



Implemented by:
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



International Conference on the Natural Capital for the Transition to a Green Economy 30.06.-01.07.2016 Bishkek, Kyrgyzstan

List of terms and concepts relevant to Natural Capital

Term	Definition	Source
General terms and concepts		
Natural capital	<p><i>“Natural capital denotes an economy’s environment and natural resource endowment – including ecosystems – that yield a valuable flow of goods and services to human beings.”</i></p> <p>Natural capital is an extension of the economic notion of capital (manufactured means of production). It refers to stocks of natural resources, renewable (e.g. standing timber) and non-renewable (mineral deposits), but also ecosystems (e.g. forests) that yield or produce a flow of goods (e.g. trees) and services (e.g. carbon sequestration, erosion control, habitat).</p>	Barbier (2014)
Green Economy	<p><i>“A green economy [is an economy that] results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy is low-carbon, resource efficient, and socially inclusive.”</i></p>	UNEP (2010)
Biodiversity	<p><i>“Biodiversity is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, this includes diversity within species, between species and ecosystems.”</i></p> <p>Biodiversity is often associated with the number of species in an area (species diversity or species richness). A more holistic understanding, as provided by the Convention of the Biological Diversity, however, conceptualizes biodiversity as a hierarchy of three levels: genetic, species and ecosystem variability.</p>	Convention on Biological Diversity
Natural resources	<p>Natural resources are a subset of environmental assets and include all natural biological resources (including timber and aquatic resources), mineral and energy resources, soil resources and water resources. All cultivated biological resources and land are excluded from scope. The distinction between “natural” and “cultivated” environmental assets is drawn in line with the production boundary defined in the SNA. There, natural resources unlike cultivated biological resources are considered non-produced environmental assets that have not come into existence as a result of an economic production process.</p>	SEEA Central Framework
Ecosystems	<p><i>“Ecosystems are a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.”</i></p>	Convention on Biological

Term	Definition	Source
	see Ecosystem assets	Diversity
How nature sustains human life and livelihoods		
Ecosystem services	<p><i>“Ecosystem services are the benefits people obtain from ecosystems.”</i></p> <p>In the Millennium Ecosystem Assessment four categories of services are distinguished:</p> <ol style="list-style-type: none"> 1. <i>Provisioning services</i>: the material and energy outputs from ecosystems, e.g. food, fibers, and water; 2. <i>Regulating services</i>: services that ecosystems provide by acting as regulators, e.g. regulating the quality of air and soil or by providing flood and disease control; 3. <i>Supporting services</i>: necessary for producing all other services e.g. nutrient recycling and soil formation; 4. <i>Cultural services</i>: non-material benefits that people obtain from ecosystems such as recreation, tourism, spiritual and religious experiences. <p>The increasing importance of economic valuations and the role of ecosystem services in accounting have led to recent advances in the concept, among others to a focus on final services. This implies a re-categorization of supporting services, which due to their underpinning nature rather belong to ecosystem processes and functions and a refined boundary towards benefits that helps to separate contributions of ecosystems and human activity in the production of goods and services. In the SEEA Experimental Ecosystem Accounting these advances are mirrored by a refined and more technical definition according to which: <i>“Ecosystem services are the contributions of ecosystems to benefits used in economic and other human activity.”</i></p>	Millennium Ecosystem Assessment (2005)
Benefits	<p><i>“Benefits are goods and services that are ultimately used and enjoyed by people and which contribute to individual and societal well-being.”</i></p> <p>Goods and services can be of economic and of non-economic nature. In the SEEA Experimental Ecosystem Accounting, benefits are distinguished from ecosystem services (which contribute to the generation of benefits) and from well-being (to which benefits contribute).</p>	SEEA Experimental Ecosystem Accounting
Ecosystem assets	<p><i>“Ecosystem assets are spatial areas containing a combination of biotic and abiotic components and other characteristics that function together.”</i></p> <p>Ecosystem assets are the accounting category for ecosystems and define them through the delineation of mutually exclusive spatial areas. Accounting for ecosystem assets needs to assess how its different components, e.g. plants, animals, soil and water bodies, and characteristics, e.g. biodiversity, interact as part of natural processes within a spatial area to provide a range of services for economic and other human activity. Ecosystem assets are measured from two perspectives – that of ecosystem condition and extent; and that of expected ecosystem services.</p>	SEEA Experimental Ecosystem Accounting
Environmental assets	<p><i>“Environmental assets are the naturally occurring living and non-living components of the Earth and they constitute the bio-physical environment which may provide benefits to humanity.”</i></p> <p>This definition of environmental assets is broad and encompassing including natural resources as well as cultivated biological resources and land. It resembles the notion of “natural capital”, which as such is not used in accounting.</p>	SEEA Central Framework
Economic valuation of nature		
Economic valuation of ecosystem services	<p><i>“The process of expressing a value for a particular [ecosystem] good or service in a certain context (e.g., of decision-making) in monetary terms.”</i></p> <p>Economic valuation is a tool for valuing ecosystems and their services in monetary terms. It quantifies the benefits provided by ecosystems, the impacts of ecosystem changes on the well-being of people and the costs associated with their depreciation or degradation. Valuation can serve a variety of purposes, for example:</p>	TEEB (2010), GIZ (2012), SEEA Experimental

Term	Definition	Source
	<ul style="list-style-type: none"> ▶ Analysing specific policy scenarios and evaluating alternatives of specific projects, for example through cost-benefit analyses, or assessing compensation and damage claims; ▶ Use value estimates to inform about the contributions of ecosystem services and assets to economic welfare and well-being but also for comparisons with economic assets, goods or services or to possibly augment the standard national accounts to e.g. derive degradation-adjusted economic aggregates; ▶ Raise awareness of the potential significance of ecosystem-related concerns. <p>Economic valuation is a complex undertaking, because most ecosystem services are (a) not traded on markets in the same way as other goods and services – valuation therefore often involves the estimation of “missing prices” – and (b) comprise a variety of different value types e.g. direct or indirect use values and existence values, usually expressed through the total economic value (TEV) framework. In a broader context, valuation is complex because it raises a range of ethical and cultural considerations and may even be considered inappropriate or potentially misleading. Economic valuation therefore should be used to complement, but not substitute other legitimate ethical or scientific reasoning and arguments.</p>	Ecosystem Accounting
Environmental Goods and Services Sector	The environmental goods and services sector (EGSS) encompasses all those producers whose products – goods, services and technologies alike – are produced, designed and manufactured for purposes of environmental protection and resource management. This aligns with the intent of the EGSS to provide information on the extent to which the economy may become more environmentally friendly and resource-efficient.	SEEA Central Framework
Natural inputs	<p><i>“Natural inputs are all physical inputs that are moved from their location in the environment as a part of economic production processes or are directly used in production.”</i></p> <p>“Natural inputs” is used to describe all environmental assets – natural resources, cultivated biological resources and land – that enter the economy as inputs to economic production processes.</p>	SEEA Central Framework
Supply and use tables, monetary and physical	<i>Monetary supply and use tables</i> record all flows of products in an economy between different economic units in monetary terms. They are compiled to describe the structure of an economy and the level of economic activity. Physical flows, on the contrary, are recorded by compiling supply and use tables in physical units of measurement (<i>physical supply and use tables</i>). These tables are used to assess how an economy supplies and uses energy, water and materials, as well as to examine changes in production and consumption patterns over time. In combination with data from monetary supply and use tables, changes in productivity and intensity in the use of natural inputs and the release of residuals can be examined.	SEEA Central Framework
Frameworks for the economic valuation of national (natural and non-natural) capital		
System of Environmental-Economic Accounting 2012 – Central Framework	The System of Environmental-Economic Accounting 2012 – Central Framework (SEEA Central Framework) is the first international statistical standard for environmental-economic accounting, adopted by the UN Statistical Commission in 2012. It contains a comprehensive set of standard concepts, definitions, classifications, accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy. http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf	SEEA Central Framework
System of Environmental-Economic Accounting 2012 – Experimental	Ecosystem accounting is a relatively new and emerging field dealing with the integration of complex biophysical data, use of those data to track changes in ecosystems and linkage of the changes to economic and other human activity. The System of Environmental-Economic Accounting 2012 – Experimental Ecosystem Accounting (SEEA Experimental Ecosystem Accounting) therefore presents initial efforts to define a measurement framework offering a synthesis of current knowledge in this field. It is not a statistical standard yet. The SEEA Experimental Ecosystem Accounting	SEEA Experimental Ecosystem Accounting

Term	Definition	Source
Ecosystem Accounting	complements the SEEA Central Framework by taking on a systems perspective on the measurement of environmental assets. In the SEEA Central Framework these are perceived as individual assets. Together the approaches provide the potential to describe in a complete manner the relationship between the environment, the economy and other human activity. http://unstats.un.org/unsd/envaccounting/seeaRev/eea_final_en.pdf	
System of National Accounts 2008	The System of National Accounts 2008 (SNA) is the latest version of the international statistical standard for the national accounts, adopted by the United Nations Statistical Commission (UNSC). It provides a set of recommendations on how to compile measures of economic activity and macroeconomic aggregates such as the GDP (gross domestic product). http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf	SNA
Types of accounts		
Asset accounts	Asset accounts record stock levels of environmental assets at the beginning and the end of an accounting period as well as the different types of changes in the stock that occur during the accounting period, e.g. increases through natural growth or depletion through extractions. One purpose of asset accounts is to assess whether current patterns of economic activity are depleting the available environmental assets. Information from the accounts can be used to assist in the management of environmental assets; its monetary values can be used to correct GDP for environmental factors and derive broader estimates of national wealth.	SEEA Central Framework
Combined physical and monetary accounts	Combined presentations of physical and monetary data in so-called <i>hybrid accounts</i> is one of the strongest features of the SEEA Central Framework. Depending on the question under investigation different forms of combined presentations are possible. Most commonly, physical flow data are presented alongside monetary flows in “ <i>hybrid supply and use tables</i> ”. This linkage of physical flows to economic transactions allows e.g. for comparisons of environmental costs with economic benefits, or environmental benefits with economic costs.	SEEA Central Framework
Environmental activity accounts	Environmental activity accounts record monetary transactions between economic actors that are directly related to the environment, e.g. expenditure to preserve and protect the environment, environmental taxes and subsidies or the produced output of environmental goods and services. Most of these transactions are already recorded within the national accounts framework (SNA). The main purpose of the activity accounts therefore is to regroup the relevant data. A strong motivation for undertaking this work is to identify an environmental component within the key aggregates of the SNA. Further, in combination with information on the changing pressures on the environment, information on these transactions may be used to help assess whether economic resources are being used effectively to reduce pressures on the environment and maintain the capacity of the environment to deliver benefits.	SEEA Central Framework
Physical flow accounts	Physical flow accounts record (a) flows of materials and energy that enter the economy (natural inputs, e.g. minerals, timber, fish and water), (b) flows that leave the economy (residuals, e.g. solid waste air emissions and return flows of water) and (c) flows within the economy itself (product flows). This measurement is generally carried out using physical units and so-called <i>physical supply and use tables</i> (PSUT). Most commonly, the recording of physical flows will focus on particular areas of interest, such as flows of energy or water, in part because physical flows may be measured in a variety of units which cannot necessarily be compared or aggregated.	SEEA Central Framework