



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
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System of
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Economic
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SEEA Central Framework 2028 update

Draft Guidance Note

Issues A2 & A7: Indicators and Links to Social Domain

Version for discussion at the SEEA CF Technical Committee meeting on 23 and 27 March 2026

Summary of questions for the technical committee:

Is this a sensible approach to considering indicators for the CF? (para 49)

Do we remove the reference to the sequence of accounts, and thereby remove any indicators based on depletion from the core set of indicators from SEEA CF? (para 58)

Do we need a 7.2 paper going into depth on how to define the links to social domains and the links to A6 Links to policy? (section 4)

Do we need each indicator to be included in the guidance note as adjustments or extra paragraphs to the SEEA CF or should we aim for a complimentary product are refer to the spreadsheet? (section 4)

Draft Global consultation questions:

Do you agree on the approach proposed for discussing indicators in the SEEA CF update? Do you agree that special notes for links to global indicators and social domains will be included in the SEEA CF text? (para 50)

Do you agree that the proposed range and explanation of indicators for chapters 2, 3, 4, and 5 will be included in the SEEA CF? (para 55)

Do you agree that the discussion on links to social domains include the themes suggested and include an example? (para 72)

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GUIDANCE NOTE Issue A.2 “Indicators”

1 Introduction

1. The aim of this guidance note is to provide guidance on the treatment of issue A2 and A7 in the update of the SEEA CF. This Guidance note addresses **Issue A2 and A7**.
2. The short description of issue A2 "Indicators" from October 2024 is:
 1. "The SEEA CF highlights some key indicators that can be derived from the framework. Since 2012, several advancements have been made on indicators (e.g. SDG indicators). The updated SEEA CF could make explicit how current indicator frameworks can be informed by the SEEA, to show the relevance of the SEEA CF, strengthen the relationship between statistical and policy frameworks, and highlight the ability of the SEEA CF to provide further insights through the joint presentation of data."
3. Indicators are the key channel for communication to a broader audience. A plethora of indicator frameworks have emerged because of international efforts on sustainable development, sustainable financing, and human development. From this expansion of frameworks, the need to link SEEA to the broad groundswell of activity becomes paramount for relevancy and integration in domestic policy (see issue A6). Adaptations to SNA in the 2025 update also make available the ability to more closely integration with National Accounting. The inclusion of depletion into net measures of production, income and value add open the door for alignment with the physical components of SEEA CF Supply Use tables.
4. There is no international directive/mandate for the adoption of SEEA into international or global indicator frameworks, nor is there any linkage to the use by domestic policy. One key recent finding from the UNCEEA was that the widespread of the adoption of SEEA by policymakers was very limited, yet statistical office opinions that SEEA should be used by policy was widespread (reference pending).
5. Indicators are discussed more broadly in sections 2.4 and 6.4 of the SEEA CF and in depth in the SEEA Analysis and Extension Chapter 2. Limited references to external frameworks are included for example:
 1. Beyond GDP (Section 6.4 SEEA CF, p6.4.6)
6. One of the key barriers to a broad adoption of SEEA as a source of indicators is that other international reporting guidelines are given priority for integration with new or developing international indicator frameworks. One could observe that these existing frameworks are designed around scientific principles and while correct, do not reflect the relationship of the environment to the economy in the same extent as sought by SEEA. For example, the International Energy Authorities' energy balances and the UNFCCC greenhouse gas emissions are in principle activity based and are difficult to compare to an industry viewpoint let alone as a comparison to sub-components of SNA. However, they are seen as equivalent sources of indicators for use in Sustainable Development goals.
7. The aim of this guidance note is to establish if there is a clear set of indicators or sufficient need for guidance to be given in SEEA CF on the derivation of indicators. This view takes into account that there are different needs for international reporting and for domestic uses.
8. After discussion with Task Team A members the following issues were identified:
 1. Consider an approach that SEEA should recommend some aggregate indicators, taking into account of the Applications and Extensions publication, other indicators derived from Material Flow Accounts

2. It should be noted in that indicators derived directly from SEEA CF Accounts should be the primary principle for indicators (noting that it could be difficult to agree on a key set of indicators)
 3. The guidance note should have precise calculations for indicators in SEEA CF.
 4. Guidance on indicators for each chapter will need to be included in SEEA CF
 5. The guidance note should discuss the relationship of a set of SEEA CF based indicators compared to current global indicator frameworks (SDG) considering they have methods often developed without SEEA.
9. The questions to guide the development of a guidance note would seem to be:
1. Noting the desire for a core set of indicators based on SEEA CF:
 - i. Should these be based only on aggregates of the core accounts?
 - ii. Should there be emphasis on a framework of indicators (for example based on SDGs, GBF or even national accounting SDSS/GDSS)?
 - iii. If no to i. above, what should be the degree of extra information sought to produce indicators (eg GDP, Population totals etc)?
 - iv. Should a set of indicators combining core accounts only focus on monetary information only? (given monetary accounts are the easiest to integrate)
 2. Should each of the central accounts have a series of indicators, noting that:
 - i. Each account, flow, stock or functional can be developed independently?
 - ii. Integration between flow accounts and between stocks accounts is seen as problematic (eg mixing water GL and energy PJ)?
 - iii. Should monetary versions be the sole focus on indicators, since they can be aggregated or compared on a level playing field?
10. It would also seem sensible to address issue A7 Links to social domain as an extension of A2 Indicators. Issue A7 generally covers how information or indicators can be developed in parallel with social data for increasing understanding of the impacts of environmental changes on society.
11. The short description of A7 “Links to Social Domain” from October 2024 is:
1. “The SEEA CF provides the basis for integrating environmental and economic data, which in turn can be linked to the development of broader information sets for analysis of topics such as sustainable development. The development of broader information sets will require linking the SEEA with data on social conditions, including employment, population, household income and type, and gender in order to derive indicators and support analysis on topics such as emissions by household type and gender data for employment in environmental activities.”
12. The main sources of information about links to social domains are Section 2.3.6 and 6.2.6 of SEEA CF. Some further information about linking to social domains is in the SEEA Applications and Extensions guide, notably section 4.3.
13. The key sections that relate SEEA CF to social initiatives are as follows:

“2.3.6 Employment, demographic and social information

2.75 The usefulness of the information in the various tables and accounts can be enhanced by relating different environmental and economic data to estimates of employment, estimates of population, various demographic breakdowns (such as age, household income levels and household characteristics related to material well-being) and measures of societal interest such as health and education.

2.76 Examples of the application of such data include the incorporation of employment data on the production of environmental goods and services, the use of socioeconomic groupings of households to assess water and energy use and access to resources, and the linking of information on health status to data on air emissions in particular regions.

2.77 Section 6.2 discusses further the use of these types of data in the context of the Central Framework, and the SEEA Extensions and Applications presents techniques and analytical approaches to linking SEEA-based data with various types of employment, demographic and social data.”

“6.2.6 Employment, demographic and social information

6.48 The usefulness of the information in the various tables and accounts of the Central Framework can be enhanced by relating different environmental and economic data to estimates of employment, estimates of population, various demographic breakdowns (such as age, household income levels, and household characteristics related to material well-being), and social measures, such as health and education.

6.49 Employment information, such as the number of people employed, the number of jobs, and the number of hours worked, may be used in the assessment of environmental activity from an industry perspective. In particular, there is likely to be interest in employment data related to the production of environmental goods and services as part of measures of the “green” economy.

6.50 Information on population and demographic breakdowns can be used in conjunction with information on the physical flows of water and energy to provide enhanced analysis of resource accessibility and availability, and changes in patterns of water and energy use. Demographic information used together with data on environmental protection expenditure may assist in understanding behaviours of different socioeconomic groups in relation to this type of environmental activity.

6.51 More generally, accounting for differences in population size and structure may be important for international comparisons of environmental and economic data. For example, measures of changes in per capita air emissions may be of interest in addition to aggregate measures of air emissions.

6.52 Social measures, such as those relating to health and education, may be usefully related to certain components of the Central Framework. For example, measures of air emissions may be complemented by measures of health status. This may be particularly relevant if finer-level geographical areas are being considered. In this regard, it may also be of interest to incorporate measures of actual final consumption of households (i.e., including the transfer of individual benefits to households purchased by governments (e.g., water services provided by government)) in the comparison of consumption activity across countries.

6.53 Demographic and employment information may need to be adjusted for purposes of consistency with the concepts, definitions and classifications of the Central Framework, in particular for alignment with the concept of residence. Relevant information can be found in chapter 19 of the 2008 SNA. Techniques and analytical approaches for linking SEEA-based data with various types of employment, demographic and social data are explored further in SEEA Applications and Extensions.”

14. There are limited examples of how SEEA CF and social domains have been linked in practice:
 1. Some analysis of SDGs with reference to SEEA CF
 2. From the London Group post SEEA 2012, for example, a small group of papers that overlap with other areas such as sustainable consumption, determining who pays for the environment from an environment protection expenditure lens and a paper on the economic implications of pollutants from a toxicity perspective.
15. Academic reports on linking SEEA data to the social domain has more recent focus on ecosystem accounting. They previously examined such topics as income distribution, links to social accounting matrices and social capital as well as case studies on linking social phenomena, such as health, to environmental changes, mainly from a pollutant perspective.
16. After discussion with the Task Team the following approach was recommended for the guidance note:
 1. Focus on 10 or so social themes and how they connect to SEEA CF. Explore each of the connections in depth.
 2. The guidance note should work in parallel with the Friends of the Chair on social and demographic statistics (with assistance from UNSD)
 3. The focus of the connection between SEEA CF and social themes should highlight the accounting tables that link to social and demographic information.
 4. One focus to examine is the link between impacts measured in SEEA CF (chapter 3) and the adaptation components in chapter 4.
 5. Health, gender, education and food security were suggested as priority themes.
17. This guidance note proposes to address indicators as an incremental approach, examining the current SEEA CF standards for identities within the accounts, adoption of core indicators for each account, and extensions in the SEEA CF linking to social domains.
18. The remainder of this Guidance note covers:
 - Review of existing measurement and research
 - Conceptual options and treatments
 - Recommendations on conceptual treatments
 - Other considerations in advancing the issue

2 Background and approach

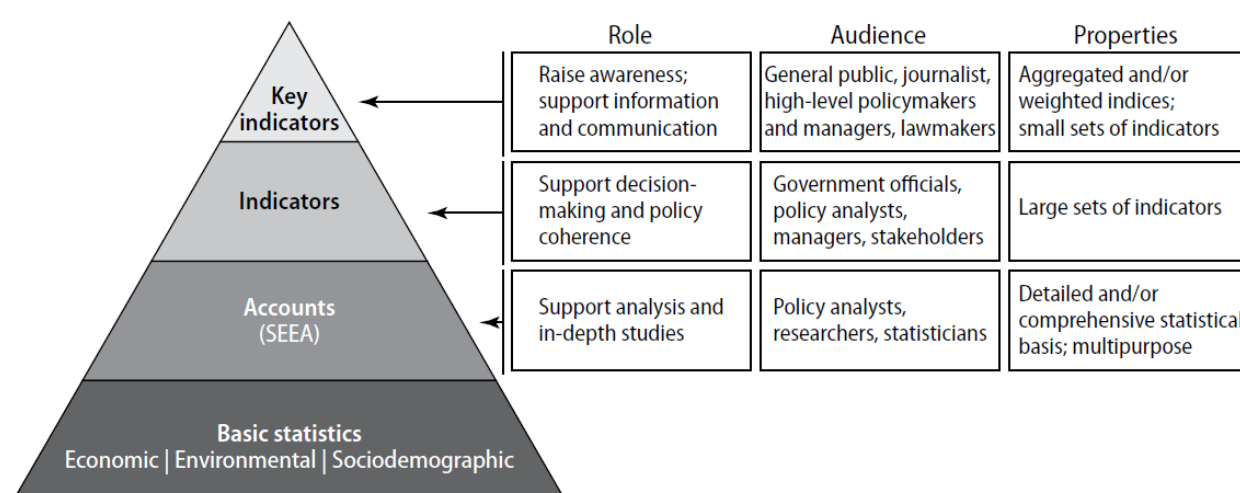
2.1 Why choose indicators?

19. SEEA CF tables are a rich field of derived information from a vast amount of input data, constructed in a way which is internally rigorous and is ideally the best available data for the time. However, this format is complex, requires significant technical knowledge to understand and can be misleading if not treated correctly. Compilers of national environmental economic accounts usually have one primary responsibility: to inform the community of their environment so they can make the best decisions for their own wellbeing.
20. If we consider an information pyramid (picture 1), then we can start to appreciate the rationale for a summarised form of statistics on the environment based on the SEEA CF. We are reminded of the way in which information flows from data source through accounts to indicators and how audiences consider this information. It would seem that there are three (or more) levels to designing information for use.

Picture 1 – Information pyramid from SEEA Applications and Extensions

Figure 2.1

Information pyramid



21. The benefits from providing information from the accounts can be both rewarding and make a difference. Vardon (2016) promotes the idea that there is a tension between enabling policy (so called ‘push’), and policy actively seeking information (so called ‘pull’). To balance this sentiment, the current SEEA CF is an economic based framework, aims to be comprehensive in its approach and promotes statistical and accounting rigour. The main benefit of the accounting system is the relationship to SNA which enables better access to valuation and comparison to economic indicators.
22. What is desired is often out of scope from SEEA CF based data. Other accounting systems for ecosystems and thematic based approaches such as Agriculture, Fishing and Forestry or Oceans where developed to cover these gaps, but still maintaining an economic focus. Social information about the environment (for example, ABS 2014) is popular but a significant demand on statistical resources.
23. Finally, SEEA CF forms a basis for developing or adapting indicators due to its consistency, ability to develop a time series and due to its conceptual basis, can be use with other data to develop indicators. This paper will explore a framing of suggested indicators from a SEEA context and links to other indicators and themes for further use.

2.2 What is already in SEEA CF?

24. Most of the current dialogue on indicators and statistics from SEEA CF is in Chapter 2, Chapter 6 and in some accounts such as energy and water. The SEEA Applications and Extensions publication also considers a wide range of indicators, these are summarised in Appendix 1.
25. The current recommendation for indicators from SEEA CF is based on a number of references spread throughout the publication:
 1. 1.24 The SEEA is a multipurpose system and is relevant in a number of ways for policy development and evaluation as well as decision-making. First, the summary information (provided in the form of aggregates and indicators) can be applied to issues and areas of the environment that are the focus of decision makers. Second, the detailed information, which covers some of the key drivers of change in the environment, can be used to provide

a richer understanding of the policy issues. Third, data contained in the SEEA can be used in models and scenarios designed to assess the national and international economic and environmental effects of different policy scenarios within a country, between countries and at a global level.

2. 1.54 One of the most important features of the SEEA Central Framework is its capacity to organize physical and monetary data that have common scope, definitions and classifications into combined presentations. The structure of combined presentations depends on the topic of measurement (e.g., water, energy, air emissions or forest products), the questions of interest, and the availability of data. Nonetheless, there are certain common features and benefits:
 3. 3.4 The use of the SEEA framework allows robust indicators to be established for the consumption of resources relative to economic indicators such as output and value added, since there is a parallel in the underlying accounting principles. Indicators on energy use, water consumption and air emissions by industry are further evidence of the potential uses of data organized in a coherent and consistent manner.
26. Chapter 2 is an elaboration of the accounting structure and introduces the key features of the SEEA. While it does mention the use of indicators and the link to social and demographic information, these are a 'light touch approach'. Extracting the references from the SEEA:
1. Para 2.28 Implementation does not require compilation of every table and account for all environmental assets or environmental themes. Instead it can be modular, taking into account those aspects of the country's environment that are most important. At the same time, the ambition should be to fully account for the environmental-economic structure of a country and to provide information on issues of global concern using a common measurement framework.
 2. Para 2.36 One feature of monetary supply and use tables is that key economic aggregates can be derived using the various components. In particular, the aggregate value added by industry can be calculated as the difference between an industry's output and its intermediate consumption. This aggregate forms the starting point for the sequence of accounts described in section 2.3.4.
 3. Para 2.46 Both the supply and use identity and the input-output identity are an integral part of the Central Framework. They are based on the law of the conservation of mass and energy which states that the mass and energy of a closed system will remain constant. The implication for accounting is that, in theory, mass and energy flows must balance across natural inputs, products and residuals.
 4. Para 2.53 Generally, asset accounts are compiled for individual types of environmental assets. In monetary terms, there may be interest in aggregating the values of all environmental assets at the beginning and the end of the accounting period. Such aggregations can be presented in balance sheets, and through their combination with the value of other assets (e.g., produced assets and financial assets) and liabilities, an overall measure of the net wealth of an economy can be obtained.
 5. Para 2.63 Of particular importance is the derivation of depletion-adjusted balancing items and aggregates within the sequence of economic accounts. Depletion-adjusted measures go beyond the balancing items and aggregates

measured in “net” terms in the SNA (i.e., after the deduction of consumption of fixed capital) and further deduct the cost of using up natural resources (i.e., depletion). The main balancing items and aggregates within the sequence of economic accounts are shown in broad terms in table 2.5.

6. Para 2.64 The sequence of economic accounts starts in the production account that is formed using the entries of output and intermediate consumption from the monetary supply and use table. In the production account, the balancing item is value added (output less intermediate consumption). At an economy-wide level, the main related aggregate from the production account is GDP. Consumption of fixed capital and depletion are deducted from gross value added and GDP to form measures of depletion-adjusted net value added and depletion-adjusted net domestic product.
7. Para 2.66 As in the production account, depletion can be deducted from the balancing items of net operating surplus and net saving. The key aggregates from these accounts in gross terms are gross national income (GNI) and gross national saving, both of which can be adjusted for depletion and consumption of fixed capital to form depletion-adjusted measures.
8. Para 2.73 The highlighting of environmental activities and products enables information to be presented on the economic response to environmental issues. Particular flows of interest are the output of environmental goods and services, and expenditures on environmental protection and resource management, as well as environmental taxes and subsidies.
9. Para 2.86 While no standard structure can be defined, compiling and contrasting monetary and physical data in meaningful ways are at the heart of the SEEA philosophy. This section has provided a general introduction to combined physical and monetary presentations. Chapter VI discusses the compilation of these presentations and provides examples of potential presentations on particular themes, such as energy and water. More detailed presentations involving structures such as input-output tables, the full sequence of economic accounts or presentations that cover a particular theme or topic, for example, fisheries, are considered in SEEA Extensions and Applications and in targeted thematic publications (such as on water and energy).

27. The most comprehensive text on indicators is given in Section 6.4

28. Section 6.4 describes the current SEEA CF indicator approach, this can be summarised as:

1. Descriptive Statistics – covering totals from flow accounts; depletion in physical terms from the asset accounts; key monetary estimates from the sequence of economic accounts; and totals from the functional accounts and EGSS. Includes commentary around structural statistics eg taxes and subsidies, land accounts and so on.
2. Environmental asset aggregates and indicators – provides descriptions (but not calculations) of what could be measured from physical and monetary accounts including totals of natural resources, total national wealth, depletion and share of resource rent. Includes advice on combining with population and descriptive statistics.
3. Aggregates related to financing and cost recovery of economic activity related to the environment – provides descriptions on aggregates that may inform about how environment activity is financed, full cost of providing access to natural

resources, subsidies and other transfers especially from government and the rest of the world.

4. Environmental ratio indicators – Includes descriptions of productivity and intensity indicators; decoupling indicators; and polluter pays indicators.
 5. International indicator initiatives – provides some links to indicator programs that were available at the time (2012) and gives general advice that set of indicators on environmental and sustainable development issues should use the Central Framework as a basis, though without any mechanism for compulsion.
29. There are mixed pieces of information about indicators are spread throughout the other accounts and chapters as suggestions. For example:
1. Flow table identities – Total supply of products (TSP), Total Use of products (TUP), Total Supply of Natural Inputs (TSNI), Total Use of Natural Inputs (TUNI), Total Supply of Residuals (TSR), and Total Use of Residuals (TUR) [Chapter 3]
 2. Input Output Identities – Materials into the economy, Materials out of the economy, Net additions to stock in the economy [Chapter 3]
 3. Energy – Gross Energy Input, Net Domestic Energy Use [Chapter 3]
 4. Water – Gross Water Input, Net Domestic Water Use, Final Water Use [Chapter 3]
 5. Air Emissions – None
 6. Water Emissions – None
 7. Solid Waste – None
 8. Economy-wide Material Flow – None in SEEA CF
 9. Chapter 4 – Total Expenditure on Environmental Protection
 10. Chapter 5 – None
 11. Sequence of economic accounts – Depletion adjusted Net Value Add, Depletion adjusted NDP, Depletion adjusted Net Operating Surplus, Depletion adjusted Net National Income, Depletion adjusted Net Saving. [Chapter 6]¹
 12. (see part of section 6.4 above)
 13. A summary of other indicators suggested by the SEEA Applications and Extensions is given in Appendix 1.

2.3 Developing a set of SEEA CF indicators

30. The limiting factor with the text in section 6.4 is that they are largely descriptive in nature and leave their calculation to the compiler. This would suggest that there is an approach we could take for SEEA CF that introduces an aggregate (accounting identity). Then discuss applications and potentially modify existing text to reflect a more thematic/domain-based approach to thinking how SEEA can be linked with an example.
31. If we highlight the need to derive aggregates (accounting identities, descriptive statistics) directly from the SEEA CF, this forms the basis for a starting the development of a suggested indicator set. Many of the accounts have key accounting identities, or where components of

¹ Though the sequence of economic accounts will change with the adaptation of SEEA CF to the changes from SNA 2025, for example the introduction of Net measures already taking into account of depletion. The treatment of degradation still needs to be considered however in SEEA CF (Issue A1, A8).

the accounts need to match. For example, Total Supply of Natural Inputs (TSNI) needs to equal Total Use of Natural Inputs (TUNI), however this forms a useful statistic for describing the impact of economic production on the environment. In this case TSNI is the amount of material being harvested in any year, which can be:

1. Compared to stocks to inform about sustainable use of the environment
 2. Compared to waste material produced to examine resource efficiency and circularity in the economy.
 3. Compared to Net Value Add (from the System of National Accounts) which can inform, when used in a timeseries, about the resource productivity of an economy.
32. Currently section 6.4 does seem to follow this approach without formal recognition to where, when and the level of complexity of these stages. Taking into account of section 6.4 of SEEA CF, there are five types of purposes, is indicative of three types of indicators based on complexity:
1. Indicators based on statistics from the account (eg Total supply, closing stock)
 2. Indicators based on derivations (use by industry divided by Total Use, % Change in land cover). Which could include extra information for measures relating to economic or population (natural resource intensity, per capita consumption of a natural resource). This could also include generalised equilibrium modelling or Environmentally Extended Input Output tables.
 3. Indicators based on combining data together for a composite index, longitudinal or decomposition estimates.
33. One barrier to recommending a set of indicators is the willingness to uptake or use the information for decision making. Vardon et al (2016) recognise that the provision of indicators and information from environmental accounts doesn't mean that it will be adopted domestically. This guidance note does not recommend a particular method for encouraging country level indicator uptake but rather suggests what can be addressed in an implementation strategy post release.
34. {{Placeholder pending discussion on A3}} Need to link some of the discussion to A3 (IOEE).
35. Now if we look at how these indicators can be applied, this will give some leads into how we can craft SEEA CF for the widest possible application.

2.4 Case for a generic link to international indicators

36. International indicator sets seem to have increased rapidly in popularity. Sustainable Development Goals, OECD environmental indicators, World Bank Changing Wealth of Nations, IMF Data Gaps Initiatives, UNECE Circular economy and climate indicators just to mention a few sets. Unfortunately for compilers, these sets tend to be independent of each other and require individual approaches. Fortunately many of these can be served through the use of data contained in or produced by SEEA based reports.
37. One of the things that need consideration is the longevity of international indicators compared to the revision cycle of the SEEA CF. In the current SEEA CF there is reference to Beyond GDP from the 2009 Stiglitz-Fitoussi report (Report by the Commission on the Measurement of Economic Performance and Social Progress) but doesn't refer to the Agenda 21 goals nor the Millennium reporting initiative which existed prior to the Beyond GDP initiative and both ceased not too long afterwards. Fortunately Beyond GDP has maintained some consistency over time but is in a heavily contested space as mentioned above. One of the questions then should be: do we attribute current international indicators for discussion

in SEEA CF or do we focus on generic themes which can be adapted as new initiatives and global programs come and go? There is also a need to consider the corporate reporting links to SEEA CF, is a generic theme based approach more likely to keep up with the changes occurring in corporate sector reporting?

38. A theme-based approach would have better links to domestic policy rather than pressure from the desire to have international indicator sets or surveys or global initiatives. A list of themes based on observing a wide range of international reporting would seem to be:

1. Use of national resources (including water, energy, forests, etc)
2. Sustainability of natural resources
3. Capacity for the environment to absorb externalities (residuals)
4. Cost of protecting the environment
5. Impacts on societal well-being from a diminishing environment²

39. And these would link to a number of themes, or domains such as:

1. Production or Economic Output
2. National Wealth and Income
3. Society and culture (thought these could be separate)
4. Human enterprise and capacity

40. The need for environmental statistics and their use in domestic policy is another interesting case (related to issue A6). There are rare moments when policy is driven by the need for international reporting, for example SDGs or the OECD environmental surveys, or even the production of national reports. Most commonly, there is an immediate need for data, driven by interests in the community or business that drive the search for relevant information. The SEEA CF struggles with this and there is a balance between producing consistent data over time versus establishing a new collection on a unique issue that will only occur once. In this case, understanding data and its usefulness beyond the needs for accounting balanced by understanding how data can be interpreted incorrectly, is a role for the accounts compiler.

2.5 Case for extension to the social domain

41. The link to social domains is also a consideration (Issue A7). Notwithstanding the desire for derived indicators outlined in section 6.4, there is a need to specifically approach indicators through a societal lens. Statistics that link gender and the environment as well as some policy interest in the links between environmental pressure accounts and health. At a bare minimum, indicators that take into account of population estimates are necessary. In 2026 there is also a unique opportunity to link to conversations around social indicators through the UN Friends of the Chair group on social and demographic statistics.

42. As mentioned above, the SEEA CF does highlight employment, population, demographics and health (sections 2.3.6 and 6.2.6) as potential themes, but doesn't give any examples of indicators that could suit linking to these social domains.

43. The emphasis from sections 2.3.6 and 6.2.6 include:

1. Developing information about use of environmental products and corresponding societal statistics,

² However, well-being is out of scope of SEEA, the links to social domains will be discussed later.

2. Supply of the residuals of the economy and degree of correlation with social status such as health, and
 3. Distribution of environmental assets and degree of access for demographic groups.
44. This would suggest that there is a need for identities that have a social link, for example:
1. Consumption by households,
 2. Residuals by households and industry or impacts from environmental use,
 3. Employment and compensation of employees in environmental goods and services (extended) activities,
 4. Natural resources consumption for tourism,
 5. Land covers by geographies that are normally used for demographic statistics (administrative boundaries)
45. Appendix 2 summarises some of the more recent efforts to link social information to the environment. Deriving a set of themes is not an easy process. This paper suggests that we take environmental descriptive statistics (including the identities from the accounts mentioned in the indicators part of this paper), establish a series of social themes based around themes based on the Friends of the Chair on social and demographic statistics report on a pathway to a conceptual framework to the 56th Statistical Commission in March 2025. From this report, it would indicate that the People and Relationship building blocks and take into account of Time and Place concepts would be a fundamental component to linking to social domains.
46. Another final point is that there still needs to be a link to the SNA. The ‘societal’ elements of the SNA are generally aligned with the principles of income and wealth (well-being, SNA chapters 34 and 35).
47. From the research in appendix 2, a list of themes based on the friends of the chair report could look like:
1. Population
 - i. Age
 - ii. Gender
 - iii. Geographical distribution
 2. Relationships
 - i. Access to green space/environmental products
 - ii. Resilience to natural disasters
 - iii. Mortality and general health,
 - iv. Education
 - v. Decent employment in natural capital-based occupations
 - vi. Access to utilities, energy, water, space (as land)
 - vii. Cultural interaction with nature (spiritual, sport and recreational etc).

2.6 A way forward

48. Taking into account of the need for indicators and demonstration of how this links to other domains such as the social domain, the way forward seems to be:

1. Adjusting the existing text in the SEEA CF to demonstrate the development of indicators using the aggregates (accounting identities) from each of the accounts
2. Some description of extensions to these aggregates (accounting identities) which would include derivations based on data available in the accounts or readily available information from economic or social statistics. Discuss with an example including a step-by-step method for creating an indicator from multiple tables in the accounts, discuss the shortcomings of such an approach and any other advice on assisting others to interpret the indicator.
3. Discussion on extensions to other domains including a detailed social domain example.

Question for the technical committee: Is this a sensible approach to considering indicators for the CF?

Draft Global consultation question: Do you agree on the approach proposed for discussing indicators in the SEEA CF update? Do you agree that special notes for links to global indicators and social domains will be included in the SEEA CF text?

3 Proposed indicator design for SEEA CF

51. The intent of this part of the guidance note is to establish a structure to the way in which indicators are suggested for use derived from the SEEA CF. With this in mind, this guidance note suggests the following sequence of discussion on indicators and extensions which will be elaborated more later in the paper:

- a. The concept of aggregates (accounting identities) from each of the accounts needs to be discussed clearly in chapter 1 and chapter 2, with generic descriptions and metadata in chapter 3. Specific descriptions on accounting identities will need to be included in chapters 4 and 5 based on their specific accounts (chapter 4 being the functional accounts and chapter 5 the asset accounts).
- b. The concept of indicators needs to be introduced in chapter 1 and chapter 2, and clearly outlined in chapter 6. Chapter 6 in particular needs some establishment of a core set of suggested indicators with metadata, preferably using SEEA CF, SNA identities or core population totals.
- c. The concept of extensions to indicators, links to global indicators or 'links to other domains' needs to be included in chapter 1 and chapter 2 and explained more fully in chapter 6 expanding on existing material in the SEEA CF to include an example of linking to social domains based on the latest work by the Friends of the Chair on social and demographic statistics.

52. This guidance note will consider each of the recommended changes are presented by chapter below. The proposal for a links to social domain example will be after the discussion on indicators.

3.1 Chapter 1 proposal

53. The intent and purpose of Chapter 1 is to set the scene and rationale for the use and compilation of the SEEA CF. It is a good place to set out why indicators hold a place in the consideration of whether to construct accounts or not.

54. The SEEA CF should indicate its intent and purpose to inform on the interaction between the economy and the environment in monetary and physical terms. With this in mind the intent

to produce a number of 'identities' or key aggregates should be written into the text. At the moment para 1.24 mentions an approach for indicators. These could be modified to represent a more coordinated approach to indicators and reporting, for example:

- a. Para 1.24, The SEEA is a multipurpose system and is relevant in a number of ways for policy development and evaluation as well as decision-making.
 - i. First, the ~~summary information~~ **account identities and descriptive statistics** (provided in the form of aggregates ~~and indicators~~) can be applied to issues and areas of the environment that are the focus of decision makers.
 - ii. Second, the ~~detailed information~~ **derived indicators**, which covers some of the key drivers of change in the environment, can be used to provide a richer understanding of the policy issues for example, **SEEA can be used in models and scenarios designed to assess the national and international economic and environmental effects of different policy scenarios within a country, between countries and at a global level.**
 - iii. Third, **links to other indicators, which elaborates on the suite of existing and emerging international indicators such as the Sustainable Development Goals and links to other domains of statistics such as social domains.** ~~data contained in the SEEA can be used in models and scenarios designed to assess the national and international economic and environmental effects of different policy scenarios within a country, between countries and at a global level.~~

3.2 Chapter 2, 3, 4 and 5 proposals

Global Consultation question: Do you agree that the proposed range and explanation of indicators for chapters 2, 3, 4, and 5 will be included in the SEEA CF?

55. Chapter 2 is an elaboration of the accounting structure and introduces the key features of the SEEA. While it does mention the use of indicators and the link to social and demographic information, these are a 'light touch approach'. Extracting and suggesting changes to the current references from the SEEA:

- a. 2.28 Implementation does not require compilation of every table and account for all environmental assets or environmental themes. Instead it can be modular, taking into account those aspects of the country's environment that are most important. At the same time, the ambition should be to fully account for the environmental-economic structure of a country and to provide information **or indicators** on issues of global concern using a common measurement framework.
- b. Para 2.36 One feature of monetary supply and use tables is that key economic aggregates, **or accounting identities**, can be derived using the various components. In particular, the aggregate value added by industry can be calculated as the difference between an industry's output and its intermediate consumption. This aggregate forms the starting point for the sequence of accounts described in section 2.3.4.
- c. Para 2.46 Both the supply and use identity and the input-output identity are an integral part of the Central Framework. They are based on the law of the conservation of mass and energy which states that the mass and energy of a closed system will remain constant. The implication for accounting is that, in theory, mass and energy flows must balance across natural inputs, products and residuals **which provide a useful accounting identities for reporting.**

- d. Para 2.53 Generally, asset accounts are compiled for individual types of environmental assets. In monetary terms, there may be interest in aggregating the values of all environmental assets at the beginning and the end of the accounting period **as an accounting identity**. Such aggregations can be presented in balance sheets, and through their combination with the value of other assets (e.g., produced assets and financial assets) and liabilities, an overall measure of the net wealth of an economy can be obtained.
 - e. Para 2.63 Of particular importance is the derivation of depletion-adjusted balancing items **or identities** and aggregates within the sequence of economic accounts. Depletion-adjusted measures go beyond the balancing items and aggregates measured in "net" terms in the SNA (i.e., after the deduction of consumption of fixed capital) and further deduct the cost of using up natural resources (i.e., depletion). The main balancing items and aggregates within the sequence of economic accounts are shown in broad terms in table 2.5.
 - f. Para 2.73 The highlighting of environmental activities and products enables information to be presented on the economic response to environmental issues. ~~Particular flows~~ **Accounting identities** of interest are the output of environmental goods and services, and expenditures on environmental protection and resource management, as well as environmental taxes and subsidies.
 - g. Para 2.86 While no standard structure can be defined, compiling and contrasting monetary and physical data in meaningful ways are at the heart of the SEEA philosophy. This section has provided a general introduction to combined physical and monetary presentations. Chapter VI discusses the compilation of these presentations and provides examples of potential presentations on particular themes, such as energy and water. More detailed presentations involving structures such as input-output tables, the full sequence of economic accounts or presentations that cover a particular theme or topic, for example, fisheries, are considered in SEEA Extensions and Applications and in targeted thematic publications (such as on water and energy).
56. National aggregates of all environmental economic accounts are seen as somewhat problematic. Some indicators that could be included in chapter 2, but will need some discussion about purpose and metadata:
- a. Gross Environmental Product – based on a similar concept to a Gross Ecosystem Product, based on the aggregation of all environment inputs at exchange value extracted less imports of natural inputs. This will need discussion and testing for final inclusion in SEEA.
 - b. Total Natural Capital closing stock.
 - c. Others?

Question for the Technical Committee: Do we remove the reference to the sequence of accounts, and thereby remove any indicators based on depletion from the core set of indicators from SEEA CF?

- 57. The depletion identity which was included in Chapter 2 is now superseded by its inclusion in the SNA 2025. These references will be removed depending on the discussion on the removal of the sequence of accounts. However, they could still be used as an indicator.
- 58. A table of aggregates (accounting identities) and some suggestions on indicators are provided in the companion spreadsheet. Appendix 1 has a wider list for reference drawn from the SEEA Applications and extensions publication.

59. The associated spreadsheet has the list of aggregates (accounting identities) and suggested indicators which will be included in each of the accounts. For example:
60. Air emissions are a leading cause associated with climate change, pollution, health issues and amenity loss. The SEEA CF has a number of accounts which can be used to trace the trend and causes of air emissions. For example, the Air emissions account main aggregate, Total Supply of Air Emissions, can be recorded as a national total or broken down by industry to examine the cause of emissions based on economic factors. When combined with aggregates from the SNA, air emissions aggregates can look at the efficiency of the economy. This is where air emissions efficiency is total supply of air emissions divided by real GDP. Production based GDP estimates are the best to use since these reflect a comparison of volumes between residuals and economic output. However, there are series additivity problems with time series of real GDP, especially when trying to compare industry based efficiency compared to national efficiency rates. When establishing these indicators, methodology discussing these indicators should be clear about the discrepancy beyond current estimates.

3.3 Links to international indicators

61. SEEA CF is a rich source of information for international reporting and indicators. Section 6.4.6 should read as follows:

62. 6.4.6 The SEEA Central Framework and international indicator initiatives

63. 6.112 For many years, there has been interest in the development of sets of indicators that offer insight into environmental and sustainable development issues. Examples of international indicator initiatives are those connected to the **Sustainable Development Goals**, OECD project on green growth, the United Nations Environment Programme (UNEP) Green Economy initiative, the Beyond GDP initiative of the European Union, and the indicator work under the Convention on Biological Diversity. 80 Many of the **themes that** indicators that are of interest **can be linked** in these to indicator sets can be found within the Central Framework.
64. 6.113 Because of the strength of the underpinning accounting structure, particularly in terms of defining relationships between indicators and in providing a strong data compilation and confrontation framework, the Central Framework represents an important information base from which indicators can be chosen for use in populating different sets of indicators.
65. 6.114 In addition, the strong connection between the Central Framework and the SNA provides links to core macroeconomic aggregates which allow environmentally focused indicators to be seen within a context more oriented towards economics, and hence accessible to a broader audience. This strong connection also allows for modelling and forecasting.
66. 6.115 It is recommended that, in the development of sets of indicators that focus on environmental and sustainable development issues, the Central Framework be used as the basis for compiling indicators, wherever appropriate.
- 67. Para 6.xxx Using the air emissions example from 6.xxx above, the Intergovernmental Panel on Climate Change (IPCC) has a series of indicators that closely resemble what could be constructed from the SEEA CF. The SEEA CF does not intend to replace the need for indicators from the IPCC but is useful as a source of supplementary information.**
- 68. Para 6.xxx For example, the IPCC indicator Net Greenhouse Gas emissions are a useful source of information for monitoring global pressures on climate change. However, this indicator does not necessarily address the cause of these emissions and use of the indicator, even when converted to economic sector, can distort the link between the economy and these residuals. SEEA CF can supplement these indicators with Air emissions supply tables which give industry level gross emissions information aligned with SNA. This can also be supplemented with information from the energy account on industry level use of**

greenhouse emitting energy sources as well as information on remediation of climate risks from the environmental activities accounts.

3.4 Links to social domains

Draft questions for Global consultation: Do you agree that the discussion on links to social domains include the themes suggested and include an example?

69. Linking to social domains should be seen as an extension to accounting identities and indicators with the caveat that some components of the accounts will be useful for further analysis. This GN proposes that we modify the text provided in SEEA CF to highlight the link to other domains such as social and cultural and include a short list of potential areas for linkage.

70. “2.3.6 Employment, demographic and social information

2.75 The usefulness of the information in the various tables and accounts can be enhanced by relating different environmental and economic data to estimates of employment, estimates of population, various demographic breakdowns (such as age, household income levels and household characteristics related to material well-being) and measures of societal interest such as health and education.

2.76 Examples of the application of such data include the incorporation of employment data on the production of environmental goods and services, the use of socioeconomic groupings of households to assess water and energy use and access to resources, and the linking of information on health status to data on air emissions in particular regions.

2.77 Section 6.2 discusses further the use of these types of data in the context of the Central Framework, and the SEEA Extensions and Applications presents techniques and analytical approaches to linking SEEA-based data with various types of employment, demographic and social data.”

71. “6.2.6 Employment, demographic and social information

a. 6.48 The usefulness of the information in the various tables and accounts of the Central Framework can be enhanced by relating different environmental and economic data to ~~estimates of employment, estimates of population, various demographic breakdowns (such as age, household income levels, and household characteristics related to material well-being), and social measures, such as health and education.~~ ***a wide range of social domains that are of interest. For example, themes based on population characteristics and relationships such as:***

i. Population

- 1. Age***
- 2. Gender***
- 3. Geographical distribution***

ii. Relationships

- 1. Access to green space/environmental products***
- 2. Resilience to natural disasters***
- 3. Mortality and general health,***
- 4. Education***
- 5. Decent employment in natural capital-based occupations***
- 6. Access to utilities, energy, water, space (as land)***
- 7. Cultural interaction with nature (spiritual, sport and recreational etc).***

8. Economic income and wealth

6.49 Employment information, such as the number of people employed, the number of jobs, and the number of hours worked, may be used in the assessment of environmental activity from an industry perspective. In particular, there is likely to be interest in employment data related to the production of environmental goods and services as part of measures of the “green” economy.

6.50 Information on population and demographic breakdowns can be used in conjunction with information on the physical flows of water and energy to provide enhanced analysis of resource accessibility and availability, and changes in patterns of water and energy use. Demographic information used together with data on environmental protection expenditure may assist in understanding behaviours of different socioeconomic groups in relation to this type of environmental activity.

6.51 More generally, accounting for differences in population size and structure may be important for international comparisons of environmental and economic data. For example, measures of changes in per capita air emissions may be of interest in addition to aggregate measures of air emissions.

6.52 Social measures, such as those relating to health and education, may be usefully related to certain components of the Central Framework. For example, measures of air emissions may be complemented by measures of health status. This may be particularly relevant if finer-level geographical areas are being considered. In this regard, it may also be of interest to incorporate measures of actual final consumption of households (i.e., including the transfer of individual benefits to households purchased by governments (e.g., water services provided by government)) in the comparison of consumption activity across countries.

6.53 Demographic and employment information may need to be adjusted for purposes of consistency with the concepts, definitions and classifications of the Central Framework, in particular for alignment with the concept of residence. Relevant information can be found in ~~chapter 19 of the 2008 SNA~~ **chapter 25 of the 2025 SNA**. Techniques and analytical approaches for linking SEEA-based data with various types of employment, demographic and social data are explored further in SEEA Applications and Extensions.”

72. The SEEA CF should include an example on the links to social domains. For example:

- a. Following on from the previous air emissions case study. There is considerable interest in how environmental changes from economic development can impact on society. If we examine the rate of air emissions from economic output and compare this with social domains then a new story emerges. The total supply of air emissions per capita is a lead indicator including population estimates of how much exposure a population is likely to experience in any given year. Looking at particulate emissions to air and comparing with mortality or days lost to respiratory illness can indicate lost labour productivity. Finally, comparing particularly toxic air emissions to loss of income from rates of illness or mortality can determine the impacts on income of environmental changes. Though it should be noted that not all air emissions are directly related to respiratory illness so caution will be needed when interpreting these results.

4 Other considerations in advancing the issue (1-2 pages)

- Pending discussion with the Technical committee.
- 1. **Question for the technical committee: Do we need a 7.2 paper going into depth on how to define the links to social domains and the links to A6 Links to policy?**
- 2. An example spreadsheet with aggregates (accounting identities) and indicators was attached to the reading material, this should be included with the update to the SEEA CF once the metadata is agreed to. **Question for the technical committee: do we need each indicator to be included in the guidance note as adjustments or extra paragraphs to the SEEA CF or should we aim for a complimentary product are refer to the spreadsheet?**

5 References

Vardon, M., Burnett, P, Dovers, S. (2016). The accounting push and the policy pull: balancing environment and economic decisions. *Ecological Economics*, Volume 124 2016. pp.145-152, ISSN 0921-8009. Available at <https://doi.org/10.1016/j.ecolecon.2016.01.021>.

Australian Bureau of Statistics (ABS) 4602.0.55.001 - Environmental Issues: Energy Use and Conservation, Mar 2014, <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4602.0.55.001Main+Features1Mar%202014?OpenDocument>

6 Appendix 1 – list of current indicators in the SEEA CF and Applications and Extensions

49. The SEEA Applications and Extensions publication also contained guidance on indicators by purpose which is useful as a starting point:

I. Indicators of Resource Use and Environmental Intensity (Section 2.3). These indicators often combine physical environmental variables with economic variables to measure efficiency or decoupling

1. Gross energy input and net domestic energy use.
2. Gross water input, net domestic water use, and final water use (water consumption).
3. Total flows of air emissions, releases of substances to water, and generation of solid waste.

Environmental Ratio Indicators (Intensity, Productivity, and Decoupling):

4. Environmental intensity indicators, expressed as the ratio of an environmental variable (like pollutants or residuals) to an economic variable (such as output, income, or value added) or to population.
5. Material productivity or intensity indicators, which relate the use of material resources to corresponding economic activity, calculated at an economy-wide level, by industry, and for material groups (e.g., mineral resources, biotic resources, energy carriers).
6. Material dependency ratios, reflecting the share of imports of certain material groups within total gross material input.
7. Energy productivity or intensity indicators, relating net domestic energy use to corresponding economic activity, calculable at the economy-wide level, by industry, and by primary energy source.
8. Indicators for environmental flows such as water, energy, CO₂ emissions, nutrient balances, and solid waste.
9. Decoupling indicators, which focus on changes in volumes, contrasting environmental pressure (numerator) with an economic variable or population growth (denominator).
10. The share of energy from renewable sources or from fossil fuels in total supply, and by industry.
11. Energy dependency ratios, comparing energy produced domestically with imported energy.
12. Indicators linking energy production and consumption to resource use and air emissions.
13. Indicators of environmental flows from a consumption- or demand-based perspective.

II. Indicators of Production, Employment, and Expenditure Related to Environmental Activities (Section 2.4). These indicators assess the economic significance of environmentally related activities, often derived from Environmental Goods and Services Sector (EGSS) statistics and Environmental Protection Expenditure Accounts (EPEA).

Key EGSS Indicators and Aggregates: Indicators showing the importance of environmentally related activities in the economy.

14. Characterization of environmentally related activities through their contribution to employment, to the economy as a whole, and to trade (exports and imports).
15. The measure of employment in the EGSS, serving as a useful indicator of changes in environmentally related employment (though the SEEA Central Framework does not establish a measure of "green jobs").

Key EPEA Indicators:

16. Trends in expenditure on pollution prevention, pollution abatement, and biodiversity conservation.
17. The shift to pollution preventing technologies.

18. Indicators showing how expenditure on environmental protection compares with other types of expenditure.
19. Indicators reflecting the share of transfers from government or the rest of the world in the financing of environmental protection expenditure.

III. Indicators of Environmental Taxes and Environmental Subsidies and Similar Transfers (Section 2.5). These metrics evaluate the use of economic instruments for achieving environmental policy objectives.

20. Measures relating to the share of environmental taxes in total taxes.
21. Indicators categorized by type of environmental tax (energy taxes, pollution taxes, etc.).
22. Implicit tax rates, such as the implicit tax rate on energy.
23. Indicators related to emission permit schemes.
24. Indicators of the level and purpose of environmental subsidies and similar transfers.

IV. Indicators of Environmental Assets, Wealth, Income, and Depletion of Resources (Section 2.6). These indicators are based on asset accounts for individual environmental assets (e.g., mineral, timber, aquatic, and land resources) compiled in physical and monetary terms.

Indicators of Asset Stocks and Changes: Physical measures of levels and changes in the stocks (e.g., depletion) of different environmental assets, including:

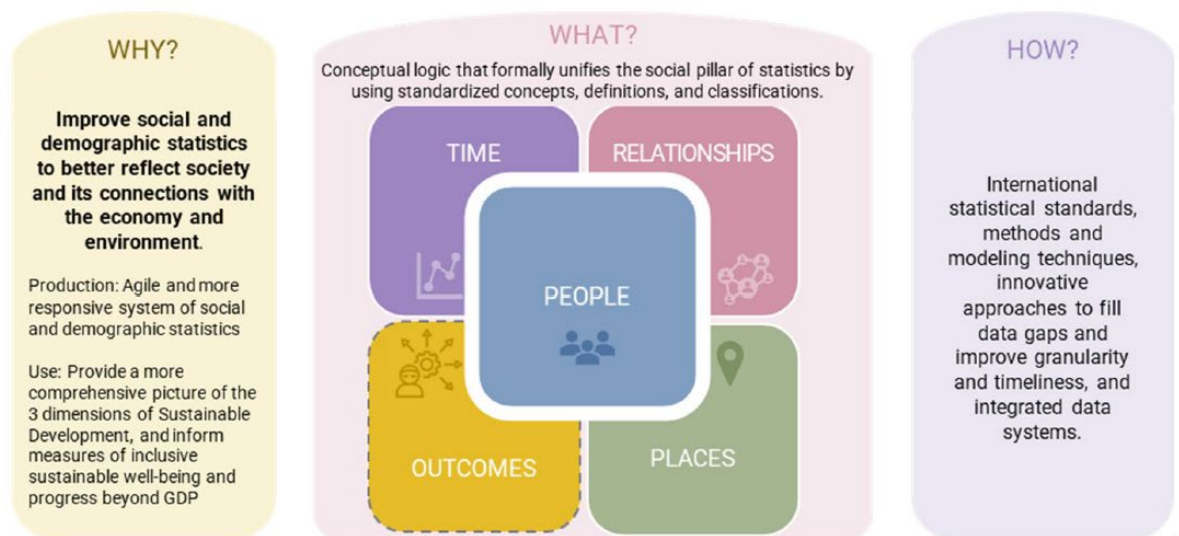
25. Mineral and energy resources.
26. Timber resources.
27. Aquatic resources.
28. Indicators of asset or resource life (e.g., derived by dividing the closing stock of a resource by the expected annual extraction).
29. Patterns of change in land use and land cover.
30. Indicators of the intensity of use of resources.
31. Measures of income and changes in wealth associated with natural resources.

Specific Land Indicators:

32. The share of built-up areas (or artificial surfaces) in total land area.
33. Conversions of areas with a natural cover to cropland and pastures for grazing.
34. Conversions of agricultural or forest land to built-up and related areas.
35. The share of forest areas (cultivated and natural) in total land area, accompanied by a breakdown by type of forest area

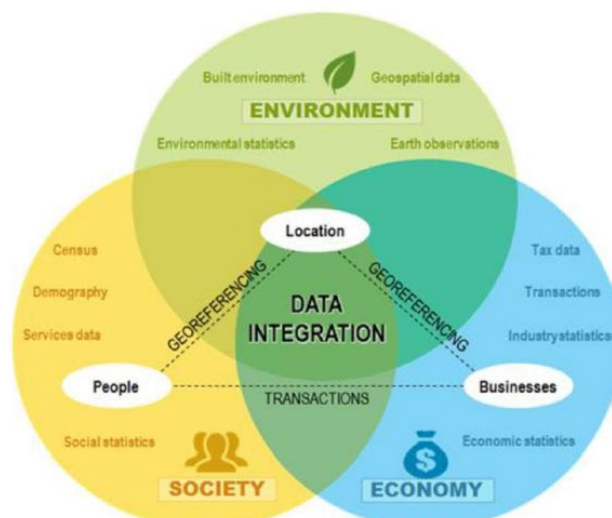
7 Appendix 2 – Research on Social Domains

1. The World Bank has a focus on national wealth adjusted by depletion in natural assets which could be a useful framing on the distribution of future wealth.
2. Accounting at different spatial scales (issue A4) is also the key is to provide sufficient data for analyses of impact on social trends based on environmental changes, for example the data needed to measure the impact of air emissions on households by location.
3. Current approaches by other frameworks and standards include:
 1. SNA – has the well-being chapter which isolates indicators that determine national wealth and access to income from the economy.
 2. SAMs (Eurostat) – are another form of identifying the characteristics from national accounting that have an impact on society.
 3. Beyond GDP – well-being indexes, rely on either derivation of indicators with social aspects (mortality by tonnes of air emissions) or the derivation of indexes with subjective weighting.
 4. SEEA EA’s current approach (SEEA EA Section 14.3.2) lists out a few areas based on the contribution, distribution and estimation of natural wealth for relating to well-being.
4. The themes for social capital based on the reference used by the SNA are:
 1. Trust
 2. Institutions
5. The SDGs focus on nine key indicator themes with a social domain, summarised here:
 1. End poverty
 2. End hunger
 3. Ensure healthy lives
 4. Ensure education
 5. Achieve gender equality
 6. Promote full and productive employment
 7. Reduce international inequality
 8. Sustainable cities
 9. Peaceful and inclusive societies
6. While there is no recognised universal social statistical standard, the Friends of the Chair on social and demographic statistics released a report on a pathway to a conceptual framework to the 56th Statistical Commission in March 2025. The document notes that there are five key building blocks to social statistics: people, relationships, places, time and outcomes (see figure 1)
7. Figure 1



8. Probably the key to linking social domains through this initiative is based on the principle of location. Location links environment economy and society (figure 2) through “*shared geographies enable basic statistical reporting, geostatistical analyses, and visualization at different scales –such as at local, sub-national, national, regional, and global–, allowing for consistent comparison and assessment of outputs.*” (report BG-3f, UNSC 2025).

Figure 1: Location as a link between society, the economy and the environment



Source: United Nations (2019), The Global Statistical Geospatial Framework, https://unstats.un.org/unsd/statcom/51st-session/documents/The_GSGF-E.pdf

9. Distilling the UNSC report into a group of themes that have social-environmental links is difficult. A representation could look like:
1. People – location based information on demographics and housing characteristics linked to environmental identities with similar geographies. Defining which of the accounts linked to particular demographic and housing characteristics can be open to interpretation.
 2. Places – has the strongest link to environment accounting identities where there is the inclusion of reporting on a spatial scale. While place doesn’t have a

particular indicator set, there are reasonable connection to the geographies which are linked to social statistics and reporting on the environment.

3. Time - the demand for long time series of environmental economic accounts links well to the time building block. In essence assessing this building block would suggest that changes over time are a key factor to relate to social conditions.
4. Outcomes – this building block was not discussed in depth in the report, extrapolating from the other building blocks would suggest that that analysis of the closing stocks on environmental goods as well as understanding access to environmental products are a part of the solution to understanding the link between Outcomes and the environmental economic accounts. This would suggest that there is a stronger link to the quality of the environment at the end of a reporting period would be an important component.
5. Relationships – The link between the Relationship building block and the environment is best represented by the following quote: *“Relationships and social connections are influenced by the natural and built environment. For instance, access to green space, community gardens, community centres, and walkable neighbourhoods create entry points for social connection to occur. In neighbourhoods where natural assets like green space are available, there are greater opportunities for people to run into each other and to experience social connection through the shared communal spaces. In terms of the natural environment and built community environment, there is evidence to suggest that more socially connected communities have lower crime and violence rates and also higher resilience when shocks to the community occur (Holt-Lunstad, Relationships Sprint, 2024). For instance, as communities face any number or kinds of crises, whether that’s a natural disaster or hazard (fires, floods, earthquakes), there’s evidence to illustrate that better connected communities are more resilient when these shocks occur and are better able to recover from these shocks (Holt-Lunstad, Relationships Sprint, 2024). Studies have shown that the extent to which you know your neighbours can influence whether you survive some of these crises because it’s often your neighbours who are there before your first responders. Much like saving costs for the employer with increased positive social connection between employees in the workplace, being socially connected with your neighbours has positive implications for the economy, as people are able to rely on each other within their own community, rather than relying more heavily on public services which could be under strain during times of crisis.”*