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## Glossary of terms and definitions

This glossary includes a list of terms and definitions from OECD and other international sources. It provides a basis for a common language on the measurement of green growth at international level.

Please note that:

- ◆ The glossary makes no claim for completeness.
- ◆ In some cases, it is appropriate to refer to several definitions depending on the context in which the term is used. Some terms have for example a general (user-friendly) definition, as well as a more specific, technical definition when used in the context of environmental-economic accounting. In this case, keeping the two kinds of definitions is essential to make the underlying concepts understandable to a broader audience.
- ◆ Terms and definitions already agreed upon elsewhere and compiled from existing and glossaries and publications have been kept as they are, but are accompanied with further specifications when appropriate.
- ◆ As new international references become available, in particular the SEEA, the glossary will be adjusted as required.

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## Consumption

### Final consumption

An activity in which institutional units use up goods or services; consumption can be either intermediate or final.

*Source: SNA*

### Intermediate consumption

Intermediate consumption consists of goods and services used up in the course of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital.

*Source: SNA*

## Decoupling

The term decoupling refers to breaking the link between “**environmental bads**” and “**economic goods**.”

In practice, the **measurement** of decoupling refers to the relative growth rates of a direct pressure on the environment and of an economically relevant variable to which it is causally linked. Decoupling occurs when the growth rate of the environmental pressure (EP) is less than that of its economic driving force (DF) over a given period. One distinguishes between **absolute and relative** decoupling. Decoupling is said to be absolute when the environmental variable is stable or decreasing while the economic variable is growing. Decoupling is said to be relative when the environmental variable is increasing, but at a lower rate than the economic variable.

The decoupling concept has however no automatic link to the environment’s capacity to sustain, absorb or resist pressures of various kinds (deposition, discharges, harvests). A meaningful **interpretation** of the relationship of EP to economic DF will require additional information. Also, the relationship between economic DF and EP, more often than not, is complex. Most DF have multiple environmental effects, and most EP are generated by multiple DF, which, in turn, are affected by societal responses. Changes in decoupling may thus be **decomposed** in a number of intermediate steps. These may include changes in the scale of the economy, in consumption patterns, and in economic structure — including the extent to which demand is satisfied by domestic production or by imports. Other mechanisms in the causal chain include the adoption of cleaner technology, the use of higher-quality inputs, and the post-facto clean-up of pollution and treatment of waste.

*Source: OECD (2002) Indicators to measure decoupling of environmental pressure from economic growth; OECD (2008) Measuring material flows and resource productivity: The OECD Guide.*

## Disposable income

Disposable income is derived from the balance of primary incomes of an institutional unit or sector by adding all current transfers, except social transfers in kind, receivable by that unit or sector and subtracting all current transfers, except social transfers in kind, payable by that unit or sector.

*Source: SNA*

## Domestic Material Consumption (DMC)

Domestic Material Consumption (DMC) is a variable used in material flow accounting. DMC measures the mass (weight) of the materials that are physically used in the production and consumption activities of the domestic economic system (i.e. the direct apparent consumption of materials, excluding indirect flows). In economy-wide material flow accounting DMC equals domestic extraction plus imports minus exports.

*Source: OECD (2008) Measuring material flows and resource productivity: The OECD Guide, and Eurostat(2001)*

## Economic assets

Assets are entities functioning as stores of value and over which ownership rights are enforced by institutional units, individually or collectively, and from which economic benefits may be derived by their owners by holding them, or using them, over a period of time (the economic benefits consist of primary incomes derived from the use of the asset and the value, including possible holding gains/losses, that could be realised by disposing of the asset or terminating it).

*Source: SNA*

## Ecosystem services

See functions of natural capital

## Efficiency

### Efficiency (of production processes)

Efficiency refers to the degree to which a production process reflects ‘best practice’, either in an engineering sense (‘technical efficiency’) or in an economic sense (‘allocative efficiency’).

*Source: Measuring Productivity - OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth, OECD, Paris, 2001. [http://www.oecd.org/dataoecd/59/29/2352458.pdf].*

### **Resource efficiency**

There is no commonly agreed upon definition of resource efficiency. It is understood to refer to the economic efficiency and the environmental effectiveness with which an economy or a production process is using natural resources. It is also understood to contain both a *quantitative* dimension (e.g. the quantity of output produced with a given input of natural resources) and a *qualitative* dimension (e.g. the environmental impacts per unit of output produced with a given natural resource input).

*Source: based on OECD (2008) Measuring material flows and resource productivity: The OECD Guide.*

### **Environmental goods and services (sector)**

The environmental goods and services sector consists of a heterogeneous set of producers of technologies, goods and services that:

- Measure, control, restore, prevent, treat, minimise, research and sensitise environmental damages to air, water and soil as well as problems related to waste, noise, biodiversity and landscapes. This includes ‘cleaner’ technologies, goods and services that prevent or minimise pollution.
- Measure, control, restore, prevent, minimise, research and sensitise resource depletion. This results mainly in resource-efficient technologies, goods and services that minimise the use of natural resources.

These technologies and products (i.e. goods and services) must satisfy the end purpose criterion, i.e. they must have an environmental protection or resource management purpose (hereinafter ‘environmental purpose’) as their prime objective.

Following the nomenclature used in the SERIEE and SEEA, environmental technologies and products comprise environmentally -specific services, connected products, adapted goods, end-of-pipe technologies and integrated technologies. Following the SERIEE, the SEEA and the OECD/Eurostat environmental industry manual, these environmental technologies and products can be classified in two main groups:

- **Environmental protection (EP)**, which includes technologies and products of both a preventive or remedial nature for the prevention, reduction, elimination and treatment of air emissions, waste and wastewater, soil and groundwater contamination, noise and vibration as well as radiation, the prevention, reduction and elimination of soil erosion and salinity as well as other kinds of degradation, the preservation of biodiversity and landscapes as well as the monitoring and control of the quality of environmental media and waste.
- **Resource management (RM)**, which comprises technologies and products to manage and/or conserve the stock of natural resources against depletion phenomena including both preventive and restoration activities as well as the monitoring and control of the levels and uses of natural resource stocks.

Both groups include administrative activities, education, training, information and communication activities as well as research and development activities. They include activities carried out by General Government and by Corporations, ranging from, for example, manufacturing enterprises to consulting, from public administration to educational institutions.

*Source: (Eurostat (2009), The environmental goods and services sector - A data collection handbook)*

### **Environmental protection activities**

Environmental protection (EP) activities include all purposeful activities directly aimed at the prevention, reduction and elimination of pollution or any other degradation of the environment resulting from the production process or from the use of goods and services.

*Source: OECD/Eurostat, Questionnaire on the state of the environment – Section on environmental protection expenditure and revenues*

### **Environmental services (or services from natural assets)**

See functions of natural capital.

### **Functions of natural capital (or environmental functions)**

For the purpose of this report the concept of ‘[environmental functions or services](#)’ is defined in a broad sense. It encompasses all functions or services provided by natural assets, and which contribute directly and indirectly to human well-being. This includes the provision of water, energy, raw materials, land and ecosystem inputs to produce goods and services, the regulatory capacity of the environment, and its roles in supporting life and biodiversity, and in providing amenities and cultural benefits.

Environmental functions or services are also referred to as ‘[ecosystem services](#)’ or as ‘[ecosystem goods and services](#)’. Three main types of functions are distinguished: [resource functions](#), [sink functions](#) and [service functions](#).

#### **Resource functions**

Resource functions provide [productive or provisioning services](#). They refer to the capacity of natural assets to provide:

- Natural resources (water, energy, and other raw materials including medicinal resources) and space (land) for use as inputs in the economy where they are used in the production of goods and services. Examples are mineral deposits, timber from natural forests, deep sea fish and land.

- Ecosystem inputs, such as water and other natural inputs (e.g. nutrients, carbon dioxide) required by plants and animals for growth, and oxygen and other gases needed for combustion and production processes.

### **Sink functions**

Sink functions provide **regulating services**. They refer to the capacity of natural assets to absorb the unwanted by-products of production and consumption and to regulate air, water and soil quality and natural processes. This includes:

- the absorption of pollution and waste, and the sequestration and storage of carbon;
- the provision of flood and disease control, and the moderation of extreme natural events;
- the provision of other functions such as pollination support.

### **Service functions**

Service functions provide **supporting services**, i.e. services that underpin almost all other services. They refer to the capacity of natural assets to provide living spaces (habitats) for plants, animals and man, and to maintain biological diversity (genetic diversity). This includes:

- functions that are essential to life, such as the provision of clean air or clean water or protection against UV rays (**survival functions**).
- functions that are less essential but improve the quality of life, i.e. the non-material benefits that people obtain from contact with ecosystems, for example recreational, aesthetic and leisure benefits (**amenity functions**), or spiritual and psychological benefits (**cultural functions**).

*Source: OECD based on SEEA 2003 and TEEB (2010) The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A synthesis of the approach, Conclusions and recommendations of TEEB.*

### **Green growth**

Green growth is about fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. To do this, it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities.

*Source: OECD.*

### **Green economy**

UNEP defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

*Source: UNEP (2011) Towards a Green Economy – Pathways to Sustainable Development and Poverty Eradication, A Synthesis for Policy Makers.*

### **Indicator**

A parameter, or a value derived from parameters, which points to, provides information about, describes the state of a phenomenon/area, with a significance extending beyond that directly associated with a parameter value. This definition points to two major functions of indicators:

- they reduce the number of measurements and parameters that normally would be required to give an exact presentation of a situation.  
As a consequence, the size of an indicator set and the level of detail contained in the set need to be limited. A set with a large number of indicators will tend to clutter the overview it is meant to provide.
- they simplify the communication process by which the results of measurement are provided to the user.  
Due to this simplification and adaptation to user needs, indicators may not always meet strict scientific demands to demonstrate causal chains. Indicators should therefore be regarded as an expression of "the best knowledge available".

*Source: OECD, 1993*

### **Innovation**

An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

*Source: OECD, 2005, "The Measurement of Scientific and Technological Activities: Guidelines for Collecting and Interpreting Innovation Data: Oslo Manual, Third Edition"*

Technological innovations comprise new products and processes and significant technological changes of products and processes. An innovation has been implemented if it has been introduced on the market (product innovation).

*Source: OECD Frascati Manual, Fifth edition, 1993, Annex 2, para. 29, page 116*

## Inputs

### Economic inputs

Labour, capital services, and intermediate goods and services that are used in a process of economic production, i.e., production within the general production boundary as described in the System of National Accounts

Source: SNA

### Ecosystem inputs

Ecosystem inputs cover the substances originating from ecosystems that are used in production and consumption processes. Examples include water and other natural inputs (e.g. nutrients, carbon dioxide) required by plants and animals for growth, and oxygen and other gases needed for combustion and production processes.

Source: OECD based on SEEA

### Intermediate inputs

Those factors of production that are produced and transformed or used up by the production process within an accounting period.

Source: *Measuring Productivity - OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth*, OECD, Paris, 2001. [<http://www.oecd.org/dataoecd/59/29/2352458.pdf>].

### Natural inputs

Materials and energy that flow from the environment to the economy. Natural inputs include (i) **direct material inputs**, i.e. resources which are incorporated into products in the economy (such as timber, crops, livestock, fish, water, mineral and energy resources); (ii) **other energy inputs** such as geothermal energy and solar energy; (iii) **unused extraction** such as soil excavated during mining operations which are natural inputs that are impacted by economic activity but are never incorporated into products; and (iv) **ecosystem inputs**, such as oxygen, nutrients and CO<sub>2</sub> for the respiration of cultivated crops.

Source: OECD based on SEEA.

### Primary inputs

Those factors of production that are treated as exogenous in the framework of production analysis. In a static framework primary inputs comprise capital and labour.

Source: *Measuring Productivity - OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth*, OECD, Paris, 2001. [<http://www.oecd.org/dataoecd/59/29/2352458.pdf>].

## Materials or material resources

The term "materials" or "material resources" designates the usable materials or substances (raw materials, energy) produced from natural resources. These usable "materials" include energy carriers (gas, oil, coal), metal ores and metals, construction minerals and other minerals, soil and biomass.

In the context of Material Flow Analysis and Accounting, the term "materials" is used in a very broad sense so as to record all material related flows at all relevant stages of the material cycle. It designates materials from renewable and non-renewable natural resource stocks that are used as material inputs into human activities and the products that embody them, as well as the residuals arising from their extraction, production and use (such as waste or pollutant emissions to air, land, water) and the ecosystem inputs required for their extraction, production and use (such as nutrients, carbon dioxide required by plants and animals for growth and the oxygen necessary for combustion).

Source: OECD.

## Material extraction

The extraction of materials from the environment (i.e. from natural resources) on purpose and by means of technology for use in human activities.

**Gross material extraction** refers to all materials extracted, moved or disturbed by economic activities on purpose and by means of technology, including those materials that remain unused in the environment or return to the environment immediately after removal from their natural site. In material flow accounting, gross material extraction comprises "used" extraction and "unused" extraction.

**Net material extraction** refers to the materials extracted that physically enter the economic system as inputs for further processing or consumption. In material flow accounting, net material extraction is called "used extraction".

Source: OECD.

## Material Flow Analysis (MFA)

Material flow analysis (MFA) refers to the monitoring and analysis of physical flows of materials into, through and out of a given system (usually the economy) through the process chains, through extraction, production, use, recycling and final disposal. MFA is generally based on methodically organised **accounts** in physical units (Material flow accounts). It uses the principle of **mass balancing** to analyse the relationships between material flows (including energy), human activities (including economic and trade developments) and environmental changes.

The term MFA designates a **family of tools** encompassing a variety of analytical approaches and measurement tools, including different types of accounts, indicators and evaluation methods at different levels of ambition, detail and completeness. MFA can be applied at various scales and with different instruments depending on the issue of concern and on the objects of interest of the study. It can be applied to a wide range of economic, administrative or natural entities at various levels of scale (world regions, whole economy, industries, firms, plants, territories, cities, river basins, eco-zones, etc.) and can be applied to materials at various levels of detail (individual materials or substances, groups of materials, all materials).

*Source: OECD.*

### **Natural assets (or natural capital)**

Assets that occur in nature and that provide environmental “functions” or services. Natural assets are also referred to as **natural capital**. They comprise three principal categories: **natural resource stocks, land and ecosystems**.

See also **functions of natural capital or environmental functions**.

*Source: OECD*

### **Natural resources**

The term "natural resources" designates **renewable and non-renewable resource stocks** that are found in nature (mineral resources, energy resources, soil resources, water resources and biological resources).

#### **Renewable natural resources**

Renewable natural resources are resources from renewable natural stocks that, after exploitation, can return to their previous stock levels by natural processes of growth or replenishment. Examples of renewable resources include timber from forest resources, freshwater resources, land resources, wildlife resources such as fish, agricultural resources.

#### **Non-renewable natural resources**

Non-renewable natural resources are exhaustible natural resources whose natural stocks cannot be regenerated after exploitation or that can only be regenerated or replenished by natural cycles that are relatively slow at human scale. Examples include metals and other minerals such as industrial and construction minerals, and fossil energy carriers.

*Source: OECD (2008), Measuring material flows and resource productivity – OECD guide; SEEA; UNSD.*

### **Output**

Goods or services that are produced within a producer unit and that become available for use outside the unit plus any goods and services for own final use.

*Source: Measuring Productivity - OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth, OECD, Paris, 2001. [<http://www.oecd.org/dataoecd/59/29/2352458.pdf>].*

#### **Economic outputs**

Goods and services that result from a process of economic production, i.e., production within the general production boundary as described in the System of National Accounts.

*Source: SNA*

#### **Material outputs**

Material outputs refer to the flows of materials leaving a system. When applied to the economic system, material outputs refer to the material outflows related to production and consumption activities of a given country or entity. They account for those materials that have been used in the economy or the system and are subsequently leaving it either in the form of emissions and waste, or in the form of exports to other systems.

*Source: OECD.*

### **Production function**

The maximum set of output(s) that can be produced with a given set of inputs. Use of a production function implies technical efficiency. Synonym for production frontier, the technically efficiency part of a feasible production set, the set of all input-output combinations that are feasible (but not necessarily efficient).

*Source: Measuring Productivity - OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth, OECD, Paris, 2001. [<http://www.oecd.org/dataoecd/59/29/2352458.pdf>].*

### **Productivity**

Productivity is commonly defined as a ratio of a volume measure of output to a volume measure of input use. While there is no disagreement on this general notion, a look at the productivity literature and its various applications reveals that there is neither a unique purpose for measuring productivity nor a single measure. Productivity is generally measured within the SNA production boundary.

The terms **productivity and efficiency** refer to **different but related concepts**. Productivity relates the quantity of output produced to one or more inputs used in the production of the output, irrespective of the efficiency of their use.



### Overview of the main productivity measures

Type of input measure \ Type of output measure	<i>Labour</i>	<i>Capital</i>	<i>Capital and labour</i>	<i>Capital, labour &amp; intermediate inputs (energy, materials, services)</i>
<b>Gross output</b>	Labour productivity (based on gross output)	Capital productivity (based on gross output)	Capital-labour MFP (based on gross output)	KLEMS multi-factor productivity
<b>Value-added</b>	Labour productivity (based on value-added)	Capital productivity (based on value-added)	Capital-labour MFP (based on value-added)	–
	<b>Single factor productivity measures</b>		<b>Multi factor productivity (MFP) measures</b>	

#### Single-factor productivity

Synonym for partial productivity measure. It relates output to one particular type of input.

#### Multifactor productivity (MFP)

Relates a change in output to several types of inputs. MFP is often measured residually as that change in output that cannot be accounted for by the change in combined inputs. The term Total Factor Productivity is sometimes used as a synonym for multifactor productivity.

Source: *Measuring Productivity - OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth*, OECD, Paris, 2001. [<http://www.oecd.org/dataoecd/59/29/2352458.pdf>].

#### Environmental and resource productivity

For the purpose of this report, environmental and resource productivity is defined in a broad sense.

It refers to a partial productivity measure that relates economic output to an environmental input (whether in the form of natural resource inputs, of ecosystem inputs, or in the form of regulating services).

#### Environmental productivity

A partial productivity measure that relates economic output to the input of regulating services.

Alternatively, emissions could be treated as undesirable or negative output rather than as environmental inputs. This is a matter of convenience and labelling but has no implication for measurement.

#### Material productivity

Material productivity designates an indicator that measures the output or value added generated per unit of materials used, i.e. energy carriers and other raw materials, excluding water and ecosystem inputs.

#### Resource productivity

Resource productivity designates an indicator that measures the output or value added generated per unit of natural resources used. This is typically a macro-economic concept that can be presented alongside labour or capital productivity. Resource productivity would ideally encompass all natural resource and ecosystem inputs that are used as factors of production in the economy. The term is however often used as a synonym for material productivity.

Source: *OECD*.

#### Water productivity

The level of economic output (in physical or in monetary terms) achieved from one unit volume of gross water inflows, or for one unit volume of waste water outflows.

#### Energy productivity

The level of economic output (in physical or in monetary terms) achieved from one unit of energy used/consumed.

#### Carbon productivity:

The level of economic output (in physical or in monetary terms) achieved for one unit of emissions, i.e. from one unit of regulating service used.

#### Products or Commodities

Products, also called “**goods and services**”, are the result of production; they are exchanged and used for various purposes: as inputs in the production of other goods and services, as final consumption or for investment. The term “commodities” can be used as a synonym for “products”.

Source: *SNA*

### **Residuals**

"Residuals" is a generic term used to designate all unwanted waste materials in solid, liquid and gaseous form resulting from economic activity. Residuals encompass (solid) waste and pollutants. Residuals generally have no economic value and may be recycled, stored within the economy or released into the environment.

*Source: OECD, based on SEEA*

### **Unused (material) flows**

Unused (material) flows mainly consist of **unused extraction**, i.e. materials that (i) are extracted, moved or disturbed by economic activities on purpose and by means of technology, (ii) are not fit or not intended for use in further processing, and (iii) remain unused in the environment. This is the case when material must be extracted from the natural environment, along with the desired material, to obtain the desired material, or when material is moved or disturbed to obtain the natural resource, or to create and maintain an infrastructure. These materials are not incorporated in products at any stage and are usually without economic value. Examples of unused extraction are soil and rock excavated during construction and not used elsewhere, dredged sediments from harbours, overburden from mining and quarrying and unused biomass from harvest.

*Source: Source: OECD (2008), Measuring material flows and resource productivity – OECD guide.*





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