GLOSSARY

Module 1 | Frequently Asked Questions about Blue Carbon

Afforestation:

Planting new forests on lands that historically have not contained forests. For an analysis of the term forest and related concepts of afforestation, reforestation and deforestation, see the IPCC **Special Report on Land Use, Land Use Change and Forestry** (more than 30 minutes) information provided by the United Nations Framework Convention on Climate Change and the report Definitions and Methodological Options to Inventory Emissions from Direct Human-induced Degradation of Forests and Devegetation of Other Vegetation Types.

Air pollution:

Degradation of air quality that has negative effects on human health or the natural or built environment, due to the introduction into the atmosphere, through natural processes or human activities, of substances (gasses, aerosols) that entail direct harmful effects (primary pollutants) or indirect (secondary pollutants). See also Aerosol and Short-lived Weather Forcing (English (5 minutes) and Spanish (5 minutes).

Allochthonous carbon:

This type of carbon is produced in one place and deposited in another. Blue carbon ecosystems occur in hydrodynamically highly active environments, at the constant mercy of waves, tides and coastal currents that transport sediment and associated organic carbon from adjacent (offshore or terrestrial) ecosystems. The vegetation found in these systems has complex root structures and canopies that are efficient at capturing sediment as it moves through the system, adding to the local carbon pool as a result.

Allometric equations:

Allometric equations establish quantitative relationships between key features that are easy to measure (e.g. stem height and diameter) and other properties that are often more difficult to assess (e.g. biomass).

Atmosphere:

Gaseous envelope that surrounds the Earth, divided into five layers: the troposphere, which contains half of the earth's atmosphere, the stratosphere, the mesosphere, the thermosphere and the exosphere, the upper limit of the atmosphere. The dry atmosphere is composed almost entirely of nitrogen (volumetric mixing coefficient: 78.1 %) and oxygen (volumetric mixing coefficient: 20.9 %), and various trace gasses, such as argon (volumetric mixing coefficient: 0, 93 %), helium and radiatively active greenhouse gasses (GHG), such as carbon dioxide (CO2) (volumetric mixing coefficient: 0.04 %) or ozone (O3). Furthermore, the atmosphere contains water vapor (H2O), which is also a GHG, in highly variable amounts, although generally with a volumetric mixing coefficient of 1 %. The atmosphere also contains clouds and aerosols. See also Hydrological Cycle, Stratosphere, Greenhouse Gas (GHG) and Troposphere.

Autochthonous carbon:

This type of carbon is produced and deposited on site. Plants absorb carbon dioxide (CO2) from the atmosphere or ocean through photosynthesis (primary production) and transform it to be used by plant tissues (such as leaves, stems and roots/rhizomes) to increase plant biomass. A large part of the plant biomass is distributed in the roots where it decomposes very slowly under anaerobic conditions, thus storing carbon in the sediments.

A

B

Biodiversity:

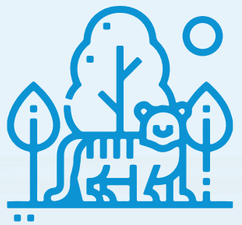
Biological diversity means the variability of living organisms from any source, including, among others, terrestrial and marine ecosystems and other aquatic ecosystems and the ecological complexes of which they are part; it includes the diversity within each species, between species and of ecosystems.

Biomass:

Living or recently dead organic material.

Blue carbon:

Carbon stored, sequestered or released from soil, aboveground living biomass (leaves, branches and stems), belowground living biomass (roots) and non-living biomass (e.g. litter and dry wood) of mangroves, salt marshes and seagrasses.



C

Carbon dioxide (CO2):

CO2, which is a gas of natural origin, is also a by-product of the burning of fossil fuels (such as oil, gas and coal), of the burning of biomass, of the changes of land use and industrial processes (e.g. cement production). It is the main anthropogenic greenhouse gas (GHG) that affects the radiative balance of the Earth. It is the gas used as a reference to measure other GHGs, so its **global warming potential (GWP)** (1 minute) is equal to 1.

Carbon dioxide equivalent (CO_2-eq):

or CO2 equivalent, abbreviated as CO2eq is a metric measure used to compare the emissions from various **greenhouse gasses** (1 minute) on the basis of their **global-warming potential (GWP)** (1 minute), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

Carbon inventory:

A carbon inventory is the accounting of carbon gains and losses due to the emission of carbon to the atmosphere / ocean or removal of carbon from the atmosphere / ocean over a period of time. Policy makers use inventories to establish a baseline to monitor emissions trends, develop mitigation strategies and policies, and assess progress.

Carbon sequestration:

The process of storing carbon in a carbon pool. See also Carbon Dioxide Capture and Storage (CCS), Blue Carbon, Incorporation and Sink

Carbon sink:

A reservoir (of natural origin or product of human activity, in soils, oceans and plants) in which a greenhouse gas, an aerosol or a precursor of a greenhouse gas is stored. Note that sinks are referred to in Article 1.8 of the UNFCCC as any process, activity or mechanism that removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.

Carbon stock:

Carbon stock is the total amount of organic carbon stored in a blue carbon ecosystem of a given size. Carbon stock is the sum of one or more carbon sinks.

Clean Development Mechanism (CDM):

Mechanism defined in Article 12 of the Kyoto Protocol, through which investors (governments or companies) from developed countries (Annex B) can finance projects to reduce emissions or remove gasses from greenhouse effect (GHG) in developing countries (not included in Annex B) and receive certified emission reduction units for it. These units can be used for the fulfillment of the obligations of the respective developed countries. The Clean Development Mechanism has the dual objective of promoting sustainable development in developing countries and helping industrialized countries meet their emission commitments in a cost-effective manner.

Climate change:

Climate change refers to an identifiable variation in the state of the climate (e.g., through statistical tests) in the variations of the mean value or in the variability of its properties, which persists for long periods, usually decades or periods longer. Climate change can be due to natural internal processes or external forcings, such as modulations of solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or land use. The United Nations Framework Convention on Climate Change (UNFCCC), in its article 1, defines climate change as “climate change attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that adds to the natural variability of the climate observed during comparable periods of time”. The UNFCCC therefore differentiates between climate change attributable to human activities that alter atmospheric composition and climate variability attributable to natural causes.

C

D

Deforestation:

Conversion of a wooded area into a non-wooded area. For an analysis of the term forest and the related concepts of afforestation, reforestation and deforestation, see the IPCC Special Report on Land Use, Land Use Change and Forestry (IPCC, 2000). See also the information provided by the United Nations Framework Convention on Climate Change and the report Definitions and Methodological Options to Inventory Emissions from Direct Human-induced Degradation of Forests and Devegetation of Other Vegetation Types.

E

Ecosystem:

A functional unit that consists of living organisms, their non-living environment, and the interactions between them. The components included in a particular ecosystem and their spatial limits depend on the purpose for which the ecosystem is defined: in some cases they are relatively differentiated, while in others they are diffuse. Ecosystem boundaries can vary over time. Ecosystems are organized within other ecosystems, and the scale at which they manifest can range from very small to the entire biosphere. In the current era, most ecosystems either contain humans as fundamental organisms, or are influenced by the effects of human activities in their environment.

F

Forest:

Type of vegetation in which trees predominate. Forest definitions in different parts of the world are very diverse, in line with the diversity of biogeophysical conditions and of social and economic structures. For an analysis of the term forest and the related concepts of afforestation, reforestation and deforestation, see the IPCC Special Report on Land Use, Land Use Change and Forestry (IPCC, 2000). See also the information provided by the United Nations Framework Convention on Climate Change and the report Definitions and Methodological Options to Inventory Emissions from Direct Human-induced Degradation of Forests and Devegetation of Other Vegetation Types.

Fossil fuels:

Carbon-based fuels from fossil hydrocarbon deposits, including coal, oil, and natural gas.

G-I

Global warming:

Estimated increase in global mean surface temperature averaged over a 30-year period, or over the 30-year period centered on a particular year or decade, expressed relative to pre-industrial levels, unless otherwise specified. For 30-year periods spanning past and future years, the current multi-decade warming trend is assumed to continue.

Greenhouse gas (GHG):

Gaseous component of the atmosphere, natural or anthropogenic, that absorbs and emits radiation at certain wavelengths of the spectrum of terrestrial radiation emitted by the Earth's surface, by the atmosphere itself, and by clouds. This property causes the greenhouse effect. Water vapor (H2O), carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4), and ozone (O3) are the primary greenhouse gasses. in the Earth's atmosphere. Likewise, the atmosphere contains a number of entirely anthropogenic greenhouse gasses, such as halocarbons or other substances that contain chlorine and bromine, and is covered by the Montreal Protocol. In addition to CO2, N2O and CH4, the Kyoto Protocol includes greenhouse gasses: sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

(IPCC) The Intergovernmental Panel on Climate Change:

The Intergovernmental Panel on Climate Change (IPCC): Is the United Nations body for assessing the science related to climate change.

Land use:

The term “land use” denotes the set of provisions, activities and inputs (set of human activities) adopted for a certain type of land cover. This term is also used in the sense of the social and economic purposes pursued by land management (eg, grazing, logging and conservation of wood, and urban housing).
In national greenhouse gas inventories, land use is classified based on IPCC land use categories, such as forest land, agricultural land, grasslands, wetlands and settlements, among others.

Land use change:

Land use change involves a change from one land use category to another. Indirect land-use change (iLUC) Refers to market- or policy-driven changes that cannot be directly attributed to land use management decisions made by individuals or groups. For example, if land is no longer used for agricultural use for fuel production, other land can be cleared to replace initial agricultural production. Land use, land-use change and forestry (LULUCF) In the context of national greenhouse gas (GHG) inventories under the UNFCCC , LULUCF is a sector of the GHG inventory that covers anthropogenic emissions and anthropogenic GHG removals in carbon pools on managed lands, with the exception of agricultural emissions of non-CO2 gasses. According to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, land-related “anthropogenic” GHG fluxes are defined as all those occurring on “managed land”, that is, “where they have applied human interventions and practices to carry out productive, ecological and social functions”. Since managed lands may include CO2 removal not considered “anthropogenic” in some of the scientific publications evaluated in this report (eg, removal associated with CO2 fertilization and nitrogen deposition), estimates of net land-related GHG emissions included in this report are not necessarily directly comparable to LULUCF estimates included in national GHG inventories.

M-N

Mangrove:

A mangrove is a tree that is generally more than half a meter in height and that usually grows above mean sea level in the intertidal zone of coastal marine environments and on the shores of estuaries. A mangrove is the habitat influenced by the tides where these trees grow, as well as shrubs, palms or terrestrial ferns that meet the characteristics described.

Marsh:

A marsh is a coastal ecosystem that is located in the upper intertidal zone between land and open ocean waters or brackish waters and that is regularly flooded with water by tides. It is dominated by dense patches of salt-resistant plants, such as grasses, grasses, or low shrubs.

Mitigation (of climate change):

Human intervention aimed at reducing emissions or improving sinks of greenhouse gasses.

Nationally determined contributions (NDCs):

are at the heart of the Paris Agreement and the achievement of these long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.

Paris Agreement:

The Paris Agreement (English and Spanish version (more than 30 minutes)) under the United Nations Framework Convention on Climate Change (UNFCCC) was approved in December 2015 in Paris, France, at the 21st session of the Conference of the Parties (CP) to the UNFCCC. The Agreement, approved by 196 Parties to the UNFCCC, entered into force on November 4, 2016, and as of May 2018 it had 195 signatory countries and had been ratified by 177 Parties. One of the objectives of the Paris Agreement is “to keep the increase in global average temperature well below 2 ºC with respect to pre-industrial levels, and to continue efforts to limit this increase in temperature to 1.5 ºC with respect to pre-industrial levels, recognizing that this would significantly reduce the risks and effects of climate change ”. Likewise, the Agreement aims to strengthen the capacity of countries to cope with the impacts of climate change. Actually, **196 Parties have joined the Paris Agreement** (4 minutes). The Paris Agreement works on a five- year cycle of increasingly ambitious climate action carried out by countries. In this period of five years, each country is expected to submit an updated national climate action plan - known as Nationally Determined Contribution (NDC).

P

Reducing Emissions from Deforestation and Forest Degradation (REDD+):

An initiative aimed at creating financial value for carbon stored in forests, offering incentives for developing countries to reduce emissions from forest lands and invest in pathways of low carbon consumption towards sustainable development. It is, therefore, a mitigation mechanism derived from avoiding deforestation. REDD + goes beyond deforestation and forest degradation and includes the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks. The concept was first introduced in 2005 at the 11th session of the Conference of the Parties (COP), held in Montreal, and subsequently gained further recognition at the 13th session of the COP, held in Bali, and with the Bali Action Plan calling for "policy approaches and positive incentives for issues related to reducing emissions from deforestation and forest degradation in developing countries (REDD); and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries ". Since then, support for the REDD initiative has grown, gradually becoming a framework for action supported by various countries.

Reforestation:

Planting of forests on lands that had already contained forest, but that had been destined for another use. For an analysis of the term forest and related concepts of afforestation, reforestation and deforestation, see the IPCC Special Report on Land Use, Land Use Change and Forestry, information provided by the Convention United Nations Framework on Climate Change and the report Definitions and Methodological Options to Inventory Emissions from Direct Human-induced Degradation of Forests and Devegetation of Other Vegetation Types.

Rehabilitation:

is the repair and replacement of essential ecosystem structures and functions in the context of ecoregional attainability in order to achieve specified objectives. It is analogous to medical rehabilitation and emphasizes return to an achievable resemblance of prior conditions and makes no pretense of accomplishing absolute authenticity. (Cooke, D. 2005).

Restoration:

is defined as "any intentional activity that initiates or accelerates the recovery of an ecosystem from a degraded state"; whatever is the form or intensity of degradation (IPBES, 2018). Restoration responses are diverse depending on the type of ecosystem in which they are to be applied (croplands, forests, rangeland, urban land, wetlands, etc.). To enable ecosystems to provide essential functions those responses should consider landscape-level strategies, responding to local and enabling conditions, as well as integrate indigenous and local knowledge (IPBES, 2018; CBD, 2019). (UICN, 2021).

R

S

Sea level change (sea level rise/fall):

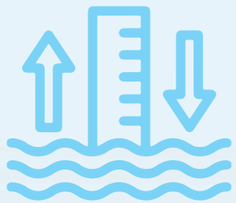
Sea level can change, both globally and locally (relative sea level change), due to the following changes: 1) changes in volume from the ocean as a result of a change in the mass of ocean water; 2) changes in ocean volume as a result of changes in ocean water density; 3) changes in the conformation of ocean basins and changes in the gravitational and rotating fields of the Earth; and 4) subsidence or elevation of the terrain at the local level. The variation of the global mean sea level as a result of the modification of the ocean mass is called baristatic. The baristatic change in sea level due to the addition or removal of a body of water is called equivalent sea level (NME). Global and local changes in sea level induced by variations in water density are called steric.

Soil organic carbon:

The term soil organic carbon refers to carbon components of soil organic matter. The amount of organic carbon in soil depends on soil texture, climate, vegetation, and current and historical land use and management.

Soil organic matter:

The term soil organic matter is used to describe the organic elements of the soil (undecomposed tissues of dead plants and animals, products generated as they decompose, and the microbial biomass of the soil).



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