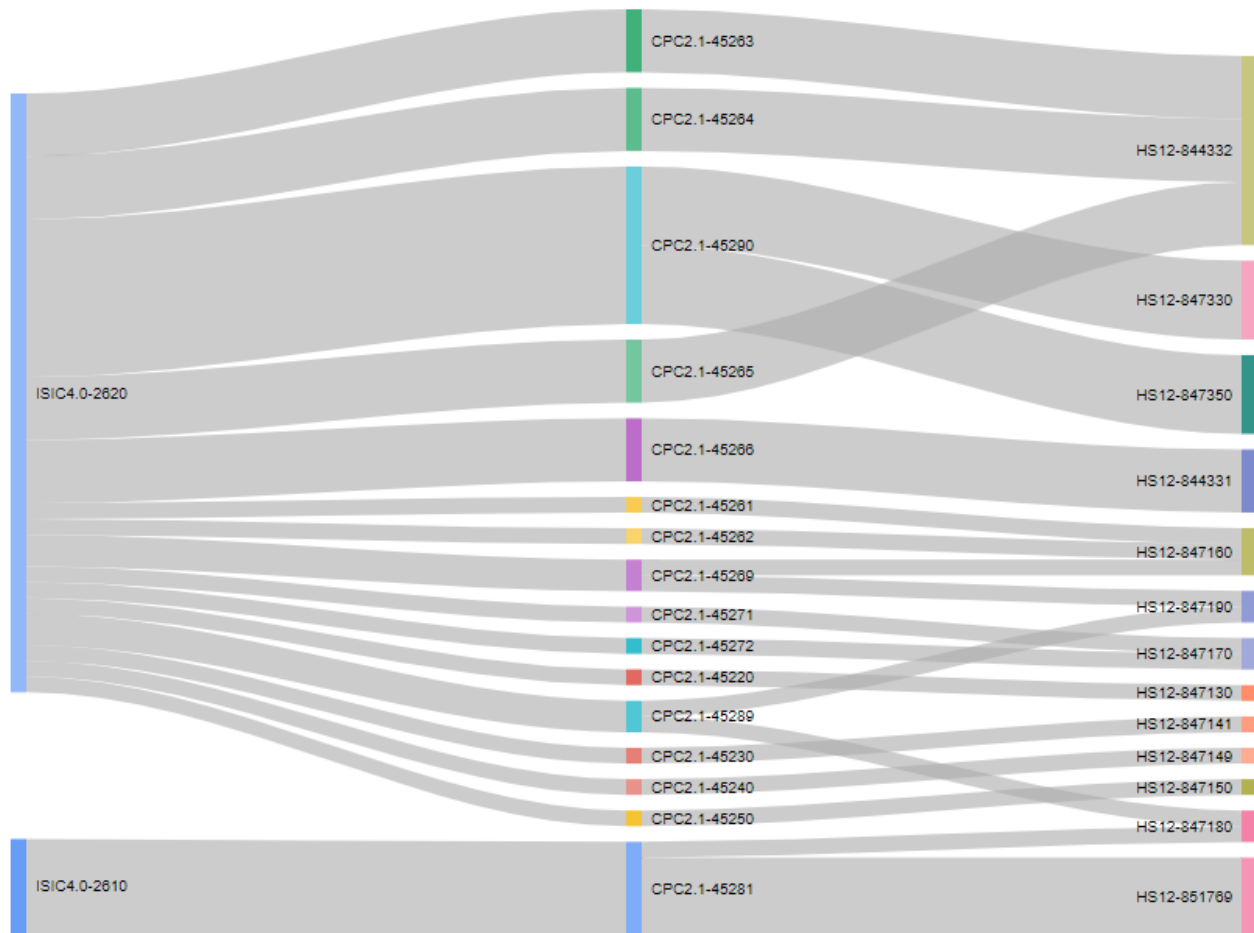


Illustration 3 (above) and 4 (below) shows the contrast in correspondences between CPC 2.1/HS 2017 and CPC 2.1/HS 2012 within two ISIC 4.0 industries: Manufacture of electronic components and boards (ISIC code 2610) and manufacture of computers and peripheral equipment (ISIC code 2620). Relatively simple relationships between CPC 2.1 and HS 2012 indicate that HS 2012 codes are building blocks of CPC 2.1, whereas relatively complex relationships between CPC 2.1 and HS 2017 underline significant HS amendments in 2017 within this product group. Because trade data are generally being collected in latest edition of HS, compiling trade data by CPC 2.1 (for instance in Supply and Use Tables) would be challenging due to accumulated changes over the amendments. It is expected that the future update of CPC 2.1 and ISIC Rev 4 would be better aligned with HS 2017.

Illustration 4. Correlations between CPC 2.1 Group 452 “Computing machinery and parts and accessories thereof” and ISIC 4.0 and HS 2017



Finally, amendment in HS may lead to subsequent revisions of other statistical classifications, even though it may not be instantaneous. For example, CPC 2.1 and SITC Rev. 4 are aligned to HS 2012. These classifications have not yet been updated in scope and detail to HS 2017. However, correspondence tables are prepared with HS 2017 as a temporary stop gap measure to support users. Therefore, if a major change in HS structure is required, it is recommended that this revision is undertaken in close coordination with the statistical community to ensure that the correspondences between the new HS and other economic classifications are maintained.

Conclusion

HS has not only a unique role in advancing the collection, compilation dissemination and analysis of trade statistics but also socio-economic and environmental statistics. This role has been recognized, not only by WCO with a strong emphasis in the Preamble of the Convention on its statistical purpose but also by the community of official statistics. Not only is the HS classification a foundational building block for other product classifications, it also provides the additional product detail for general statistical purpose and broad socio-economic and environmental analysis.

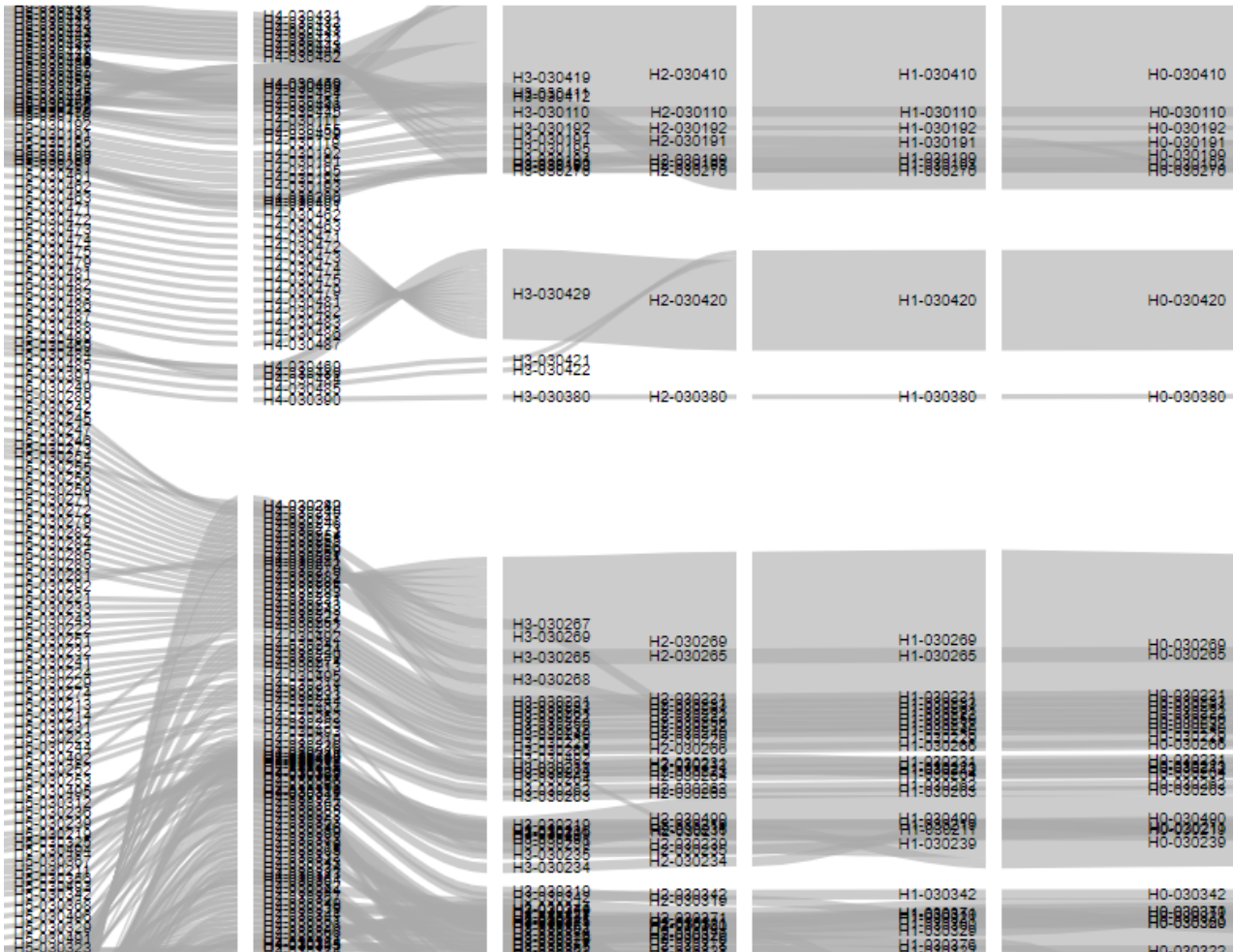
The HS Strategic Review initiative is greatly appreciated by the statistical community, because it could potentially advance the broader measures of economic progress and performance. Notably, the future HS classification could provide the detail for measuring global value chains, technological innovation and sustainability development. Therefore, with the HS classification fully integrated in other economic classifications, it is recommended that any proposed structural changes outside the regular HS amendment cycle would benefit from a close collaboration with the statistical community. There is merit in considering a re-design of the structure of HS that is fit-for-purpose for the 21st century as it may better meet the demands for measuring the emerged trade, production and consumption patterns in support of the 2030 Agenda for Sustainable Development.

Annex I. Correspondences between selected SITC sections and related HS subheadings

This annex highlights examples of major or minor amendments of HS subheadings in SITC product groupings in fish, alcoholic beverages, medicaments and automatic data processing machines. In the Annex, the following correspondences are presented using the following shorthand HS0 = HS1988, HS1 = HS1996, HS2 = HS2002, HS3 = HS2007, HS4 = HS2012, HS5 = HS2017, where the year numbers stand for the year when it entered into force.

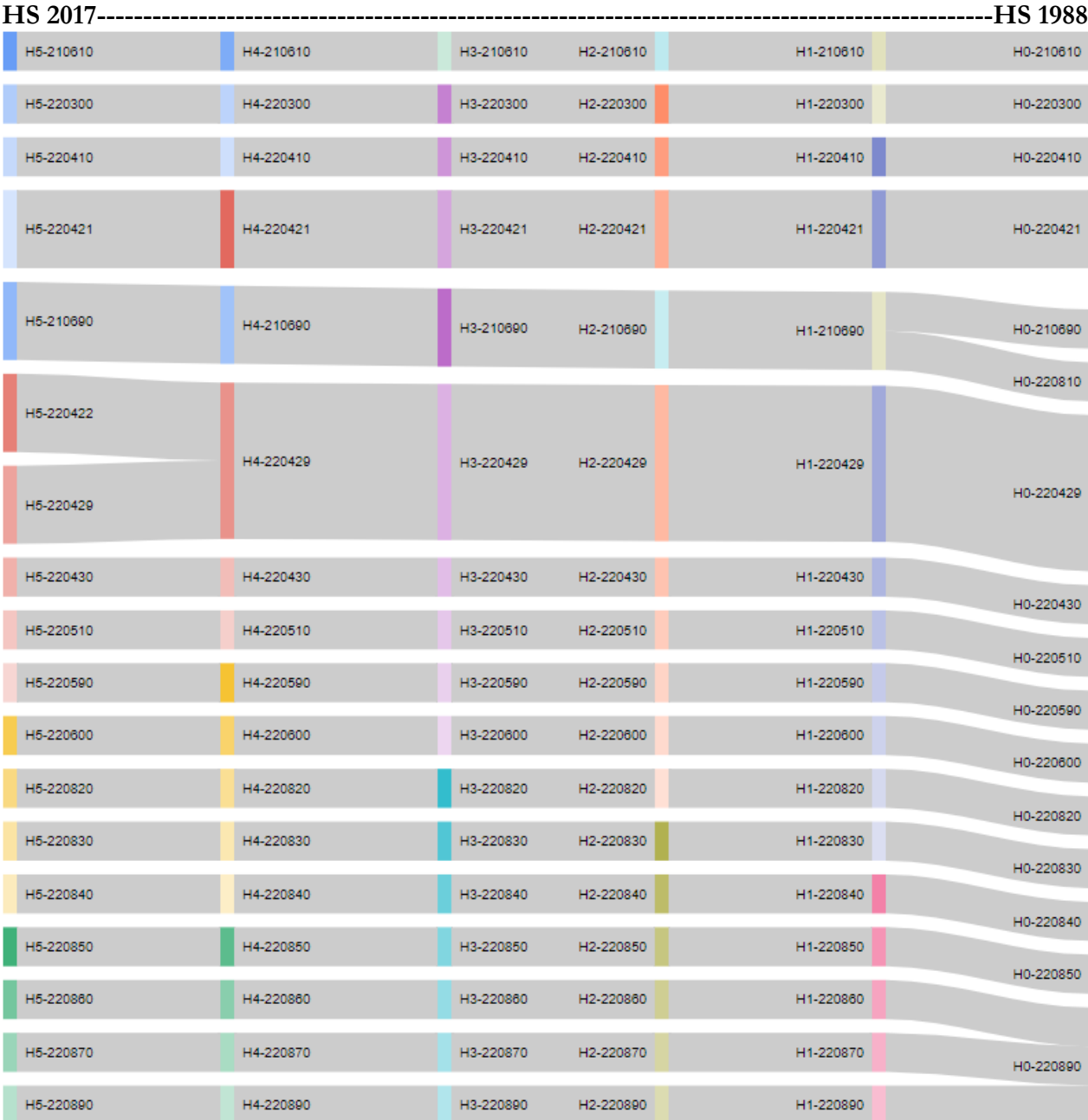
Fish – SITC section 034

HS 2017-----HS 1988



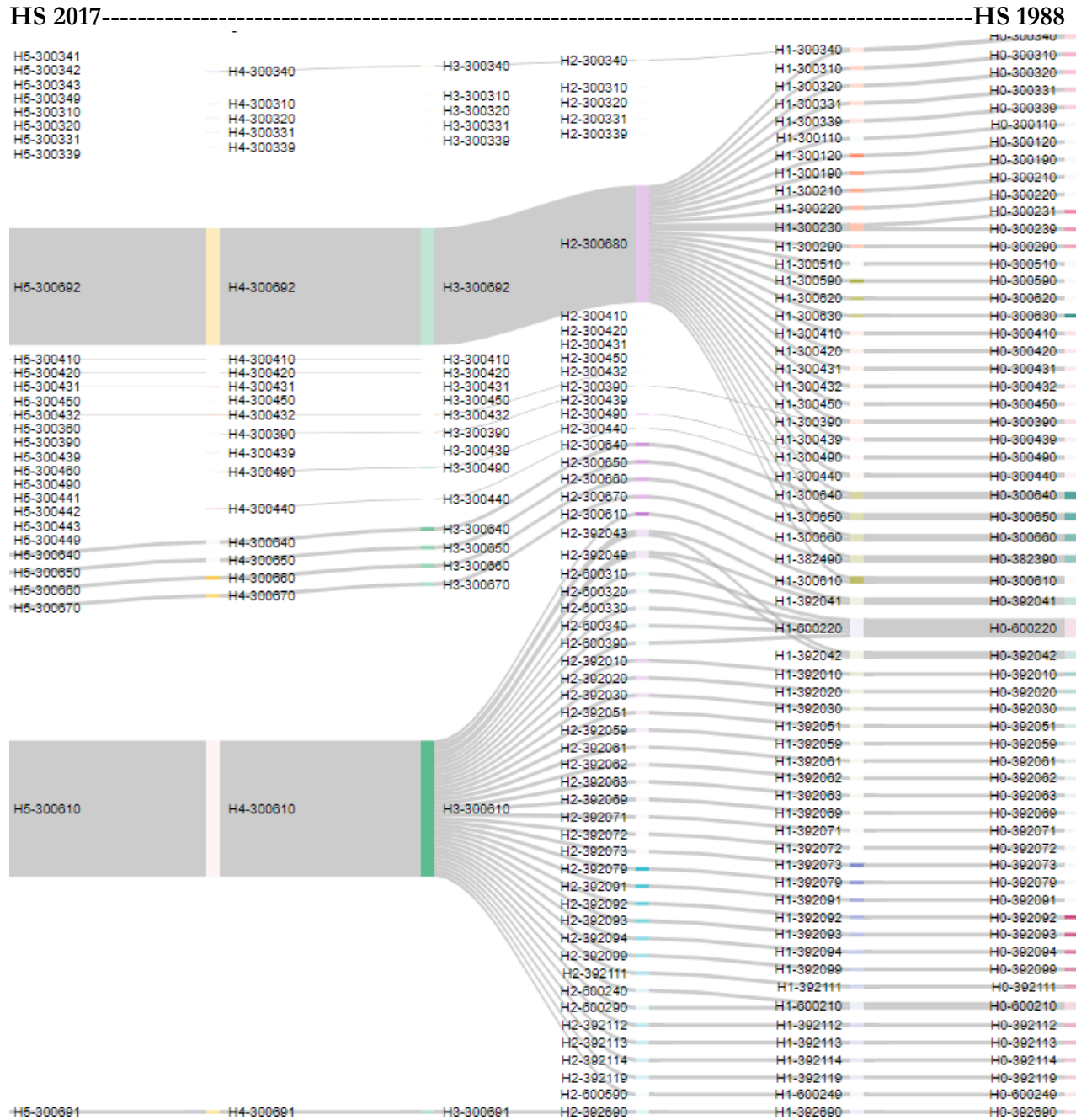
Environmental and social issues of global concern are the major features of the HS 2012 and HS 2017 amendments. Especially the better coverage of fish and fishery products was one objective of the HS 2017 amendments to address food security issues through food balances. For instance, the HS 2012 subheadings for cuttlefishes and squids reveal that species that are widely traded are not covered in detail. Therefore, new HS subheadings were added in Chapter 3 for better identification of certain species of fish and crustaceans, molluscs, and other aquatic invertebrates. These changes were motivated by the importance of trade and consumption of these species in the various product forms. This detail was not only introduced for food security purposes, but also for better management of resources, in particular of endangered species.

Alcoholic Beverages – SITC section 112



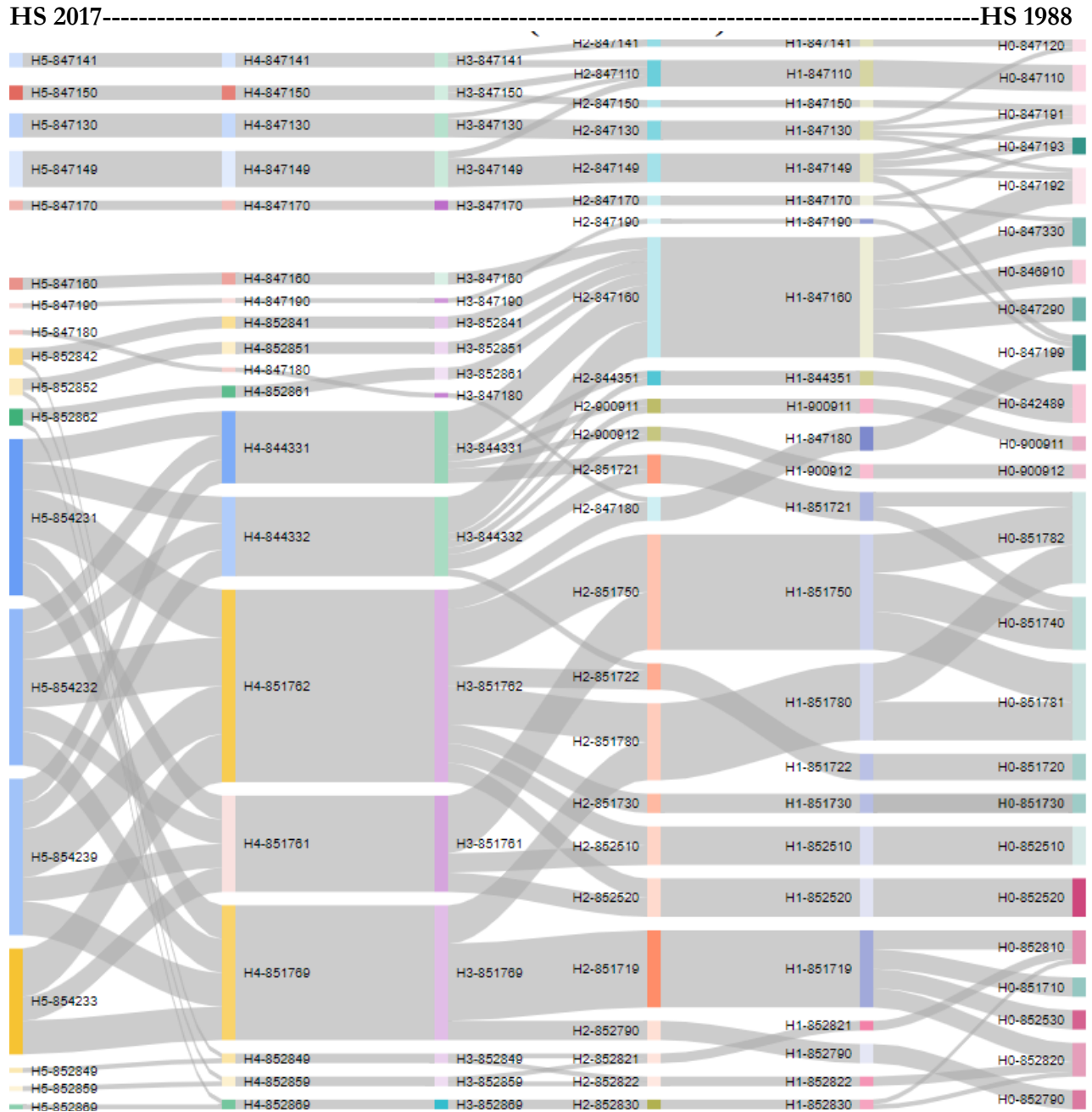
Classification of alcoholic beverages is quite stable in the past 30 years. The recent amendment in HS 2017 was due to packaging (not the content) by splitting wine containers holding more than 2 liters into two categories: 2 liters but not more than 10 liters and more than 10 liters.

Medicaments – SITC section 542



Amendments in chapter 30 “*Pharmaceutical products*” is a case of change in scope. For instance, HS 2017 subheading 300692 “*Pharmaceutical goods; waste pharmaceuticals*” was originally related to thirty HS 1988 subheadings. The major change for this specific subheading was undertaken in HS 2002 amendment.

Automatic data processing machines – SITC section 752



This is an example of HS amendments due to technological progress (dynamic changes in every HS amendment). It is worth to be noted that in HS 2017, the introduction of multi-component integrated circuits (MCOs) – which are advanced semiconductor devices that combine integrated circuits and discrete components into a single package – has caused complex splits and merges within subheadings under HS chapters 84 and 85.