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**Towards a Global Data Collection and Dissemination Programme on
Environmental-Economic Accounts**

Draft paper prepared by UNSD

(for discussion)

Towards a global data collection and dissemination programme on environmental-economic accounts

Paper outline

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I. Introduction

1. This paper, which has been prepared by the Secretariat of UNCEEA, is meant to initiate a reflection on a possible global data collection and dissemination programme on environmental-economic accounts. Such a data collection and dissemination programme will have to be considered carefully, in light of existing data collection activities inside and outside of UNSD. It would also have significant resource implications, which will need to be considered at a managerial level. This paper sets out the points to be considered and invites the members of the Committee to contribute to this initial reflection with their technical expertise.

Fundamental Principle of Official Statistics

2. Official statistics provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies in a coordinated effort. Their availability will strengthen evidenced based policy making and honour the entitlement of the public community to coherent and consistent information.

Call for coordinated international statistical response in monitoring sustainable development

3. In response to the need for a systems approach to monitor sustainable development and integrated policy at national and international level, the official statistical communities have engaged in a rigorous and global process over the past two decades to develop the System of Environment-Economic Accounts (SEEA). The SEEA Central Framework was adopted as an international standard by the United Nations Statistical Commission at its forty-third session in March 2012 and is the first international statistical standard for environmental economic accounting. The use of statistical standards permits the repeated collection of statistics on a consistent basis and enables the integration of data over time and across different data sources.

Purpose of SEEA

4. National statistics offices and other agencies of the national statistics system around the world have a history of publishing statistics and indicators derived from environmental-economic accounts as official statistics to respond to permanent concerns of the public and government of monitoring a broad spectrum of environmental and economic issues, such as the assessment of trends in the use and availability of natural resources, the extent of emissions and discharges to the environment resulting from economic activity, environmental taxes and subsidies, and expenditures for environmental purpose. These indicators, which complement GDP and are inclusive of environmental aspects of progress, are vital for accessing sustainability, for monitoring economic and environmental policy making to govern the society and for decision making by the community and general public at national and international level.

II. Objective of the global data collection and dissemination programme on environmental-economic accounts

Reporting on SDG indicators and supporting national policy

5. The need for high-quality comparable statistics and indicators derived from environmental-economic accounts is a key element to monitor the sustainable development agenda (SDG). The assessment on environmental pillars of sustainable development requires regular production of good quality environmental-economic accounts to capture the complex interaction of the economy, environment and well-being. By using SEEA as an overarching information framework for environmental information that allows integration of different data sources, an enhanced set of indicators is achievable. These indicators are useful to monitor sustainable development and to identify the interaction the flow of natural input, product and residuals between the economy and environment, and thus meeting the test of practical utility.

International comparability and harmonization

6. Regular compilation of environmental-economic accounts in countries as part of official statistics will foster international statistical comparability, provide policy relevant information at national, regional and international levels, improve the quality of the resulting statistics and ensure a better understanding of the measurement concepts. Implementing SEEA involves integration of data from different sources into an accounting framework, thus ensuring the derivation of coherent set of statistics and indicators for international comparison purpose.

Objectives

7. In sum, the objectives of setting up a global SEEA data collection and dissemination programme are:
 - To monitor SEEA-related SDGs as well as relevant thematic policy areas
 - To provide policy makers with indicators and descriptive statistics to monitor the interaction of economic and environmental information as well as a database for strategic planning and policy analysis to identify a more sustainable path of development
 - To establish a common framework for the collection, compilation , transmission and evaluation for environmental economic accounts
 - To mainstream the SEEA as the statistical framework to measure the environment pillar of sustainable development integrated into official statistics, and to organize environmental data into an accounting framework to measure the interaction between the economy, the environment and the society

III. Current status of SEEA implementation

Existence of environmental-economic accounting programmes in countries

8. Compilation of environmental-economic accounts is under way in a number of countries. The United Nations Statistics Division (UNSD) under the auspices of the United Nations Committee of Experts of Environmental Economic Accounting (UNCEEAA) in 2014 conducted a Global Assessment to assess the current status of the national SEEA implementation. The Assessment indicated that environmental-economic accounting programmes are established and expanding components of official statistics in countries. In particular, at least 54 countries had programmes on environmental-economic accounts, while at least 15 countries were planning to start the compilation of accounts for the first time.

Modules/Accounts covered in environmental-economic accounting programmes in countries

9. Results from the Assessment suggested that the order of importance in terms of accounts most compiled differs somewhat between developed and developing regions. In particular, the most commonly compiled accounts in developing regions tend to be water and energy accounts. While developed countries also showed a high tendency to compile energy accounts, the accounts most commonly compiled differed from the developing region in that they were air emissions accounts and environmental taxes and subsidies. In this regard it is important to note that there is a legal mandate in the European Union to compile air emissions accounts, environmental taxes and subsidies, and material flow accounts as of 2013. Transmission of accounts for EPEA, EGSS and physical energy flow will be obligatory as of 2017. As European Union countries make up a large portion of countries in the developed region, it is to be expected that these are the main accounts listed. Results from the developing region suggest that, in addition to water and energy accounts, some countries are focussing expansion efforts on forest accounts.

Modules/Accounts for which countries plan to begin or expand compilation

10. The Global Assessment also indicated that the top five accounts for which countries plan to begin compilation are: 1) energy accounts; 2) water accounts; 3) EPEA; 4) EGSS accounts and 5) Environmental taxes and subsidies accounts. When disaggregated by economic region, energy accounts become a top priority both for developed and developing countries. The next account of priority differs when disaggregated by economic region, with developing countries planning to begin compilation of water accounts while developed countries plan mainly to begin compilation of EPEA and EGSS Accounts. This is to be expected as the European Union has mandated transmission of these three accounts (i.e. Energy Accounts, EPEA and EGSS) by 2017. A key difference between economic regions for countries with an existing programme is that many developing countries plan to begin compilation of ecosystem accounts and land accounts, while the corresponding number in developed countries was significantly lower.

IV. Existing initiatives (preliminary)

11. To date, Eurostat and OECD have already started compiling selected modules for their member countries. However, there is no global data collection and dissemination programme on environmental-economic accounts that cover all UN Member States. This section aims to

provide a non-exhaustive list of existing data collection initiatives on environmental-economic accounts or related statistics, noting that the list is preliminary and subject to further update.

Eurostat

12. The New European Strategy for Environmental Accounts 2014-2018 lays out a five year strategy to improve the quality and usability of the data and to ensure the data on environmental-economic accounts from all European countries are harmonized, timely and of adequate quality. Eurostat regularly collects data on various environmental-economic accounts for the EU countries and have developed the following questionnaires for data collection purpose:

- Air emission accounts questionnaire
- Economy wide material flow accounts questionnaire
- Physical energy flow accounts questionnaire
- Environmental taxes by economic activities questionnaire
- Environmental transfers pilot data collection
- JQ environmental protection expenditure and revenue questions
- Regional environmental questionnaire on environmental protection expenditure
- Resource management expenditure accounts (ReMEA) pilot questionnaire
- Environmental goods and services sector (EGSS) questionnaire
- OECD/Eurostat joint questionnaire on environmental protection expenditures, inland waters and material flows

OECD

13. A Task Force on the implementation of the SEEA Central Framework was created in September 2013 under the auspices of the OECD Committee on Statistics and Statistical Policy and the Environmental Policy Committee. Its main objectives include the development of standard tables for the collection of international comparable data on air emissions (volumes) and natural resources (stocks and flows, volume and monetary units) for the OECD countries. The OECD collects data on environmental protection expenditures, inland waters and materials flows for OECD countries. For European countries, this data collection is based on the OECD/Eurostat questionnaire on the state of the environment and on reporting under the EU regulation on environmental accounting. OECD also conducts survey to collection information on sub-soil assets in OECD countries.

FAO

14. A number of FAO work streams on agricultural statistics are relevant in the implementation of the SEEA Central Framework including work on measurement in the Agriculture, Forestry, Water, Land, Emissions and Energy areas. The SEEA Central Framework is being used as a tool via the development of the SEEA Agriculture, Forestry and Fisheries (SEEA AFF) to encourage improved data quality in underlying statistics, the development of indicators and coordination between areas within the FAO. In the medium term there is potential for the SEEA AFF to set a structure for data collection in a number of areas.

Gaps

15. The evolution of the international development agenda and community of practice established to address it has resulted in a structure of individual policy frameworks and implementing agencies at the international level. This silo structure of international development is reflected in the statistical sphere, by which individual international agencies engage in thematic monitoring with the aim of evaluating progress to ensure effectiveness and accountability in the fulfilment of their defined objectives. The result is that many international agencies conduct their own, distinct programmes of monitoring in the form of in-country surveys, country assessments and modelling of data for global data sets, as well as specific requests from countries to report progress on issues within their programme.
16. Although in the field of environment and energy statistics, individual set of statistics have been collected by several international agencies that have developed their own methodology independently from the statistical system, recommendations govern the production of these statistics are often not consistent with that of the SEEA. It is therefore important to establish a programme of work that identifies differences and similarities between the environment statistics questionnaires and the accounting tables and devise a strategy to bring data collection in line with the accounting concepts and definitions.

V. Call for mandate

17. The UNCEEA was established by the United Nations Statistical Commission with mandates to mainstream environmental-economic accounting and related statistics and to advance the implementation of the SEEA in countries. One of area of work of the Committee is the harmonization of data collection activities of environment and related statistics with concepts and definitions of environmental-economic accounting including the assurance of data quality.
18. Given the importance of global collection and dissemination of environmental-economic accounts but no such programme exists at the international level, as part of the global SEEA implementation programme, it is suggested that the United Nations Statistics Division (UNSD) explore under the auspices of UNCEEA to carry out to global data collection and dissemination of environmental-economic accounts from national statistical services. With the emerged demand for environmental-economic accounts and statistics from the post 2015 development agenda on sustainable demand and the related demands for monitoring the SDG indicators, the global programme on data collection and dissemination, the creation of the global database will make these accounts and statistics available in a standardized format at the global level.
19. A number of policy initiatives have already adopted the SEEA as their underlying statistical framework, including the OECD's Green Growth Strategy, the European Union's Beyond GDP Framework, the World Bank's WAVES initiative and the Convention on Biological Diversity's Aichi Targets. This will facilitate alignment of the reporting requirements placed on countries by these international agencies, with the aim to reduce countries' response burden resulting from involvement in multiple international initiatives. Similarly positive signals have been received from major policy international initiatives like Sustainable Consumption and Production (SCP)

under the 10 Year Framework of Programme (YFP), monitoring of water related SDG indicators under inter-agency Global Expended Monitoring Initiatives (GEMI), the three Rio Conventions on biodiversity, climate change and desertification and UN Programmes on Global Geospatial Information Management.

Harmonization

20. To date, environment statistics, energy statistics and accounting have developed in separate tracks. Methodological advancements as well as experience in implementation suggest the need for bringing environment statistics closer to the concepts, definitions and classifications of environmental-economic accounting. Harmonizing environment and energy statistics and environmental-economic accounting concepts, definitions and classifications would introduce statistical checks and balances in the data and produce consistent data systems from individual sets of environment and energy statistics across time and countries. Where the accounting concepts differ from environment or energy statistics concepts, supplementary tables for data collection should be developed.
21. In the short term, conversion or concordance tables are recommended to be developed for the conversion and aggregation from existing basis environment and energy statistics into the environmental-economic accounts.
22. In the medium term, it is recommended to mainstream already agreed concepts, definitions and classifications of the SEEA into regular statistical, administrative and policy programmes to ensure progressive introduction of consistency for purposes of data collection, production and dissemination of environment and energy statistics for multi-purpose policy applications and analytical uses.

VI. Considerations for the design of the programme

Use

23. International and national agencies have a key role to play in supporting the implementation of the SEEA. Buy-in at the highest national and global policy level is required as a first step in order to provide the necessary mandate and resources to embarking on the data collection and dissemination programme on environmental-economic accounts. The demand for the programme should be clearly articulated in order to obtain buy-in. It is expected the dissemination of high quality and comparable environmental-economic accounts from a single interface will benefit a number of users and international monitoring process, including but not limiting to the following:
 - Monitoring and reporting process for the SDG and related indicators
 - United Nations Statistical Commission, which is the highest body of the global statistical system responsible for the setting of statistical standards (including the SEEA), to monitor the implementation of statistical standards at the national and international level

- Member States of the United Nations to improve the efficiency of the statistical production process through the development of an integrated statistical system with inputs from multiple data sources
- International and regional agencies who are embarking on green economy and sustainable development related initiatives, such as the 10 YFP on Sustainable Consumption and Production, Archi Targets, the Biodiversity Finance Initiative, etc.
- Public community, including academic and research institutes, non-governmental organization, public citizens to access coherent and consistent information on environmental-economic accounts

Identification of priority accounts/indicators

24. Efforts should be given to those priority accounts and indicators identified through the SDG monitoring process and Global Assessment. It is suggested that:

- Accounts which indicators have been adopted as part of the SDG indicators will be given the highest priority
- The next priority will be determined based on the result of the Global Assessment, where energy accounts are the top priority for both developed and developing countries.
- The next account of priority based on the result of the Global Assessment differs when disaggregated by economic region, with water accounts being the next priority for the developing countries and EPEA and EGSS accounts for the developed countries.
- Land accounts were also identified as priority accounts as they form the basis for the testing of the SEEA Experimental Ecosystem Accounting

Core table and indicator as a basis for global data collection

25. The SEEA technical notes, which provide guidance to countries on the steps required for SEEA implementation, would serve as a basis for the global data collection and dissemination programme. The technical notes summarize the policy relevance of the SEEA accounts for a given topic, possible indicators that could be derived from them (particular those linked to SDGs indicators), and data sources and possible issues related to implementation. Special attention is being paid to the consistency of the suggested accounts and tables with Eurostat data-collection initiatives and the work of the OECD task force on the SEEA implementation.

26. On specific SEEA modules, technical notes on land, water, energy, EGSS, EPEA, air emission accounts have been prepared to assist countries in the SEEA implementation. The notes present the core tables and accounts that could serve as a basis for the global data collection. Eurostat and OECD have already started compiling selected modules. Annex I and II provide a summary of core tables and indicators for selected SEEA modules.

Data collection

27. To collect a large volume of data on environmental-economic accounts, it is envisaged a questionnaire on environmental-economic accounting will be sent annually to countries or areas, with an objective to request the recipients to update the questionnaire with the latest available environmental-economic account data and to indicate where the scope and coverage of the country estimates differ for conceptual or statistical reasons from the definitions and classifications recommended by the SEEA.
28. It is envisaged data obtained from these questionnaires are supplemented by information gathered from correspondence with the national statistical offices and from national source publications. Countries are also requested to provide a brief overview of the sources and methods to compile their environmental-economic accounts.
29. It is also envisage a minimum set of standard accounts and tables would be designed and applied to as many countries as possible. In addition, more detailed accounts and tables should be developed for countries in more advanced stages of development of environment statistics and accounting.

Building on existing initiatives

30. In order to lighten the reporting burden of countries to different international and regional organizations, it is recommended the global data collection programme for the SEEA to follow the process already in place for the SNA (where the UNSD, Eurostat and the OECD have agreed on an integrated set of national accounts questionnaires). This ensures close coordination with the data collection process existed at both international and regional level.
31. When developing questionnaire for data collection on environmental-economic accounts, efforts should be made to integrate existing questionnaires currently sent by international and regional agencies on economic, environmental and energy statistics, including but not limiting to the following:
 - UN National Accounts Questionnaire
 - UNSD/UNEP Questionnaire on Water and Waste
 - UNSD Annual Questionnaire on Energy Statistics
 - OECD/Eurostat Joint Questionnaire on the State of the Environment

Resources

32. Efforts should be made to ensure sufficient resources for this exercise. It is envisaged at the initial stage, two professional staff and two general staff will be dedicated to the data collection and dissemination of environmental-economic accounts and statistics on **one SEEA module on an annual basis**. This resource allocation should be further verified in consultation with the

international partners. The planning and implementation of the programme will include the following work:

- Design and set up the statistical production process of the data collection mechanism, including the development of questionnaire and method for validation, imputation, estimation, dissemination and statistical quality control
- Design and set up the statistical infrastructure such as the development of database and the automatic data processing procedure that is SDMX compliant
- Run the data collection programme on first on pilot basis based on the aforementioned procedures to test the tables and accounts
- Manage and regularly update the statistical database
- Document the statistical production process and develop metadata
- Disseminate results through international statistical releases on environmental-economic accounts that include a brief analysis of the result on an annual basis.

Time frame

33. Depending on the availability of resources, the first international statistical release on environmental-economic accounts would have to be determined within a realistic timeframe in the medium term.

VII. Point for discussion

34. The Committee may wish to:

- Express its opinion on the suggested global data collection and dissemination programme on environmental-economic accounts

Annex

Table 1 and 2 in this annex provide a list core tables and indicators for selected SEEA accounts as suggested by the SEEA technical notes, which define one or more core tables that are proposed as a minimum level of reporting that may be expected across member states. These core tables support a set of indicators and aggregates applicable to policy needs. While the core tables will form the basis for developing a set of international reporting requirements, it is expected that global data collection programme will collect data on a more detailed accounts and tables in many cases so as to address the particular data and policy needs of national and international users.

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Table 1: List of core tables for selected SEEA accounts

	Energy accounts	Water accounts	Air emissions accounts	Material flows accounts	Environmental protection expenditure accounts (EPEA)	Environmental Goods and Services (EGSS) accounts	Environmental taxes accounts	Land
Core tables	Supply and use table of energy products in physical and monetary terms	Supply and use table of water in physical and monetary terms	Supply and use table for air emissions by type of substances	Domestic extraction used of biomass, metal ores, non-metallic minerals and fossil energy carriers	Supply and use of environmental protection specific services	The core table for EGSS presents estimates for the main variables output, exports, value added and employment broken down by ISIC sections. Each main variable is broken down between environmental protection and resource management activities. Further detail could be added for types of products.	Revenue from environmental taxes by tax category (type of environmental taxes)	Land cover change matrix
	Physical and monetary stock accounts of natural energy resources	Physical stock account of water resources		Imports and exports of traded products and waste	Total national expenditure on environmental protection by type of expenditure by product			Land use change matrix
		Water emissions account		Table on domestic processed output that may consist of emissions to air, water, waste, discharges that result from the dissipative use of products or dissipative losses				

Table 2: List of core indicators for selected SEEA accounts (page 1)

	Energy accounts	Water accounts	Air emissions accounts	Material flows accounts	Environmental protection expenditure accounts (EPEA)	Environmental Goods and Services (EGSS) accounts	Environmental taxes accounts	Land
Indicators	Energy use per capita	Percentage of waste water safely treated (SDG 6.3)	Emissions of acidifying gases [Sulphur dioxide (SO ₂), Nitrogen oxide (NO _x), Ammonia (NH ₃)] by economic activity	Resource productivity indicator, measured by the ratio of domestic material consumption over GDP	Total national expenditure on environmental protection	Total EGSS output	Revenue from environmental taxes as a per cent of GDP	Forest area as a percentage of total land area (SDG 15.1)
	Energy use per unit of GDP	Water stress, measured as the ratio of total water withdrawals to total actual renewable freshwater resources (SDG 6.4)	Emissions of ozone precursors [Methane (CH ₄), Carbon monoxide (CO), Non-Methane Volatile Organic Compounds (NMVOC), Nitrogen oxide (NO _x)] by economic activity	Volumes of domestic extraction used, imports, exports, direct material input, domestic material consumption and physical trade balance		Total EGSS exports		Change in wetlands extent over time (% change over time) (SDG 6.6)
	Reserves-to-production ratio	Water productivity, measured as the ratio of value added to water abstraction (SDG 6.4)	Intensity of acidifying gases [Sulphur dioxide (SO ₂), Nitrogen oxide (NO _x), Ammonia (NH ₃)] by economic activity	Net additions to stock		Total EGSS gross value added		Emissions of greenhouse gases in agriculture (per hectare of land and per unit of output, separately for crop and livestock sectors) (SDG 2.4)

Table 2: List of core indicators for selected SEEA accounts (page 2)

	Energy accounts	Water accounts	Air emissions accounts	Material flows accounts	Environmental protection expenditure accounts (EPEA)	Environmental Goods and Services (EGSS) accounts	Environmental taxes accounts	Land
Indicators	Energy intensities indicators disaggregate by sector		Intensity of ozone precursors [Methane (CH ₄), Carbon monoxide (CO), Non-Methane Volatile Organic Compounds (NMVOC), Nitrogen oxide (NO _x)] by economic activity			Total EGSS employment		Coverage of protected areas broken down by ecosystem type, including total area of forests in protected areas (thousands of hectares) (SDG 15.1)
	End-use energy prices by fuel and by sector							
	Net energy import dependency							
	Stocks of critical fuels per corresponding fuel consumption							