

**13th Meeting of the Advisory Expert Group on National Accounts,
1-3 October 2019, Washington D.C., USA**

Agenda item: 2.1

Consolidated SNA research agenda

Introduction

1. To advance the research agenda of the 2008 SNA an Inter Secretariat Working Group on National Accounts (ISWGNA) task force was established to formulate the way to resolve issues related to globalization, digitalization and economic well-being and sustainability as well as identifying common research issues outside these three areas, and thereby draw up a consolidated overview of the research agenda going forward. Ongoing research work to facilitate the implementation of the SNA will continue as planned.

2. The task force reviewed a consolidated list of research agenda items related to current issues under discussion in the Advisory Expert Group on National Accounts (AEG), the list of issues presented in annex IV to the 2008 SNA and the research agendas related to balance of payments statistics, government finance statistics, environmental-economic accounting and trade and business statistics. The task force proposed to consolidate and prioritise the long list of issues and to identify key issues that will impact a broad range of countries. In addition, at its 12th meeting the AEG recognised that within the three priority areas there are specific issues that need to be addressed, which should be prioritised according to their relevance, urgency and potential impact.

3. This paper presents a consolidated list of SNA research issue based on the feedback from the task force and the AEG. Their order is not intended to imply a prioritization within the categories. Following the introduction in Part A, the priority areas for the research agenda are presented in Part B in five sections. Sections I to III list the issues related to Globalization, Digitalization and Well-being and sustainability; Section 4 is a list of cross cutting issues; Section 5 present relevant compilation issues. Part C reflects issues on the long-term SNA research agenda in the categories presented in annex IV to the 2008 SNA.

Documentation

- Consolidated SNA research agenda

Main issues to be discussed

The AEG is invited:

- to provided comments on the consolidated SNA research agenda.

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**Consolidated SNA Research Agenda
September 2019**

A. Introduction¹

1. Various researchers and policy analysts have expressed concerns about the way in which issues such as globalization and digitalization are being addressed in the national accounts, from both a theoretical perspective and a practical measurement point of view. Although the conceptual framework of SNA has proved to be robust and resilient, it is also clear that these issues pose challenges, especially globalization and digitalization when they become intertwined.
2. Furthermore, the continuous debate over whether to move beyond GDP requires better reflection on issues related to sustainability and well-being, both within the central framework of national accounts and in the form of additional satellite accounts with a more elevated status. With the adoption of the 2030 Agenda for Sustainable Development there has been a need to address issues related to measures of sustainability and economic well-being, with an increased focus on household income, consumption, saving and wealth, including their distribution across household groups, the depletion and valuation of natural resources and better capturing of unpaid household activity. These developments encourage a reflection on how to maintain the relevance of the SNA framework in addressing such issues.
3. To advance the research agenda of the 2008 SNA an Inter Secretariat Working Group on National Accounts (ISWGNA) task force was established to formulate the way to resolve issues related to globalization, digitalization and economic well-being and sustainability as well as identifying common research issues outside these three areas, and thereby draw up a consolidated overview of the research agenda going forward. Ongoing research work to facilitate the implementation of the SNA will continue as planned.
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5. This paper presents a consolidated list of SNA research issue based on the feedback from the task force and the AEG. Their order is not intended to imply a prioritization within the categories. Following the introduction in Part A, the priority areas for the research agenda are presented in Part B in five sections. Sections I to III list the issues related to Globalization, Digitalization and Well-being and sustainability; Section 4 is a list of cross cutting issues; Section 5 present relevant compilation issues. Part C reflects issues on the long-term SNA research agenda in the categories presented in annex IV to the 2008 SNA.

¹The document 'System of National Accounts: Development since 2008' provides information on all issues that have been discussed and agreed upon since the 2008 SNA was released, as well as issues that are currently under deliberation and provides useful background document when analysing the SNA research agenda. The document is available at: https://unstats.un.org/Unsd/nationalaccount/docs/SNA_Since_2008.pdf

B. Priority research issues

I. Globalization

6. Economic globalization has created new opportunities for businesses to organize their production chains more efficiently. This has increased the complexity of compiling economic statistics as it is more difficult to break down production activities on country-by-country basis. As a result, the measurement of key economic indicators, including gross domestic product, has been affected. Emerging global production arrangements pose challenges to business and macro-economic statistics, business registers and economic classifications. These challenges include implementation of the principle of economic ownership, especially in relation to intellectual property products, and the recording of cross-border transactions in goods and services in compiling national accounts and balance of payments statistics.

1) A typology of global production arrangements

7. Update the typology of global production arrangements with emerging types of global production arrangements and to test the usefulness of the existing typology on the basis of new case studies. The typology facilitates the international comparability by helping national accountants and balance of payments compilers to determine: a) The roles of the various actors in a global value chain; b) Who are the economic owners of inputs, outputs and assets along the production chain; c) The nature of transactions taking place inside the global value chain. Further work is needed on the global production in the domain of services, particularly the business models followed by so-called international service arrangers and international value chains of services.

8. Updating and advancing the typology require that national accountants and balance of payments compilers continue to closely cooperate with economic classification experts, business register specialists and experts in the field of the most relevant source statistics (e.g. business surveys, foreign affiliates statistics (FATS), foreign direct investment (FDA), international merchandise trade statistics (IMTS), statistics of international trade in services (SITS), research and development (R&D)).

2) Factoryless goods producers and recording of their transactions

9. Factoryless goods producers (FGP) are producers outsourcing their manufacturing activities but owning the underlying intellectual property products (IPP) and controlling the outcome of the production process. This type of arrangement is becoming more and more widespread and it raises the issues of: (a) the delineation and classification of factoryless goods producers; and (b) the correct recording of transactions between those producers and contractors. If determined to be a merchanting type transaction, since FGPs value creation reflects the inclusion of IPP (including brand value) it would be preferable to at least separately identify merchanting transactions where the value creation largely reflects distribution activities from those where the value largely reflects IPP, perhaps adopting new terminology.

3) Merchanting

10. The merchanting of services payments should be re-routed through the service recipient. The proposed treatment assumes that the receipt of the services changes the productive capacity of the recipient, which would be reflected, in part, in the market value of the equity of the recipient. Where the third party facilitates the provision of the service and receives a commission, this should be treated as the provision of an "other business service" by the third party, provided to the payer of the commission. Where the third party bundles the services with other services, or transforms them before provision to the final recipient, then these services would be treated as an import of services by the third party from the service provider and an export of services to the final recipient

4) Special Purpose Entities and identifying economic presence and residency

11. The use of special purpose entities (SPE) structures has increased in a context of multifaceted and flexible multinational enterprise (MNE) structures to obtain benefits from different legal and tax regimes which allows them to maximize profits after taxation. Identifying separately SPE activities is essential for market analysts and policy makers to analyse cross-border interconnectedness and understand the associated risks.

12. In a context of increasing globalization, SPEs have evolved beyond those structures anticipated in the current statistical manuals. While originally SPEs were mostly set up by financial institutions, they have evolved to include nonfinancial specialized entities established by MNEs to manage intellectual property rights, research and development, trade, and other activities as part of the group-wide financial and profit maximization strategy. Considering the evolving nature of SPEs, there is a need to develop further guidance on SPEs beyond what is in the current statistical manuals.

13. While there is not an internationally agreed SPE definition across all statistical domains the IMF's BOPCOM Task Force on SPEs (TFSPE) proposed an international definition of SPEs in the context of cross-border statistics so that cross-country comparable data can be collected (BOPCOM 18/03). This definition has been adopted by BOPCOM and initial data collection will begin by the end of 2021 (for reference year 2020). The ISWGNA's Task Force on the SNA Research Agenda: subgroup Globalization could study the extent to which a modified version of the proposed definition could be used for domestic-to-domestic relationships (such as those between central government and state-owned SPE-like enterprises).

14. A review of whether SPEs can be considered as separate institutional units from their parent companies may be needed. Currently, the residence of an SPE is determined according to the economic territory under whose legal jurisdiction the entity is incorporated or registered. If the entity is legally located in the same economy as its parent, the entity is (usually) combined with the parent and not recognized as a separate institutional unit because it does not satisfy SNA criteria for an institutional unit. However, if the entity is legally located in an economy different from its parent- by convention- the entity is recognized as a separate institutional unit. Some have called for a review of the residency principle as applied to SPEs and instead to reclassify the SPE to the economies of their parents.

15. As discussed in Moulton and van de Ven , there are two related reasons why the international standards currently treat SPEs as being resident in the economy in which they are legally registered. Firstly, only this treatment would be consistent with the actual cross-border cash flows resulting from economic transactions. Secondly, rerouting the transactions of SPEs would require a massive international exchange of individual data between statistical offices, which is not possible given existing legal constraints.

5) Economic ownership of Intellectual Property Products (IPPs)

16. A strict recording of international transactions on a transfer of economic ownership basis (as opposed to legal ownership) can be challenging in the following cases:

a) The parent may assign legal ownership of IPPs to SPEs which otherwise do not contribute to the MNE's production activities. National accountants will not easily be able to deviate from such legal arrangements. Usually they will be forced to follow reported earnings on IPP investment, despite the fact that these SPEs may not be considered as the economic owners according to the 2008 SNA principles. These "artificial" IPP services need to be identified in the national accounts or balance of payments, for example by presenting them in supplementary tables, to inform users about the significance of these flows (see issue 1 above).

b) Recent work of the IMF's Task Force on SPEs put forward a proposal to collect supplementary information on SPEs for a reduced number of BOP and IIP components beyond direct investment activities. As transactions in goods would be relevant for merchanting SPEs, a separate line for net merchanting by SPEs is included. Regarding services, four distinct components of services have been included in the reporting list where SPEs can be of relevance: transport, financial services, charges for the use of intellectual property, and other business services. National accounts compilers should also consider whether the supplementary information meets their needs or whether additional information may be necessary. An additional complication is the intellectual property products (IPPs) and the measurement of 'intangible production', where the generation of mobile assets involves little or no physical presence (which is also tied to what constitutes a resident institutional unit under issue 1).

c) Even when MNEs do not use SPEs as the legal owner of their IPPs, the principles of economic ownership of IPPs are difficult to apply inside multinational enterprises. The intangible nature of IPPs means that once they are produced their ownership and use are not easily observed since IPPs are not physically constrained and are non-rivalrous in nature. In other words, where IPPs are produced, used, and owned do not necessarily occur in the same country. This provides significant freedom for MNEs because the use of the IPP by one part of an enterprise group does not prevent the simultaneous use by another part and that the legal ownership of IPPs can be placed anywhere amongst the group. Various options for recording of IPPs have been discussed. Currently, the guidance states to record a change in economic ownership when a financial transaction between two institutional units occurs, which corresponds to a change in legal ownership.

d) The recording of what entity is the economic owner of the intellectual property product also has implications for how the related charges for the use of the intellectual property is recorded. Since intellectual property (e.g. R&D) is often considered corporate property, payments for its use may not always be observed separately and may instead be shown as distributed or retained earnings from Foreign Direct Investment.²³

e) Lastly, the typology of global production as discussed in the Guide to Measuring Global Production uses ownership of IPPs as one of the criteria in classifying certain global production arrangements. Implications on the recording, especially for factoryless goods producers, needs to be borne in mind when determining the economic ownership of IPPs (tied to issue 1 & 2 of this paper).

6) CIF/FOB recording of imports and exports

17. The CIF/FOB recording of imports and exports in the national accounts and the supply-use tables is in practice difficult due to data limitations. It is argued from conceptual viewpoint that the CIF/FOB recording seems to contrast the actual economic state of affairs and should therefore be replaced by a recording of goods imports and exports at actual transaction values. While the 2008 SNA introduces several important improvements, compared to its predecessor (1993 SNA) with respect to recording of imports and exports at a strict transfer of ownership basis (e.g. goods sent abroad for processing, merchanting), the required FOB recording seems to deviate from its general recording principle of actually observed transaction prices. The 2008 SNA recording of CIF/FOB may lead to mistakes in the trade balance when such recordings are not according to actually observed transaction values. CIF/FOB recording adjustments are not according to the general SNA principle of

² <http://www.unece.org/index.php?id=42106>

³ Some have even called for the payments for the use of IPPs to be recorded as income rather than payments for services. <http://www.iariw.org/copenhagen/lynch.pdf>

recording on ownership transfer basis as they require adjustments of services flows as actually observed. The asymmetries in international trade and CIF/FOB valuation of imports and exports need further work and should be included in the research agenda as a priority issue to be resolved in cooperation with balance of payments statistics experts.

7) Price and volume measurement related to globalization

18. Price and volume measurement in light of globalization is should be adapted to some of the key characteristics of the output of global producers. Inevitably this work will require the engagement of price statisticians. Representative producer prices indices (PPA) as laid down in the Producer Price Index Manual (PPIM) 2004 and the Export and Import Price Index Manual (2009) are essential in this context. Global production may involve (imports and exports of) goods and services which have different characteristics than those typically produced for the domestic market. The following list of goods and services should be part of a future research agenda on price and volume measurement in the context of global production:

- a) Industrial processing services;
- b) The output of principal and contract producers in an FGP arrangement;
- c) Trade services in connection to merchanting;
- d) Head office services;
- e) Other intra-company services;
- f) IPP related services (specifically R&D); and
- g) Inventories held abroad.

8) New data sources needed to measure global production

19. The changing accounting conventions between the 1993 and 2008 SNA, and differences between the fifth and sixth editions of the BPM, with respect to recording processing of goods owned by others, merchanting and FGPs are well understood. However, the required modifications in data collection are not always straightforward. Reconciling IMTS statistics with the imports and exports required in national accounts and balance of payment involves several steps for inward and outward processing, merchanting and factoryless goods production, each with its own data requirements. Depending on circumstances in individual countries, these data may not be readily available and adjustments in data collection are recommended. More specifically, the additional data needs relate to:

- a) Identifying import and export of goods in IMTS statistics which are not subject to transfer of economic ownership (goods sent abroad for processing or repair) and which should not be recorded as imports and exports in the national accounts or balance of payments. In addition to processing other corrections in IMTS may be needed, particularly when shipped goods are not subject to change in ownership (e.g. goods sent for repair).
- b) Identifying purchases and sales of goods abroad which need to be recorded as imports and exports in the national accounts and balance of payments, but which remain unobserved in IMTS statistics, as these goods do not physically cross the borders of the domestic economic territory.
- c) The design of business surveys should be such that the principle of ownership, and not that of territory, is used as a key concept in questions on inventories held by the surveyed unit. Changes in inventories of goods held abroad need to be recorded in supply

and use tables. Similarly inventories held abroad need to be recorded in the national balance sheets. The explicit recording of inventories held abroad (apart from domestically held inventories) is also recommended for measuring trade margins correctly (excluding holding gains or losses).

d) The data collection on international trade in services is a challenge in many countries. It is advised to include explicit questions about intra-group services in international trade in services surveys, depending of course on the relative size of MNE activities and related output or consumption of intra-group services. Respondents of MNE affiliated companies could be asked to report payments as contributions from affiliated enterprises for management services, which are not reported under any other heading. The refined classification as presented in MSITS 2010 provides a solid point of departure. The funding questions in the R&D survey are considered a second best alternative to obtain information on R&D related international trade flows.

20. In many countries, a sound coverage of the items above requires expanding the scope of existing surveys. Aspects of global production may be difficult to measure with existing sets of source statistics, or may even remain unobserved altogether (e.g. transactions in goods under merchanting, inventories held abroad). Yet, many NSIs are facing strong constraints in this regard. The optimal use of existing data may be the only feasible way forward. One important step in this direction is data validation by bringing together, and reconciling, the results from business surveys, merchandise trade statistics and the international trade in services statistics. This should preferably be done on the basis of an integrated business register that allows bridging the statistical business register and the customs register. It is also recommended to utilize existing customs data or information from the tax authorities to the fullest extent.

21. This is more of a measurement issue, however practical constraints may have an impact on guidance.

9) Nationality concept / Extension of IIP on a nationality basis

22. There is need to (re)consider whether it is useful to introduce a nationality concept (domestic companies versus foreign companies) in BOP/IIP. Such a distinction is likely to serve user needs (in particular at national level) in a globalized world. There have been discussions on the definition of the residence criteria, however no discussion on managing the duality residence/nationality within the BOP- IIP framework. More generally, evidence of the complementarity of the two concepts (residence/nationality), notably to analyze financial stability as well as better understanding the passage from GDP to GNI or the value of conventional IIP.

10) New methods to measure global production

23. Large and complex enterprises units (LCU), which were set up in recent years by several NSIs can be efficient in collecting and compiling data on the largest and most complex MNEs in a consistent and effective way. Typical LCU activities include integrated data collection (including register data), data compilation and consistency analysis. In the context of further improving the performance of LCUs, the sufficient cooperation mechanisms and collaboration among producers of statistics, both nationally and internationally need to be developed. Issues related to global production may oblige NSI's to combine efforts in completing their views on MNEs and global production and international trade more generally. The following areas of further development are relevant:

a) The development of common international business registers for the most complex MNEs (such as the Euro Groups Register) will assist in assigning the economic activities of the enterprises on a country-by-country basis in a mutually consistent way. Such registers may become the platform supporting the production of statistics on globalization based on

micro data and may assist in identifying the economic relationships and transactions taking place between the various member units of an MNE. The Guidelines on Statistical Business Registers (UNECE, 2015) provide recommendations and practical guidance on establishing and maintaining statistical business registers, targeting both developed and less developed statistical systems. The Guidelines also give some instructions on how to handle MNEs and enterprise groups in a systematic way. However, further work to address issues related to globalization and particularly aspects of global production is needed and has been brought into the future research agenda on statistical business registers.

b) Improving the recording of intra-company services flows of MNEs in international trade in services statistics could be a joint effort by NSIs. The IPP ownership decision tree shows that the producers of IPPs are much easier to identify than the users. When the producing and consuming units of intra-company services are not situated in the same country, the observation and recording of international flows of intra-company services should preferably be coordinated between the NSIs, at least for the largest MNEs, in order to avoid asymmetries in trade statistics. Confidentiality policies and existing restrictions to data exchange have to be taken into account. Further work is needed to explore the possibilities for exchanging micro data between NSIs strictly for statistical purposes such as data validation. International organisations should consider what role they could play to facilitate this process.

c) There is a need for a permanent forum where country experts could share information and experiences on measurement issues related to global production arrangements. Globalization will continue to lead to new global production related issues that have not been examined so far. Such a forum could support stocktaking of new cases, identifying best practices and further harmonization of accounting practices.

24. This is more of a measurement issue, however practical constraints may have an impact on guidance.

11) Analysing global value chains and trade in value added amplifies the need of high-quality statistics on global production in national and international accounts statistics

25. One key requirement of carrying out input output analysis for measuring trade in value added is reconciling trade statistics with input-output tables at bilateral level. Key in this process is avoiding (or otherwise eliminating) asymmetries in trade statistics. In addition, the analysis of global value chains requires that national statistics build in a global dimension from the outset. This could be done by developing aggregations, not only on the basis of industrial classification, but also on the basis of business functions, for example by showing separate sub-groupings of processors, FGPs, foreign owned firms, etc. Doing so would allow countries to construct supply-use tables, broken down by these new groupings, that would certainly have a higher degree of homogeneity, compared to aggregations which focus only the industrial classification of firms, where there exists considerable heterogeneity. This supplementary classification, which is expected to help identifying the business functions along the global value chain, is an issue for future research.

26. This is more of a measurement issue; however practical constraints may have an impact on guidance.

27. Examine the possibility of breaking down BOP goods and services account by enterprise characteristics, such as industry, nationality (foreign owned/domestically owned) and firm size. To increase the relevance of the current account (including both goods and services as well as primary income) for the analysis of globalization, information on the characteristics of the enterprises involved in these transactions is highly useful.

II. Digitalization

28. In recent years, macroeconomic analysis has become increasingly challenging due to rapid quality improvements and product innovations. Although many of these changes are driven by globalization and increased international competition for labour and management, the most prominent driver is technological innovation. The effects of this innovation include sharply lower prices and increased efficiency in computers, cell phones, and the Internet; new goods and services; innovations in financial markets and new methods of payment; and reductions in costs and improvements in quality and efficiency associated with the use of technology. This new phenomenon is often described in terms such as the Internet age, the information technology (IT) revolution, Internet economy, the digital economy and the sharing economy.

29. The understanding of the size of digital economy can help in understanding changes in the economy and ultimately also better understand the role of digital economy for development. This relies on a sound statistical measurement of the digital economy which has intrinsic challenges that are being discussed by national accounts experts at national and global level. In addition, the rising popularity of Big Data presents the statistical community with a potentially rich data source for tackling the measurement challenges posed by the digital economy.

12) Satellite framework for the digital economy.

30. Attempts to measure the digital economy and efforts to derive various indicators contained within it have been limited to delineating a range of industries and products and labelling them as “digital”. However, the proposed digital supply and use tables aims to capture, in a more systematic way, the production chains and value added of the units involved within the digital economy. This includes activities of digital intermediary platforms, the producers that rely on them, online only retailers (digital trade and e-commerce) and producers as well as businesses that provide free digital services such as social media. It also provides details on how the digital supply-use tables would operate; including more precise definitions on the digital industries and products distinguished. The proposal attempts to strike a balance between what is practically possible and statistically informative. Not all data required to populate the cells will be available immediately, but much will be, allowing countries to begin to create internationally comparable estimates of activity within the digital economy.

13) Household production and consumption of digital products

31. The pervasiveness of Internet access by households has blurred the traditional boundary between household production for market purposes, own account production, consumption, and leisure. Households are increasingly involved in transactions which previously would have been carried out through an intermediary. In other words, households are increasingly engaged in activities that would previously have been included in GDP. Although the scale of this ‘digitalized’ participation activities is likely to be significantly less than those for other non-market services outside the SNA production boundary, the inclusion of estimates would remain distortive and would require a subjective view on the price of the activity.

32. The sharing economy has resulted in the increased household participation in the form of unincorporated enterprises in informal activities. This raises questions on how to delineate dual use consumer durables and fixed assets. A specific example would be an individual using his car both for personal use (which would count as a consumer durable) and to drive for Didi Chuxing (which would count as a fixed asset). The SNA does not provide prescriptive guidance on how durables should or should not be included as investment when they are also used for production purposes. A better understanding of how economies make the relevant distinction and the source information used will be needed to understand the impact on the national accounts.

14) Free digital products and services

33. The digital economy has spawned free digital products which may be produced by volunteers, by consumers themselves or by platforms which are funded by advertising revenue and the collection of user data. The increase in household welfare from these products may not be adequately measured in the national accounts. Thus, there is a need to develop indicators of welfare from these products which are outside the boundaries of national accounts. These indicators could address issues such as the impact of digitalization on the welfare of different segments of the population, and how digitalization has changed the way households use their time. Households have been receiving free goods and services even before the advent of the Internet. An example is free media services (television and radio) financed implicitly via advertising. However, digitalization has sharply increased the scale of free or subsidized products. It has also created new complexities such as financing via the acquisition of Big Data in addition to the traditional model of financing via advertising.

34. Conceptual difficulties emerge when considering the creation of 'public goods' using labour provided for free, and where financing is typically only provided by donations (Wikipedia and Linux are two well-known examples). The activity of creating these assets is (correctly) not included in GDP and the assets have a zero value, although the assets are valuable to users. A better understanding of the economic benefits (and impact) through satellite accounts, in particular to households, but also to businesses would enable an assessment of the potential consequences on estimates of multi-factor productivity that occur when paid for assets is substituted by free assets.

15) The role of data and the SNA asset boundary

35. Data have always had a central role in business decision making. Businesses strive to gather data on customers, to improve products and processes to enhance productivity, improve performance, and increase profitability. As storage and acquisition costs decreased and processing capacity (software, IT hardware) increased this led to an explosion in data accumulation. The simple fact that the data is in electronic form allows it to be analyzed for insights and decision-making at an unprecedented scope and scale. In some sense data itself has been transformed: it has become digital data. This digital data has allowed for new information/knowledge creation that could not have been done if the data were not in digital form. Consequently, digital data is becoming another factor of production and Bean (2016) states that it is analogous to physical and intangible capital.

36. The 1993 SNA introduced the notion of databases, with further clarifications provided in the 2008 SNA that specified that databases should reflect only the value of the underlying database management systems and the costs associated with the digitisation of data. This recommendation reflected the view that the underlying value (information content) associated with the data itself should not be capitalised because to do otherwise would indirectly open the door to the capitalisation of knowledge), , and as such, their contribution, as a factor of production, is de facto invisible in the accounts. Recent years have seen an explosion in the generation of data, and the use of data, notably in advertising-based business models, raising questions about the 'invisibility' of data in the accounts. There is a need for guidance on the treatment of data as part of the asset boundary or not; if it is a produced or non-produced asset; and the valuation of data

16) Price and volume measures related to digital products

37. The digital economy has increased the ability of consumers to purchase customized goods and services. This makes it more difficult to control for quality differences when comparing prices. A more important challenge is how to capture the price changes arising from the shift to the digital economy so as to produce better quality GDP volume measures. For example, to the extent that Airbnb rooms are of higher quality than comparable hotel rooms, the use of a price index that only

captures hotel rooms will fail to capture the switch to cheaper Airbnb rooms and underestimate the total volume of accommodation services.

17) Crypto assets

38. With the rapid development in issuance and use of cryptocurrencies for transactions, there is a need to develop guidance on the treatment of cryptocurrencies and of compilation techniques, including data sources. Further research is needed on the recording of crypto assets with particular emphasis on their use as medium of exchange or store of value. Recording guidance currently developed for crypto assets are considered as interim, pending clearer future developments of crypto assets (e.g. regulatory measures).

III. Economic wellbeing and sustainability

39. The SNA provides the overarching framework for the measurement of the macroeconomic activity via a set of interlinked coherent accounts. By its very nature the SNA sets boundaries around what is inside the System and what is outside of it – defining what is the ‘economy’. These boundaries have real world impacts for informed decision making and should be open for debate as society and the needs of users evolve. It is widely recognized that official statistics need to better inform on issues of wellbeing and sustainability, for example:

- a) The United Nations Sustainable Development Agenda identifies goals which build economic growth while addressing a range of social needs
- b) The Stiglitz-Sen-Fotoussi “Report by the Commission on the Measurement of Economic Performance and Social Progress” called for statistics to close the gap between aggregate production data and citizen’s well-being
- c) Many international organizations (e.g.. OECD, World Bank, IMF, G20) have adopted an Inclusive Growth approach which seeks to generate growth through inclusion

40. Guidance need to be developed to provide clearer links between material wellbeing, including for example distributional measures, and broader issues of wellbeing and sustainability. The latter could be further elaborated by developing a broader accounting framework, e.g. by combining the current framework with statistics on unpaid household activities, environmental-economic accounts, health and education. In addition, appropriate terminology (and branding) need to be developed to facilitate the integration of measures of wellbeing and sustainability with the core accounts and cooperation between those developing and preparing accounts in different fields to ensure the optimal use of resources.

41. As wellbeing and sustainability are all-encompassing themes and can’t be neat defined we need to have some principles to help us determine which domains to be included in the SNA research agenda. Suggested principles:

- a) Continue SNA focus on the economy - the economy contribution to wellbeing rather trying to measure wellbeing itself
- b) Ensure we have a household focus – informing outcomes for citizens
- c) Links to externalities – there will always going to be important measures outside of the SNA, need to link through to important issues even if they aren’t included in the boundary (i.e. SEEA approach)

18) The broader framework for wellbeing and sustainability

42. It is considered of the utmost importance to develop metrics that cast a wider net on the monitoring of the well-being of people and the sustainability of societal developments. As (sustainable) well-being is a multidimensional phenomenon, it may not be possible to capture it in one catch-all indicator, and one thus has to agree and rely on a set of indicators which monitor the most relevant aspects. There are several ongoing initiatives in this area. The OECD Better Life Index is an example, in which eleven areas of (sustainable) well-being are being monitored: housing; income; jobs; community; education; environment; civic engagement; health; life satisfaction; safety; and work-life balance. But also the set of indicators developed for monitoring the Sustainable Development Goals (SDGs) can be grouped under this umbrella.

43. In trying to define a broader framework, the goal is to take all of this one step further, by developing a broader accounting framework that supports the monitoring and analysis of the interrelations between the various aspects of wellbeing and sustainability, thus providing a better understanding of the trade-offs and the win-wins between the various domains, and moving away from the primary focus on economic growth as the one and only indicator of progress.

44. This way of thinking about linking various areas of statistics has been developed and implemented in the area of environmental-economic accounting (SEEA 2012 Central Framework), but there are other promising initiatives as well. Furthermore, in the area of education and training, and in the field of unpaid household activities, more detailed guidance has been drafted and disseminated quite recently.

45. As a point on the horizon, one would like to see the development of an overarching accounting framework, in which statistics on economic, societal and environmental issues are integrated (not necessarily monetised), and in which one can easily drill down into micro-datasets. It is clear that this can only be a long-term goal, also requiring the development of a suitable conceptual framework. As a more realistic goal for the nearer future, one could envision the regular compilation of certain thematic satellite accounts, such as the ones mentioned above. Having accounts for the environment, health, education and unpaid household activities, or time use more generally, compiled on a regular basis for a substantial number of countries would definitely support the monitoring and analysis of quite a number of well-being aspects. In doing so, it is not necessary to compile all accounts at a quarterly or annual basis. Some accounts, for which structural developments are the primary focus, one could think of a compilation every 2-3 years, depending on user demands and the availability of source data.

46. In developing such a broader framework, one should also acknowledge the importance of communication, especially related to the terminology that is currently being applied. Referring to the traditional set of national accounts as being the “central framework” or the “core” set of national accounts and referring to the measurement frameworks for other areas as being satellite accounts, is not particularly helpful. One therefore also needs to rethink terminology and the content of what’s currently being referred to as the central framework. Vanoli proposes, for example, to refer to the current set of national accounts as the System of National Economic Accounts (SNEA), and to include a much broader set of accounts in the central framework of national accounts. In doing so, he also presents a concise conceptual foundation for the broader set of accounts, with reference to four spheres and their related information systems: economy, people, nature and society.

47. The System of Environmental-Economic Accounting (SEEA) 2012 Central Framework provides an accounting framework in which environmental issues are linked, in a consistent and integrated way, with the economic activities as recorded in the current SNA. As such the SEEA provides an excellent example for defining supplementary tables for the broader framework within the context of national accounts. One of the discussion items in this area would be whether to

simply include the whole SEEA Central Framework into the broader framework for measuring wellbeing and sustainability. Or should, in the context of defining a broader framework of national accounts, priority be given to some of the accounts defined in SEEA?

48. In any case, the above also warrants a more in-depth discussion about some broad potential paths for the future of the System of National Accounts as a set of international standards:

- a) Experimentation and flexibility – expansion through satellite accounts and supplementary tables where SNA includes a generalised chapter on “satellite accounts and other extensions”; with topic specific guidance contained in separate handbooks.
- b) Coherence and rigour – a family of standards: build on SNA-SEEA precedent by designing a family of standards covering the broad domains economy, environmental, human, and social.
- c) Towards measuring progress – expand the current SNA to cover a fuller range of wellbeing and sustainability topics beyond the current market economy focus.

19) Distribution of household income, consumption, saving and wealth

49. There is a clear need and expectation to go beyond measuring the size or growth of the economy and better inform on who is benefiting – how the benefits of economic activity are being distributed. A significant amount of work has already been invested in putting more focus on household (adjusted) disposable income, in addition to economic growth. This includes de-compositional analyses on which factors drive differences in economic growth versus the growth of real household disposable income, including its distribution across different household groups.

50. Significant investments have also been made in linking micro data on the distribution of household income, consumption, saving and wealth with the equivalent national accounts aggregates, leading to consistent distributional measures within the framework of national accounts, e.g. the work done by the OECD/Eurostat Expert Group on Disparities in National Accounts (EG-DNA), by the European System of Central Banks (ESCB) Expert Group on Linking Macro and Micro Data for the Household Sector (EG-LMM), and the World Income Database (DINA). Several countries have also put considerable efforts in advancing in this area, and some already compile and disseminate distributional results. As a consequence, much experience has been gained in this area, and excellent guidance on sources and methodologies is available.

51. From a conceptual point of view, this area can be considered as a “simple” breakdown of the household sector into a number of subsectors, be it based on income quintiles/deciles, composition of the household, or the type of income received. Annex 1 of the 2008 SNA already includes suggestions for the breakdown of the sector, based on the type of income received. Having said that, a number of questions have been raised in relation to the measurement and recording of household transactions and positions. An example concerns the allocation of social transfers in kind to individual households, e.g. in relation to health and education. Furthermore, the recording of non-life insurance raises questions in the case of smaller groupings for which premiums and claims do not cancel out. Questions are also raised about the exact treatment of institutional households.

52. From a more practical point of view, breaking down the households’ sector requires additional details on intra-household transactions and positions, such as those related to income and capital transfers between households, and transactions in second hand goods.

53. Finally, there is also a communicational aspect to this line of work. A key point here for the statistical community is to clearly understand and communicate the differences and relative strengths and appropriate uses between distributional results based on national accounts concepts and measures of inequality and poverty based on micro-based sources. These two bodies of work can inform one another in terms of quality and coverage.

20) Education and human capital, labour and productivity

54. As the economy evolves (driven mainly by advances in technology), employment outcomes and the future of work have become an increasing concern of governments and societies. Changes in the arrangements of the production process (via globalisation, digitalisation, etc.) have real world impacts on the nature and availability of work and jobs. The role of the human capital content of labour is also growing. In turn these changes in the labour market drive changes in incomes, living standards, and wellbeing for many citizens. Understanding changes in the relationship between the production process and employment, including its human capital content, is thus critical for policy makers.

55. Despite labour being one of the two factors of production within the SNA production model, and being a fundamental component of the economic system more generally, it is not currently articulated as a separate account within the SNA. Unlike capital, there is no labour account to enable analysis of the stock, utilization, rates of return and so forth of labour within the production process. The study of productivity continues to develop with research initiatives including KLEMS; total factor productivity; quality adjusted measures of labour; human capital and so forth. Significant changes in the 2008 SNA, such as the capitalization of R&D, came about largely through the study of the role of capital in productivity growth. Having an explicit discussion of labour in the SNA would facilitate the research and analysis of productivity measurement.

56. Productivity is the key driver of real income growth, and real income growth is in turn the main determinate of material living standards. A major contemporary puzzle is the failure of recent advances in technology to translate into wage growth and increased real incomes for many citizens. Informing this puzzle must be one of the critical measurement challenges of our time. More fully articulating the role of labour within the economy can only help with this study.

57. A related issue concerns the role of education and human capital in the production process, the labour market and its impact on people's income and wellbeing. Significant advances have been made on how to record and measure the increasing role of education and human capital, such as those included in the UNECE Guide on Human Capital⁴, in which ample guidance is provided on the compilation of satellite accounts on education and training, and also the development of satellite account on human capital, including methodologies for measuring investments in and stocks of human capital, and how to record all of this in the SNA.

58. A further elaboration of the above issues into a set of tables that supplement the traditional framework of national accounts could support the analysis of the production process and people's wellbeing in various ways. Assuming that a full integration of human capital measures into the SNA is not feasible and desired, this line of work is not expected to have an impact on the fundamentals of the current framework of national accounts, but it may lead to additional details and clarifications in the standard set of national accounts (e.g. more details on labour input), and it may also result in supplementary tables providing more detail (e.g. on expenditures on education) and/or alternative measures (e.g. on investments and stocks of human capital).

21) Health and social conditions

59. Governments are under pressure to deliver the services expected by citizens, there is pressure on budgets across the globe driven by aging populations and technology advances (particularly in health care). Issues of productivity and outcomes in health and education are at the forefront of minds in most governments. The valuation of these non-market activities is a long-standing issue that needs to be addressed continuously. Also, building on work of the Atkinson

⁴ "Guide on Measuring Human Capital", UNECE, New York and Geneva, December 2016. Available at: https://www.unece.org/fileadmin/DAM/stats/publications/2016/ECECESSTAT20166_E.pdf.

Review and research by national statistical agencies, there is a clear need to have more guidance on the volume and price measurement of non-market output. It should also be considered whether there is an appetite for the SNA to more explicitly look at outcomes and not only outputs.

60. In this respect, it is also important to further elaborate the role of health and education in the context of wellbeing. Education has already been addressed in the previous item, but also in the case of health it is considered critical to design supplementary tables which provide a link between the traditional set of national accounts, including the measurement of outputs, and the outcomes of the process of producing health services. Here, reference can be made to the considerable work that has been done on the development and compilation of health satellite accounts.

61. Again, this line of work most probably won't have an impact on the fundamentals of the SNA, although a couple of issues could potentially lead to a reconsideration of current guidance. In respect of the latter, one can think of the measurement of the output value of non-market services. Also further guidance on the volume/price split could lead to changes in some of the recommendations in the 2008 SNA, although these may probably be considered as clarifications or interpretations.

22) Unpaid household activities

62. The line between formal economic activity, informal activity and household activity continues to be questioned and to provide measurement challenges. While these issues are longstanding, recent developments in digital technology have led to a heightened interest and new questions on the role of unpaid household activities in the measured economy. In the past, lengthy discussions have taken place on the drawing of the SNA production boundary to exclude services generated by households for their own final consumption as well as services provided through volunteer activities. Whilst this issue has come up in several specific circumstances, a general reflection needs to be made again on whether the production boundary should be extended for these unpaid services. The Report by the Commission on the Measurement of Economic Performance and Social Progress, more commonly referred to as the Stiglitz-Sen-Fitoussi Report, also acknowledges this point of critique, and has included a recommendation (number 5), to "broaden income measures to non-market activities", in which the latter refer to unpaid household activities. Furthermore, recently international guidance on valuing "unpaid household service work"⁵ (UNECE, 2017) has been finalised.

63. It goes without saying that extending the current production boundary with unpaid household activities would have massive implications on all national accounts aggregates. Whatever the results of such a discussion, even without an extension of the production boundary, there is a clear need for developing a standardised framework, or supplementary tables, for the recording of the above services in physical and monetary terms. In physical terms, having a consistent set of data on time use, that monitors the trade-offs between paid work, unpaid work (e.g. child care, taking care of the elderly, various types of volunteer work) and the capacity for leisure activity, can provide significant insights in people's choices and quality of life. Such information can also advance the agenda of compiling (experimental) results and supplementary aggregates.

64. Other issues that may need further consideration in this context include the following:

- a) the need for improved (possibly alternative) data sources on time use and consumer durables;

⁵ "Guide on Valuing Unpaid Household Service Work", UNECE, New York and Geneva, December 2017. Available at: <https://www.unece.org/fileadmin/DAM/stats/publications/2018/ECECESSTAT20173.pdf>.

- b) the relationship with the provision of “free services” that have become available due to the digitalisation of the economy (Internet, social media, etc.);
- c) the treatment of household volunteer work, among which the creation of freely available asset created by communities of people (Wikipedia, R, etc.);
- d) the compilation of experimental results

23) Valuation and delineation of natural resources

65. The valuation of natural resources poses significant measurement challenges that need to be addressed in order to ensure international comparability. The valuation of natural assets based on the net present value (NPV) method relies on the assumption that the commodity markets are in equilibrium, implying that the market value of the asset can be set equal to the sum of discounted (expected) future income, or resource rent, associated with the exploitation of the asset. However, as commodity prices show large swings, there is significant uncertainty about their future development and thus the value of the asset. Further research is needed to address volatile asset values where the valuation of natural assets exclusively relies on current commodity prices as being equivalent to the expected value of future incomes.

66. Whilst the SEEA follows the SNA in promoting the use of market valuation of stocks and flows which are "near-market", some stocks and flows are neither "market" nor "near-market" (such as water stocks and flows) and further guidance is needed for their valuation. Techniques to be used could include "mimicking markets" or deriving "proxy exchange values". This has a close linkage with discussions in the SNA context of valuation of mineral reserves (not currently extractable) and water resources. The valuation and recording of other assets, such as those related to stocks of renewable energy resources, may also need further elaboration, especially given the large-scale growth in these resources in the recent past and in the future. Furthermore, in the context of accounting for ecosystems (see below), some questions have been raised about the delineation of natural biological resources in the current SNA. This especially relates to the criterion of resources being managed, or not, by economic agents.

24) Accounting for depletion

67. The depletion of non-renewable natural biological resources, in particular natural timber and aquatic resources constitutes an important flow in the existing SEEA 2012 Central Framework. The current SNA includes the concept of depletion of a natural resource with respect to its use in production, to be recorded as another change in the volume of assets (see para 1.47). Further research and discussion are foreseen on the practical measurement of depletion (which is linked to the valuation of natural resources, see above) and its role in the SNA sequence of accounts and main aggregates. The discussion could also include depletion of (non-renewable) mineral and energy resources, and conceptual issues on how to define the depletion of renewable resources.

25) Losses

68. There are a number of issues related to “losses” which are not fully described in the SEEA and need to be further clarified. Notable examples include energy and water losses during the chain from original source to consumer. Whilst the SNA accounts for the recording of losses of inventories (see the Annex to SNA Chapter 6), the guidance could be further elaborated, particularly as it impacts the recording of transactions within and between industries and households.

26) Accounting for ecosystems

69. The ecosystem accounting framework incorporates ecosystem services by extending the concept of production to include natural processes. The result is that ecosystem services become

additional outputs within the national accounting system alongside the set of goods and services defined in the current SNA. Having been recognised as outputs produced by ecosystem units, one could consider recording these ecosystem services as being transacted within the accounting system. As such, the ecosystem accounting framework aims to treat ecosystem services and assets in a manner that is as analogous as possible to the treatment of produced assets and standard goods and services as described in the SNA. There are, however, several issues that still need further discussion, such as recording ecosystem services within a broad extended sequence of institutional sector accounts; the need for a clear articulation of the underlying economic assumptions and associated implications; guidance on valuation for non-monetary and imputed transactions; the valuation of ecosystem assets; and how measures of ecosystem degradation can be attributed to economic units (based on costs borne or costs caused).

IV. Cross cutting issues

27) The relationship of SNA and IASB

70. The International Accounting Standards Board is an independent, privately funded accounting standard-setter. The Board members come from nine countries and have a variety of functional backgrounds. The IASB is committed to developing, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require transparent and comparable information in general purpose financial statements.

71. The IASB works with national commercial accounting standard-setters to achieve convergence in accounting standards around the world. Nearly one hundred countries currently require or permit the use of IFRSs (International Financial Reporting Standards) or have a policy of convergence with them. The development of IFRSs reflects the changing needs and circumstances of the global economy in ways that can be directly relevant to the use and requirements of the SNA. The adoption of IFRSs by corporations can have a major impact on corporate accounting and the data available from corporate accounts.

72. The IASB works in a three-stage process to develop a new standard. The first is a draft with an invitation to comment (ITC); the second is an exposure draft (ED) also inviting comment; the third is the new standard. At each stage the background to the issue is clearly explained and the reasons are given for the choice recommended. In both the first two stages comments are invited from any interested party. The development of a regular dialogue between the national accounts community and the IASB would be a way to assure the needs of national accountants were represented to the IASB and national accountants were aware of the possible developments in the data sources. Already during the 2008 revision consultation of IASB standards and their counterpart for public accounting standards (the International Public Sector Accounting Standards Board, IPSASB) has been extremely beneficial. It is therefore desirable that a dialogue be established and maintained with the IASB with a view to amending the SNA to follow new accounting standards when appropriate.

73. One area of developing interest in international accounting, relating back to the question of multinational enterprises, is that of mergers and acquisitions. The text in chapter 21 draws on information in the OECD Benchmark Definition of Foreign Direct Investment. IASB work in this area should be monitored to see if these recommendations need amending.

74. There is therefore a need to compare SNA with the latest IFRSs and discuss if some IFRS aspects should be brought into the SNA.

28) Statistical units

75. One of the challenges brought about by the rapidly changing nature of production and particular the ways in which enterprises produce goods and services has cast a spotlight on the SNA's preference for the use of the establishment as the preferred unit to compile industrial statistics, and in particular, supply and use tables. To investigate this issue, an ISWGNA Task Force on

Statistical Units has been established to take stock of the 2008 SNA recommendations on statistical units (including institutional units), and to reflect on whether or not the recommendations on statistical units need to be adjusted in the future. The Task Force is expected to provide a clear view of what needs to be measured in the economy in order to identify ways to improve the definitions, if necessary, and taking into consideration: current country practices; regional accounts as well as productivity measurement.

The treatment of establishments in the SNA

76. At the present there are two reasons to have the concept of establishment within the SNA. The first of these is to provide a link to source information when this is collected on an establishment basis. In cases where basic information is collected on an enterprise basis, this reason disappears. The second reason is for use in input-output tables. Historically, the rationale was to have a unit that related as far as possible to only one activity in only one location so that the link to the physical processes of production was as clear as possible. With the change of emphasis from the physical view of input-output to an economic view, and from product-by-product matrices to industry-by-industry ones, it is less clear that it is essential to retain the concept of establishment in the SNA.

Consolidation of enterprise groups

77. Many enterprises operating within an economy are linked with other enterprises by complete or partial common ownership and a shared management structure to form an enterprise group. Enterprises also often share common ownership and management with foreign affiliates. It is common for enterprises within an enterprise group to trade with each other, sometimes exclusively, as when they perform an intermediate stage in a vertically integrated production process, and share the outputs and costs of ancillary production. They may also share the outputs and costs of research and development activities. Given their close ties it may be sometimes desirable to consider an enterprise group as a single entity and to consolidate the accounts of its members. (This is already the practice in some other statistics such as AMNE, FATS and Bank for International Settlements (BIS) consolidated presentations.) Members of an enterprise group are usually engaged in different activities and sometimes in more than one sector, and so consolidation could affect aggregates, such as industry value added, and sectoral balance sheets. It is therefore probable that the most likely way forward would be by way of supplementary tables.

78. Separate consideration needs to be given to the case where some parts of the group are non-resident.

29) Trusts

79. The SNA recommends that trusts be treated as quasi-corporations. In some cases, though, when one is used in effect as an SPE for a corporation, it is not considered to be a separate institutional unit but is merged with its parent, so long as they are both resident in the same economy.

80. No detailed description of trusts is given, though some may be owned by households and NPIs as well as by corporations. Further clarification on the nature of trusts and when their assets should be treated as belonging to separate units and when merged with the assets of their owners would be helpful.

30) Broadening the fixed asset boundary to include other intellectual property assets

Innovation

81. The fixed asset boundary of the SNA has been expanded to include the output of research and experimental development (R&D) that meets the general definition of an asset. It is evident that

R&D captures part, but not all, of the innovation process. It may exclude many expenditures by the production and engineering departments of an enterprise. These same departments may also be responsible for identifying a potential new product and referring it to the R&D department to develop the science behind it. In addition, an enterprise may incur other expenditures before a new product goes to market. These include market research to determine the demand for a new product and marketing expenditures to promote it.

Marketing assets

82. Marketing assets include brand names, mastheads, trademarks, logos and domain names. Marketing is a key driver of brand value and big corporations invest heavily in building and supporting their brands by advertising, sponsorship and other measures to build a positive image with customers. The SNA treats marketing assets as being non-produced and the expenditures incurred in their creation as intermediate consumption. They appear in the balance sheet only when they are sold. The major reason for not treating marketing assets as fixed assets is due to the difficulty of measuring their value.

Human capital

83. Apart from any staff training required in bringing a new product to market, innovation expenditures are disembodied from the people undertaking the innovation. Therefore they exclude to a large extent the “investment in human capital”.

84. Human input is the major input in most production processes, and the value of that input is to a large extent dependent on the knowledge that humans bring to the production process. It is well recognized that an educated population is vital to economic well-being in most countries. Despite the fact that there are major conceptual and practical problems with identifying the value of an educated labour force, there are repeated requests to address this issue within the SNA framework.

85. Following the publication of the Guide on Measuring Human Capital, and experience in some countries in producing human capital measures, there is therefore a question if the SNA capital boundary should be extended to include human capital as an asset.

31) Leases to use or exploit natural resources

86. Part 5 of chapter 17 deals with the treatment of licences and permits to use a natural resource. Because the treatment for individual resources was developed independently there are some inconsistent treatments recommended.

87. In the case of a natural resource that has an infinite life and whose use in production does not affect the nature or value of the asset, the owner may allow the resource to be used for an extended period of time in such a way that, in effect, the user controls the use of the resource during this time with little if any intervention from the legal owner. In the case of land, the SNA recommends that the agreement between the owner and the user constitutes a sale of the land. In the case of a lease of the radio spectrum, the SNA recommends that the permission to use the spectrum does not change the ownership of the spectrum but constitutes a non-produced asset under the heading contracts, leases and licences. In the case of permission to use the atmosphere or a water body as an environmental sink, the SNA recommends that the payment be treated as a tax.

88. In the case of a natural resource that is subject to replenishment and which can be used indefinitely providing the use is restricted and the owner extends or withholds permission to continued use of the asset from one year to the next, payments by the user to the owner are recorded as rent. No adjustment is made to the value of rent recorded as to whether the use is in fact sustainable or not. If it were not sustainable, part of the payment should be seen as being compensation for the non-sustainable use.

89. In the case of a natural resource that is not capable of replenishment on a human time-scale and the use in production eventually exhausts it, the owner may permit the resource to be used to extinction. In this case the SNA recommends that economic ownership of the natural resource remains with the lessor while the lessee pays royalties recorded as rent. Only the lessee and not the lessor undertakes production. This means that the reduction in the value of capital due to production is recorded in the balance sheet of the owner as another change in volume of assets. The link between the rundown in the value of the assets and its use in production is lost. As in the previous case, the fact that part of the rent paid is compensation for the reduction in the value of the asset is not recognized.

32) Treatment of Private-Public Partnerships

90. The 2008 SNA retained a somewhat open position on the statistical recording of Public-Private Partnerships. Following greater experience of statisticians in dealing with these operations, and evolution in the structure of these operations, the statistical treatment can be revisited. BPM6 has no reference on PPPs, while the External Debt Statistics Guide 2013 refers to PPPs in its Appendix I. It would be adequate to have consistency across the guides.

V. Compilation issues

33) Harmonization of SNA and BOP

91. The underlying methodology and concepts of the most recent revisions of the statistical standards for the national accounts (2008 SNA) and the balance of payments (BPM6) are consistent with each another. However, large differences in the statistical data still remain in practice and guidance is needed in order to reconcile the data discrepancies between the national accounts and the balance of payments. Recently regional workshops were organized to discuss the main challenges in the production of national accounts and balance of payments statistics in the participating countries with a view of identifying priorities and recommendations for improving the consistency between SNA and BOP data.

92. This is more a measurement issue, but textual changes may need to be made to ensure complete consistency in practical application. For example, the terms employed by BPM6 and the 2008 SNA for payments made by policymakers are different and should be harmonized.

34) Islamic finance

93. Islamic Banking does not operate in the same way as conventional banking as it follows the Shari'ah Islamic law, principles and rules. The Shari'ah Islamic law does not permit receipt and payment of "riba" (interest), "ghharar" (excessive uncertainty), "maysir" (gambling), and short sales or financing activities that it considers harmful to society. Instead, the parties must share the risks and rewards of a business transaction and the transaction should have a real economic purpose without undue speculation, and not involve any exploitation of either party.

94. However, issues on the implementation of the 2008 SNA recommendations for Islamic Banking were raised during several meetings in the Arab Region organized by the Statistics Division of the United Nations Economic and Social Commission for Western Asia (ESCWA).

95. The Advisory Expert Group (AEG) on National Accounts agreed that further research on the statistical implications of Islamic Banking in the national accounts is required and that practical guidance on the treatment of Islamic Banking transactions; the sectorization of Islamic financial corporations; classification of Islamic financial instruments; and calculation and recording of various types of Islamic financial services and related transactions need to be developed.

35) Informal Economy

a) Informal economy in national accounts and external sector statistics

96. The informal economy broadly comprises (i) the production of goods and market services of households; and (ii) the activities of corporations (illegal; underground) that may not be covered in the regular data collection framework for compiling macroeconomic statistics. The 7th IMF Statistical forum considers not only the domestic activities, but also the cross-border transactions of resident units and reflects the need for a coherent macroeconomic statistics framework. The current statistical manuals, 2008 SNA and BPM6, fall short in providing a clear definition that is suitable for compiling the requisite statistics for policy analysis, therefore more clarification in the international standards may be needed.

b) Income from activities undertaken on an informal basis

97. Establishing the connection between the work on the informal sector and the SNA was an important contribution of the 2008 SNA. Interest in this area continues to attract considerable attention especially in developing countries, where a large proportion of people work in the informal sector. However, an exhaustive measurement of the size of the informal sector and the contribution of informal sector activities and informal employment to GDP and cross-border transactions is particularly challenging.

98. Data collected for understanding the informal sector are often not sufficient for measuring economic activity, and various surveys and collecting methods – focusing on household, consumption and employment data – may be needed as source data for an exhaustive measure of the informal sector in the national accounts. The supply and use framework, with a possible distinction between formal and informal activities, provides the greatest potential in which available source data are combined and balanced to arrive at exhaustive estimates of economic activity.

C. Long-term SNA research issues

99. This Section presents the SNA research issues from Annex 4 of the 2008 SNA that are not directly associated with the current research priorities related to globalization, digitalization and well-being and sustainability. It is expected that these issues will be addressed in accordance with the established process of selecting items for investigation. To assess the priority to be given to a research issue, three questions need to be addressed:

- a) How urgent and important is the topic to ensure that the SNA continues to be relevant to the users?
- b) How widespread are the consequences of change and how complicated will implementation be?
- c) Is the topic completely new or has much of the preparation for considering the item been completed?

36) Final consumption of corporations

100. In the SNA, no final consumption is recorded for corporations because corporations are not considered to be final users of goods and services, except for capital products which, with the exception of valuables, are acquired for the purpose of production. However, large corporations often undertake sponsorship of cultural and sporting events. To date, the SNA regards the payments involved as a form of advertising but it could be argued that they are a form of individual consumption and could be treated as final consumption expenditure of corporations and social transfers in kind to households. Further, by imposing regulations such as environmental standards,

the government may achieve the same effect as if they levied taxes and spent the income on environmental protection, which would be treated as collective consumption. There may thus be instances where it would be more appropriate to record some expenditures by corporations as final consumption.

37) Measuring the output of government services

101. The SNA recommends that the value of non-market production provided without charge, or at prices that are not economically significant, should be estimated as the sum of the costs of production (paragraphs 6.128 to 6.132). The basis for this recommendation is the lack of market prices for non-market production. However, there is continuing research on trying to find alternative ways to measure the output of government.

38) The treatment of social transfers in kind to the rest of the world

102. In the SNA, social transfers in kind only take place between government units, NPISHs and households. Paragraph 8.141 explains that it is assumed that the amount of social transfers in kind payable to the rest of the world are probably negligible and, in any case, are offset by similar benefits receivable from the rest of the world. In some cases, these assumptions may be inappropriate and an explicit way of recording these could be elaborated. Such an elaboration would have to consider the consequences of having a difference between total consumption expenditure and total actual consumption.

39) Output of central banks: taxes and subsidies on interest rates applied by central banks

103. The treatment and measurement of the output of central banks is described in paragraphs 6.150 to 6.151. Three broad groups of financial services are identified: monetary policy services, financial intermediation and borderline cases.

104. One of the borderline cases arises when the financial intermediation of central banks includes policy measures, such as setting interest rates higher or lower than market interest rates. This generates a number of issues. The first is how to measure the output of the central bank, because the use of off-market interest rates by the central bank may cause distortions in measuring its output and value added. The second issue concerns the use of off-market rates which implies that there are flows between the central bank and the counter-party in addition

40) The inclusion of international organizations in the SNA

105. In the SNA, international organizations are treated as units that are resident in the rest of the world (paragraphs 4.173 to 4.175). It would in principle be possible to treat international organizations as a standard subset of the rest of the world and indeed to compile a full set of accounts for them.

Treatment of the output of international financial institutions

106. International financial institutions, such as IMF, the World Bank and regional development banks, are public financial corporations (and, by implication, institutional units) which are, as a rule, non-residents vis-à-vis countries, residing, as these institutions do, in the “international economic territory”.

107. Like other financial corporations, they use inputs to produce financial intermediation output, which has a directly measured component (a fee) and an indirectly measured one. They are jointly owned by the Governments of their member countries under cooperative arrangements, such as the IMF Articles of Agreement. The characterization and compilation of their output, and the use of that output by their member countries, require elaboration under the current SNA guidelines.

108. The AEG considered this issue at its 9th meeting and acknowledged that it requires further work, taking into consideration the cost-of-funds approach and the valuation at cost (possibly including the full cost of capital) for the non-market part of output. This issue will be addressed under "Calculation of FISIM" (issue 16) and "Clarification of income concept in the SNA" (issue 10) of the Research Agenda.

109. For more information see paragraphs 28 and 29 of the conclusions of the 9th AEG meeting.

41) Clarification of the income concept in the SNA

110. As discussed in paragraph 8.24, the concept of income in the SNA differs from that generally understood in economics. In particular, holding gains and losses are not considered to form part of income in the SNA. It is not only economic theory that treats holding gains and losses as income, but also business accounting standards. The SNA excludes holding gains and losses from production and then extends this to an exclusion from most income flows, though not interest which continues to be recorded in nominal terms. A thorough review of the concept of income in the SNA, including the implications for all property income flows would be beneficial. Some particular aspects are covered in some of the following items.

Holding gains and losses in the estimates of investment income

111. The 2008 SNA appears to provide conflicting guidance on whether to include holding gains and losses in the estimates of investment income attributable to insurance policyholders and pension beneficiaries that are treated as premium or contribution supplements in the calculation of the implicit service charges for insurers and pension funds. In instances where the 2008 SNA appears to recommend the inclusion of holding gains/losses in the estimates of this investment income, it is silent on whether these holding gains/losses should include only realized ones.

112. The 2008 SNA is also not explicit on whether holding gains/losses should be included in the change in life insurance and annuity technical reserves and the change in pension entitlements when calculating the implicit service charges for life insurance, annuities and pension funds.

113. The AEG, at its 9th meeting, confirmed the 2008 SNA recommendations on the treatment of holding gains/losses in the estimates of investment income attributable to insurance policyholders and pension beneficiaries and clarified the recommendations as follows:

114. In measuring the investment income payable on pension entitlements, a distinction is made in the 2008 SNA between defined contribution pension schemes and defined benefit pension schemes. In the latter case, the risks of making an adequate return on investments are with the pension fund or the unit managing the fund. The investment income payable on pension entitlements is generally disconnected from the actual returns on investments, and is typically set equal to the product of the discount rate used for measuring the net present value of future entitlements and the value of the entitlements. In the case of defined contribution schemes, the risks regarding the returns on investments are with the pension beneficiaries. Consequently, the returns on investments exclude any holding gains/losses.

115. The AEG also noted that the issue related to holding gains/losses in investment income should be discussed under the broader issue of the concept of income, which is on the 2008 SNA research agenda.

116. For more information see paragraphs 15 and 16 of the conclusions of the 9th AEG meeting.

Capital income of insurer's own funds

117. In the 2008 SNA, the calculation of the output and value added of insurance corporations excludes the capital income derived from the investment of those corporations' own funds. It includes only the investment income earned from the investment of collected premiums.

118. The Global Federation of Insurance Associations has suggested that the issue of including the capital income derived from the investment of an insurer's own funds in the calculation of the value added of insurance corporations should be included in the 2008 SNA research agenda, based on the contention that all of the assets of an insurer serve the ultimate purpose of improving the risk-bearing capacity of an insurer — and thus the interests of policyholders — irrespective of whether they have been acquired through an insurer's own funds or collected premiums and that therefore all capital income is part of the production process of insurance protection.

119. It may be useful to assess both the implications of this suggestion made by the Global Federation and how reconsideration of the role of income (or some part thereof) derived from investment of the insurer's own funds in the measurement of service output would affect the recording of transactions and other flows in national accounts. This issue will be considered under the issue of the income concept in the SNA (issue 10).

120. For more information see paragraphs 36 and 37 of the conclusions of the 9th AEG meeting.

42) GDP at basic prices

121. Gross domestic product (GDP) is equal to the sum of the gross value added of all the institutional units resident in a territory engaged in production (that is, gross value added at basic prices) plus any taxes, minus any subsidies, on products not included in the value of their outputs. GDP is also equal to the sum of final expenditures minus expenditures on imports by institutional units resident in a territory. The "natural" valuation of the production measure of GDP is basic prices, while the "natural" valuation of the expenditure measure of GDP is market prices. In the SNA it is the production measure that is adjusted (by adding taxes less subsidies on products) to achieve consistency. Implicit in this is the idea that taxes less subsidies on products are a form of income and not just a form of redistribution of income.

122. If it were decided to value GDP at basic prices then the sequence of accounts would need to be modified, and there are various possibilities as to how this might be done. This might lead to showing the two primary functions of government, production of non-market services and redistribution of national income, separately.

43) The role of taxes in the SNA

123. As just noted, taxes on products are treated as a form of income in the SNA. Most economists, however, tend to regard these as taxes on consumption. This category does not exist in the SNA and nor does consumer subsidies. Taxes on financial transactions (such as taxes on issue, purchase, and sale of securities) are treated as taxes on production even though there is often no service involved. It may be appropriate to review the SNA treatment of all taxes and subsidies to ensure that these accord with users' understanding and need, or if not that the rationale for any differences is made quite explicit and prominent.

44) Life insurance

124. At present in the SNA there is an inconsistency between the treatment of property income accruing to pension beneficiaries under a defined benefit scheme and other forms of life insurance. For the pension beneficiaries, the amount of property income ascribed to them matches the increase in their claims with no reduction of property income made according to whether the source of funding is from holding gains or not. For life insurance policies, insurance companies retain part of the holding gains made on reserves belonging to the policyholders but this retention is not treated as part of the fee charged by insurance companies. Thus there may be an understatement of the output of insurance companies. This question needs addressing and also the appropriate treatment when holding losses occur.

45) Reinvested earnings

125. The SNA recommends that the retained earnings of a foreign direct investment enterprise should be treated as if they were distributed to foreign direct investors in proportion to their ownership of the equity of the enterprise. These earnings are then reinvested by those owners as additions to equity in the financial account. This amount is in addition to any actual distributions made out of the distributable income. This approach is also adopted for the earnings of investment funds.

126. It has been proposed that this treatment could be extended to other types of unit, public corporations. If the attribution of retained earnings to the owners of corporations were adopted, it would mean that dividends would be replaced by reinvested earnings in the allocation of primary income account and this total less dividends actually paid would be shown as additions to (or in some case withdrawals from) equity in the financial account. This would mean that distribution of earnings from corporations was measured on a strict accrual basis but would also mean that the saving of corporations would always be zero. Such a change would have serious implications for interpretation of the accounts since it would be built on a different paradigm from the current treatment of dividends and corporate saving.

127. A further extension to all owners of corporate equity could also be considered.

46) Accruing interest in the SNA

128. Through the 1990s and into the 2000s a vigorous discussion was conducted among the international statistical community about the appropriate way to record interest on securities such as bonds. Two general approaches were identified in the discussion, the so-called debtor and creditor approaches.

129. The ISWGNA established an Electronic Discussion Group (EDG) in 1999 to obtain the views of a broad group of users and compilers on how macroeconomic statistics should record the accrual of interest on bonds and other tradable debt securities. The moderator of the EDG provided a report in October 2002 that concluded that while the participants to the EDG were strongly divided, the majority were in favour of the debtor approach. The ISWGNA subsequently considered the report and supported its conclusion. It then made a recommendation to the UNSC proposing that the SNA should recommend the debtor approach and the UNSC agreed. The recommendation and descriptions of the two approaches can be found in paragraphs 17.252 to 17.254.

130. Discussion of certain update issues, including the treatment of concessional loans, non-performing loans, interest on index-linked debt securities and interest in arrears, showed that the debtor/creditor debate has implications beyond the recording of interest on securities. A full consideration of the definition of income in the SNA would have to reconsider this issue.

47) Calculation of FISIM

131. The treatment of financial intermediation services indirectly measured (FISIM) is described in paragraphs 6.163 to 6.169. The SNA recommends that FISIM should be calculated with respect to a reference rate that contains no service element and reflects the risk and maturity structure of deposits and loans. Different reference rates may be needed for domestic and foreign financial institutions. The assumption behind the FISIM approach is that it is the service element, and not the interest flows, that reflect varying degrees of risk, with riskier clients paying a higher service charge. This assumption has been queried and is being investigated

FISIM recording

132. The ISWGNA, according to its terms of reference, established a Task Force on FISIM to address how the composition of the services that FISIM covers (particularly, risk management and

liquidity transformation) affects the selection of the reference rate and the price and volume breakdown of FISIM. In particular, the Task Force focused on determining at most one reference rate per currency for the FISIM calculation.

133. Based on the report of the Task Force on FISIM, the AEG agreed on a number of clarification issues linked to the recording of FISIM. In particular, at its 8th meeting, the AEG agreed on the following:

- a) liquidity transformation services should remain part of financial intermediation services indirectly measured and a single reference rate should be used to determine those services
- b) financial intermediation services indirectly measured should be calculated using at least two groups of currencies (national and foreign currency) in respect of the estimation of imports and exports of those services;
- c) the reference rates for a specific currency need not be the same for providers of financial intermediation services indirectly measured resident in different economies (although they should be expected, under normal circumstances, to be relatively close). In this respect, national statistical agencies are encouraged to use partner-country information or other relevant information, where national estimates are not available;
- d) the calculation of the reference rate should be determined according to national circumstances (preferably using any of the approaches identified by the AEG);
- e) considerable care should be taken in determining estimates of financial intermediation services indirectly measured during periods of volatile movements in reference rates and when liquidity markets begin to exhibit dysfunction, with countries being, in this respect, encouraged to review the applicability of the underlying reference rate for that period to calculating those services when such phenomena occur; and

134. the calculation of volume measures for FISIM should be calculated by: (i) using a deflated stocks approach (with weights based on types of loans and deposits) in view of its simplicity; (ii) deflating stocks of loans and deposits using a general price, which should itself exclude FISIM; (iii) using domestic price indices for exports, while for imports the appropriate country price indices should be used; and (iv) output indicators could also be used to calculate volume measures of FISIM. Double counting for explicitly charged services should be avoided.

135. The publication entitled Handbook of National Accounting: Financial Production, Flows and Stocks in the System of National Accounts (United Nations) reflects the agreed clarifications.

136. The AEG identified the following topics for further research in FISIM:

- a) Developing more clarity regarding FISIM (-related) references in the 2008 SNA, especially in relation to treatment of risk and definition of financial services;
- b) Further develop the conceptual arguments to either include or exclude CDR in the calculation of FISIM and in the case of excluding CDR to develop methods and data that could support a possible exclusion of CDR in the future;
- c) Consider possible hybrid approaches to price and volume measurement;
- d) Further develop the 'costs of funds' approach to determine the reference rate, and further develop possible alternative approaches (vintage reference rate);
- e) Consider the financial instruments and units scope of FISIM; and

f) The connection between the recommendations on implementing FISIM and the definition of income.

137. The AEG agreed that in setting up the FISIM research agenda the first three items - (a), (b) and (c) - can be considered as clarifications of the 2008 SNA.

48) High inflation

138. It has long been recognized that high inflation can distort measures of interest, since a portion is required simply to counteract the real holding losses that occur for financial instruments that are not indexed for inflation. By the 1970s, when inflation was an important problem throughout much of the world, the treatment of interest under high inflation was considered an important issue for national accounts. However, contrary guidance is given by Annex B to chapter XIX of the 1993 SNA and chapter 7 of Inflation Accounting - A manual on National Accounting under Conditions of High Inflation (Organisation for Economic Co-operation and Development, 1996). It is therefore recommended that the search for a single universally accepted treatment of interest under high inflation remains on the research agenda.

49) The measurement of neutral and real holding gains and losses

139. The SNA recommends the nominal holding gains and losses recorded in the revaluation account should be decomposed into neutral and real holding gains and losses. In paragraph 12.85, the use of a comprehensive price index covering as wide a range of goods, services and assets as possible is recommended. Some national accountants have suggested that different price indices should be used for different classes of asset. The full impact of this suggestion requires investigation.

50) Income arising from assets

140. The introduction of capital services into the SNA recognizes that part of value added is due to the contribution of fixed assets and other non-financial assets to the income generated by production. A question has been raised about whether some part of value added should also be attributable to the financial resources available to the producer.

Capital services of assets not contributing to production

141. The 2008 SNA introduced the measurement of capital services and incorporated it in the national accounts framework. Capital services are used in productivity statistics to represent the contribution of capital to the process of production. However, the change-of-ownership basis of this concept creates capital services measurement problems in cases where production of an asset occurs over a number of accounting periods. In cases where a building, structure or other significant asset may not be contributing to production, the SNA recommends that gross fixed capital formation be recorded progressively as production of the asset takes place.

142. The question is whether capital services provided by assets contributing to production inventories and assets not contributing to production are, by nature, all the same. In addition, the 2008 SNA recommendation on the treatment of progressive change of ownership of buildings and structures needs clarification in respect of its consistency with the treatment of other kinds of assets that have the same characteristics as buildings and structures. Took note of the importance to resolve the treatment of capital services of assets not contributing to production, such as those that are constructed over more than one accounting period or those that are temporarily inactive for one reason or another. Took note of the need for further research on the utilization of capital in the measurement of capital services.

143. For more information see paragraphs 32 and 33 of the conclusions of the 7th AEG meeting.

51) Issues arising from a financial crisis

144. As noted in the introduction, a financial crisis provides a crucial test of the robustness of the SNA and the adequacy of its recommendations in situations not encountered since the SNA was first adopted. Until all the consequences of the situation in 2008 are revealed, and indeed thereafter, there will be a need to continue to examine the steps taken in response to the crisis to ensure both the steps and their consequences are adequately captured in the national accounts.

145. This item anticipates possible future measures. It may be that some are identified as individual research items (e.g. shadow banking).

52) Recognition of social security entitlements as liabilities

146. As discussed in part 2 of chapter 17, social security entitlements are not recorded in the main accounts but they are shown in a supplementary table along with the pension entitlements of some other pension schemes managed by general government. Provisional criteria for determining whether the entitlements are shown in the main accounts or only in the supplementary table are described in paragraph 17.187. Work continues to refine these criteria and to find agreed methods to determine the value of these liabilities.

Table on household retirement resources

147. Funding retirement incomes for an ageing population, increasing debt concerns and the sustainability of consumption patterns are issues that are being addressed by the AEG. In this regard, the AEG is reviewing the development of a table on household retirement resources which is intended to provide extensive and detailed information on the various household resources for retirement, including the scope of assets and cross-border transactions. Further work is required regarding the delineation of social assistance benefits and the possible inclusion of assets such as owner-occupied dwellings.

148. For more information see paragraphs 11 to 14 of the conclusions of the 9th AEG meeting.

Accounting for pensions

149. The 2008 SNA recognises that employment-related pension entitlements should be recorded in the set of standard tables of the SNA. At the same time some flexibility is provided regarding pension entitlements of unfunded pension schemes sponsored by government for all employees (whether private sector employees or government's own employees) which are intertwined with social security schemes. Given that these schemes vary considerably from country to country, only some of these unfunded pension entitlements may be recorded within the core system of national accounts.

150. The AEG acknowledged that further clarification is needed in respect of the delineation and measurement of pension entitlements and the articulation of when to record the transactions, other flows and positions of defined benefit pension schemes in the core accounts, in line with the 2008 SNA recommendations.

151. The AEG has also agreed to consider the outcomes of the consultation on the treatment of the flows between a defined pension benefit fund and its sponsor as a clarification of the SNA, and - in accordance with the update procedure of the SNA. For more information, see paragraphs 10-11 of the conclusions of the 11th AEG meeting on https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_Conclusions.pdf .

53) Wider use of fair value for loans

152. The SNA recommends that the values of loans to be recorded in the balance sheets of both creditors and debtors should be at nominal value, that is, at the amounts of principal that the

debtors are conceptually obliged to pay the creditors when loans mature. However, it is common for the fair value of loans to differ from the nominal value for a number of reasons. At present the SNA recommends memorandum items recording fair values only for loans specifically characterized as non-performing. The possibility of a more extensive use of fair value in place of nominal value could be considered.

54) Provisions

153. In business accounting, there are three degrees of “promises”: liabilities, provisions and contingent liabilities. Their definitions are the following.

- a) A liability is a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits or service potential.
- b) A provision is a liability of uncertain timing or amount.
- c) A contingent liability is a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the entity

154. In the SNA, liabilities and provisions relating to financial instruments are generally recognized in the main accounts only if there is a corresponding financial asset of equal value held by a counter-party. However, it is recommended that certain provisions that do not satisfy this criterion, such as those for non-performing loans, should be recorded as memorandum items. Contingent liabilities are not recognized at all in the core accounts, except in the case of standardized guarantees.

155. The problem is that recognition of a reduction in the value of an asset in the SNA necessarily implies a reduction in the corresponding liability but the asset holder may not wish to reveal to the counter-party the fact that they regard some of the claim as uncollectable. Not doing so however overstates the value of the assets.

55) Debt concessionality

156. Further work is required to clarify whether concessional loans involve a subsidy on any service charge associated with interest payments or a transfer representing the difference between the market rate of interest and the agreed rate. If the latter, the next problem is whether the transfer should be paid period by period on an ongoing basis as a current transfer or as a one-off capital transfer at the time the loan is issued.

56) Equity valuation and its implications

157. At the moment there are a number of alternatives for valuing equity given in the SNA. There is a question about whether more standardized recommendations can be made.

57) Reverse transactions

158. Work on a complex group of transactions known as reverse transactions has been pursued for several years. These transactions take their name from two common characteristics: (i) a commitment to reverse the transaction on a specified future date (or on demand), and (ii) that, although legal ownership is transferred to the purchaser, many of the risks and benefits of ownership remain with the original owner. Reversible transactions include repurchase agreements, securities lending without cash collateral, gold swaps, and gold loans/deposits.

58) Tradable emission permits

159. Tradable emission permits are a relatively new phenomenon, but they are gaining rapidly in importance. The full treatment of all types of permits is not explicitly described in the SNA, and in order to remove uncertainty, this shortcoming should be addressed as quickly as possible.

160. In this respect, the outcome of the consultations on the recording of emissions permits issued under cap-and-trade schemes in the national accounts has been resolved as an interpretation of the SNA. For more information, see SNA News and Notes, No. 32/33 on <https://unstats.un.org/unsd/nationalaccount/sna/nn32-33-En.pdf>.

59) Costs of ownership transfer of valuables and non-produced assets

161. The SNA draws a distinction between the costs of ownership transfer incurred in acquiring and disposing of non-financial assets on the one hand and financial assets on the other. Costs of ownership transfer incurred on transactions in non-financial assets are recorded as gross fixed capital formation, while costs of ownership transfer incurred on transactions in financial assets are recorded as intermediate consumption. The rationale for the different treatments is that non-financial assets are used in production and the income generated from production needs to be sufficient to cover the costs of using those assets, including costs of ownership transfer. Financial assets are not used in production and are held as stores of value, to earn property income or in the expectation of holding gains. It is also common for the ownership of financial assets and liabilities to change hands rapidly.

162. Valuables are non-financial assets but they are held as stores of value and are not used in production. As such, they have more in common with financial assets than they do with other non-financial assets. Therefore, it is arguable that costs of ownership transfer on valuables should be recorded as intermediate consumption rather than, as at present, fixed capital formation.

163. Costs of ownership transfer on fixed assets are not recorded separately but are added to the price paid by the purchaser and subtracted from the price received by the seller to obtain the acquisition and disposal values, respectively. The costs of ownership transfer on non-produced assets are recorded in a separate category of gross fixed capital formation. An exception is made in the case of land where costs of ownership transfer are treated by convention as land improvements.

164. An overview and rationalization of these practices could be helpful.

60) Distinction between current maintenance and capital repairs

165. The SNA draws a distinction between ordinary maintenance and repairs to fixed assets and major renovations, reconstructions or enlargements (see paragraphs 6.225 to 6.228), but acknowledges that the distinction is not clear-cut. The former are recorded as intermediate consumption and the latter as gross fixed capital formation.

166. Major renovations or enlargements increase the performance or capacity of existing fixed assets or significantly extend the previously expected service life. Ordinary maintenance and repairs are required so that an asset can be utilized over the whole of the service life expected on acquisition. If the owner neglects maintenance and repairs, then the expected service life may be drastically reduced and unforeseen obsolescence must be recorded as an other volume change in the value of the asset.

167. If the requirement for treatment as fixed capital were to prevent a reduction in service life, rather than necessarily extend it, the problem of the borderline between ordinary maintenance and major extensions would disappear and the problem that the consequences of the neglect of maintenance are not reflected in a reduction in net domestic product could be avoided.

61) Transfer of ownership of an asset during its life

168. Both the case where a natural resource is leased for an extended period of time and the case of PPPs are ones where the economic ownership of an asset effectively changes hands part way through its life. The terms of the arrangements are such that recompense from the initial user for the change of ownership to the second user is bundled into the arrangements for payments during the lease. The transfer of the ownership has to be recorded as another change in the classification of assets and is not reflected in the production or distribution of income accounts. This is a deficiency that could be rectified by some elaboration of the concept of financial leasing.