System of Environmental-Economic Accounting: Experimental Ecosystem Accounts:
Diagnostic tool for Strategic planning[1]

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WHAT IS THE PURPOSE OF THIS DIAGNOSTIC TOOL?

This Diagnostic Tool facilitates the introduction of strategic planning for advancing the implementation of SEEA Experimental Ecosystem Accounts (SEEA-EEA). It is intended to guide an early-stage, structured conversation among stakeholders. The tool assists with linking the improvement of foundational information on the environment and the economy to policy and decision making. When using the tool, it is important to include potential *producers*, *users* and *supporters* in the conversation.

The tool has been designed for use in a workshop setting. However, iteration will likely be required to achieve consensus in response to the tool's queries. For example, a small core group may draft initial responses and then present them to a larger group for discussion.

The Diagnostic Tool is organised along the seven steps to strategic planning of the SEEA-EEA:

1. POLICY OR STATEMENT OF STRATEGY: Document **national priorities** related to the environment, sustainability and the green economy, including the condition of key ecosystem assets and flows of ecosystem services from them.
2. INSTITUTIONS: Identify the **stakeholders** including producers and users of related information (statistics, tools, accounts, etc.), but also other groups that can benefit from improved information. As well, identify **institutional mechanisms** currently in place to make decisions related to the environment, sustainability and green economy.
3. KNOWLEDGE: Identify **key national data sources** that can be used as a basis for SEEA-EEA.
4. PROGRESS: Understand **what progress has already been made** in SEEA-EEA.
5. CONTEXT: Identify **related statistical development activities** that could benefit SEEA-EEA initiatives.
6. PRIORITIES: Determine the **priorities for action** to develop selected SEEA-EEA accounts.
7. CONSTRAINTS AND OPPORTUNITIES: Assess **constraints to better implementing** specific SEEA-EEA accounts and opportunities for **immediate actions** to address these constraints.

Since achieving consensus is an iterative process, the steps in this diagnostic can be taken in any order.

See **Appendix 3** for links to related materials.

[1] This document is based on **Development of a Diagnostic Tool for the SEEA Central Framework** supported by the World Bank WAVES program http://unstats.un.org/unsd/envaccounting/ceea/meetings/UNCEEA-8-Bk2.pdf. This was originally adapted from the IIED/UNEP-WCMC **Biodiversity Mainstreaming: A Rapid Diagnostic Tool** (http://pubs.iied.org/G03694.html) and further adapted for ecosystem accounting under the **Advancing Natural Capital Project** http://www.teebweb.org/areas-of-work/advancing-natural-capital-accounting).

WHAT IS SEEA?

Critical global policy demand to advance SEEA-EEA accounting is expressed in the Strategic Plan for Biodiversity 2011-2020. Within the strategic plan, **Aichi Target 2** commits governments to integrate, by 2020, biodiversity values into national and local development and poverty reduction strategies and planning processes, and to incorporate them into national accounting, as appropriate, and reporting systems. This objective is repeated in Target 15.9 of the Outcome Document – **Open Working Group on Sustainable Development Goals**.

In support of natural capital accounting, the **System of Environmental-Economic Accounting 2012 Central Framework** (SEEA-CF) was adopted by the United Nations Statistical Commission (UNSC) at its 43rd session in 2012 as the international statistical standard for environmental-economic accounting. At its 44th session in 2013, the UNSC endorsed SEEA **2012 Experimental Ecosystem Accounting (SEEA-EEA)**. Further, the Commission encouraged the use of SEEA-EEA by international, regional agencies and countries wishing to test and experiment in this new area of statistics. Together these technical documents provide a comprehensive platform for the development of comparable measures of the relationship between the environment and the economy across the world and support mainstreaming of the full range of ecosystem services and benefits in standard macro-economic accounts and indicators.

SEEA provides a coherent and integrated framework for collecting, organizing, analysing, presenting environmental data and relating it to economic and social data. It adheres to the principles of the **System of National Accounts (SNA)**, and expands its scope by:

- providing standard terminology, definitions and classifications for environmental-economic statistics,
- including measures of the physical stocks of natural capital and their values,
- adding physical measures of resource flows and natural capital (land, metals and minerals, timber, energy, water, fish, air emissions, water emissions, solid waste, protection expenditures),
- adding ecosystems and their services, including biodiversity and carbon in the SEEA-EEA, and
- linking economic activities (producers and consumers) to societal benefits.

Experience has shown that SEEA implementation works best when:

- Producers and users of information collaborate to define their needs and opportunities,
- Organisations actively link the production and use of information to reporting the performance of policies,
- Organizations are prepared to change the way they do things to provide better information and to use it effectively, and
- Activities across sectors are well coordinated.

The focus of this Diagnostic Tool is on advancing SEEA Experimental Ecosystem Accounting through testing. It represents the leading edge of accounting practice. The modelling and scaling of information on ecosystem services, ecosystem condition, and ecosystem capacity across all types of ecosystems represents a significant challenge. However, understanding and knowledge in this area is advancing at a rapid pace involving people from many disciplines including ecology, economics, statistics and geography. Data sources range from specific local data to global satellite imagery. While complex, there is undoubtedly a way forward and this tool seeks to consolidate the gains that have been made and to support the advancement of the work. The needs have never been greater.

POLICY OR STATEMENT OF STRATEGY

POLICY PRIORITIES AND POLICY TOOLS AVAILABLE OR CONTEMPLATED

SEEA-EEA can support a variety of policies including:

- Making informed decisions about trade-offs between conservation and development
- Improving access to and distribution of ecosystem services and natural resources
- Managing supply and demand for ecosystem services and natural resources
- Improving the state of ecosystems and reducing impacts of development on them
- Mitigating risks of extreme events and adapting to them
- Coordinating and streamlining efforts in research, data collection, reporting and decision making

What is the ultimate vision for sustainable development, green economy and ecosystems for your country?

- What related policy tools (e.g. laws, zoning regulations, taxes/subsidies, education) are in place or are being contemplated?
- What are your most important strengths in this area and where do institutions, policies and data require strengthening?
- Which natural resources or ecosystems are of particular national concern? (e.g., water, land, forests, biodiversity)

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INSTITUTIONS

STAKEHOLDERS & INSTITUTIONAL MECHANISMS

Who are the main stakeholders in sustainable development and green economy policy? This includes not only the producers of the data but also the potential users of the data and other interests that could benefit from improved information. You should identify key individuals, either as actual or potential champions as well as influential people. Groups that may be considered include:

- Central government agencies (finance, treasury, planning, international relations, etc.),
- Social, industry and economic government agencies,
- Environment and natural resource government agencies, and
- Universities, NGOs, and private industry associations.

Please describe any important interdepartmental mechanisms, strategies and plans already in place to make sustainability and green economy decisions.

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KNOWLEDGE

DATA SOURCES

What are the main data sources and what is their availability and quality? Depending on the priority, this could include:

- Topographic, hydrological and other basic spatial boundaries (national and state/provincial boundaries, river basins, digital elevation models, bio-regions, etc.)
- Land cover, land use and land use planning data (e.g. from remote sensing)
- Soil data (e.g. type, depth, erosion, nutrients, etc.)
- Protected area data and protected species lists (e.g. using the IUCN threat categories)
- Expenditure on protected areas
- Land taxes, ownership and management regimes (e.g., private, conservation, exploitation)
- Forestry and fisheries statistics
- Water statistics
- Tourism statistics
- Spatially-detailed socio-economic statistics (population, dwellings, income, industry of work)
- Other significant data sources (e.g., administrative data, specific household or business surveys)

Please describe any key documents and research initiatives that are related to the priority sources identified.

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PROGRESS

EXISTING NATIONAL ASSESSMENTS

Have any of the above data been synthesised or prototyped in the past?

The SEEA accounts include:

- Asset accounts
  - Land cover and land use (see **Appendix 1** for an example)
  - Soil resources
  - Timber resources
  - Aquatic resources (fish and crustaceans)
  - Water resources(supply and use)
- Physical flow accounts
  - Physical supply and use for timber
  - Physical supply and use for fish
  - Emissions to water and air
- Monetary flow accounts
  - Environmental protection expenditure accounts (EPEA)
  - Resource use and management accounts (RUMEA)
  - Environmental goods and services sector (EGSS)
  - Environmentally related payments to and by government
- Ecosystem accounts
  - Land/ecosystem condition and capacity
  - Carbon
  - Biodiversity
  - Ecosystem services assessments
  - Ecosystem services valuation studies or assessments (pilot, small area or national) (see **Appendix 2** for a summary of the CICES classification of ecosystem services)

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CONTEXT

RELATED STATISTICAL DEVELOPMENT ACTIVITIES

Are there other activities focussed on statistical development? These could include (see **Annex 3** for links to sources)**:**

- National Statistical Development Strategy (NSDS),
- SNA 2008 Implementation Strategy,
- State of the Environment Reporting, Reporting on Millennium Development Goals,
- Regional (supra-national) environmental reporting initiatives or agreements.

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PRIORITIES

PRIORITY ACCOUNTS

Given the policy priorities, availability of knowledge and stakeholder interest, which SEEA accounts are of the highest priority to begin implementation?

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CONSTRAINTS

FEASIBILITY

Of the priority accounts, what are the constraints to implementing them as ongoing statistical activities?

Some accounts may have few constraints and are ready to test. Others may require a combination of capacity building (training, guidance documents), data development (establishing or improving sources of data) and institutional coordination (establishing or adapting mechanisms, securing funding sources).

READY TO TEST

Accounts: _____

Constraints: _____

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NEED CAPACITY BUILDING

Accounts: _____

Constraints: _____

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NEED DATA DEVELOPMENT

Accounts: _____

Constraints: _____

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NEED INSTITUTIONAL COORDINATION, FINANCING

Accounts: _____

Constraints: _____

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OPPORTUNITIES

PRIORITY ACTIONS

What are immediate actions that can be taken to overcome the constraints to begin implementing priority accounts?

Please consider any national development planning deadlines that may be an opportunity for funding.

Accounts: _____

Actions: _____

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Accounts: _____

Actions: _____

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APPENDIX 1: ECOSYSTEM ASSETS ACCOUNT

From SEEA Experimental Ecosystem Accounting

	Artificial surfaces	Crops	Grassland	Tree covered area	Mangroves	Shrub covered area	Regularly flooded areas	Sparse natural vegetated areas	Terrestrial barren land	Permanent snow, glaciers and inland water bodies	Coastal water and inter-tidal areas
Opening stock of resources	12 292.5	445 431.0	106 180.5	338 514.0	214.5	66 475.5	73.5	1 966.5		12 949.5	19 351.5
Additions to stock											
Managed expansion	184.5	9 355.5									
Natural expansion			64.5								1.5
Upwards reappraisals			4.5	181.5							
Total additions to stock	184.5	9 355.5	69.0	181.5							1.5
Reductions in stock											
Managed regression			4 704.0	3 118.5	9.0	1 560.0	1.5				
Natural regression					1.5	64.5					
Downwards reappraisals						4.5					
Total reductions in stock			4 704.0	3 118.5	10.5	1 629.0	1.5				
Closing stock	12 477.0	454 786.5	101 545.5	335 577.0	204.0	64 846.5	72.0	1 966.5		12 949.5	19 353.0

APPENDIX 2: LIST OF ECOSYSTEM SERVICES

Common International Classification of Ecosystem Services (CICES, V4.3, January 2013)

Section	Division	Group	Class
This column lists the three main categories of ecosystem services	***This column divides section categories into main types of output or process.***	***The group level splits division categories by biological, physical or cultural type or process.***	***The class level provides a further sub-division of group categories into biological or material outputs and bio-physical and cultural processes that can be linked back to concrete identifiable service sources.***
Provisioning	Nutrition	Biomass	Cultivated crops
			Reared animals and their outputs
			Wild plants, algae and their outputs
			Wild animals and their outputs
			Plants and algae from in-situ aquaculture
			Animals from in-situ aquaculture
		Water	Surface water for drinking
			Ground water for drinking
	Materials	Biomass	Fibres and other materials from plants, algae and animals for direct use or processing
			Materials from plants, algae and animals for agricultural use
			Genetic materials from all biota
		Water	Surface water for non-drinking purposes
			Ground water for non-drinking purposes
	Energy	Biomass-based energy sources	Plant-based resources
			Animal-based resources
		Mechanical energy	Animal-based energy
Regulation & Maintenance	Mediation of waste, toxics and other nuisances	Mediation by biota	Bio-remediation by micro-organisms, algae, plants, and animals
			Filtration/sequestration/storage/accumulation by micro-organisms, algae, plants, and animals
		Mediation by ecosystems	Filtration/sequestration/storage/accumulation by ecosystems
			Dilution by atmosphere, freshwater and marine ecosystems
			Mediation of smell/noise/visual impacts
	Mediation of flows	Mass flows	Mass stabilisation and control of erosion rates
			Buffering and attenuation of mass flows
		Liquid flows	Hydrological cycle and water flow maintenance
			Flood protection
		Gaseous / air flows	Storm protection
			Ventilation and transpiration
	Maintenance of physical, chemical, biological conditions	Lifecycle maintenance, habitat and gene pool protection	Pollination and seed dispersal
			Maintaining nursery populations and habitats
		Pest and disease control	Pest control
			Disease control
		Soil formation and composition	Weathering processes
			Decomposition and fixing processes
		Water conditions	Chemical condition of freshwaters
			Chemical condition of salt waters
		Atmospheric composition and climate regulation	Global climate regulation by reduction of greenhouse gas concentrations
			Micro and regional climate regulation

Cultural	Physical and intellectual interactions with biota, ecosystems, and land-/seascapes [environmental settings]	Physical and experiential interactions	Experiential use of plants, animals and land-/seascapes in different environmental settings
			Physical use of land-/seascapes in different environmental settings
		Intellectual and representative interactions	Scientific
			Educational
			Heritage, cultural
			Entertainment
			Aesthetic
	Spiritual, symbolic and other interactions with biota, ecosystems, and land-/seascapes [environmental settings]	Spiritual and/or emblematic	Symbolic
			Sacred and/or religious
		Other cultural outputs	Existence
			Bequest

Source: www.cices.eu.

APPENDIX 3: LINKS TO OTHER SEEA-RELATED MATERIAL

The main **SEEA website**: http://unstats.un.org/unsd/envaccounting/seea.asp

- **Briefing Note** on SEEA: http://unstats.un.org/unsd/envaccounting/SEEA-Brochure-SC-2013.pdf
- **SEEA Experimental Ecosystem Accounting** (White Cover Version): http://unstats.un.org/unsd/envaccounting/eea_White_cover.pdf
    - Briefing Note: http://unstats.un.org/unsd/envaccounting/workshops/int_seminar/note.pdf
- **SEEA Central Framework**: (Final English Version) http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf (Also available in Arabic, Chinese (draft), French (draft), Russian (draft) and Spanish (Draft)
    - Briefing Note: http://unstats.un.org/unsd/envaccounting/Brochure.pdf
- **SEEA Applications and Extensions**: http://unstats.un.org/unsd/envaccounting/ae_white_cover.pdf
- **SEEA Energy**: http://unstats.un.org/unsd/envaccounting/energy.asp
    - Compilation Guidelines:
- **SEEA Water**: http://unstats.un.org/unsd/envaccounting/water.asp
    - International Recommendations for Water Statistics (IRWS): http://unstats.un.org/unsd/envaccounting/irws/
    - Compilation Guidelines: http://unstats.un.org/unsd/envaccounting/WCG14.pdf

SEEA-EEA country examples:

- **Canada**: Measuring Ecosystem Goods and Services:
    - English: http://www.statcan.gc.ca/pub/16-201-x/16-201-x2013000-eng.htm.
    - French: http://www.statcan.gc.ca/pub/16-201-x/16-201-x2013000-fra.htm.
- **Australia**: http://www.abs.gov.au/ausstats/abs@.nsf/Products/4655.0.55.002~2013~Main+Features~Chapter+6+Land+and+ecosystem+accounting?OpenDocument
- **Victoria, Australia**: https://ensym.dse.vic.gov.au/cms/index.php?option=com_content&view=article&id=60&Itemid=71

The **Framework for the Development of Environmental Statistics** (FDES 2013): http://unstats.un.org/unsd/environment/fdes.htm .

UNSD **SNA 2008 Implementation Strategy**: http://unstats.un.org/unsd/nationalaccount/imp.asp.

Aichi Targets: http://www.cbd.int/sp/targets/

- **Open Working Group on Sustainable Development Goals**: http://sustainabledevelopment.un.org/owg.html

The Common International Classification of Ecosystem Services (**CICES 2013**): http://cices.eu.

Paris21 **National Statistical Development Strategy (NSDS)**: http://www.paris21.org/NSDS.

OECD **Environmental Country Reviews**: http://www.oecd.org/env/country-reviews/oecdenvironmentalperformancereviews.htm.