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Advancing Environmental-Economic Accounting - National Program of Work Template

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Contents

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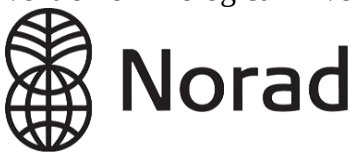

1 Executive Summary

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2 Introduction

There is little doubt that at global, national and local scales, humanity is pushing against a web of environmental boundaries. This message has been growing clearer and clearer through multiple scientific, social and economic studies (MA (2005), Rockstrom (2009), TEEB (2010), Cardinale et al (2012)). At the broadest level, the risks associated with breaching environmental boundaries are at the centre of concerns about sustainable development and, given the inter-connected nature of our economies and societies, environmental concerns are relevant to all people in all countries. It is unsurprising that the demands from governments, international agencies and the general public for a response have been growing stronger and stronger (Rio +20, post-2015 development agenda).

One barrier in working towards the appropriate responses is the lack of well accepted, broadly based and globally integrated information on the nature of humanity's connection to the environment – our dependence on its services and our impact on its condition and future capacity to generate these services and hence sustain future human wellbeing. We have much integrated information concerning national and global economic activity where, via the standard economic accounts and GDP, we have a strong understanding of our combined economic performance and history. On the social side, while the information is more diverse, we have relatively standardized approaches to assessing changes in population, education and health, among many other variables and a reasonably common understanding of the links between economic and social activity.

However, on the environmental dimension our information set is far more disparate and a common understanding of the relevant issues is undeveloped. While we have much scientifically based data it is often discipline specific; based on observations in specific areas; not scalable to national or global level; measured using different methods and definitions; and most often, not presented in reference to economic or human activity. Given these characteristics it is not surprising that public and academic discourse on environmental matters has been fractured and lacking momentum. The development of integrated environmental information is clearly needed.

Both the SEEA Central Framework and SEEA Experimental Ecosystem Accounting use the accounting concepts, structures, rules and principles of the System of National Accounts. The SEEA Central Framework starts from the perspective of the economy and its economic units and incorporates relevant environmental information concerning natural inputs, residual flows and associated environmental assets. In contrast, SEEA Experimental Ecosystem Accounting starts from the perspective of ecosystems and links ecosystems to economic and other human activity. Together, the approaches provide the potential to describe in a complete manner the relationship between the environment, and economic and other human activity.

SEEA Experimental Ecosystem Accounting is a synthesis of the current knowledge in this area and can provide a starting point for the development of ecosystem accounting at national or sub-national levels. While the SEEA Experimental Ecosystem Accounting does not give precise instructions on how to compile ecosystem accounts, it represents a strong and clear convergence across the disciplines of ecology, economics and statistics on many core aspects related to the measurement of ecosystems and thus there is a strong base on which further research and development can build.

This report is set out in three parts, firstly a global and country rationale for undertaking environmental-economic accounting is provided with an outline of the building blocks and methodologies needed for its implementation.
Secondly, a brief overview of the building blocks and methods needed to implement the NP-AEEA is presented. The aim of this section is to provide generic guidance on a standardised approach based on current frameworks, system, methods and guidance and training material.
Thirdly, the details of a national program of work are outlined following an investment logic framework (ILF). The focus on the ILF is to identify what work is required in order to achieve the objectives and translate them into outcomes for the country. This section is specifically tailored to the needs of country using the building blocks and methods outlined in part two. The use of an ILF provides detail on the work program participation requirements (institutional needs), enabling factors (resources, systems, processes), the work program (a series of actions described as work phases over time), outputs (a clear set of deliverables), impacts (what will change substantively) and finally the outcomes which are linked to the objectives of the country.
The advantage of providing the three-part approach to developing an NP-AEEA is to identify commonalities across countries to target international research and enable better coordination and collaboration in sharing best practices between countries. The activities and priorities for each country's NP-AEEA identified in part three will be used in the future to focus resources, research and training efforts.

3 Environmental-Economic Accounting Rationale

There are a number of global and national drivers which provide the rationale for the development of an environmental-economic accounts program of work.

3.1 Global Perspective

Seizing the opportunities and facing the new challenges requires greater efficiency and integration of the functions of national statistical systems through modernizing the institutional environment and the statistical production processes. The traditional way of organizing and managing the statistical system is not appropriate for making the transition to a modern integrated national statistical system that can meet the requirements in terms of producing and reporting data for the post-2015 development agenda and providing information for decision-making.
In 2013 the Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development called for a data revolution for sustainable development, with a new international initiative to improve the quality of statistics and information available to citizens. The report states, 'We should actively take advantage of new technology, crowd sourcing, and improved connectivity to empower people with information on the progress towards the targets'.
The report also noted better data and statistics will help governments track progress and make sure their decisions are evidence-based; they can also strengthen accountability. The Panel further proposed that, in future – at latest by 2030 – all large businesses should be reporting on their environmental and social impacts, and governments should adopt the UN's System of Environmental-Economic Accounting with help provided to those who need help to do this.
In 2013 the Guidelines on Integrated Economic Statistics was published highlighting the need to move from the traditional silo approach to a more integrated approach to the production of statistics matched by the reform of the institutional arrangements, including access and use of admin-

istrative sources for statistical purposes. It recognised the significance of an integrated approach for increasing the consistency and coherence of economic statistics in order to enhance the quality and analytical value of the information the statistics contain for short-term, annual and benchmark economic statistics and macroeconomic statistics. The guidelines present the integration framework of economic statistics based on current best practices for the entire spectrum of statistical agencies, including countries with centralized and decentralized statistical systems and countries at different stages of economic and statistical development.

Integrated economic statistics are a set of economic statistics that depict a consistent and coherent picture of economic activities for policy, business and other analytical uses. In addition, a number of recent emerging initiatives on the measurement of sustainability, social progress and well-being have raised the need for integrated and coherent official statistics to shed light on those complex issues, and therefore pose challenges to statistical offices to produce integrated economic, environmental and socio-demographic statistics.

In 2014 the report 'A world that counts – mobilising the data revolution for sustainable development[1]' published by the IEAG[2] calls for a better coordination of statistical programmes developed by international organisations. The recent "Synthesis Report" published by the UN Secretary General has picked up the IEAG recommendation of considering the "statistical capacity building" dimension as an important part of the new investments for development. Moreover: *"all countries are encouraged to adopt their own national sustainable development financing strategies".*

3.2 Country Perspective

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3.3 Environmental-Economic accounting needs assessment

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4 NP-AEEA – High Level Outcomes

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5 Program of work building blocks

This section and the following section on Methodologies provide a brief overview of the building blocks and methods needed to implement the NP-AEEA is presented. The aim of this section is to provide generic guidance on a standardized approach based on current frameworks, systems, methods and guidance and training material.

The integrated approach to environmental-economic statistics is supported by three main building blocks: the SEEA CF and SEEA EEA as the conceptual frameworks, supporting institutional arrangements and an integrated statistical production process[3]. The building blocks are interlinked and mutually reinforcing structures for setting up integrated statistical systems.

An important aspect of the building blocks is their link to needs assessment and high level outcomes sections above. The building blocks with be combined the NP-AEEA – Investment Logic Framework section below. The building blocks include:

1) Mainstream the environmental-economic accounting

[1] http://www.undatarevolution.org/

[2] Independent Expert Advisory Group on a Data Revolution for Sustainable Development.

[3] The building block approach presented here is an application of the process presented in the Guidelines on Integrated Economic Statistics (http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf).

2) Rationalise and integrate institutional arrangements
3) Integrate the data, tools and statistical production process
4) Ecosystem Accounting Experimentation[4]

Blocks 1-3 are the core and required to achieve the overall aim and block 4 captures the aim of continuous improvement including research and development, testing and experimentation to build on SEEA EEA. The building blocks are combined with the Generic Statistical Business Process Model (GSBPM[5]) shown in Figure 1 below. The GSBPM describes and defines the set of business processes needed to produce official statistics. It provides a standard framework and harmonised terminology to help statistical organisations to modernise their statistical production processes, as well as to share methods and components. The GSBPM can also be used for integrating data and metadata standards, as a template for process documentation, for harmonizing statistical computing infrastructures, and to provide a framework for process quality assessment and improvement.

Figure 1 Generic Statistical Business Process Model (GSBPM).

Institutional Framework

Quality Management / Metadata Management

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Specify Needs	Design	Build	Collect	Process	Analyse	Disseminate	Evaluate

Sub-processes to support the delivery of each phase

Institutional Framework

The GSBPM should be applied and interpreted flexibly and used to provide guidance. It is not a rigid framework in which all steps must be followed in a strict order; instead it identifies the possible steps in the statistical business process, and the inter-dependencies between them.
Although the presentation of the GSBPM follows the logical sequence of steps in most statistical business processes, the elements of the model may occur in different orders in different circumstances. Also, some sub processes will be revisited a number of times forming iterative loops, particularly within the Process and Analyse phases.
GSBPM should therefore be seen more as a matrix, through which there are many possible paths. In this way the GSBPM aims to be sufficiently generic to be widely applicable, and to encourage a standard view of the statistical business process, without becoming either too restrictive or too abstract and theoretical.
The building blocks are expanded on below followed by a discussion of methodologies to support their implementation.

[4] Experimentation has been added as an additional building block in support of SEEA EEA and the experimental nature of work needed.
[5] http://www1.unece.org/stat/platform/display/GSBPM/GSBPM+v5.0

5.1 Mainstream the environmental-economic accounting

The fundamental objective of this building block is to communicate with and engage national and international partners for the implementation of environmental-economic accounts. The foundations of the GSBPM are quality management and metadata management frameworks of which the SEEA is one.

This building block aims to mainstream the environmental-economic accounting frameworks, and structure it in stages of advancements, that can be implemented and monitored. The framework builds on SNA principles but is extended based on ecological foundations, and under the umbrella of SEEA-CF and SEEA-EEA. Novel concepts and ideas need to be mainstreamed for the purposes of experimentation and familiarisation across government agencies and academia. It is an umbrella block of work that both guides the development of the others and is necessary for their success.

Building and publishing environmental-economic accounts relies on a number of related processes, all geared towards the advancement of organizational design (institutions), technical (data collection and processing), scientific discovery (generating new data) and ultimately an improved understanding of ecosystem values (as services and assets).

These processes combine available knowledge from many disciplines and agencies including national statistics and accounting, management of land, water, ecosystems and biodiversity and studies of key ecological processes to name a few. All these require clear communication tailored to their needs so mainstreaming, adaptation and application of the available knowledge can occur.

5.2 Rationalise and integrate institutional arrangements

The "One-UN" process recommends that countries move towards one integrated National Statistical System. That is, all agencies should work within the same quality guidelines and seek opportunities for reducing duplication of effort by improving coordination in statistical production.

Clearly for any new system, process or framework that impacts so many agencies to be adopted by government requires very careful assessment of current institutional arrangements and possible impacts on those arrangements. The GSBPM recognises this as a condition to achieving adoption, funding, monitoring and enforcement of any new system. Further, it can be applied to all stages in the process and, at each stage, institutions and agencies will understand clearly their roles and responsibilities.

There are many agencies involved in the collection and publication of data. In many instances, the need has arisen from within individual agencies to meet their reporting and policy requirements. For instance, an environmental agency may focus on the classification and measurement of important ecosystem assets in the landscape whereas an agricultural agency will focus on the landscape for economic reasons. Both approaches are valid in their own right, but the aim of environmental-economic accounting is to build an integrated set of information to support decision making and trade-offs. Further, the movement towards a more integrated and streamlined processes for the collection and publication of data provides opportunities for lowering the overall cost and increasing its use and efficacy.

This does not imply having fewer agencies, but it does require a rationalising of the standards used for data collection and greater formal integration of the systems to share data in real time where appropriate. It is important to recognise that individual agencies have the greatest strength in understanding specific subject areas but are not necessarily expert in statistical production systems – this is the role of national statistic offices.

5.3 Integrate the data, tools and statistical production process

Environmental-economic accounting is a transdisciplinary activity. That is, the concepts and tools require a common language between disciplines. Integrating existing concepts and tools that have been developed for specific purposes, will require adaptation to a common framework, provided by the SEEA.

This building block links to GSBPM Phases 3, 4, 5 and 6 and addresses the main challenges of data gaps, scientific credibility, comparability and data uncertainties that can be bridged by building on the existing data systems, methods and tools. Building environmental-economic accounts provides new challenges for both economic and ecological data collection and collation. There is a need to harmonise concepts and rationalise the principles of both disciplines in order to maintain the integrity of both areas. In many instances there is going to be a need to extend or modify current paradigms in order to facilitate an integrated outcome.

Many of the tools and infrastructure required already exist however they operate on different platforms and standards making integration costly in both timeliness and resources. In the medium to long term the aim is to leverage current systems that offer the flexibility needed to support future demands for integration. Key to achieving this will be the review and assessment of current systems and approaches following by the development of a strategic investment plant. Further, it is also possible to achieve change through further research and experimentation.

5.4 Ecosystem Accounting Experimentation

There is much uncertainty in the science and its application in *ecosystem accounting* within the broad umbrella of environmental-economic accounting. A cost effective approach to determining the best pathway is to experiment on a number of fronts at the same time whilst keeping in mind the long term aim of full integration and publication at the national level. Testing the SEEA-EEA is part of a global experiment to develop effective ecosystem accounts. In this respect, the experience of all countries will contribute to this experiment.

Experimentation also serves as important vehicle for achieving the mainstreaming of ecosystem accounting. During the experimentation phase agencies less familiar with ecosystem accounting can be involved and grow to understand how demands for data are changing and how the accounts can be tailored to their policy needs.

6 Methodologies

This section on methodology relies heavily on the current and new material being produced that will support the ongoing production of environmental-economic accounts. This section provides a brief overview of some of the methodological approaches and options that may be considered when formulating a program of work to that delivers on (achieves) the building blocks and the longer term aim of country.

The advantage of having common methodological frameworks is to enable coordinated progress towards advancing environmental-economic accounting.

6.1 Conceptual frameworks for environmental-economic accounting

If agencies outside the national statistical institutes are involved in the compilation and dissemination of official statistics, then for the creation of integrated system of statistics, it is necessary to create partnerships. The first step is to engage all agencies in the discussion of the necessity and the mutual gains of such a system. This can only be done at the level of the top management. The next step is agreement on the possible new roles and responsibilities of the agencies in the new systems.

When general agreement on the scope of the integrated systems of statistics has been reached, a detailed design of the whole chain of all processes, inputs, intermediary products, outputs and all interdependencies can be made. The process will be iterative, in that pilot accounts will be built and the design will be revised based on experience of the pilot. Initial design and testing will require attention to:

- Working groups
- Advocacy
- Workshops – policy, sensitisation, etc.
- Demonstrations
- Feasibility
- Proof of concept – experimentation, structural change,
- Training sessions
- Customised communications plans

6.2 Institutional framework

The Institutional framework should facilitate exchange of knowledge, expertise and even experts between the partners. The creation of the integrated systems of statistics should be the shared responsibility of the top management of all agencies involved. When agreement on the more detailed programme, the roadmap and the specific roles and responsibilities has been reached, then periodic high level meetings may be very fruitful to discuss progress, solve bottlenecks, strengthen commitment and ensure the outputs satisfy the needs of the stakeholders.

Designing, developing and implementing an integrated system of statistics is a large programme and requires extra provisions for a good programme management. For the programme and all the sub-programmes, programme boards and programme managers are needed. The programme boards are chaired by the senior manager of the domain involved. If the (sub-) programme goes beyond the borders of organizational units, it is preferable to have a senior manager as chair.

The programme boards and the programme managers may be supported by a small bureau in operational and administrative tasks. The programme boards consist of the chair, the programme managers and directly involved management. All members should seek to have a mandate to make decisions within the scope of the (sub-) programme. Elements that may be adapted to conditions in ….

6.3 Environmental-Economic accounts production process

A part of the GSBPM design phases 3-4 is to understand the mechanics on delivering on a new system. This includes (but is not limited to):

“Build” and “collect” phases:

- Data collection (or generation – through sampling, inventories/surveys, detailed process-modelling, remote-sensing applications, course-process modelling);
- data harmonization (processing, quality control, imputation);
- accounting inputs estimation;
- accounting outputs estimation
- accounts validation

The program of work is an opportunity to adapt these elements to the needs of each country for all the phases of GSBPM.

6.4 Research, development and experimentation.

An important step is to carry out extensive experimentation to test whether methods and concepts will work in practice. The SEEA-EEA provides a core framework, but has not yet developed to the point where all methodological issues have been resolved and universal compilation guidelines can be provided. Issues that require further experimentation include:

Ecosystem accounting methodological issues:

- Accounting classifications[6], with standardised item definitions and measurement methods.
- Country specific classification of ecosystem assets
- Units for ecosystem accounting
- Environmental indicators and aggregates
- Upscaling and downscaling
- Valuation
- Validation data and specific quality criteria need to be developed to formally track progress

These methodological issues will be addressed in collaboration with an international community of practice on ecosystem accounting. This can be enhanced by considering the pilot accounts as experiments, in which concepts, classifications and methods are tested and improved in successive iterations. Different options, for example, for classifications or data sources could be applied in parallel and evaluated.

Accounting architecture

It is very important to check the timely availability of the micro-data form the primary and secondary sources and the time available for the processing. A part of the experimentation should be a check of the design with the business architecture and the software architecture to get an expert view on the consequences for the IT-environment (running time, storage etc.). If the experimentation shows bottlenecks, one must make sure that they can be solved (for acceptable costs) before the next phase can start. Based upon the (adapted) design, the experimentation, the estimated costs and benefits a decision must be made whether the programme is feasible and acceptable for all involved partners.

Information and decision support tools and architecture

Outside of traditional statistical systems there are many systems in place for the collection and collation of data for decision making. These include geographical information systems, biophysical models, agency data based, business and land registers and taxation registers.

Many of these are amenable to producing data that can be used for environmental-economic accounting but may require further work or adaptation. This area of experimentation is very important because there are significant opportunities to leverage of current system and save resources.

It is important that experimentation has clear links with policy and decision making in order to demonstrate the benefits of change. Examples may include:

- The specification of ecosystem assets and services used in payments for ecosystem services programs[7]
- Land offset programs for environmental purposes[8]
- Land use change programs for carbon sequestration[9]

[6] Accounting classification enables the translations between existing classifications

[7] http://www.depi.vic.gov.au/environment-and-wildlife/environmental-action/innovative-market-approaches/ecomarkets

[8] http://www.trustfornature.org.au/

- Trade-offs between optional uses of land in land use planning
- Setting priorities for conservation areas

Moving from experimentation to (national) production

In some instances there has been informal experimentation in data collection, analysis and dissemination to meet some policy need. Under the GSBPM it can be assumed that Phases 1 and 7 are being undertaken but are not linked to Quality Management / Metadata Management – for instance many countries currently produce environmental reports on an ad hoc basis. Adopting the GSBPM approach requires formalising the other phases

At the national level there are many agencies with national data coverage. However it is often incomplete or inconsistent in its application due to a lack of resources and a clear medium to long term program of work. Often these are opportunities that can be described as the "low hanging fruit" (low cost and easy to take forward in the current national policy context). These include very well established local applications of data collection; collation and reporting that can be easily rolled out at the national level. Alternatively, they may be existing national approaches that need strategic investment to bring them up to an acceptable and consistent standard. It is important that the experimentation in ecosystem accounting is informed by national needs and vice versa. Often experiments can save money and time if conducted appropriately to inform the needs for a national approach.

7 NP-AEEA – Investment Logic Framework (ILF)[10]

The ILF provides a structured approach to analysing the suite of optional activities that may be undertaken to achieve the desired outcomes (See Figure 2 below). The ILF should not be seen as a series of steps to be followed consecutively but as a key elements that are essential to the effective delivery of outcomes.

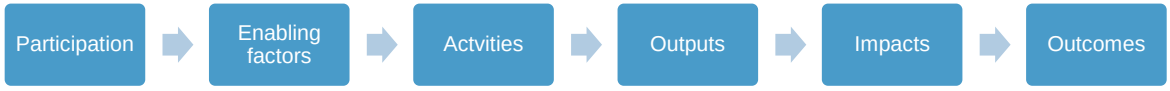

Figure 2. Investment Logic Framework

Participation & Enabling Factors – it is important to identify those that need to participate and start engagement early. Participation is central to the mainstreaming of environmental-economic accounting and achieving buy-in and engagement. Often an assessment of participation and enabling factors occur together. Enabling factors generally require some type of change which participants have to undertake and or adopt before statistical development activities commence. It may also require the allocation of resources in order to achieve an enabling factor so it is important for participants to be very clear from the outset what their involvement may mean.

Activities & Outputs – the program of work is made up of series of activities that lead to a number of outputs. Activities are elements of work and outputs are visible products of that work. In order for one output to be achieved may require several activities. It is important to ensure that each activity can be linked to an output to ensure the relevance and timing of activities and finally outputs can then be linked to impacts and outcomes.

Impacts & Outcomes - Impact evaluation measures the difference between what happened with the programme and what would have happened without it. It answers the question, "How much (if any) of the change observed occurred because of the programme or activities?" Outcome

[9] http://www.un-redd.org/aboutredd/tabid/102614/default.aspx

[10] Appendix XXX provides further detail on how to take elements of the ILF

evaluation measures the programme results or outcomes. These can be both short and long-term outcomes.

7.1 Participation & enabling factors

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Coordination with development partners

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7.2 Enabling factors

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7.2.1 Planning and coordination

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7.3 Activities and Outputs

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7.3.1 Building priority accounts based on policy needs

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7.3.2 Capacity building

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7.3.3 Human resource capacity

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7.3.4 Infrastructure

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7.3.5 Development of key aggregates

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7.4 Impacts & Final outcomes

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Investment Logic Framework