

Appendices



Integrating Nature Into Sovereign Debt Markets

*A New Sovereign Debt Nature
Assessment Model*

November 2025



Appendices

Appendix 1: Our Sovereign Debt Nature Assessment Model (Full Technical Version)

Indicator and Data Overview	3
Pillar 1 – State of Natural Capital	6
1A Extent and Significance of Natural Capital	6
1B Integrity of Natural Capital	9
1C Protection, Restoration & Stewardship	12
Pillar 2 – Socio-economic Activities	15
2A Exposure to High Dependency or Impact Sectors	15
2B Translation into Macroeconomic Indicators	19
2C Pressures Exerted on the Environment	22
Pillar 3 – Governance	25
3A International Environmental Commitments and National Implementation	25
3B Commitment to address the five IPBES Pressures and Water Dependency	30
3C Committed Resources and Implementation Capacity	33

Appendix 2: Key Nature Instruments for Sovereign Finance

36

Appendix 3: Checklist for Indicator and Data Point Selection

37

Appendices

Appendix 1: Our Sovereign Debt Nature Assessment Model (Full Technical Version)

Indicator and Data Overview

Pillar	Ref	Category	Ref	Characteristics	Indicators
Pillar 1	1A	Extent and Significance of Natural Capital	1A1	Existence of Areas of Global Significance for Biodiversity	Critical Natural Assets
					Number and Extent of Key Biodiversity Areas (KBAs)
			1A2	Terrestrial Ecosystem Extent	National territory covered by native forest
					National territory under each land cover class
	1A3	Freshwater Ecosystem Extent			Renewable Internal Water Resources
			1A4	Marine Ecosystem Extent	Marine and Coastal Habitats
	1B	Integrity of Natural Capital	1B1	Species Extinction Risk	Red List Index (RLI)
			1B2	Terrestrial Ecosystem Condition	Biodiversity Intactness Index (BII)
			1B3	Freshwater Ecosystem Condition	Freshwater Quality
			1B4	Marine Ecosystem Condition	Ocean Ecological Health
			1B5	Air Condition	Exposure to Toxic Air Compounds
	1C	Protection, Restoration & Stewardship	1C1	Restoration Opportunities on Land	Areas of Global Significance for Restoration
			1C2	Restoration Opportunities at Sea	Marine Priority Areas
			1C3	Protected Area Network Quality	Protected Area Connectivity (ProtConn)
					Terrestrial Key Biodiversity Areas (KBAs) Protection
	1C4	Cultural and Stewardship Significance in Ecosystems			Areas managed or co-managed by Indigenous Peoples and Local Communities

Table 1. Organisation of the Assessment Model's Pillar 1, with "Ref." for ID references

Pillar	Ref	Category	Ref	Characteristics	Indicators
Pillar 2	2A	Exposure to High Dependency or Impact Sectors	2A1	Country Exposure to Impacts and Dependencies through National Production	% of value added from sectors with high dependencies on ecosystem services
					% of value added from sectors with high impact on nature
			2A2	Country Exposure through Importation	% of imports generated by high impact sectors
					% of imports generated by high dependency sectors
			2A3	Country Exposure through Exportation	% of exports generated by high impact sectors
					% of exports generated by high dependency sectors
			2A4	Employment generated by Exposed Sectors	% employment generated by high impact sectors
					% employment generated by high dependency sectors
	2B	Translation into Macroeconomic Indicators	2B1	Value added generated by Exposed Sectors	% value added generated by high dependency and high impact sectors
			2B2	Exports generated by Exposed Sectors	% of exports generated by high dependency sectors and high impact sectors
			2B3	Imports generated by Exposed Sectors	% of imports generated by high dependency sectors and high impact sectors
			2B4	Employment generated by Exposed Sectors	% of employment generated by high dependency sectors and high impact sectors
					% of women employed in high-dependency sectors
	2C	Pressures Exerted on the Environment	2C1	Land Use Change	Habitat Loss Trends
					Land Cover Change (natural versus anthropogenic)
			2C2	Exploitation of Resources	Pressure on Water Resources (Water Stress)
					Projected Water Stress (2030/2050/2080)
					Overfished share
			2C3	Invasive Species	Terrestrial Invasive Alien Species (IAS) Threat
					Introduced Marine Species
			2C4	Climate Change	GHG Emissions
			2C5	Pollution	Nitrogen Surplus
					Plastic Emissions to Oceans
					Air Pollutant Emissions Intensity

Table 2. Organisation of the Framework's Pillar 2, with "Ref." for ID references

Pillar	Ref	Category	Ref	Characteristics	Indicators
Pillar 3	3A	International Environmental Commitments and National Implementation	3A1	International Environmental Commitments	Participation in Global Biodiversity Treaties
			3A2	Translation into National Planning	Existence of a Current National Biodiversity Strategy and Action Plan (NBSAP)
					National Biodiversity Strategy and Action Plan (NBSAP) Ambition
			3A3	Translation into Economic Transformation	Biodiversity Finance Plan Status
					% of exports generated by high dependency sectors
			3A4	Habitat and Species Protection	Percentage of Terrestrial Areas covered by Protected Areas
					Percentage of Marine Areas covered by Protected Areas
			3A5	Social Inclusivity Efforts	Legal status and Recognition of IPLCs in Biodiversity and Land Policies
					Presence of Gender-specific Targets in NBSAP or related Biodiversity Plans
	3B	Commitment to address the five IPBES pressures and Water Dependency	3B1	Land, Freshwater and Ocean Use Change	Land and Ocean Use Change Policy Instruments
			3B2	Exploitation of Resources	Overexploitation Control Policies
			3B4	Invasive Species	Budget for Invasive Alien Species Management
			3B5	Climate Change	Climate Change Commitment
			3B6	Pollution	Pollution Control Policy Instruments
			3B3	Water Governance	Integrated Water Resource Management (IWRM)
	3C	Committed Resources and Implementation Capacity	3C1	National Natural Capital Accounts	Natural Capital Accounting Adoption
			3C2	Corporate Disclosures	Mandatory Corporate Biodiversity Disclosures
					TNFD adoption by Economic Sector
			3C3	Governance through Subsidies	Subsidy Reform for Biodiversity
			3C4	Government spending on Biodiversity Conservation	Budget Allocation to Biodiversity
			3C5	Nature finance Instruments Issued	Sovereign Nature Finance Instruments

Table 3. Organisation of the Framework's Pillar 3, with "Ref." for ID references

Pillar 2 – Socio-economic Activities

2A Exposure to High Dependency or Impact Sectors

2A1	Value added generated by Exposed Sectors
Indicator	% value added generated by high dependency and high impact sectors
Definition	Percentage of national value added coming from "exposed" sectors, i.e. those that are either highly dependent on ecosystem services or have high impact on nature (the union of the two categories above). This aggregates the share of the economy linked to nature, either through dependence or impact.
Relates to	Overall nature exposure (combined dependency and impact)
Primary Data Source(s)	GLORIA MRIO (sectoral GVA) via SCP-HAT
Secondary Source	ENCORE (dependency & impact ratings)
Primary Link	https://scp-hat.org/data-download/
Secondary Link	https://encorenature.org/en/explore
Coverage	Global (country-level)
Data Format & Access	% of GDP. GLORIA data via SCP-HAT.
Unit & Scale	Percentage of the weight of exposed sectors
Materiality	Environmental & Financial; link to GBF target 10,14
Interpretation Notes	Provides an overarching view of the economy's connection to nature. Method: Compile the list of sectors that are either High/Very High dependency or High/Very High impact (from ENCORE), then use GLORIA to calculate their total share of GDP (avoiding double-counting any sector that meets both criteria). Interpretation: A higher percentage means a larger portion of economic activity is nature-related in some critical way (either vulnerable to ecosystem decline or contributing to it). Many primary sectors often fall into both high-dependency and high-impact groups (e.g. agriculture, forestry, fishing, mining overlap both dimensions). Therefore, this indicator gives a broad measure of nature-related economic exposure. Countries with a very high exposed share might face significant risks from biodiversity loss (affecting dependent sectors) as well as global pressure to reform environmentally harmful sectors. This metric can help prioritize diversification or sustainability efforts in the economy.

2A2	Imports generated by Exposed Sectors
Indicator	% of imports generated by high dependency sectors and high impact sectors
Definition	Share of total import value consisting of goods produced by exposed sectors (sectors highly dependent on or impacting nature). It measures how much of what the country imports is tied to nature-sensitive industries globally.
Relates to	Trade (imports) exposure (nature-linked sectors in imports)
Primary Data Source(s)	WITS / UN Comtrade (import data by sector)
Secondary Source	ENCORE (dependency & impact ratings)
Primary Link	https://wits.worldbank.org/
Secondary Link	https://encorenature.org/en/explore
Coverage	Global (country-level)
Data Format & Access	% of total imports value. GLORIA data via SCP-HAT.
Unit & Scale	Percentage of the weight of exposed sectors
Materiality	Environmental & Financial; link to GBF target 10,14
Interpretation Notes	Measures the dependency of domestic consumption on nature-intensive sectors abroad. Method: Using the "exposed" sector list (#4), sum their contribution to imports (from GLORIA trade data) and divide by total imports. Interpretation: A higher value means a large portion of imports (e.g. food, timber, oil, minerals) comes from sectors that either rely on healthy ecosystems or cause biodiversity pressure. This indicates indirect exposure – the country's economy could be affected by nature loss in supplier countries (through supply disruptions or price volatility). It also hints at the country's external environmental footprint, as high values imply that domestic demand is met by nature-impacting activities elsewhere. This information can guide policies on sustainable procurement and trade (e.g. requiring certified commodities) to reduce imported biodiversity risk.

2A3	Exports generated by Exposed Sectors
Indicator	% of exports generated by high dependency sectors and high impact sectors
Definition	Share of total export value that comes from exposed sectors (sectors highly dependent on ecosystem services and/or with high nature impact). It represents how much of a country's export earnings rely on nature-dependent or nature-impacting industries.
Relates to	Trade (exports) exposure (nature-linked sectors in exports)
Primary Data Source(s)	WITS / UN Comtrade (export data by sector)
Secondary Source	ENCORE (dependency & impact ratings)
Primary Link	https://wits.worldbank.org/
Secondary Link	https://encorenature.org/en/explore
Coverage	Global (country-level)
Data Format & Access	% of total exports value. GLORIA data via SCP-HAT
Unit & Scale	Percentage of the weight of exposed sectors
Materiality	Environmental & Financial; link to GBF target 10,14
Interpretation Notes	Shows the extent to which exports (and thus foreign income) depend on nature-related sectors. Method: Using the same "exposed" sector list as in #4, sum the value of those sectors' exports and divide by total exports (from GLORIA or trade stats). Interpretation: A high percentage indicates the country's export base is concentrated in agriculture, natural resources, or other nature-sensitive goods. Such economies could be vulnerable to external shocks – for instance, ecosystem collapse or changing consumer preferences/import regulations (e.g. bans on unsustainably sourced products) could affect export revenues. This metric highlights potential trade-offs between export-led growth and biodiversity. Countries heavily reliant on exposed exports (e.g. commodity exporters) may need strategies to add value sustainably or diversify exports to manage nature-related financial risks.

2A4	Employment generated by Exposed Sectors
Indicator	% employment generated by high dependency sectors and high impact sectors
Definition	Percentage of national employment (jobs) that is in exposed sectors (either highly nature-dependent or high-impact sectors). This indicates the share of the workforce whose jobs are linked to ecosystems – either relying on nature's services or in activities that affect nature.
Relates to	Socio-economic exposure (labour force in nature-dependent/ impacting sectors)
Primary Data Source(s)	GLORIA / SCP-HAT (employment by sector data) via SCP-HAT
Secondary Source	ENCORE (dependency & impact ratings)
Primary Link	https://scp-hat.org/data-download/
Secondary Link	https://encorenature.org/en/explore
Coverage	Global (many countries; may use ILO data if unavailable in GLORIA)
Data Format & Access	% of total employment. GLORIA MRIO includes modelled employment by sector (with global coverage); or use ILO/national labour force data.
Unit & Scale	Percentage of the weight of exposed sectors
Materiality	Environmental & Financial; link to GBF target 10,14
Interpretation Notes	Highlights how many jobs depend on nature-related sectors. Method: Identify "exposed" sectors via ENCORE, then use sectoral employment data (from GLORIA's MRIO extensions or national statistics) to calculate the share of total employment in those sectors. Interpretation: A high percentage means a large portion of the population works in agriculture, fisheries, forestry, mining, or similar sectors. These jobs could be at risk if ecosystems degrade or if industries must shift to more sustainable practices. This is crucial for assessing just transition needs – regions with many nature-dependent jobs may require support to adapt. For example, globally about 26% of the workforce is employed in agriculture alone, illustrating how livelihoods, especially in developing countries, are tied to nature. Policymakers should interpret high values as a need to invest in resilience (e.g. sustainable farming, ecosystem restoration) and job diversification/training in case of ecological shocks.

2A5	Employment generated by Exposed Sectors – Gender-related
Indicator	% of women employed in high-dependency sectors (e.g., agriculture, forestry, fisheries, tourism)
Definition	Measures the share of female employment in sectors that are directly dependent on ecosystem services or highly exposed to nature-related risks. This highlights gender-based differences in vulnerability to environmental degradation and ecosystem collapse.
Policy Theme	Socio-economic vulnerability
IPBES Pressure	N/A (enabling)
Data Source(s)	ILOSTAT
Link	https://ilostat.ilo.org/
Coverage	<u>National-level statistics by sector and gender; global coverage varies by sector and country.</u>
Data Format & Access	Public database with downloadable tables (Excel, CSV) and interactive dashboards
Unit & Scale	TBD
Materiality	TBD
Interpretation	Indicates gender-differentiated exposure to nature-related risks through employment patterns. High values suggest greater vulnerability of women to environmental shocks, especially in nature-dependent economies. Useful for assessing social equity in transition risk.
Accessibility/Usage	Freely accessible through ILOSTAT's online portal. Tools support country-level filtering, cross-year comparison, and gender-disaggregated insights. Some gaps may exist for certain countries or sectors.
Complementary Indicator/Source	FAO Gender and Land Rights Database, UN Women & UNEP sectoral data, World Bank Gender Data Portal

2B Translation into Macroeconomic Indicators

2B1	Domestic wealth
Indicator	National Comprehensive Wealth Index
Definition	The national comprehensive wealth aggregates produced capital, non renewable and renewable natural capital, human capital, and net foreign financial assets.
Primary Data Source(s)	World Bank Group
Primary Link	https://essdata.worldbank.org/data/countries
Coverage	Global, National-level
Data Format & Access	Webpage with country-specific data
Unit & Scale	Aggregated and disaggregated total and per capita amounts, per capita
Materiality	Financial, GBF Target 14
Interpretation Notes	Wealth accounting provides an estimate of the total wealth of nations by aggregating values of these different components of wealth. Change in wealth per capita is an indicator to assess a country's potential to grow in the future. A fall in wealth indicates that a country is depleting its assets and may not be able to sustain its future GDP growth.

2B1	Domestic wealth
Indicator	Income Level Groups
Definition	Every year, the World Bank Group classifies the world's economies into four income groups: low, lower-middle, upper-middle, and high. These classifications, updated each year on July 1, are based on the previous year's Gross National Income (GNI) per capita, expressed in U.S. dollars using the Atlas method.
Primary Data Source & Link	https://blogs.worldbank.org/en/opendata/understanding-country-income-world-bank-group-income-classifica
Secondary Data Source & Link	https://ourworldindata.org/grapher/world-bank-income-groups?mapSelect=-BRA
Coverage	Global, National-level
Data Format & Access	Webpage with country-specific data
Unit & Scale	Four groups: low, lower-middle, upper-middle, and high.
Materiality	Financial; GBF Target 14
Interpretation Notes	A country's income classification not only reflects its level of development, but it also has the potential to influence its development trajectory. It affects eligibility for official development assistance and concessional financing.

2B2	Debt Sustainability & Environmental Vulnerability
Indicator	Interests over Revenues ratio
Definition	Measures the percentage or portion of a government's total revenue that goes toward paying interest on its debt.
Primary Data Source & Link	World Bank Group - https://databank.worldbank.org/source/world-development-indicators/Series/GC.XPN.INTD.PV.ZS
Coverage	Global, National-level and per region or income group.
Data Format & Access	Online database of interests over revenues ratios
Unit & Scale	Percentages
Materiality	Financial; GBF Target 14
Interpretation Notes	This indicator is not only meant as a warning system for investors, but also as an indication of potential constraints on biodiversity expenditures, as demonstrated by the CBD draft study (see Box 5).
Complementary Indicator	Debt Sustainability Ratings - https://www.worldbank.org/en/programs/debt-toolkit/dsa Structured examinations of developing-country debt based on the WBG Debt Sustainability Framework.

2B2	Debt Sustainability & Environmental Vulnerability
Indicator	Climate Risk Index
Definition	The CRI analyses climate-related extreme weather events' degree of effect on countries. The index considers absolute and relative impacts, using six key indicators: economic loss, fatalities, and affected people – each in absolute and relative terms. In doing so, it measures the consequences of realised risks on countries.
Primary Data Source & Link	German Watch - https://www.germanwatch.org/en/cr/
Coverage	Global CRI 2026 covers 174 countries
Data Format & Access	Webpage with map, scatterplot and ranking. It draws on data from the EM-DAT international disaster database, World Bank, and International Monetary Fund (IMF).
Unit & Scale	The index ranks countries by their economic and human impacts (fatalities, as well as total affected), with the most affected country ranked highest.
Materiality	Financial; GBF Targets 8, 14
Interpretation Notes	The CRI methodology involves analysing extreme weather events' impacts via three hazard categories: hydrological, meteorological, and climatological.
Complementary Indicator	Food Import Vulnerability Index - https://www.foodsecurityportal.org/node/2505 An assessment of the risk to national food security from international food price shocks for 182 countries

2C Pressures Exerted on the Environment

2C1	Land Use Change
Indicator	Habitat Loss Trend
Definition	The Species Habitat Index (SHI) measures the proportion of suitable habitats for a country's species that remain intact, relative to a baseline set in the year 2001. While the SHI can be calculated for single species, Map of Life aggregates these metrics into a single score, with each species weighted according to the proportion of their global range that is found within the country. This weighting scheme encourages countries to take special care to ensure the protection of rare or endemic species.
Biome(s)	Terrestrial
Primary Data Source(s)	Species Habitat Index
Link	https://epi.yale.edu/measure/2024/SHI
Resolution & Coverage	Index; national
Update Frequency	Annual
Format & Access	Online database, CSV
Unit & Scale	Index from 0 (worst habitat loss) to 100 (no habitat loss since 2021), with trends over 10 years
Materiality	Environmental; link to GBF target 1,4
Interpretation	It reflects habitat availability and ecosystem integrity. The SHI serves as a proxy for potential population losses and the extinction risk to individual species. A score of 100 indicates that a country has experienced no habitat loss since the year 2001, and a score of 0 indicates the worst levels of habitat loss.
Accessibility/ Usage	Available via EPI website. Results are aggregated from Map of Life data. Downloadable as national scores. Search for "SHI" under indicators. Each species is weighted by range-share, emphasizing endemic and rare species.

2C1	Land Use Change
Indicator	Land cover change (natural versus anthropogenic)
Definition	Change in the area (km ²) and share (%) of national land mapped as "natural" versus "anthropogenic" cover over a selected period, using a consistent global land-cover time series. Natural cover groups classes such as tree/shrub/grass/wetlands; anthropogenic cover groups cropland, built-up and other human-modified classes; grouping follows the product legend.
Biome(s)	Terrestrial and Freshwater
Primary Data Source(s)	UN Biodiversity Lab (hosting ESA WorldCover / ESA CCI Land Cover)
Link	https://map.unbiodiversitylab.org/earth
Resolution & Coverage	Global; 10 m (WorldCover) or ~300 m (CCI)
Update Frequency	Annual
Format & Access	Raster GeoTIFF with class codes; web map viewers
Unit & Scale	Absolute number in square meters and percentage of total area
Materiality	Environmental & Financial; link to GBF target 1,10
Interpretation	Reports the annual and cumulative change in natural and anthropogenic land cover (km ² and %) between the chosen baseline and end year, with optional net/gross conversions where a change matrix is available. Uses consistent class groupings across years; apparent changes can reflect reclassification or shadow handling.
Accessibility/Usage	Access via UNBL: add the land-cover layers for baseline and end year, group classes into "natural" and "anthropogenic", run country-level zonal statistics or the change tool, export results, and cite dataset year/version and grouping rules.
Complementary Indicator/Source	Forest degradation Rate & Drivers - Annual rate of tree cover loss derived from Global Forest Watch (UMD/Hansen tree cover loss) combined with the WRI "Global Drivers of Forest Loss" classification. Source: https://www.globalforestwatch.org/

2C2	Exploitation of Resources
Indicator	Pressure on Water Resources (Water Stress)
Definition	The ratio of total annual freshwater withdrawals to internal renewable water resources, indicating the pressure on available freshwater supply. A high ratio reflects water stress.
Biome(s)	Terrestrial, Freshwater
Primary Data Source(s)	FAO AQUASTAT
Link	https://data.apps.fao.org/aquastat/?lang=en
Resolution & Coverage	National level; global data (150+ countries)
Update Frequency	Annual (data collected via country surveys; new values released each year)
Format & Access	Online database (interactive query portal); data downloadable in bulk (CSV) with open license (CC-BY)
Unit & Scale	Percentage compared to a 25% threshold (TBC)
Materiality	Environmental & Financial; link to GBF target 10,11
Interpretation	Indicates the overall pressure on water resources in a country. It also provides the contribution of the agricultural and industrial sectors to water stress.
Accessibility/ Usage	AQUASTAT provides country data on total renewable water resources and freshwater withdrawals, enabling calculation of the “water stress” percentage (freshwater withdrawal as % of resources, SDG 6.4.2). Exceeding 25% may indicate high stress conditions.

2C2	Exploitation of Resources
Indicator	Projected Water Stress (2030/2050/2080)
Definition	The projected ratio of total annual freshwater withdrawals to available renewable water supply in a given country for future years (2030/2050/2080), indicating expected water scarcity.
Biome(s)	Freshwater
Primary Data Source(s)	WRI Aqueduct Future Projections
Link	https://www.wri.org/aqueduct
Resolution & Coverage	National, basin
Update Frequency	~5-year updates
Format & Access	CSV, GIS
Unit & Scale	Percentage
Materiality	Environmental & Financial; link to GBF target 8,10,11
Interpretation	Based on climate and socio-economic projections (CMIP6). Useful for identifying future hotspots of water scarcity and planning resilience strategies. Values express future freshwater stress ratios.
Accessibility/Usage	Use the WRI Aqueduct platform. Navigate to “Future Projections” section. Data available by country and basin for selected future years. Downloads in CSV and GIS formats, based on SSP/CMIP6 scenarios.

2C2	Exploitation of Resources
Indicator	Overfished share
Definition	Share (%) of a country's assessed marine fish stocks that are overfished, calculated as 100 – SDG 14.4.1 ("proportion of fish stocks within biologically sustainable levels") from FAO. The metric reflects stock status relative to biological reference points for assessed stocks and is attributable to the national marine jurisdiction where reported.
Biome(s)	Marine
Primary Data Source(s)	FAO SDG 14.4.1.
Link	FAO SDG 14.4.1: https://www.fao.org/state-of-fisheries-aquaculture/Sea-Around-Us/data/#/spatial-catch
Resolution & Coverage	Global
Update Frequency	Biennial/periodic
Format & Access	Tabular time series (CSV/Excel) and dashboards.
Unit & Scale	Percentage over total fish stock; Fish tons per square kilometers
Materiality	Environmental & Financial; link to GBF target 5,10
Interpretation	Reports the percentage of assessed stocks that are overfished (biomass below that needed to produce MSY). Coverage is limited to assessed stocks and may under-represent data-poor fisheries; shared/straddling stocks complicate attribution.
Accessibility/Usage	Access via FAO (SDG 14.4.1): open the country view, download the latest value/time series. Optionally, consult Sea Around Us to provide catch context for the same country/EEZ.
Complementary Indicator/Source	Sea Around Us (context on catches).

2C3	Invasive Species
Indicator	Terrestrial Invasive Alien Species (IAS) Threat
Definition	Modelled terrestrial IAS threat/pressure at country level derived from the UN Biodiversity Lab "Global distribution of terrestrial invasive alien species threat" layer, complemented by Seebens et al.'s Global Alien Species First Record Database to indicate establishment pressure through counts of first records per country/period.
Biome(s)	Terrestrial
Primary Data Source(s)	UN Biodiversity Lab (IAS threat layer); Seebens et al. , Global Alien Species First Record Database (GASFRD).
Link	UNBL layer: https://map.unbiodiversitylab.org/earth GASFRD: https://zenodo.org/records/3690748 https://dataportal.senckenberg.de/dataset/global-alien-species-first-record-database
Resolution & Coverage	Global; country summaries from a gridded pressure layer (UNBL) and country/decade counts (GASFRD).
Update Frequency	Irregular updates
Format & Access	Web map (UNBL) and downloadable tables/CSV (GASFRD).
Unit & Scale	Map, visual-only
Materiality	Environmental & Financial; link to GBF target 6
Interpretation	Reports national IAS threat (e.g., mean/percentile of the pressure index) and/or the number of new alien species first records per period, signalling introduction and establishment pressure. Represents potential pressure and recorded arrivals.
Accessibility/Usage	Access via UNBL: add the IAS threat layer, select the national boundary, run the summary tool, and note the layer name/date. Access GASFRD: download the country table, filter for terrestrial taxa and desired decades, and report counts.

2C3	Invasive Species
Indicator	Introduced Marine Species
Definition	Count of introduced marine species recorded for a country's EEZ, based on the WoRMS taxonomic checklist (filters: Introduction = Introduced; Environment = Marine; Geounit = EEZ), optionally cross-checked with the IUCN Global Invasive Species Database (GISD)
Biome(s)	Marine
Primary Data Source(s)	WoRMS (World Register of Marine Species) Checklist; IUCN GISD.
Link	WoRMS Checklist: https://www.marinespecies.org/aphia.php?p=search&adv=1 GISD: https://www.iucngisd.org/gisd/
Resolution & Coverage	Global species lists by EEZ
Update Frequency	Rolling updates
Format & Access	Tabular species lists (web/CSV).
Unit & Scale	Absolute number (List)
Materiality	Environmental & Financial; link to GBF target 6
Interpretation	Reports the cumulative number of introduced marine species known for the EEZ as a proxy for establishment pressure. Values depend on survey effort and taxonomic attention.
Accessibility/Usage	Access via WoRMS: open Advanced Search, set Environment = Marine, Introduction = Introduced, Geounit = [Country EEZ], export the species list. Optionally cross-check counts in GISD for marine/coastal species by country.

2C4	Climate Change
Indicator	GHG Emissions
Definition	Total anthropogenic greenhouse gas emissions (CO ₂ -equivalent, GHG-100) and intensity (e.g., per capita or per km ²) from the EDGAR country inventory, excluding and/or including LULUCF as reported. Provides an annual time series suitable for trend and peer comparison.
Biome(s)	Terrestrial
Primary Data Source(s)	EDGAR – Emissions Database for Global Atmospheric Research (JRC)
Link	Country profiles & downloads: https://edgar.jrc.ec.europa.eu/country_profile/WORLD
Resolution & Coverage	Global; annual national totals
Update Frequency	Annual, two-year reporting lag
Format & Access	CSV/Excel; charts
Unit & Scale	Absolute number in kilotons; expressed in shares of global GDP and population
Materiality	Environmental; link to GBF target 7,8
Interpretation	Reports total GHG emissions and a chosen intensity normalisation (per capita or per km ²).
Accessibility/Usage	Access via EDGAR country profile: download “GHG total” (specify incl./excl. LULUCF), compute per-capita or per-area intensities as needed.
Complementary Indicator/Source	Air Pollutant emissions intensity. Reports pollutant-specific emission intensities to enable cross-country comparison. Source: https://edgar.jrc.ec.europa.eu/country_profile/WORLD

2C5	Pollution
Indicator	Nitrogen Surplus
Definition	Cropland nitrogen balance (kg N/ha/yr), where positive values indicate surplus (inputs minus removals) as reported by FAOSTAT agri-environmental nutrient balances. Serves as a pressure proxy for eutrophication and N losses to air and water.
Biome(s)	Terrestrial
Primary Data Source(s)	FAOSTAT – Agri-environmental indicators (Nutrient Balances)
Link	https://www.fao.org/faostat/en/#data/ESB
Resolution & Coverage	Global
Update Frequency	Annual
Format & Access	CSV downloads; interactive tables
Unit & Scale	Absolute number
Materiality	Environmental; link to GBF target 7,16
Interpretation	Reports cropland nitrogen surplus in kg N/ha/yr. Indicates potential pressure, not measured emissions or water quality; estimates reflect model assumptions and agricultural statistics.
Accessibility/Usage	Access via FAOSTAT → Agri-environmental indicators → Nutrient Balances → Cropland Nutrient Balance; select country and “Nutrient balance (Total), Nitrogen”, selected aggregated option.

2C5	Pollution
Indicator	Plastic Emissions to Oceans
Definition	Estimated mass of plastic waste entering the ocean from a country each year (t/yr), based on modelled riverine emissions (The Ocean Cleanup) and the Meijer et al. (2021) baseline compiled by Our World in Data. Values are model estimates and vary by reference year.
Biome(s)	Terrestrial (land-based pressure to marine)
Primary Data Source(s)	The Ocean Cleanup – River plastic emissions; Our World in Data (Meijer et al. compilation)
Link	TOC sources: https://theoceancleanup.com/sources/ OWID plastic pollution dataset: https://ourworldindata.org/plastic-pollution
Resolution & Coverage	Global
Update Frequency	Ad hoc model updates
Format & Access	Web map and CSV
Unit & Scale	Kilogrammes per capita
Materiality	Environmental; link to GBF target 7,16
Interpretation	Reports modelled tonnes per year entering the ocean; comparable across countries, but with uncertainty. Estimates exclude some direct coastal inputs and depend on waste and hydrology assumptions.
Accessibility/Usage	Access TOC or OWID: open the country table/map.

Pillar 3 – Governance

3A International Environmental Commitments and National Implementation

3A1	International Environmental Commitments
Indicator	Participation in Global Biodiversity Treaties
Definition	Measures whether a country is party to key biodiversity-related multilateral environmental agreements: Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species (CITES), and Ramsar Convention on Wetlands.
Policy Theme	International Commitment
IPBES Pressure	N/A (enabling)
Data Source(s)	InforMEA
Link	https://www.informea.org/
Coverage	Global (196 CBD, 184 CITES, 172 Ramsar Parties)
Data Format & Access	Web portals, downloadable treaty lists, legal references
Unit & Scale	Absolute number (list)
Materiality	Environmental & Financial; link to GBF target 14
Interpretation	Measures baseline political will. Binary status (yes/no) for each treaty. Does not capture quality of implementation or enforcement.
Accessibility/Usage	Treaties searchable by country at InforMEA. Web interface allows browsing ratification status, legal texts, and dates of entry into force. Downloadable lists available by treaty.

3A2	Translation into National Planning
Indicator	Existence of a Current National Biodiversity Strategy and Action Plan (NBSAP)
Definition	Assesses if the country has submitted a recent (post-2022) NBSAP aligned with the Kunming-Montreal Global Biodiversity Framework (GBF).
Policy Theme	National Planning
IPBES Pressure	N/A (enabling)
Data Source(s)	CBD NBSAP Repository, WWF NBSAP Tracker
Link	https://www.cbd.int/nbsap/targets
Coverage	Global (CBD has 196 Parties; ~20 updated post-2020 as of 2024)
Data Format & Access	PDF (country plans), online dashboards
Unit & Scale	yes/No
Materiality	Environmental & Financial; link to GBF target 14, 21
Interpretation	Indicates alignment with global biodiversity goals. Post-2020 updates reflect national ambition and readiness to implement the GBF. Quality varies.
Accessibility/Usage	Download national NBSAP documents from the CBD site. WWF's tracker provides interactive summaries. Some documents may be in local languages; most are PDF. Not all countries have submitted post-2020 updates.
Complementary Indicator/Source	https://wwf.panda.org/act/nbsap_tracker_check_your_countrys_nature_progress/

3A2	Translation into National Planning
Indicator	National Biodiversity Strategy and Action Plan (NBSAP) Ambition
Definition	Qualitative assessment of the ambition and GBF coverage of a country's NBSAP using the WWF NBSAP Tracker, which reviews whether national targets address GBF goals/targets and the extent to which they are specific, measurable and time-bound, and include enabling measures (e.g. finance, monitoring).
Policy Theme	National Planning
IPBES Pressure	N/A (enabling)
Data Source(s)	WWF NBSAP Tracker
Link	https://wwf.panda.org/act/nbsap_tracker_check_your_countrys_nature_progress/
Coverage	Global
Data Format & Access	Web dashboard with country summary pages; narrative and indicator flags (download options may vary)
Unit & Scale	Percentage, improving towards 100%
Materiality	Environmental & Financial; link to GBF target 14, 21
Interpretation	Reports how comprehensively the plan covers GBF targets and the strength/clarity of commitments. It is indicative (not an official CBD rating); results depend on the tracker's methodology and the latest document available. Older pre-2020 plans may score lower due to framing, not necessarily lower effort.
Accessibility/Usage	Open the WWF Tracker; search your country; read the summary and GBF-target coverage/quality flags; note any finance/implementation sections and the tracker update date; cross-check against the official NBSAP on the CBD site for citations.

3A3	Translation into Economic Transformation
Indicator	Biodiversity in Sectoral Transition Plans
Definition	Indicates whether biodiversity is explicitly addressed in national development strategies for key sectors (e.g. agriculture, forestry, infrastructure, finance), and whether associated financing mechanisms are in place.
Policy Theme	Economic Transformation
IPBES Pressure	Cross-cutting
Data Source(s)	Nature4Climate NbS Policy Tracker
Link	https://airtable.com/appjyWDKMWjibXQP/shrEVi4ecyV3QDNrF
Coverage	191 countries
Data Format & Access	Airtable dashboard, PDFs
Unit & Scale	
Materiality	Environmental & Financial; link to GBF target 14
Interpretation	Reflects systemic integration of biodiversity in broader development and economic policy. Financing mechanisms are key to implementation.
Accessibility/Usage	Access policy details via the Airtable interface. Each country entry includes whether biodiversity is integrated and which sectors are covered. Exportable summaries and source references provided.
Complementary Indicator/Source	https://nature4climate.org/n4c-policy-tracker-2024/

3A3	Translation into Economic Transformation
Indicator	Biodiversity Finance Plan Status
Definition	Indicates whether the country has developed and published a Biodiversity Finance Plan (BFP) under UNDP's BIOFIN approach, and whether priority finance solutions are identified for implementation. Where a plan is not yet published, records status (in development / no plan).
Policy Theme	Economic Transformation
IPBES Pressure	Cross-cutting (enabling)
Data Source(s)	UNDP BIOFIN (country profiles and BFPs)
Link	https://www.biofin.org/countries
Coverage	BIOFIN countries
Data Format & Access	Country pages (web)
Unit & Scale	
Materiality	Environmental & Financial; link to GBF target 14, 2
Interpretation	Signals progress on mainstreaming biodiversity into public finance and economic planning. A published BFP indicates a structured roadmap but does not guarantee resourcing or execution; scope and quality differ across countries.
Accessibility/Usage	Open BIOFIN "Countries," select the country, and look for "Biodiversity Finance Plan" and "Finance Solutions". Download the BFP where available; if not available, record the latest status shown on the profile.

3A4	Habitat and Species Protection
Indicator	% of terrestrial areas covered by protected areas
Definition	Share (%) of national land territory that falls within legally designated protected areas (PAs) according to the WDPA (as served via IBAT/UN Biodiversity Lab). Optional variants may include OECMs; methods should specify inclusion/exclusion rules.
Policy Theme	Habitat Protection
IPBES Pressure	Habitat protection (state/response)
Data Source(s)	IBAT (WDPA/OECM); UN Biodiversity Lab (WDPA/WD-OECM layers)
Link	https://www.ibat-alliance.org/ https://map.unbiodiversitylab.org/earth
Coverage	Global
Data Format & Access	Vector polygons (shapefiles); dashboards/web maps
Unit & Scale	Percentage, improving towards 100%, threshold 30%
Materiality	Environmental; link to GBF target 3
Interpretation	Reports the national land share in designated PAs. It measures coverage, not ecological representativeness, connectivity, or management effectiveness. Results depend on choices about including proposed areas/OECMs and on de-overlapping methods; cross-border sites should be clipped to the national boundary.
Accessibility/Usage	IBAT: sign in (free option), search under "Country Profiles" UNBL: add WDPA/WD-OECM layers, select country boundary

3A4	Habitat and Species Protection
Indicator	% of marine areas covered by protected areas
Definition	Share (%) of the country's Exclusive Economic Zone (EEZ) that is within legally designated marine protected areas (MPAs) recorded in WDPA (via IBAT / UN Biodiversity Lab). Partial-marine sites are counted by their marine component.
Policy Theme	Habitat Protection
IPBES Pressure	Habitat protection (state/response)
Data Source(s)	IBAT; UN Biodiversity Lab
Link	IBAT: https://www.ibat-alliance.org/ UNBL: https://map.unbiodiversitylab.org/earth
Coverage	Global
Data Format & Access	Vector polygons (shapefiles); dashboards/web maps
Unit & Scale	Percentage, improving towards 100%, threshold 30%
Materiality	Environmental; link to GBF target 3
Interpretation	Reports the EEZ share in designated MPAs. Coverage does not imply effective management or protection level. Estimates are sensitive to whether OECMs/proposed sites are included and to treatment of overlapping polygons and multi-zone sites.
Accessibility/Usage	IBAT: sign in (free option), search under "Country Profiles" UNBL: add WDPA/WD-OECM layers, select country EEZ/admin maritime layer.

3A5	Social Inclusivity Efforts
Indicator	Legal status and recognition of Indigenous Peoples and Local Communities (IPLCs) in biodiversity and land policies
Definition	Assesses the extent to which national legal frameworks recognise the land, resource, and governance rights of Indigenous Peoples and local communities. This reflects national commitments to rights-based approaches to biodiversity conservation and sustainable land management.
Policy Theme	Rights-based governance
IPBES Pressure	N/A (enabling)
Data Source(s)	Rights and Resources Initiative (RRI), IWGIA, UN DESA
Link	https://rightsandresources.org https://iwgia.org/en/countries.html UN DESA 2020 Report
Coverage	Global
Data Format & Access	Public reports, comparative tables, qualitative assessments, and case studies.
Unit & Scale	Regulation list / information
Materiality	Financial; link to GBF target 22
Interpretation	Countries with stronger legal recognition of IPLC rights tend to show greater environmental integrity, less conflict, and higher social legitimacy. This indicator reflects national political will toward inclusive governance.
Accessibility/Usage	Publicly accessible reports and country summaries. Some datasets (e.g., forest tenure tools) provide structured, filterable data. Others are narrative-based and require manual extraction.
Complementary Indicator/Source	LandMark, WDPA (Governance type: "Indigenous Peoples", "Local communities"), ICCA Registry

3A5	Social Inclusivity Efforts
Indicator	Presence of gender-specific targets in NBSAPs or related national biodiversity strategies
Definition	Evaluates whether national biodiversity strategies include measurable gender-specific targets or references to gender equality, as a proxy for institutional inclusion and gender-sensitive governance in environmental policy.
Policy Theme	Gender-responsive governance
IPBES Pressure	N/A (enabling)
Data Source(s)	NBSAP Tracker (WWF), CBD Gender Plan of Action Reporting
Link	https://wwf.panda.org/act/nbsap_tracker_check_your_countrys_nature_progress/
Coverage	Global
Data Format & Access	Online dashboards, spreadsheets, and national reports (HTML, Excel, PDFs)
Unit & Scale	Percentage, improving towards 100%
Materiality	Environmental & Financial; link to GBF target 23
Interpretation	The presence of gender targets suggests a baseline level of commitment to inclusive biodiversity governance. While it does not assess implementation, it can serve as a signal of national policy direction and awareness.
Accessibility/Usage	Tracker and reports are public and easily accessible. Data may be qualitative (yes/no presence) or descriptive (target text), with country filters.
Complementary Indicator/Source	UN Women & UNEP gender assessments, ILO sectoral data, CBD Gender Plan of Action documents

3B Commitment to address the five IPBES Pressures and water dependency

3B1	Land, Freshwater and Ocean Use Change
Indicator	Land and Ocean Use Change Policy Instruments
Definition	Presence of legislation or planning frameworks aimed at limiting habitat conversion, including tools such as land-use zoning, marine spatial planning, and deforestation moratoria.
Policy Theme	Land/Ocean Use Change
IPBES Pressure	Habitat Loss
Data Source(s)	Nature4Climate NbS Policy Tracker
Link	https://airtable.com/appjyjWDKMWjibXQP/shrEVi4ecyV3QDNrF
Coverage	191 countries
Data Format & Access	Airtable dashboard, PDFs
Unit & Scale	Regulation list / information
Materiality	Environmental & Financial; link to GBF target 1,2,10
Interpretation	Strong land/ocean policies mitigate primary biodiversity loss drivers. Coverage is qualitative; presence, not enforcement quality.
Accessibility/Usage	Explore the Nature4Climate policy tracker online. Use filters to view national profiles and policy categories. Export summaries or access source PDFs where available. Ideal for rapid scoping of land-use policies.
Complementary Indicator/Source	https://nature4climate.org/n4c-policy-tracker-2024/

3B2	Exploitation of Resources
Indicator	Overexploitation Economic Policy Instruments
Definition	Presence of policies or regulatory frameworks addressing the overuse of natural resources, including controls on overfishing, overlogging, unsustainable hunting, and mechanisms like circular economy strategies.
Policy Theme	Overexploitation
IPBES Pressure	Direct exploitation
Data Source(s)	OECD PINE
Link	https://oecd-main.shinyapps.io/pinedatabase/
Coverage	OECD + Global
Data Format & Access	CSV, policy databases
Unit & Scale	List and percentage of policy instruments
Materiality	Environmental & Financial; link to GBF target 1, 10, 14, 18
Interpretation	Reflects regulatory attention to unsustainable extraction. Coverage varies by country and income level. Emphasis on emerging circular economy trends. Data not linked to enforcement strength or outcomes.
Accessibility/Usage	Use PINE filters to find policies by theme (e.g., overexploitation). Each entry includes legal scope, policy type, and environmental domain. Results can be downloaded or browsed online via interactive dashboards.
Complementary Indicator/Source	https://www.oecd.org/en/data/datasets/policy-instruments-for-the-environment-pine-database.html

3B3	Invasive Alien Species
Indicator	Budget for Invasive Alien Species Management
Definition	Indicates whether a country reports having an official budget line allocated for the management of invasive alien species (IAS).
Policy Theme	Invasive species
IPBES Pressure	Invasive species
Data Source(s)	Our World in Data (compiled from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment and UNEP/GEF datasets)
Link	https://ourworldindata.org/grapher/budget-to-manage-invasive-alien-species?tab=table
Coverage	Global; includes reporting from over 100 countries, primarily based on national submissions to IPBES or biodiversity-related surveys and environmental reports.
Data Format & Access	Available as a simple binary (Yes/No) indicator by country via Our World in Data; interactive chart view and downloadable CSV format with open-access licensing.
Unit & Scale	Monetary value
Materiality	Environmental & Financial; link to GBF target 6
Interpretation	This is a binary (Yes/No) indicator for policy commitment. It does not assess budget adequacy or implementation. Proxy for national priority on IAS.
Accessibility/Usage	Open-access chart available on Our World in Data. Switch to “table” view to explore by country and download the dataset in CSV format. Based on official self-reporting and environmental assessments.

3B4	Climate Change
Indicator	Climate Change Commitment
Definition	Assessed through rankings and evaluations from climate policy indices (e.g. Climate Change Performance Index - CCPI) and sovereign sustainability trackers such as the Assessing Sovereign Climate-related Opportunities and Risks (ASCOR) platform.
Policy Theme	Climate Change Commitment
IPBES Pressure	Climate Change
Data Source(s)	CCPI, ASCOR
Link	https://ccpi.org/ranking/
Coverage	Multi-country; expanding
Data Format & Access	Ranking tables, policy reports
Unit & Scale	Ranking from 1 to 63 countries (1 being the best)
Materiality	Environmental & Financial; link to GBF target 8
Interpretation	Captures ambition, progress, and policy strength around climate mitigation and adaptation. Supports biodiversity indirectly via climate resilience. Some countries not yet assessed.
Accessibility/Usage	Review country rankings and profiles via CCPI site. ASCOR platform provides sovereign ESG risk insights. Country factsheets and evaluation criteria available for download. Rankings updated annually.
Complementary Indicator/Source	https://transitionpathwayinitiative.org/ascor

3B5	Pollution
Indicator	Pollution Control Economic Policy Instruments
Definition	Existence of national measures to address major sources of pollution, including bans or restrictions on harmful substances (e.g., pesticides, plastics), emissions limits, and wastewater treatment or discharge regulations.
Policy Theme	Pollution Commitment
IPBES Pressure	Pollution
Data Source(s)	OECD PINE
Link	https://oecd-main.shinyapps.io/pinedatabase/
Coverage	OECD + Global
Data Format & Access	CSV, policy databases
Unit & Scale	Percentages of policy instruments
Materiality	Environmental & Financial; link to GBF target 7
Interpretation	Indicates the existence of pollution control measures, but not their scope or implementation level. Patchier coverage in low-income countries. Broad topic includes multiple pollutant types.
Accessibility/Usage	Search OECD PINE using pollution-related keywords. Results include legislation and regulatory instruments across multiple domains. Can be exported for offline review or national policy benchmarking.
Complementary Indicator/Source	https://www.oecd.org/en/data/datasets/policy-instruments-for-the-environment-pine-database.html

3B6	Water Governance
Indicator	Integrated Water Resource Management (IWRM)
Definition	SDG 6.5.1 composite score of policy integration, institutional frameworks, and stakeholder engagement in water management.
Policy Theme	Water Governance
IPBES Pressure	Freshwater Dependency
Data Source(s)	UN SDG 6.5.1 Portal
Link	https://iwrmdataportal.unepdhi.org/interactive-map
Coverage	170+ countries
Data Format & Access	CSV, interactive maps
Unit & Scale	
Materiality	Environmental & Financial; link to GBF target 8, 11, 14
Interpretation	IWRM scores reflect institutional readiness to manage water sustainably. Based on self-reporting—so subject to optimism bias and country-specific interpretation of scoring questions.
Accessibility/Usage	Access national IWRM scores on the interactive portal. Filter by region or year. CSV downloads and metadata available. Used in SDG 6 tracking and commonly cited in water governance assessments.

3C Committed Resources and Implementation Capacity

3C1	National Natural Capital Accounts
Indicator	Natural Capital Accounting Adoption
Definition	Whether a country compiles official Natural Capital Accounts under the UN System of Environmental-Economic Accounting (SEEA), such as accounts for water, forests, land, or ecosystems.
Policy Theme	Natural Capital Accounting
IPBES Pressure	Enabling
Data Source(s)	UN SEEA Global Assessment – UN Statistical Division's survey tracking SEEA implementation (feeds SDG 15.9.1(b))
Link	https://seea.un.org/content/2024-global-assessment
Coverage	Global: 94 countries implementing SEEA as of 2024 (67 regularly publishing accounts). Data since 2014; updated via 2020, 2023 benchmark surveys and annual updates.
Data Format & Access	Results available as tables (HTML/Excel) on UN SEEA website; open-access. SDG global database also provides country adoption status.
Unit & Scale	Stages of implementation
Materiality	Environmental & Financial; link to GBF target 14,21
Interpretation	The UN SEEA site provides a country-by-country table with each nation's implementation stage and types of accounts compiled . Reflects institutional capacity for ecosystem-economic integration. Helps track nature-related assets and flows. Data is categorical—"no activity" to "regular reporting".
Accessibility/Usage	Browse implementation tables on the SEEA website. Download Excel for full country-by-country adoption status by account type and year. Cross-referenced in SDG indicator 15.9.1(b).

3C2	Corporate Disclosures
Indicator	Mandatory Corporate Biodiversity Disclosure
Definition	Countries with legal requirements for companies to disclose biodiversity-related risks, dependencies, or impacts (e.g. EU CSRD requiring nature disclosures, France's Article 29 law on biodiversity reporting).
Policy Theme	Corporate sustainability transparency
IPBES Pressure	Enabling
Data Source(s)	To be determined
Link	To be determined
Coverage	To be determined
Data Format & Access	To be determined
Unit & Scale	Regulation list / information
Materiality	Environmental & Financial; link to GBF target 15
Interpretation	To be determined
Accessibility/Usage	To be determined
Complementary Indicator/Source	Mandatory Corporate Biodiversity Disclosure: https://itpn.global/interactive/

3C2	Corporate Disclosures
Indicator	TNFD adoption by economic sector
Definition	Number of organisations headquartered in the country that have formally committed to publish TNFD-aligned disclosures, disaggregated by economic sector (e.g., ISIC/GICS). Reflects uptake and sectoral spread of TNFD adoption; it is not an assessment of disclosure quality or completeness.
Policy Theme	Corporate sustainability transparency
IPBES Pressure	Enabling
Data Source(s)	To be determined
Link	To be determined
Coverage	To be determined
Data Format & Access	To be determined
Unit & Scale	Absolute number
Materiality	Financial
Interpretation	To be determined
Accessibility/Usage	To be determined

3C3	Governance through Subsidies
Indicator	Subsidy Reform for Biodiversity
Definition	Countries that have implemented policies to reduce or eliminate subsidies harmful to biodiversity – e.g. phasing out fossil fuel subsidies, pesticide/fertilizer subsidies, or harmful fisheries subsidies (only actual reforms or removals, not just pledges).
Policy Theme	Governance through Subsidies
IPBES Pressure	Multiple (indirect)
Data Source(s)	OECD PINE Database
Link	https://oecd-main.shinyapps.io/pinedatabase/
Coverage	Global ~146 countries
Data Format & Access	Dashboard, interactive tool
Unit & Scale	Percentages of policy instruments
Materiality	Environmental & Financial; link to GBF target 18,19
Interpretation	Indicates government action to remove perverse incentives that degrade biodiversity. Focus is on enacted, not pledged, reforms. Scope and enforcement vary.
Accessibility/Usage	Filter PINE database by country and subsidy type. Look for categories on harmful subsidies or environmentally positive instruments. Export CSVs or access online summaries.

3C4	Government spending on Biodiversity Conservation
Indicator	Budget allocation to biodiversity
Definition	Government Biodiversity Expenditure – Public budget allocations to biodiversity actions, including PA management, research, or restoration.
Policy Theme	Government Spending
IPBES Pressure	Enabling
Data Source(s)	IMF Data
Link	https://climatedata.imf.org/datasets/d22a6decd9b147fd9040f793082b219b_0/explore
Coverage	~80 countries
Data Format & Access	Database, interactive tool
Unit & Scale	Monetary value and % of GDP
Materiality	Environmental & Financial; link to GBF target 14,18,19
Interpretation	Reflects national prioritization of biodiversity via financial commitment. Useful when normalized per GDP, land area, or biodiversity richness.
Accessibility/Usage	IMF dashboard includes biodiversity-related spending as part of green budgeting. Use country selector and thematic filters. Data downloadable in CSV format for country comparison.

3C5	Sovereign Nature Finance Instruments
Indicator	Nature finance instruments issued
Definition	Countries that have issued sovereign green or blue bonds, engaged in debt-for-nature swaps, or launched biodiversity-linked sovereign investments (e.g. sustainability-linked bonds with biodiversity targets).
Policy Theme	Nature Finance Instruments
IPBES Pressure	Enabling
Data Source(s)	Climate Bonds Initiative (CBI) – tracks all green, sustainability, and blue bonds, including sovereign issues. IMF Climate Change Dashboard – “Green Bonds” data series for sovereign green bond issuance volumes.
Link	https://www.climatebonds.net/market/data/
Coverage	Global: ~60 countries have issued sovereign green/sustainability bonds.
Data Format & Access	Data on bond issuances is available in CSV/Excel via CBI (registration may be required) and on the IMF’s interactive portal. Debt-for-nature swap info is in reports/news (no single dataset). Details on TNC’s deals can be found here.
Unit & Scale	Monetary value and % of GDP
Materiality	Environmental & Financial; link to GBF target 14, 19
Interpretation	Indicates mobilization of public markets for biodiversity finance. Bonds with biodiversity performance targets show innovation. Debt swaps must be compiled manually.
Accessibility/Usage	Use the CBI database to filter sovereign issuances. IMF dashboard provides country-level volumes of green bonds. Debt swaps are not yet centralized—must consult TNC, UNDP, or news databases for tracking.
Complementary Indicator/Source	https://climatedata.imf.org/pages/climate-finance#cf2

Appendices

Appendix 2: Key Nature Instruments for Sovereign Finance

Name of Tool	Description	Example
Use of proceeds bonds with Biodiversity criteria	Green bonds: The most common use-of-proceeds bonds – are debt instruments issued to raise capital for environmentally friendly projects, with an emerging subset specifically focused on biodiversity – such as conservation, reforestation, or ecosystem restoration. Blue Bonds: These have emerged to finance marine and ocean-based projects (protecting marine biodiversity, restoring coastal ecosystems, financing sustainable fisheries).	The Indonesia's Green Sukuk Framework includes nature conservation and sustainable land use. Proceeds of these bonds have amongst others supported peatland restoration and forest management. Also, the Colombia Biodiversity Bond addresses reforestation and wildlife habitat restoration (United Nations Indonesia, 2025; IFC, 2024). The Seychelles Blue Bond (2018) and the Ecuador blue bond (2023) focus on marine biodiversity protection (GEF, 2018; Pew Bertarelli Ocean Legacy Project, 2024).
Sustainability-Linked Bonds (SLBs)	Unlike green bonds, SLBs do not limit the use of proceeds to environmental projects. Instead, they link the cost of borrowing to performance on predefined sustainability metrics. When applied to biodiversity, this can include reduction in deforestation rates, expansion of protected areas, improvement in biodiversity intactness indices. SLBs introduce a direct incentive for sovereigns to improve biodiversity performance. If the targets are missed, the interest rate on the bond rises, creating an economic cost for underperformance.	Sovereign SLBs are rare, with Chile, Uruguay and Thailand the only issuers so far. Among those three, only Uruguay has a biodiversity-linked KPI in its framework. Uruguay issued a USD 1.5 billion sovereign SLB - the first of its kind - where interest payments are linked to climate and deforestation performance. One KPI is the average annual native forest area, directly tying biodiversity to financial outcomes (Addleshaw Goddard, 2022 ; GGGI, 2023 ; Ministry of Economy and Finance of Uruguay (MEF), 2022).
Debt-for-Nature Swaps	Debt-for-nature swaps (DFNS) are financial arrangements in which a portion of a developing country's external debt is forgiven in exchange for commitments to invest in conservation projects. These instruments have gained renewed attention in light of mounting debt burdens and biodiversity crises in emerging economies.	In 2023, Ecuador completed a record-setting USD 1.6 billion debt conversion tied to marine conservation in the Galápagos Islands. The deal reduces debt burden while directing USD 450 million of the savings toward a USD 450 million conservation trust fund over the next two decades (Pew Charitable Trusts, 2023; DFC, 2023; Galápagos Life Fund, 2023). The USD 500 million refinancing of Gabon's sovereign debt is expected to free up USD 163 million for ocean conservation projects, supporting Gabon's ambitious national effort to protect 30% of its lands, freshwater systems, and ocean by 2030 (TNC, 2023; White & Case LLP, 2023).
Biodiversity Credit Markets	Still in early stages, biodiversity credit markets aim to create tradable units representing measurable biodiversity outcomes – such as habitat restoration or species protection. Sovereigns can act as both market regulators and participants, by issuing biodiversity credits based on national conservation efforts. The success of such markets will heavily depend on robust methodologies for baseline assessment, monitoring, and verification.	The Australian government is developing a national biodiversity credit trading scheme called the Nature Repair Market. Landholders who restore or manage land for biodiversity will be able to earn credits, which can then be sold to businesses or investors (DCCEEW, 2025a & 2025b ; CER, 2025 ; White & Case, 2023).

Appendix 3: Checklist for Indicator and Data Point Selection

Some notes

This checklist is a practical guide for users of the Assessment Model. It offers methodological principles that can help financial institutions adapt the Assessment Model to their own needs. Users may decide to follow the proposed indicators, substitute them with more context-specific measures, or expand coverage as new data becomes available. By applying the principles below, users can ensure that the Model remains flexible, replicable, and relevant across different geographies, mandates, and analytical purposes.

To ensure credibility and country-level relevance, indicator selection should follow key principles outlined in the checklists below. At the same time, it is important to acknowledge data limitations. While bias mitigation can be improved by applying these principles, data incompleteness will persist. Proxies may broaden scope, but must be identified transparently with recognition of their limitations. Discrepancies in reporting and measurement may, in part, be addressed through geospatial data for state-of-nature indicators, and through stronger policy and reporting alignment for governance and economic pillars. Users should also remain attentive to potential overlaps, such as capturing biome diversity within countries, accounting for cultural and governance contexts, and situating data within historical environmental impacts.

1. Indicator Selection: Key Principles

To ensure credibility and country-level relevance, indicator selection should follow key principles:

A. Relevance to Sovereign Risk and Opportunity

Indicators should reveal how nature shapes (and is shaped by) a country's economic performance, financial stability, and policy response. They should support the analysis of key dimensions of sovereign materiality, such as:

- Exposure to nature-related risks may compromise long-term productivity or stability.
- Contribution to pressures on biodiversity, particularly from key economic sectors.
- Institutional readiness and capacity to respond, reflected in the existence and strength of environmental governance.
- Opportunities for nature-positive financial flows, supporting restoration, conservation, and sustainable investment.

By covering these areas, indicators help ensure that nature-related issues are not only ecologically meaningful but also relevant in sovereign analysis and decision-making.

B. Coverage of Nature Dimensions

Indicators should, where possible, capture both the natural capital and the risks or opportunities tied to its condition, use, and governance. To reflect the complexity of its interactions, indicators may span multiple dimensions, such as:

- Biome representation (terrestrial, freshwater, marine, and transitional ecosystems like wetlands).
- State or condition (species extinction risk, ecosystem integrity).
- Trends (forest cover loss, land degradation, pollution, or water stress projections).
- Pressures (pollution, land-use change, overexploitation).
- Ecosystem services (carbon storage, flood protection, water supply).
- Dependencies (economic reliance on nature-sensitive sectors such as agriculture or mining).
- Impacts (sectoral contributions to nature loss, e.g. deforestation drivers).
- Vulnerability (exposure to physical risks such as drought or erosion).
- Opportunities (restoration potential, unprotected Key Biodiversity Areas).

C. Policy Alignment and Interpretability

Indicators should align with relevant policy goals (such as NBSAPs) and reporting frameworks (e.g. TNFD) while staying easy to interpret for both governments and financial institutions. When indicators align with policy frameworks, it becomes easier for financial institutions and sovereign issuers to engage meaningfully – and to refine or challenge the indicators when needed.

D. Data Accessibility and Feasibility

To ensure indicators can be replicated and applied over time, they should ideally:

- Be available across a wide range of countries;
- Use transparent, peer-reviewed, and verifiable methods;
- Derive from public or open-access sources;
- Require reasonable technical capacity to apply and interpret.

E. Indicators assessment principles

Investors can assess indicators against the following questions:

- **Clarity:** Does the indicator clearly represent the characteristic?
- **Sensitivity:** Can it detect meaningful changes over time or policy influence?
- **Comparability:** Does it allow for consistent cross-country analysis?
- **Timeliness:** Is it updated frequently enough to reflect recent changes?
- **Granularity:** Is the scale or resolution appropriate for national-level use?
- **Credibility:** Is the source scientifically robust and widely accepted?
- **Transparency:** Are the calculation methods and assumptions disclosed?

2. Principles for Data Point Selection

Alongside indicator design, the selection of data points must be carefully considered in order to ensure robustness. Users should apply the following principles:

A. Coverage and Scope

- Ensure full geographic coverage within a country: in order to capture the full picture of a country's ecological profile, it is necessary to ensure that the whole scope of its territory is captured including overseas territories. In the case where the data is not available for the entirety of it, gaps should be documented and limitations acknowledged.
- Ensure full geographic coverage in between countries: In order to limit the biases that can be induced by the lack of information coming from one country compared to another, a first analysis of the scope of countries covered by the data point/dataset is essential and the coverage on the investment universe should be taken into account when arbitrating on the data point to select.
- Prefer datasets with long-term historical series: Accessing historical information enables the use of trends and captures the progress made by a country on nature through its changes in policies and practices.

B. Data Quality and Methodological Robustness

- **Use data points with clear definitions, consistent units and standardized measurement methods across all countries:** in order to ensure comparability, the data points used must have been computed consistently in between the different countries; ideally following a protocol. Alignment with globally recognised protocols facilitates comparability.
- **Require transparent methodologies and documented changes throughout time:** Both methodologies and limitations should be documented, especially if changes occur throughout time in order to reflect it in the analysis.
- **Prefer peer-reviewed or independently validated datasets:** Widely reviewed data, ideally by independent parties, is more likely to be scientifically robust.
- **Select datasets updated regularly and predictably:** Prefer sources with long-term continuity.
- **Be mindful of the delayed reporting:** Some data reported on a specific year may contain information that has been collected and measured several months or years prior. Remaining mindful of this time delay by coupling the information with news, events or changes that occurred between the measure and the time of reporting may allow the investor to have a more precise view on the information.

C. Bias Detection and Mitigation

- **Check for over-representation:** Due to the reporting cost and maturity, certain regions or countries with different income levels might be over-represented in some datasets involving missing data that might be challenging to deal with.
- **Avoid indicators overly dependent on reporting capacity:** Reporting capacity may vary from one country to another; not relying on resources-intensive data points in terms of reporting may help to limit the bias in favour of countries with more reporting capacity.
- **Include non-English sources where relevant:** Some countries report in their national language; while AI and translation is allowing these sources to be interpreted; not limiting the scope of the data used to English sources only might allow broadening the analysis and limit missing data.

D. Handling Qualitative and Contextual Information

- **Ensure transparent and replicable assessment approach:** In order to impartially replicate the assessment process, the data point used must present the same level of information for each country.
- **Validate against multiple sources:** When possible, qualitative data benefits being cross-checked among different sources to limit the risk of interpretation.
- Account for initial **natural capital baselines**.
- **Normalise data** (per capita, per GDP, per km²) to avoid size/income bias.
- **Account for socio-economic history** when doing cross-country comparisons, especially when selecting baseline years