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Programme of work for the SEEA Experimental Ecosystem Accounting (Draft)

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(for information)

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I. Introduction

1. The System of Environmental-Economic Accounting 2012 - Central Framework (SEEA Central Framework) was adopted by the United Nations Statistical Commission as the international statistical standard for environmental-economic accounting. It is a multipurpose statistical framework for describing the interaction between the economy and the environment and for describing stocks and flows of environmental assets. The SEEA Central Framework is complemented by the System of Environmental-Economic Accounting 2012 - Experimental Ecosystem Accounting (SEEA Experimental Ecosystem Accounting). SEEA Experimental Ecosystem Accounting offers a synthesis of the current knowledge in ecosystem accounting and serves as a platform for its development at national and sub-national levels. It provides a common set of terms, concepts, accounting principles and classifications, and an integrated accounting structure of ecosystem services and ecosystem condition in both physical and monetary terms.

2. The United Nations Statistical Commission at its 44th session considered the SEEA Experimental Ecosystem Accounting as an important step in the development of a statistical framework for ecosystem accounting and encouraged its use by international, regional agencies and countries wishing to test and experiment in this new area of statistics. In taking these steps the Commission recognized the growing policy demand for information about ecosystems and the linkages to economic and other human activity. At the same session the UNSC endorsed the research agenda associated with the SEEA Experimental Ecosystem Accounting. At the 45th session, the UNSC agreed with the UNCEEA proposal to establish a technical committee to take on the task.

3. The paper "Towards a medium-term programme of work for the SEEA Experimental Ecosystem Accounting" was presented in the Eighth meeting of the UNCEEA in 2013 for discussion. The UNCEEA expressed strong support for testing and experimentation in ecosystem accounts using SEEA Experimental Ecosystem Accounting and agreed on a set of priorities for the research agenda, identifying the short-term priorities as: (a) delineation of spatial units and associated classifications, including their link to economic units; (b) methods to measure ecosystem services and ecosystem assets; (c) presentation of structure, including structure of the tables and relevant indicators that can be derived from the accounts; (d) linkages with socioeconomic data; and (e) valuation of ecosystem services. It also agreed with the proposed medium to long term research priorities: (1) accounting concepts, (2) connection between ecosystem services and ecosystem condition, and (3) aggregation and ecosystem-wide indicators and expressed support for organizing a forum of experts in late 2013 and an international conference in late 2015 to discuss issues related to ecosystem accounting

4. To obtain a better understanding of current practices in the testing of the SEEA Experimental Ecosystem Accounting, the Statistics Division, in close consultation with the Secretariat of the Convention on Biological Diversity, UNEP, Australia and Norway, organized an expert group meeting in New York from 18 to 20 November 2013. At the meeting, experts on modelling approaches and tools for ecosystem measurement and representatives of national statistical offices discussed the pros and cons of various models to be used in the testing of the SEEA Experimental Ecosystem Accounting. The meeting was a first step towards mapping the different initiatives and establishing a community of practitioners on SEEA Experimental Ecosystem Accounting. Participants recognized the urgent need to establish a mechanism to coordinate activities in the field of ecosystem accounting and welcomed the role of the statistical community in taking the lead in this new and emerging field.

5. The relevance and utility of the SEEA Experimental Ecosystem Accounting is evident. Increased use of SEEA and the testing of experimental ecosystem accounting in countries can provide integrated measurement frameworks to inform the post-2015 development agenda and SDGs monitoring process. Ecosystem accounting information can be used to evaluate a number of policy issues including: the overall degradation of ecosystem stem from the economic and other human activity; the potential for alternative patterns of production, consumption and accumulation; alternative sources of energy and other resources and the extent of decoupling of economic growth; the effectiveness of resources spent to restore and enhance ecosystem; and more generally the trade-offs between the different baskets of ecosystem services that arise from alternative uses of ecosystems. SEEA has also been recognized as the main statistical framework for ecosystem accounting in various international and regional policy initiatives. These include, but are not limited to, the World Bank-led Wealth Accounting and the Valuation of Ecosystem Services partnership, the Valuation and Accounting of Natural Capital for Green Economy initiative launched by the United Nations Environment Programme (UNEP), the EU project on Mapping and Assessment of Ecosystems and their Servises (MAES), the Convention on Biodiversity Aichi Biodiversity Target 2 and the UNEP-led initiative on the economics of ecosystems and biodiversity.

6. The objective of this paper is to elaborate on current activities leading to the development of a programme of work for the SEEA Experimental Ecosystem Accounting

II. Advancing the research agenda for the SEEA Experimental Ecosystem Accounting

7. The United Nation Statistical Commission at its 44th session considered a draft research agenda to advance the SEEA- Experimental Ecosystem Accounting and requested the United Nations Committee of Experts on Environmental-Economic Accounting (UNCEEA) to develop a medium-term programme of work in this area. This Section provides an overview of programme of work for the SEEA Experimental Ecosystem Accounting in advancing the research agenda for the SEEA Experimental Ecosystem Accounting in a medium term. The research priorities may be grouped under 5 streams of work: (a) Geospatial, having to do with land classifications, delineation of statistical units, etc.; (b) Physical measures of ecosystem services and ecosystem conditions; (c) Presentation and policy linkages; (d) Valuation

techniques and approaches to aggregation; and (e) Integrated accounting issues. The areas are indicated in the order of priority as identified in the Technical Committee of the SEEA Experimental Ecosystem Accounting

8. Addressing these research priorities will require a multidisciplinary approach, it is therefore recommended to engage with existing groups to ensure proper coordination and avoid overlaps. In some cases there may not be necessary to create separate groups and rather ensure that the research priorities of the SEEA Experimental Ecosystem Accounting become part of the work programme of existing groups.

A) Geospatial, land classifications and units

Delineation and classification of land and spatial units

9. For the purposes of ecosystem accounting at a national or sub-national level the delineation of land areas is fundamental. No effective co-ordination or management of information across multiple ecosystems can take place without this being in place. It would be like undertaking economic statistics without a clear concept of an enterprise or corporation.

10. The SEEA EEA has proposed a units model but this needs to be tested and methods need to be developed to implement it. Further, agreement should be reached on relevant classifications. This should tie in closely with work under the SEEA Central Framework research agenda to finalise classifications for land use and land cover. It is important the delineation of units appropriately accounts for multiple types of ecosystems and hence the relevant boundaries between different units need to be clearly understood.

11. While initial focus should be on spatial units for land areas, consideration should also be given to the delineation of relevant units for seas and oceans, and the atmosphere.

12. The work in this area should take into account the progress made in other research streams in particular the measurement of ecosystem services and ecosystem condition, methods for linking data geo-spatially and work on the presentation and accounting structure appropriate for ecosystem accounting.

Methods for geo-spatial linking of environmental and socio-economic data

13. The ultimate value of the work on ecosystem accounting will come when measures of ecosystem services and ecosystem condition can be meaningfully linked to relevant socio-economic data. Given the general push for the development of GIS enabled socio-economic data it is important that work on ecosystem accounting be connected to this work and developed as an integrated body of statistical data.

14. An important connection here is to the delineation of relevant spatial areas/units which are applicable to the combined presentation of socio-economic and ecosystem related data.

15. The other connection here is to the use of “big data” and the use of remote sensing information. In the short term it is important that strong connections be made to relevant projects

in these areas – in part as a source of information for measuring ecosystem services and ecosystem condition.

B) Physical measures of ecosystem service and conditions

16. There are so many efforts underway in this area that the initial focus is not so much one of testing but of co-ordination and review. It is likely that although efforts at measuring ecosystem services and ecosystem condition have largely been divorced there are many commonalities in the measurement approaches that are actually undertaken in practice.

17. This work is important to advance in the short term as it is the most obvious area of activity among academics and is an increasingly common activity in the corporate sector. Combined with advances in the delineation and classification of spatial units there is the potential to assess data gaps and overlaps at the national level.

18. A significant challenge in this area will be to develop comprehensive measures of ecosystem services and ecosystem condition. While a conceptual boundary has been proposed, determination of the boundary in practice will not be straightforward. A particular aspect of research may therefore be the development of methods or approaches that enable compilers to be assured that they have developed comprehensive estimates of ecosystem services and/or ecosystem condition for a given ecosystem asset. Here the development and testing of classifications for ecosystem services will be particularly important, as will the development of approaches to the measurement of ecosystem condition.

19. An important area of work concerning ecosystem services will be to advance understanding and measurement techniques for linking ecosystem services to beneficiaries. Although the link is relatively easy to define in concept, in practice, matching services and beneficiaries is not straightforward particularly for many regulating services where the beneficiaries may be located in different spatial areas – carbon sequestration services are a specific example of this issue. The link is important to measure to allow the linkages between ecosystem measurement and economic accounts to be described.

20. Another important aspect of this work will be discussion of reference conditions in the measurement of ecosystem condition. An initial objective here should be improving the understanding of reference condition accounting and its relevance for ecosystem accounting work more generally. In addition, various options for the setting of reference conditions should be explored and a review of different techniques should be conducted.

21. In the context of ecosystem accounting, accounting for biodiversity is important but the linkages are likely to require further articulation. Given the current direct efforts aimed at measuring biodiversity, and the progress in the SEEA EEA in describing an accounting approach to its measurement, it is suggested that ongoing co-ordination with biodiversity researchers (especially the CBD) be encouraged and linked with research into the measurement of ecosystem services and ecosystem condition.

22. Accounting for carbon is also likely to be an integral part of ecosystem accounting. Important steps have been taken in the development of a carbon stock account in SEEA EEA. It is possible that this account may provide a basis for organising a significant amount of data

relevant to accounting for carbon in many situations. In the short term, engagement is required with those using data on carbon stocks and flows to determine whether a standardised carbon stock account might be a useful information tool. For ecosystem accounting purposes, the research should continue into the selection of indicators for relevant ecosystem services, for example, carbon sequestration.

23. Generally in this area of research into methods for measuring ecosystem services and ecosystem condition, an important objective will be to ensure that there are sound approaches used in the assessment of data quality and the accreditation of data sources, particularly where data are generated from scientific or other models.

C) Presentation and policy linkages

24. The potential for ecosystem accounting to influence decision making will be dependent on the success in communicating relevant messages. To this end a short term objective should be to develop more formally some presentations, accounts, and indicators in various formats, including maps, and engage with users in terms of their effectiveness. An important objective should be the development of presentations that incorporate both ecosystem data and socio-economic. It would also be positive if such presentations could be compiled for specific local scales.

25. This work is not starting from a zero base and hence an initial review of possible presentation tools would be a good starting point noting that the objective should be to provide a tool kit rather than a definitive answer.

26. An important part of this work will be ensuring that the underlying accounting is appropriately represented – i.e. that the presentations have technical merit. This may be particularly challenging in seeking to define indicators that require combinations of measures or implicit aggregations. In this regard managing expectations will also be an important aspect of this work.

D) Valuation methods for ecosystem services

27. It is unlikely that the work on SEEA EEA will, in the short term, have much impact on the substantial research that is underway on the valuation of ecosystem services. This is likely to be true from the perspective of developing individual prices for specific ecosystem services in specific ecosystems (perhaps as part of cost-benefit analysis), from the perspective of wealth accounting, and from the perspective of corporate reporting initiatives.

28. Nonetheless, it is important that SEEA EEA engage in the discussion in the short and longer term to ensure awareness of the implications of the choice of valuation approach in terms of accounting and integration with traditional national accounts (and business accounts). Ongoing discussions with all parties are important.

29. Part of the research here may be continuing to understand the linkages between different valuation methods and the requirements for valuation on an accounting basis.

30. One particular connection that should be made in the short term concerns the developments taking place at the corporate level in the area of sustainability reporting and accounting. There are fundamental accounting links that need to be highlighted and the apparently simple adoption of welfare economic valuation within corporate assessments needs to be discussed actively in the short term.

E) Integrated accounting issues

Accounting concepts: valuation of degradation, allocation to sector, sequence of accounts, integration in balance sheets, treatment of expenditures on ecosystem enhancement

31. The SEEA EEA provides an introduction to the issues associated with integrating measures of ecosystem services and ecosystem assets into the standard national accounts but provides few clear solutions to the issues. In part this reflects that the approach to extending the national accounts via ecosystem services logic has not been actively discussed by national accountants. At the same time, it also reflects the lack of resolution to long standing discussions on the appropriate way of integrating and incorporating ecosystem related stocks and flows dating back at least 20 years.

32. The research here is not in the realm of testing but rather requires ongoing conceptual discussion based on the assumption that the associated measurement issues (including those surrounding valuation) can be resolved. Engagement with national accounts experts will be necessary (perhaps via the annual OECD National Accounts meeting).

33. As part of making progress in this area it will be important to keep in mind the objectives of work on ecosystem accounting since the choice of accounting approach may rest on what aspects of the information should be highlighted, for example in discussion of the allocation of degradation to sectors. In this regard any proposals for the measurement of degradation adjusted measures of income should be carefully considered.

34. An initial objective in this area of research should be to place work on extending and integrating ecosystem measures into the national accounts into the broader context of related work, in particular wealth accounting. Wealth accounting, which aims to measure comprehensive or inclusive measures of GDP/NNI, reflects a range of similarities and differences from standard national accounting that need to be recognised and understood.

Linking to developing science on connections between ecosystem services and ecosystem condition and dependencies between ecosystems

35. The SEEA EEA recognises that the links between flows of ecosystem services and ecosystem assets are likely to be complex and non-linear. There will also be dependencies between ecosystems that should be accounted for. Overall, effective accounting will require a stronger understanding of the relationships between the various physical measures and this understanding must be obtained through linking to scientific research. It is here that connections need to be made to accounting for resilience and thresholds and the like.

36. There are many ongoing projects seeking to understand these types of dynamics and hence this part of the research agenda should be looking to tap into these advances and not create new work programmes. At the same time, by using the accounting framework at a national level it may become clearer where specific knowledge gaps exist (for example, for particular ecosystem types) and this may be helpful in guiding scientific research priorities.

Aggregation and the formation of ecosystem wide indicators

37. The development of meaningful aggregates and indicators based on the data organised following the accounting framework in the SEEA EEA is perhaps the most challenging aspect of the research agenda.

38. Ideally, aggregation for multiple ecosystem services or for multiple characteristics of ecosystem assets or across multiple ecosystems requires a significant understanding of the relationships between services and ecosystem assets and between ecosystems. A common assumption is that ecosystem services are separable and hence can be weighted together, potentially using prices as weights. Putting aside the difficulties of generating price weights (which is another aspect of the research agenda), the assumption of separability may not be appropriate. Consequently, the development of aggregates requires a more fulsome understanding of the relevant relationships. Research in this area will need to leverage from scientific work focusing on ecosystem relationships.

39. Research in this area should also consider the applicability of various techniques for the development of composite indicators and for the scaling and transfer of data within and across ecosystems. Scaling and transfer of data are particularly relevant for many ecosystem services since often observations on services are site specific, but are also an important consideration with respect to ecosystem assets.

40. The development of techniques in this area should be done in collaboration with the development of units and spatial areas since, ideally, the organisation of source data and the techniques of aggregation should be aligned.

III. Output/events in the near future

41. This section provides an overview of programme of work for the UNCEEA to be delivered in support of the testing and experimentation of the SEEA Experimental Ecosystem Accounting for the near future. In the response to the increasing demand of information on ecosystem services and conditions and their linkages to economic and other human activities, the UNCEEA will work on the development of tools to assist countries to test the SEEA Experimental Ecosystem Accounting. The output and events for the near future include:

(a) Preparation of a global strategy for testing the SEEA Experimental Ecosystem Accounting;

(b) Development of guidance document on compilation

(c) Development of training material

(d) Communication

(e) Forum of experts in ecosystem accounting

(f) Testing the SEEA Experimental Ecosystem Accounting in countries

A) Preparation of a global strategy for advancing the SEEA Experimental Ecosystem Accounting

42. A global strategy for advancing the SEEA Experimental Ecosystem Accounting will be developed to assist countries in the testing of the SEEA Experimental Ecosystem Accounting and to establish incrementally the technical capacity for compiling a set of ecosystem accounts with the appropriate scope, detail and quality. The strategy will, in particular build on the early experience of testing the SEEA-Experimental Ecosystem Accounting in countries; (i) identify linkages and contributions to relevant initiatives, platforms and processes; (ii) identify relevant data sources managed by national and international agencies and others; (iii) identify tools that can develop baselines for 2016; (iv) identify list of desired outputs, associated outcomes and timelines at the global and national level beyond 2015.

B) Development of guidance documents on compilation

43. The SEEA- Experimental Ecosystem Accounting provides the conceptual accounting framework for ecosystem accounting but it provides little guidance on how to collect, evaluate, transfer, scale, and interpret data in order to implement these accounts. Therefore, compilation guidance documents providing practical guidance to countries on how to embark on the SEEA Experimental Ecosystem Accounting will be developed to provide guidance to countries through a step-by-step process leading to the development of a programme of work with timelines and deliverables and appropriate coordination mechanism. It is intended to (i) help country expert and practitioners understand the available options for models and links to policy demand; (ii) explain, in particular, how to compile the data, including from non-conventional data sources (e.g. remote sensing); (iii) help determine which tools may be applied in various circumstances; (iv) include case studies from the country pilots.

C) Development of training material

44. To respond to the need for training in response to increasing demand in SEEA, training material covering the SEEA Experimental Accounting framework and module is currently developed to increase the capacity of national statistical offices and other agencies to test the SEEA Experimental Ecosystem Accounting and to help practitioner to improve their technical knowledge in SEEA and deepen their understand of the accounting principles and basic data needs for compiling ecosystem accounts. A blended learning combining online training and a follow up phase is currently planned. A standard set of presentations for common use will be developed as part of this exercise.

D) Outreach and communication

45. The need to develop a communication strategy for SEEA implementation at the international and national levels has been stressed repeatedly. The need to engage professionals to ensure that a clear and effective message is developed to obtain the buy-in of various stakeholders has also been highlighted. Efforts are under way to engage communication experts to assist with the development of a communication strategy.

46. Communication strategy for the SEEA Experimental Ecosystem Accounting as part of the broader communication programme of the SEEA will be developed to (i) determine how to profile ongoing work in partner countries and larger group of associate country partners online; (ii) maintain community of practice informed of progress on implementation of project as well as natural capital accounting news; (iii) profile in relevant fora and workshops; (iv) develop information material; (v) share experiences and good practices, and lessons learned with broader country groups, through regional or sub-regional workshops.

E) Forum of experts in ecosystem accounting

47. A forum where experts will meet in person on a yearly basis will be established and scheduled for December 2014. The forum will consist of experts from government, academia, NGO and other communities and discuss progress of testing of the SEEA Experimental Ecosystem Accounting and the research agenda as defined by the UNCEEA. The work of the group would lead to a large, multi-stakeholder, international conference bringing together various stakeholders and communities proposed to be held in 2016 for (i) showcasting advances in research and testing on the SEEA-Experimental Ecosystem Accounting; (ii) pointing to the potential for more definite methods and guidelines to be developed; (iii) providing recommendation for the revision of the SEEA Experimental Ecosystem Accounting. The Forum is scheduled for December 2014.

48. An international meeting on linking SEEA Experimental Ecosystem Accounting with business accounting, data revolution and sustainable development will be held in November 2014. This meeting will bring together experts and practitioners from a number of areas (ecosystem accounts, business accounts, national statistical offices, users of accounts from different policy departments) to discuss the role of ecosystem accounts within the context of the data revolution, how to best use the ecosystem accounts to support sustainable development and how the ecosystem accounts can be useful to business accounts.

F) Testing the SEEA Experimental Ecosystem Accounting in countries

49. UNSD, UNEP and CBD are launching a project on “Advancing the SEEA Experimental Ecosystem Accounting in pilot countries” in 2014. The project, financed by the Government of Norway, aims at assisting pilot countries to make an assessment of policy priorities and data availabilities and develop a programme of work on the testing of selected modules of the SEEA Experimental Ecosystem Accounting through building capacity and establishing inter institutional cooperation in seven pilot countries. The project has a short duration with completion date of 31 December 2014. It is expected the assessment and programme of work will serve as input in the next phase of the project. The initial phase of the project runs until 31

December 2014, with a possible extension to 2015 and 2016, subject to the availability of funding

50. In 2014, it can be expected that an assessment of policy priority, data availability (within the country or from global sources) as well as an assessment of existing tools/models being applied or that could be applied will be undertaken. The project will be carried out in 7 pilot countries, which is selected on the basis of considerations including the existence of a strong statistical system and political will to pilot the SEEA Experimental Ecosystem Accounting. It is expected that the assessment and programme of work will serve as input in the next phase of the project. Beyond the 7 countries, the project will engage with a larger group of 'associate country pilots'. Further information can be found on the concept note of the project.