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**Towards a medium-term programme of work for the SEEA-
Experimental Ecosystem Accounting**
(for discussion)

Towards a medium-term programme of work for the SEEA-Experimental Ecosystem Accounting

A. Background

1. In February 2013, the UNSC considered a draft research agenda to advance the experimental accounting framework described in SEEA Experimental Ecosystem Accounting. This note uses that document as a starting point and considers the potential priorities for research and describes the ways in which the research agenda might be managed and advanced.
2. The research agenda is broad and while most areas are inter-linked it seems unlikely that all areas can be taken forward at the same pace and at the same time. Further, the different areas of research will require different types of work to take them forward. For example, some will require testing of definitions and classifications in different country situations, some will require more detailed literature review and ongoing academic inquiry, some will require very specific conceptual development, and others are more likely to be advanced by simply being aware of ongoing developments in other fields and ensuring appropriate co-ordination.
3. Prioritising the research agenda therefore requires not only an assessment of what areas of research are important in the development of ecosystem accounting, but also of the different approaches that might be required and the potential for short, medium or longer term progress.
4. A general aspect of taking forward the research agenda is that all of the work should be completed in the context of finding methods that are relevant for analysis of multiple ecosystem types. It is for this reason that it is not proposed that the research agenda be structured by ecosystem type – for example, to examine methods for forests separately from river basins. It is undoubtedly the case that the research agenda will be informed by experts in particular ecosystem types. However, since the ambition is to develop accounts that cover whole regions and countries, the cross fertilisation of ideas and solutions will ideally support consistency of understanding and implementation at broader scales of assessment.
5. In that context the following research priorities are proposed and explained. A later section discusses how the work on advancing these priority areas might be best managed and governed.

B. Short – medium term priorities

a. Delineation and classification of land and spatial units

6. 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.
7. 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.

8. 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.
9. 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.

b. Methods for measuring different ecosystem services and ecosystem condition (including connection to accounting for biodiversity and carbon)

10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.

17. 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 structure of accounts, indicators, maps

18. 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.
19. 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.
20. 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. Methods for geo-spatial linking of environmental and socio-economic data

21. 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.
22. 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.
23. 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.

e. Valuation methods for ecosystem services

24. 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.

25. 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.
26. 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.
27. 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.

C. Medium – longer term priorities

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

28. 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 an 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.
29. 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).
30. 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.
31. 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.

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

32. 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.

33. 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.

h. Aggregation and the formation of ecosystem wide indicators

34. 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.
35. 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.
36. 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.
37. 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.

D. Management and governance of the research agenda work programme

38. There are a number of issues concerning the management of the research agenda for ecosystem accounting that require consideration of somewhat different or extended arrangements than are commonly used to advance statistical research agendas at the international level.
39. First, research and development of ecosystem accounting is not being led by national statistical offices. Rather there is a broad coalition of governmental agencies, academic disciplines, corporate initiatives and users with different interests and connections. Part of the goal in advancing the research agenda is to ensure that as many different perspectives as possible are engaged.
40. Second, the state of knowledge in the area of ecosystem accounting is not as developed as in many statistical areas and hence a more investigative, broad ranging process needs to be managed rather than targeting a pre-determined list of specific issues. At the same time for management to be effective it is recognised that defining a first round of research questions must be an important initial focus.
41. Third, while the state of knowledge is developing there are many measurement projects currently underway that cover various parts of the ecosystem accounting framework. It will therefore be necessary to ensure engagement with these projects as far as possible since the validation of the framework as a meaningful and useful tool is an important

broad objective of adopting the research agenda. These projects are also likely to provide an important resource for advancing understanding of specific research questions.

42. With these considerations in mind, the following are initial thoughts on establishing a process or set of arrangements for advancing the research agenda.
 - a. Establish a small steering committee responsible for (i) guiding and managing progress on the research agenda, (ii) providing a focal point for communication and engagement on the research agenda, and (iii) reporting to UNCEEA and UNSC. The steering committee would consist of the chair of the different technical expert groups and a few countries. A draft terms of reference for such a steering committee has been included as an annex.
 - b. Convene a forum of experts in ecosystem accounting building on the success of previous meeting of experts in Copenhagen, London and Melbourne. This forum should form a base to continue to engage interested members of the government, academic, NGO and other communities on a regular basis through face to face meetings and information exchange. It is also suggested that this forum link closely with the London Group to ensure that the development of ecosystem accounting is well-coordinated with developments in the SEEA CF and the areas are seen as complementary.
 - c. Establish a number of targeted technical expert groups (TEG) each covering a particular aspect of the research agenda. In the first instance it is anticipated that five or six TEG might use existing groups that may have overlapping programme of work (e.g. Expert Group on Geo-spatial information, WAVES/PTEC, TEEB, EU MAES, Corporate initiatives e.g. UNEP-FI Natural Capital Declaration, etc.). Each TEG would agree on a programme of work and timeline for deliverables. A preliminary description of possible TEGs is provided in an annex. It is proposed that the scope of each TEG as well as possible membership which would need to include statistical as well as the subject matter experts be advanced through the coming months including through engagement with the proposed forum of experts on ecosystem accounting mentioned above (b).
 - d. Identify an initial list of relevant testing opportunities at national and international level. Ensure ongoing management of this list and connection to the research program.
 - e. Allocate some resources to support conceptual and review work. Using existing mechanisms would ensure that existing resources may be used to ensure both the co-ordination of the group and also to actively undertake relevant research and review such that the findings can be discussed by the TEG members. Existing mechanisms would need to agree to include the work on SEEA Experimental Ecosystem Accounting as part of their programme of work. In addition, it seems likely that resources would be needed for the co-ordination of the steering committee itself and ensuring links between the different TEG and with associated programs and projects are maintained.
 - f. Build towards holding an international conference bringing together the various communities contributing to the various TEGs. The International Conference could build on existing conferences and events and have a dedicated programme on monitoring.

The following timeframes are suggested for the establishment of the research agenda process.

By September 2013 Establish steering committee and forum of experts

By November 2013	Establish TEGs including identification of various groups having related programme of work and election of TEG chairperson, articulation of initial research questions.
By November 2013	Hold a meeting of forum on ecosystem accounting as part of process of establishing the TEGs. A possible timing is back-to-back with the London Group meeting to be held in London 12-14 November.
By May 2014	Each TEG to provide an interim, public, report of progress. These reports should be considered by UNCEEA.
By October 2014	Each TEG to provide a report on key findings and recommendations for discussion among relevant experts.
By October 2015	Hold a large, multi-stakeholder international conference showcasing advances in research and testing on ecosystem accounting and pointing to the potential for more definitive methods and guidelines to be developed, possibly using existing events and conferences.

E. Questions for discussion

1. Do you have any comments on the proposed short medium-term priorities for the research agenda on SEEA Experimental Ecosystem Accounting?
2. Do you have any comments on the proposed medium longer term priorities
3. Do you have any comments on the proposed governance of the research agenda work programme? In particular on
 - a. Establishing a steering committee?
 - b. Setting up of Technical Expert Groups using existing mechanisms but with agreed timelines and programme of work?
 - c. Using the Forum for discussing the work of TEGs and International Conference to provide a broad forum for discussion and consultation?

Annex 1: Possible Technical Expert Groups (TEG)

1. Geospatial data, land classifications and units (strong links with Geo-spatial expert group established by the UN Statistical Commission)
2. Physical measures of ecosystem services and ecosystem condition
3. Valuation techniques and approaches to aggregation (strong links to WAVES PTEC and TEEB)
4. Presentation and policy linkages (strong links to WAVES PTEC and TEEB)
5. Integrated accounting issues (e.g. degradation, and links to wealth accounting) (strong links with the London Group on Environmental Accounting)

Annex 2: Draft Terms of reference for research agenda steering committee

Introduction

The Ecosystem Accounting Research Steering Committee is established to provide general oversight and direction to the program of work on research into ecosystem accounting that is based in the SEEA Experimental Ecosystem Accounting. A draft research agenda for ecosystem accounting was endorsed by the United Nations Statistical Commission at its forty-fourth session in February 2013 and the Committee of Experts on Environmental-Economic Accounting (UNCEEA) was tasked with putting place the appropriate arrangements to advance the research agenda.

Mandate

The mandate of the EARSC is to:

- (a) Provide a co-ordinating structure and focal point for research into ecosystem accounting within the general framework provided by SEEA Experimental Ecosystem Accounting.
- (b) Make recommendations on the allocation of resources into various research projects
- (c) Oversight the work of various technical experts groups (TEG) on specific research areas, and ensure co-ordination between the TEG as appropriate.
- (d) Promote the SEEA framework and the associated research and ensure sound relationships with other similar initiatives and projects
- (e) Facilitate relevant meetings and conferences to advance the research agenda

Governance

The Steering Committee is established under the auspices of the UNCEEA with regular oversight from the Bureau of the UNCEEA and secretariat support from UNSD. Regular reports are provided to the Bureau and the UNCEEA.

Members of the Steering Committee would include chairs or representatives of the various groups whose programme of work also covers the programme of work of TEGs and selected national statistical offices with expertise in the subject matter.

The Steering Committee would elect, among its members, the chair for a period of 3 years renewable for one term. The role of the Chair would be to develop, in close cooperation with the Secretariat, an annual work programme for the Committee, monitor progress of the various components of the programme and set the agenda for the next meeting. UNSD would serve as the Secretariat of the Steering Committee.

Initial work program

The initial focus of the Steering Committee should be on:

- (a) Establishing membership and work programs of relevant Technical Expert Groups
- (b) Establishing relationships with other key research initiatives and projects on ecosystem accounting in order to ensure that the programme of work of these groups covers the programme of work of the TEGs
- (c) Securing resources for research into ecosystem accounting

(d) Communicating with relevant experts in ecosystem accounting, including holding a meeting of experts in the latter months of 2013

(d) Ensuring co-ordination in the work of the TEG

Review

These terms of reference for the mandate and governance of the Steering Committee should be reviewed by the end of 2014 taking into account overall advances in the research program and the effectiveness of the management arrangements.