Environment/Biodiversity & SDGs

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RAMSAR CONVENTION ON WETLANDS
Year: 1975
Entity: United Nations
Summary: The Ramsar Convention, is an international agreement promoting the conservation and wise use of wetlands. It is the only global treaty to focus on a single ecosystem.

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FLORA AND FAUNA (CITES)
Year: 1975
Entity: International Union for the Conservation of Nature
Summary: The agreement seeks to ensure international trade in specimens of animals and plants included under CITES does not threaten the survival of the species in the wild. CITES affords protection to more than 38,000 species.

CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS (CMS)
Year: 1983
Entity: United Nations
Summary: The agreement is an international agreement that aims to conserve migratory species throughout their ranges.

BIODIVERSITY BEYOND NATIONAL JURISDICTION TREATY (BBNJ)
Year: 2023
Entity: United Nations (under UN Convention on the Law of the Sea)
Summary: The BBNJ is a legally binding instrument for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction

INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE
Year: 2004
Entity: United Nations
Summary: The treaty aims at guaranteeing food security through the conservation, exchange and sustainable use of the world's plant genetic resources for food and agriculture, the fair and equitable benefit sharing arising from its use, as well as the recognition of farmers' rights.

INTERNATIONAL PLANT PROTECTION CONVENTION
Year: 1951
Entity: United Nations
Summary: The international agreement seeks to secure coordinated, effective action to prevent and to control the introduction and spread of pests of plants.

SUSTAINABLE DEVELOPMENT AGENDA
Year: 2015
Entity: United Nations
Summary: The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. It consists of 17 goals to achieve these aims.

Addresses SDGs 1 (no poverty), 2 (zero hunger), 3 (good health & well being), 6 (clean water & sanitation), 7 (affordable energy), 11 (sustainable cities & communities), 12 (responsible consumption 6 production), 13 (climate action), 14 (life on water), 15 (life on land)

CONVENTION ON BIOLOGICAL DIVERSITY (CBD)
Year: 1992
Entity: United Nations
Summary: The Convention has three main goals: the conservation of biodiversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources. Its objective is to develop national strategies for the conservation and sustainable use of biological diversity, and it is often seen as the key document regarding sustainable development.

CARTAGENA PROTOCOL ON BIOSAFETY
Year: 2000
Summary: The Biosafety Protocol makes clear that products from new technologies must be based on the precautionary principle and allow developing nations to balance public health against economic benefits.

NAGOYA PROTOCOL ON ACCESS AND BENEFIT SHARING
Year: 2010
Summary: The goal of the protocol is the fair and equitable sharing of benefits arising out of the utilization of genetic resources. It sets out obligations for its contracting parties to take measures about access to genetic resources, benefit-sharing, and compliance.

International Level

Addresses SDG 13 (climate action), SDG 14 (life on water) SDG 15 (life on land)

MONTREAL-KUNMING GLOBAL BIODIVERSITY FRAMEWORK
Year: 2022
Entity: United Nations (under the CBD)
Summary: The non-binding framework which aims to halt and reverse biodiversity loss by 2030. It features 23 targets to be met by 2030 and four global goals to preserve biodiversity for current and future generations.

EU FOREST STRATEGY
Year: 2022
Entity: European Union (Green Deal core action to complement Biodiversity Strategy)
Summary: The strategy contributes to achieving the EU's biodiversity objectives and GHG reduction targets of at least 55% by 2030 and climate neutrality by 2050. It recognizes the central and multifunctional role of forests and the contribution of foresters and the entire forest-based value chain for achieving a sustainable and climate-neutral economy by 2050 and preserving lively and prosperous rural areas.

15.1. Terrestrial & freshwater ecosystems — 15.1.1. Forest areas
15.2. Sustainable forest management — 15.2.1. Sustainable forest management

European Union Level

EU BIODIVERSITY STRATEGY
Year: 2022
Entity: European Union (Green Deal core action)
Summary: The EU's biodiversity strategy for 2030 is a plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put Europe's biodiversity on a path to recovery by 2030 and contains specific actions and commitments.

14.2. Marine & coastal ecosystem — 14.2.1. National economic zones
14.4. Sustainable fishing — 14.4.1. Sustainable fishing

EU NATURE RESTORATION LAW
Year: 2024
Entity: EU
Summary: To reach the overall EU targets, member states must restore at least 30% of habitats covered by the new law (from forests, grasslands, and wetlands to rivers, lakes, and coral beds) from poor to good condition by 2030, increasing to 60% by 2040, and 90% by 2050.

EU SOIL STRATEGY (UPDATE)
Year: 2022
Entity: Sets out a framework and concrete measures to protect and restore soils and ensure that they are used sustainably. It sets a vision and objectives to achieve healthy soils by 2050, with concrete actions by 2030.

EU SOIL MONITORING LAW (PROPOSAL)
Year: 2024 (ongoing)
Entity: EU
Summary: Provides a legal framework to help achieve healthy soils by 2050. It will do so by putting in place a solid and coherent monitoring framework for all soils across the EU so Member States can take measures to regenerate degraded soils making sustainable soil management the norm in the EU.

REGULATION ON DEFORESTATION-FREE PRODUCTS
Year: 2023
Entity: EU
Summary: The main driver of deforestation is linked to the production of certain commodities. Any operator or trader who places these commodities on the EU market, or exports from it, must be able to prove that the products do not originate from recently deforested land or have contributed to forest degradation.

EU FOREST MONITORING LAW (PROPOSAL)
Year: 2024 (ongoing)
Entity: EU
Summary: The framework aims to develop "an EU-wide forest observation framework" providing open access to the condition and management of the EU's forests. The framework will use remote sensing technologies and geospatial data together with monitoring on the ground, focusing on parameters connected to EU policy priorities.

NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS
Entity: EU Member States

URBAN GREENING PLANS
Entity: Cities and Municipalities

NATIONAL STRATEGIC PLANS (PROPOSAL)
Year: 2024 (ongoing)
Entity: EU Member States (under EU Forest Monitoring Law)

National/ Member State Level

Environment and Biodiversity related indicators

SDGs EYES

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	Indicator	Way forward / Solution	Policy Strategic areas & Actions
14 LIFE BELOW WATER	**Marine waters affected by eutrophication** SDG 14.1.1: Coastal Eutrophication & Plastic Debris	-Purpose: Monitor coastal pollution from algal blooms and plastic debris. -Computation: Create maps showing areas where chlorophyll levels exceed safe thresholds (eutrophication index). -Process: (i) Analyze chlorophyll levels to detect algal blooms (ii) Track floating plastic debris patterns (iii) Use continuous satellite monitoring to identify pollution trends over time (S1, S3)	**Marine Strategy Framework Directive** (A zero pollution ambition for a toxic-free environment), *EU Biodiversity strategy 2030, Environment and oceans (fresh air, clean water, healthy soil and biodiversity), Nature Restoration Law,* ***Water Framework Directive***

STEP 1: Get data

Estimation of Coastal Area
- Use classification map to estimate the total coastal area.
- Exclude non-coastal zones from the area calculation (e.g., inland waters).

STEP 2: Process data

Calculation of Chlorophyll Levels and Plastic Debris
- Determine chlorophyll concentration using satellite data (e.g., Sentinel-3 for chlorophyll-a).
- Detect plastic debris using synthetic aperture radar (SAR) data (e.g., Sentinel-1).

Calculate Sub-Indicators
- Eutrophication index: Measure areas exceeding chlorophyll concentration thresholds.
- Plastic debris density: Calculate debris density in coastal zones.

Apply
- Assess each sub-indicator (eutrophication, debris density).
- Determine overall status of pollution in the coastal area.

STEP 3: Validate the data

Calculate Proportion of Polluted Coastal Area
- Aggregate results for eutrophication and plastic debris.
- Proportion calculation: Determine percentage of coastal area affected by pollution.

Reporting and Visualization

Generate reports on coastal pollution trends.

Visual comparison: Use maps for visualizing polluted areas.

Publish findings for policy-makers and stakeholders.

15 LIFE ON LAND	**Share of forest area (cover)** SDG 15.1.1: Forest Area as a Proportion of Land Area	-Purpose: Monitor changes in forest cover over time. -Computation: Generate maps showing forest cover changes and the causes (e.g., soil loss, erosion). -Process: (i) Calculate forest cover using satellite imagery. (ii) Analyze deforestation rates and classify areas of change. (iii)Use regular satellite updates to detect ongoing changes and their impact (S2)	**EU Biodiversity strategy 2030, New EU Forestry Strategy for 2030** (Preserving and restoring ecosystems and biodiversity) *Deforestation-free products, measures such as promoting afforestation and reforestation, reducing the use of wood-based products that contribute to deforestation, and improving forest monitoring and data collection*

STEP 1: Get data

Estimation of total land area
- Use classification map to estimate total land area
- Exclude water and wetland areas from the total land area estimation

STEP 2: Process data

Calculation of forest area
- Determine forest area using available data

Calculate sub-indicators

Apply
- Assess each sub indicator
- determine overall status

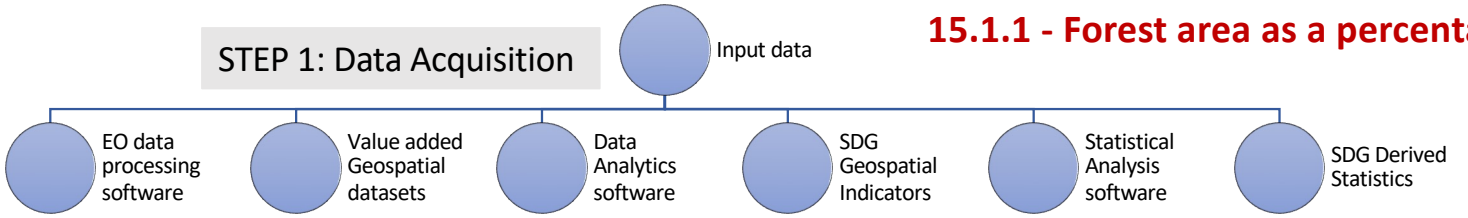
STEP 3: Validate the data

Calculate proportion of forest area to total land area
- Aggregate results
- proportion calculation

Reporting and visualization
- Generate reports
- Visual comparison
- Publish findings

Environment and Biodiversity related indicators

15.1.1 - Forest area as a percentage of total land area



STEP 2a: Preprocessing and Analysis

Land Cover Classification
- Satellites capture high-resolution imagery.
- Create land cover classification maps to distinguish forests.
- Continuous monitoring supports tracking changes in forest cover over time.

Monitoring Forest Changes
- Satellite imagery tracks deforestation, afforestation, and natural events.
- NDVI (Normalized Difference Vegetation Index) measures forest health and biomass changes.

Accuracy through High Temporal & Spatial Resolution
- Sentinel-1 and Sentinel-2 provide 10-20m resolution.
- Enables frequent, detailed monitoring of forest changes.
- Timely updates help policymakers respond to forest degradation events.

STEP 2b: Indicator calculation

Workflow Integration: Satellite Data & Authoritative Datasets
- Satellite data integrated with national inventories and EU datasets (e.g., Corine Land Cover).
- Socioeconomic data (land ownership, management) complements forest cover information.
- Ensures accurate total land area and consistent legal forest definitions.

STEP 3: Validate the data & Reporting

Processing & Analysis
- Earth Observation tools process satellite images for forest cover changes.
- Change detection algorithms identify deforestation or afforestation.
- Generates forest cover maps over time for SDG 15.1.1 reporting.

Reporting & Compliance with EU Policies
- Data feeds into EU frameworks (e.g., Forest Europe, LULUCF Regulation, EUDR…).
- Supports European Green Deal objectives and forest conservation targets.
- Published in national reports for global SDG 15 monitoring.

- Alignment with **EU Biodiversity Strategy for 2030**
- **LULUCF regulation** uses forest cover data to calculate carbon removals from forests, feeding into the EU's greenhouse gas accounting
- Provides critical data for measuring forest area, which directly supports the objectives of the **EUDR**
- commitments to conserve forests and biodiversity UN Framework Convention on Climate Change **(UNFCCC)** and the Convention on Biological Diversity **(CBD)**