



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS



System of
Environmental
Economic
Accounting

Submission of views on the draft monitoring framework for the post-2020 global biodiversity framework from the United Nations Statistics Division (UNSD)

Introduction

The present document contains comments by UNSD on the draft monitoring framework for the post-2020 global biodiversity framework in considering the current work on the development and implementation of the System of Environmental Economic Accounting (SEEA) and the experience in developing the Sustainable Development Goal (SDG) indicator framework. The document is structured as follows:

- I. Comments on the draft monitoring framework for the post-2020 global biodiversity framework
- II. Annex 1: Proposed list of headline indicators for the 2050 Goals and 2030 Targets
- III. Annex 2: Supplementary analysis

Section I contains comments on how the statistical community could be better engaged and lessons learned on how a global monitoring framework can be developed to facilitate both national and global monitoring. It also provides comments on how the use of SEEA can support and the monitoring framework and capture the gaps.

Annex 1 suggests a list of SEEA headline indicators for a selected set of 2050 Goals (Table 1.1) and 2030 Targets (Table 1.2).

Annex 2 documents the supplementary analysis on the linkage of the SEEA with the components and monitoring element of the 2050 Goals (Table 2.1) and 2030 Target (Table 2.2), and identifies a list proposed indicators in the draft monitoring framework that can be directly compiled by SEEA (Table 2.3) or in alignment with the SEEA (Table 2.4).

I. Comments on the draft monitoring framework for the global biodiversity framework

1. The official statistics community believes that the post 2020 monitoring framework should be built upon data collected from countries and emphasizes the important role of national statistical offices in reviewing the metadata as well as contributing to and coordinating the indicator compilation at the country level. The current proposed draft framework does not include a strong link between national statistical systems and biodiversity monitoring. An approach involving national statistical offices would ensure that the data is collected and compiled on a regular basis using agreed methodologies and quality standards. This approach would have the additional added value of improving country ownership – which would likely translate into the better use of indicators in national policies as well as in the National Biodiversity Strategies and Action Plans (NBSAPs) and National Reports to the CBD, and also would facilitate the use of biodiversity data in other processes such as the Voluntary National Reviews (VNRs), thus contributing to the mainstreaming of biodiversity in policies. In this context, national statistical offices have already established an inter-governmental process, the United Nations Committee of Experts on Environmental Economic Accounting (UNCEEA), established by the UN Statistical Commission to advance the methodological development of the System of Environmental Economic Accounting, its implementation in countries, including capacity building and development of data. Members of the UNCEEA are representatives from National Statistical Offices and international agencies working on advancing the SEEA. As part of the revision process of the SEEA Ecosystem Accounting, the UNCEEA has engaged with the scientific, economics and geospatial community and as such the UNCEEA can provide a useful platform for engaging the statistical community in the development of the monitoring framework and implementation of CBD.
2. We support the idea of a smaller, core indicator set for the post 2020 framework which includes indicators that should be monitored nationally and globally. This could be complemented with additional indicators, most already included in the draft framework, which countries may implement depending on their policy priorities.
3. We emphasize the importance for the indicators to be based on agreed statistical standards/agreed methodologies. Metadata should be based on agreed methodologies as well as a common approach to data collection, monitoring and reporting. This will facilitate a regular production of the data and their integration in the regular statistical production process thus supporting the national and global development agenda. We understand that this is a process, in which at an initial stage some of the data may not be available according to agreed definitions and classifications and thus existing data sets may need to be used for global reporting. Nevertheless, it is important to develop a pathway to move towards agreed methodologies that will allow the development of integrated data systems and integrated biodiversity information with other statistical data (e.g. economics and social).
4. A Tier approach similar to the SDGs would be helpful by which global data sets can be used to estimate national indicators for those countries that have no capacity/data. At the same time, efforts should be placed to develop capacity so that countries can compile these data in the medium term. In this context, it may be useful to look at the data flow approach used in the SDG context by which custodian agencies need to consult with the countries before publishing the data.

5. For the choice of indicators to go in the core framework, the System of Environmental-Economic Accounting (SEEA) Central Framework is the ONLY statistical standard that bring together data and information on the economy and the environment, in an integrated framework thus allowing to move away from a silo approach and bring the environment into the realm of official statistics allowing to go beyond GDP. SEEA ecosystem accounting enables the measurement of the extent and condition of ecosystems and the ecosystem services provided by them, mainstreaming ecosystems into national accounting and decision making. It allows countries to adopt a holistic and integrated approach to develop sets of indicators to support the monitoring of the post-2020 monitoring framework. It also play an important role in streamlining reporting requirement by countries through the adoption of a common framework.
6. The SEEA is being developed by the UNCEEA under the auspices of the United Nations Statistical Commission¹, an inter-governmental process under the UN Economic and Social Council. It has been adopted by member states, that also encouraged its implementation in countries. It also is accompanied with current country capacity building effort². As of June 2020, more than 92 countries have compiled SEEA accounts³.
7. A preliminary analysis, as shown in Annex 2, indicates the that SEEA can be used as an integrated framework to potentially monitor the proposed components and monitoring elements in the draft framework, as follows:
 - i. 11 out of 14 components and 42 out of 56 monitoring elements of the 2050 Goals.
 - ii. 37 out of 68 components and 75 out of 154 monitoring elements of the 2030 Targets
8. The SEEA can also be used as the underlying methodology to derive 42 proposed indicators in the draft monitoring framework. In addition, another 32 proposed indicators are aligned with the SEEA framework. The analysis highlighted the followings:
 - i. Goal A and Targets 1 & 2, which monitor the size of the ecosystems and protected areas, can be fully informed by the SEEA ecosystem extent accounts
 - ii. Goal B and Target 4, 7, 8, 10, 11 & 12 which aim at monitoring nature of contribution to people and benefits from ecosystem and biodiversity, and their sustainable use, can be informed by the SEEA ecosystem services accounts. Currently the post-2020 framework exists indicators gaps in this area, and UNSD believe that statistics and aggregates coming from SEEA Ecosystem services accounts can fill these gaps.

¹ UNSC at its 51st Session in March 2020 “welcomed the background document on interlinkages and stressed the importance of the System of Environmental Economic Accounting for monitoring the Goals”(E/2020/24, E/CN.3/2020/37, 51/101, para (g)). At the same session it “stressed the importance of the SEEA Experimental Ecosystem Accounting in supplying a common measurement framework for the post-2020 global biodiversity framework and related indicators that are currently being negotiated and are expected to be adopted at the fifteenth meeting of the Conference of Parties to the Convention on Biological Diversity”(E/2020/24, E/CN.3/2020/37, 51/110, para (c)).

² https://seea.un.org/sites/seea.un.org/files/area_d_capacity_building_activities.pdf

³ https://seea.un.org/sites/seea.un.org/files/final_area_d_reportback_2.pdf

- iii. Goal D and Target 6, 15, 17 & 18, which are related to the economic impact on biodiversity and biodiversity finance, can be informed by the material flows accounts and environmental activities accounts of the SEEA Central Framework.
 - iv. A set of proposed indicators in the draft framework that measure the state and quality of ecosystem and biodiversity can be integrated into the ecosystem condition accounts of the SEEA, which allows the integration of such information into broader measures of sustainability.
9. Annex 1 proposed a list of headline indicators for a selected set of 2050 Goals and 2030 Targets, which can be compiled by SEEA and are potentially available via global database.
10. **Our suggestion is that the SEEA should be used to the extent possible to select indicators for the framework to ensure mainstreaming of the data generation in the regular production process and engagement of the national statistical offices as stewards of the national statistical system. For this, we suggest that the UNSD and the CBD Secretariat establish a group/task force to develop i) specific suggestions related to these indicators and ii) strategy facilitating the engagement between the official statistical community and biodiversity community. We would like to propose to submit an information document on this topic for the next meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA).**

[II. Annex 1: Proposed list of headline indicators for the 2050 Goals and 2030 Targets that can be compiled by SEEA](#)

Table 1.1: Proposed headline indicators for the 2050 Goals

Goal	SEEA Indicators
A. The area, connectivity and integrity of natural ecosystems increased by at least [X%] supporting healthy and resilient populations of all species while reducing the number of species that are threatened by [X%] and maintaining genetic diversity	Extent of selected natural ecosystems (forest, savannahs and grasslands, wetlands, mangroves, saltmarshes, coral reef, seagrass) (Link to SDG 6.6.1, 11.3.1, 15.1.1)
	Biomass of selected natural ecosystems (forest, savannahs and grasslands, wetlands, mangroves, saltmarshes, coral reef, seagrass)
B. Nature’s contributions to people have been valued, maintained or enhanced through conservation and sustainable use, supporting the global development agenda for the benefit of all people	The economic value added of all ecosystem services generated (Gross Ecosystem Product)
	Tonnes of carbon retained- (captured and stored/trend in the carbon sequestered) in natural ecosystem
D. Means of implementation is available to achieve all goals and targets the Framework	Official development assistance on conservation and sustainable use of biodiversity and ecosystems (SDG 15.a.1)
	Government expenditure on protection of ecosystem, biodiversity and landscape

Table 1.2: Proposed headline indicators for the 2030 Targets

Target	SEEA Indicators
1. By 2030, [50%] of land and sea areas globally are under spatial planning addressing land/sea use change, retaining most of the existing intact and wilderness areas, and allow to restore [X%] of degraded freshwater, marine and terrestrial natural ecosystems and connectivity among them	Proportion of land that is degraded over total land area (SDG 15.3.1)
2. By 2030, protect and conserve through well connected and effective system of protected areas and other effective area-based conservation measures at least 30% of the planet with the focus on areas particularly important for biodiversity	Coverage of terrestrial protected areas (Link to SDG 15.1.2 and 15.4.1)
	Coverage of protected areas in relation to marine areas (SDG 14.5.1)

4. By 2030, ensure that the harvesting, trade and use of wild species of fauna and flora, is legal, at sustainable levels and safe.	Proportion of fish caught within biologically sustainable levels (Link to SDG 14.4.1)
6. By 2030, reduce pollution from all sources, including reducing excess nutrients [by x%], biocides [by x%], plastic waste [by x%] to levels that are not harmful to biodiversity and ecosystem functions and human health	Proportion of bodies of water with good ambient water quality (SDG 6.3.2)
	Hazardous waste generated per capita (SDG 12.4.2a)
7. By 2030, increase contributions to climate change mitigation adaption and disaster risk reduction from nature-based solutions and ecosystems based approached, ensuring resilience and minimising any negative impacts on biodiversity	Tonnes of carbon retained (captured and stored/trend in the carbon sequestered) in natural ecosystem
	Number of properties/ area of coast protected (coastal protection services) by nature ecosystem.
9. By 2030, support the productivity, sustainability and resilience of biodiversity in agricultural and other managed ecosystems through conservation and sustainable use of such ecosystems, reducing productivity gaps by at least [50%].	Increase yield of crops from pollination
10. By 2030, ensure that, nature based solutions and ecosystem approach contribute to regulation of air quality, hazards and extreme events and quality and quantity of water for at least [XXX million] people.	Tonnes of nitrogen and phosphorus removed from wastewater
	Tonnes of airborne pollutants captured by natural ecosystem
11. By 2030, increase benefits from biodiversity and green/blue spaces for human health and well-being, including the proportion of people with access to such spaces by at least [100%], especially for urban dwellers	Share of green spaces over of the built-up area of cities (Link to SDG 11.7.1)
13. By 2030, integrate biodiversity values into policies, regulations, planning, development processes, poverty reduction strategies and accounts at all levels, ensuring that biodiversity values are mainstreamed across all sectors and integrated into assessments of environmental impacts	Integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental Economic Accounting (SDG 15.9.1b)
15. By 2030, eliminate unsustainable consumption patterns, ensuring people everywhere understand and appreciate the value of biodiversity, make responsible choices commensurate with 2050 biodiversity vision, taking into account individual and national cultural and socioeconomic condition	Material footprint per capita (SDG 8.4.1, 12.2.1)
	Domestic material consumption per capita (SDG 8.4.1, 12.2.1)

III. Annex 2: Supplementary analysis

Table 2.1: Preliminary analysis on the linkage of the SEEA and draft 2050 Goals

Updated 2050 goals and milestones (Not for review)	A. Components of the 2050 Goal	SEEA accounts	B. Monitoring Elements	SEEA accounts
<p>Goal A The area, connectivity and integrity of natural ecosystems increased by at least [X%] supporting healthy and resilient populations of all species while reducing the number of species that are threatened by [X%] and maintaining genetic diversity</p> <p>2030 Milestones i) The area, connectivity and integrity of natural ecosystems increased by at least [5%] ii) The number of species that are threatened is reduced by [X%] and the abundance of species has increased on average by [X%]</p>	A1. Increased extent of natural ecosystems (terrestrial, freshwater and marine ecosystems)	Ecosystem extent; Marine	Trends in area of forest ecosystems	Ecosystem extent
			Trends in area of other terrestrial ecosystems	Ecosystem extent
			Trends in area of mangroves	Ecosystem extent
			Trends in area of coral reefs	Marine
			Trends in area of seagrass ecosystems	Marine
			Trends in area of other marine and coastal ecosystems	Ecosystem extent
			Trends in wetlands	Ecosystem extent
	A2. Ecosystem integrity and connectivity (terrestrial, freshwater and marine ecosystems)	Ecosystem condition; Marine	Trends in fragmentation and quality of forest ecosystem	Ecosystem condition
			Trends in farmland biodiversity and sustainability of agricultural land	Ecosystem condition; Biodiversity
			Trends in fragmentation and quality of dry and sub-humid lands, grasslands, and other terrestrial ecosystems	Ecosystem condition

		Trends in fragmentation and quality of mangroves	Ecosystem condition
		Trends in fragmentation and quality of coral reefs	Marine
		Trends in fragmentation and quality of other marine and coastal ecosystems	Marine
		Trends in fragmentation and quality of inland wetlands	Ecosystem condition
A3. Prevent extinction and improve the conservation status of species	Ecosystem condition; Biodiversity	Trends in species extinctions	Ecosystem condition; Biodiversity
		Trends in conservation status of species	Ecosystem condition; Biodiversity
A4. Increase the population and health of species	Ecosystem condition; Biodiversity	Trends in species abundance	Ecosystem condition; Biodiversity
A5. Maintain Genetic diversity	Biodiversity	Trends in the diversity of wild specie	
		Trends in the diversity of cultivated plans, farmed and domesticated animals	
		Trends in the diversity of wild relatives	

	A6. Protection of critical ecosystems	Protected area	Trends in area of terrestrial and inland water areas conserved	Protected area
			Trends in area of coastal and marine areas conserved	Protected area
			Trends in areas of particular importance for biodiversity conserved	Protected area
			Trends in areas of particular importance for ecosystem services conserved	Protected area
			Trends in ecological representativeness of areas conserve	
Goal B Nature's contributions to people have been valued, maintained or enhanced through conservation and sustainable use, supporting the global development agenda for the benefit of all people 2030 Milestones i) Nature contribute to the sustainable nutrition and food security, access to safe drinking water and resilience to natural disasters for at least [X] million people ii) Nature is valued through green investments, ecosystem service valuation in national accounts, and public and private sector financial disclosure	B1. Nature's regulating contributions including climate regulation, disaster prevention and other	Ecosystem services	Trends in habitat creation and maintenance	Ecosystem services
			Trends in pollination and dispersal of seeds and other propagules	Ecosystem services
			Trends in regulation of air quality	Ecosystem services
			Trends in regulation of climate	Ecosystem services
			Trends in regulation of ocean acidification	Marine
			Trends in regulation of freshwater quantity, quality, location and timing	Ecosystem services
			Trends in regulation of coastal water quality	Marine
			Trends in formation, protection and decontamination of soils and sediments	Ecosystem services
			Trends in regulation of hazards and extreme events	Ecosystem services
			Trends in regulation of detrimental organisms and biological processes	Ecosystem services

	B2. Nature's material contributions including food, water and others	Ecosystem services; Biodiversity	Trends in the provision of energy supply from biological resource	Ecosystem services
			Trends in the provision of food and feed from biodiversity	Biodiversity
			Trends in the provision of materials and assistance from biodiversity	Biodiversity
			Trends in the provision of medicinal, biochemical and genetic resources from biodiversity	Ecosystem services
	B3. Nature's non-material contributions including cultural	Ecosystem services	Learning and inspiration	Ecosystem services
			Physical and psychological experience	Ecosystem services
			Supporting identities	Ecosystem services
			Maintenance of Cultural value	Ecosystem services
GOAL C The benefits, from utilization of genetic resources are shared fairly and equitably 2030 Milestones i) Access and benefit sharing mechanisms are established in all countries ii)Benefits shared increased by [x%]	C1. Access to Genetic resources		Trends in access to genetic resources	
	C2. Sharing of the benefits	Ecosystem services	Trends in the benefits from the access to genetic resources shared	
			Trends in utilization of genetic resources	
			Trends in monetary and non-monetary benefits from access to genetic resources shared	Ecosystem services
GOAL D Means of implementation is available to achieve all goals and targets the Framework 2030 Milestones i) By 2022, means to implement the Framework for the period 2020 to 2030 are identified or committed By 2030, means to implement the Framework for the period 2030 to 2040 are identified or committed	D1. Availability of sufficient financial resources	Environmental Protection Expenditure Accounts	Trends in the mobilization financial resources from public international financial flows	Environmental Protection Expenditure Accounts
			Trends in public domestic resource mobilization	Environmental Protection Expenditure Accounts
			Trends in the mobilization of financial resources from private sector	
			Trends in the mobilization of financial resources from charitable organisations	
	D2. Sufficient capacity building, technology transfer		Trends in support to capacity building	
			Trends in capacity building activities	
			Trends in technology transfer	

	and scientific cooperation		Trends in scientific cooperation	
	D3. Access to technology		Trends in access to relevant technologies	
	14	11	56	42

Table 2.2: Preliminary analysis on the linkage of the SEEA and draft 2030 Targets

Updated 2030 Targets (Not for review)	A. Components of the 2030 targets	SEEA accounts	B. Monitoring Elements	SEEA accounts
<p>Target 1 By 2030, [50%] of land and sea areas globally are under spatial planning addressing land/sea use change, retaining most of the existing intact and wilderness areas, and allow to restore [X%] of degraded freshwater, marine and terrestrial natural ecosystems and connectivity among them</p>	<p>T1.1. Increase in area of terrestrial, freshwater and marine ecosystems under spatial planning</p>	<p>Ecosystem extent</p>	Trends in area under spatial land-use plans	Land use
			Trends in area under integrated coastal zone management	Land use
			Trends in area under marine spatial planning	Land use
			Trends in the area under integrated water resources management	Land use
	<p>T1.2. Prevention of reduction and fragmentation of natural habitats due to land/sea use change</p>	<p>Ecosystem extent; Ecosystem condition</p>	Trends in extent and rate of change of forest ecosystems	Ecosystem extent
			Trends in extent and rate of change of dry and sub-humid land	Ecosystem extent
			Trends in extent and rate of change of other terrestrial ecosystems	Ecosystem extent
			Trends in extent and rate of change of mangroves	Ecosystem extent
			Trends in extent and rate of change of coral reefs	Marine
			Trends in extent and rate of change of seagrass ecosystem	Marine
Trends in extent and rate of change of other marine and coastal ecosystems	Marine			

			Trends in extent and rate of change of wetlands	Ecosystem extent
			Trends in forest and agriculture lands as a proportion of total land area	Ecosystem extent; land use
	T1.3. Priority retention of intact / wilderness areas	Ecosystem condition	Trends in extent of intact / wilderness ecosystem	Ecosystem condition
	T1.4. Restoration of degraded ecosystems	Ecosystem extent; Ecosystem condition; Marine	Trend in the area of degraded terrestrial ecosystems restored	Ecosystem extent; Ecosystem condition
			Trend in the area of degraded corals restored	Marine
			Trend in the area of degraded marine and coastal ecosystems restored	Marine
			Trend in the area of degraded wetlands restored	Ecosystem extent; Ecosystem condition
			Trend in the area of converted agricultural lands restored	Ecosystem extent; Ecosystem condition
	T1.5. Maintenance and restoration of connectivity of natural ecosystems	Ecosystem condition	Trends in habitat connectivity	Ecosystem condition

Target 2 By 2030, protect and conserve through well connected and effective system of protected areas and other effective area-based conservation measures at least 30% of the planet with the focus on areas particularly important for biodiversity	T2.1. Area of terrestrial, freshwater and marine ecosystem under protection and conservation	Ecosystem extent; Protected area	Trends in extent of protected areas	Ecosystem extent; Protected area
			Trends in extent of areas under other area-based conservation measures	Ecosystem extent; Protected area
	T2.2. Areas of particular importance for biodiversity are protected and conserved as priority	Ecosystem extent; Protected area	Trends in proportion of areas of particular importance for biodiversity protected and conserved	Ecosystem extent; Protected area
	T2.3. Representative system of protected areas and other effective area-based conservation measures	Ecosystem condition; Protected area	Trends in ecological representativeness of areas conserved	Ecosystem condition; Protected area
	T2.4. Effective management and equitable governance of the system of protected areas and other effective area-based conservation measures	Ecosystem extent; Protected area	Trends in management effectiveness	
			Trends in proportion of protected areas and other effective area based conservation measures under various governance regimes	Ecosystem extent; Protected area
	T2.5. Connectivity within the system of protected areas and other effective area-	Ecosystem condition; Protected area	Trend in connectivity of protected areas and other effective area-based conservation measures	Ecosystem condition; Protected area

	based conservation measures			
	T2.6. Increased protection and conservation effectiveness		Trend in conservation effectiveness of protected areas and other area-based conservation measure	
	T2.7. Integration into landscape and seascape context		Policy and governance practices outside of protected areas and OECMs compatible with their management objectives	
Target 3 By 2030, ensure active management actions to enable wild species of fauna and flora recovery and conservation, and reduce human-wildlife conflict by [X%]	T3.1. Active recovery and conservation management actions		Trend in ex-situ conservation measures	
			Trends in species recovery programmes	
	T3.2. Reduced human-wildlife conflicts		Trend in human-wildlife conflicts	
Target 4 By 2030, ensure that the harvesting, trade and use of wild species of fauna and flora, is legal, at sustainable levels and safe.	T4.1. Harvest is legal, sustainable and safe for human health and biodiversity	Ecosystem services	Trends in proportion of biological resources harvested legally	Ecosystem services
			Trends in proportion of biological resources harvested within the established harvest limits	Ecosystem services
			Trends in proportion of biological resources harvested though sustainable harvest practice	
			Trends in measures ensuring safe harvesting operations	
			Trends in proportion of biological resources traded legally	
			Trends in proportion of biological resources traded within the established limits/quotas	
	T4.2. Trade is legal, sustainable and safe for human health and biodiversity		Trends in measures ensuring safety of trade operations	
			Trends in proportion of biological resources used legally	
			Trends in proportion of biological resources used within the established limits/quota	Ecosystem services
			Trends in measures ensuring safe use of biodiversity	
T4.3. Use is legal, sustainable and safe for human health and biodiversity	Ecosystem services;	Trends in proportion of biological resources used legally	Ecosystem services	
		Trends in proportion of biological resources used within the established limits/quota	Ecosystem services	
		Trends in measures ensuring safe use of biodiversity		

Target 5 By 2030, manage, and where possible control, pathways for the introduction of IAS, achieving [50%] reduction in the rate of new introductions, and eradicate, control and manage IAS to eliminate or reduce their impacts, including in at least [50%] of priority sites	T5.1. Identification, control and management of pathways for introduction of invasive alien species		Trends in timely identification of pathways for introduction		
			Trends in development of control and management measures for pathways for introduction		
	T5.2. Effective detection, identification, prioritisation and monitoring of invasive alien species		Trends and efficiency of detection of invasive alien species		
			Trends in identification of invasive alien species		
			Trends monitoring of invasive alien species		
	T5.3. Establishment of measures for eradication, control and management of invasive alien species	Ecosystem services		Trends in the rate of invasive species eradication	Ecosystem services
				Trends in establishing control measures	
				Trends in establishing management measures	
	T5.4. Eliminated or reduced impacts of IAS			Trends in the impact of invasive alien species	
	T5.5. Eradication, control or management of IAS in priority sites			Trends in elimination of AIS and their impacts in island	
				Trends in elimination of AIS and their impacts in protected areas and areas with other effective re-based conservation measures	
			Trends in elimination of AIS and their impacts in intact / wilderness areas		
Target 6 By 2030, reduce pollution from all sources, including reducing excess nutrients [by x%], biocides [by x%], plastic waste [by x%] to levels that are not harmful to biodiversity and ecosystem functions and human health	T6.1. Reduction of pollution from excess nutrients	Ecosystem condition; Ecosystem services	Trends in levels of pollution from nitrogen	Ecosystem condition	
			Trends in levels of pollution from phosphorus	Ecosystem condition	

	T6.2. Reduction of pollution from biocide	Ecosystem condition; Ecosystem services	Trends in levels of pollution from excess pesticide	Ecosystem condition
			Trends in levels of pollution from excess herbicide	Ecosystem condition
			Trends in levels of pollution from excess other biocides	Ecosystem condition
	T6.3. Reduction of pollution from plastic	Ecosystem condition; Ecosystem services; Marine	Trends in levels of pollution with marine plastic	Marine
			Trends in levels of pollution from plastic in terrestrial and freshwater ecosystems	Ecosystem condition
	T6.4. Reduction of pollution from other sources	Central Framework residual flow accounts	Trends in levels of pollution from organic wastes	
			Trends in levels of pollution from lead	
			Trends in levels of pollution from noise	
			Trends in levels of pollution from artificial light	
			Trends in levels of pollution from sediments	
			Trends in the levels of hazardous waste	
Target 7 By 2030, increase contributions to climate change mitigation adaption and disaster risk reduction from nature-based solutions and ecosystems based approached, ensuring resilience and minimising any negative impacts on biodiversity	T7.1. Increased biodiversity contribution to climate change mitigation, adaptation and disaster risk reduction	Ecosystem services	Trends in carbon stocks in different ecosystems	Ecosystem services
			Trends in contribution to climate change adaptation	Ecosystem services
			Trends in contribution to disaster risk reduction	Ecosystem services
	T7.2. Minimised negative impacts on biodiversity from any mitigation, adaptation and disaster risk reduction measures		Trends in integration of biodiversity consideration in design of mitigation, adaptation and disaster risk reduction projects	
			Trends in environmental impacts assessments of mitigation, adaptation and disaster risk reduction projects	
Target 8 By 2030, ensure benefits, including nutrition, food security, livelihoods, health and wellbeing, for people, especially for the most vulnerable through	T8.1. Sustainable anagement of aquatic wild species of fauna and flora, including fisheries	Ecosystem condition Ecosystem services; Fishery	Trends in fish stocks.	Ecosystem services; Fishery

sustainable management of wild species of fauna and flora				
			Trends in sustainable fisheries management	Ecosystem services; Fishery
			Trends in population and extinction risk in bycatch species	Ecosystem condition
			Trends in aquatic plant	
			Trends in Invertebrate stocks	
	T8.2. Sustainable management of terrestrial wild species of fauna and flora	Ecosystem services	Trends in terrestrial wild species of fauna used for food and medicine	Ecosystem services
Target 9 By 2030, support the productivity, sustainability and resilience of biodiversity in agricultural and other managed ecosystems through conservation and sustainable use of such ecosystems, reducing	T9.1. Sustainable management of agricultural biodiversity, including soil biodiversity, cultivated plants and farmed and	Ecosystem extent; Ecosystem condition	Trends in area of agriculture under sustainable practices	Ecosystem extent; Ecosystem condition
			Trends in soil quality	Ecosystem condition

productivity gaps by at least [50%]	domesticated animals and of wild relatives		Trends in pollinators	Ecosystem condition
			Trends in genetic diversity of cultivated plants and of wild relatives	
			Trends in genetic diversity of domesticated animals and of wild relatives	
	T9.2. Sustainable management of aquaculture	Ecosystem extent; Ecosysetm services	Trends in production of aquaculture under sustainable practices	Ecosystem extent; Ecosysetm services
T9.3. Sustainable management of all types of forests	Ecosystem extent; Ecosystem services	Trends in proportion of area of forests under sustainable practices	Ecosystem extent; Ecosysetm services	
Target 10 By 2030, ensure that, nature based solutions and ecosystem approach contribute to regulation of air quality, hazards and extreme events and quality and quantity of water for at least [XXX million] people	T10.1. Regulation of air quality	Ecosystem services	Trends in ecosystems contributing to air quality	Ecosystem services
	T10.2. Regulation of hazards and extreme events	Ecosystem services	Trends in hazardous and extreme events	Ecosystem services
	T10.3. Regulation of freshwater quantity, quality, location and timing	Ecosystem services	Trends in natural freshwater ecosystems proving good ambient water	Ecosystem services
Target 11 By 2030, increase benefits from biodiversity and green/blue spaces for human health and well-being, including the proportion of people with access to such spaces by at least [100%], especially for urban dwellers	T11.1. Access to green/blue space	Urban	Trends in access to green/blue spaces	Urban
	T11.2. Contributions of biodiversity to human health and well-being	Ecosystem services	Trends in species that provide essential services	Ecosystem services
			Trends in contributions to human health and ell being from forest ecosystem	Ecosystem services
			Trends in contributions to human health and well-being from other terrestrial ecosystems	Ecosystem services
			Trends in contributions to human health and well being from mangroves	Ecosystem services
			Trends in contributions to human health and ell being from coral reef	Marine
Trends in contributions to human health and well-being from other marine and coastal cosystem	Marine			

			Trends in contributions to human health and well being from wetlands	Ecosystem services
Target 12 By 2030, increase by [X] benefits shared for the conservation and sustainable use of biodiversity through ensuring access to and the fair and equitable sharing of benefits arising from utilization of genetic resources and associated traditional knowledge	T12.1. Access to genetic resources		Trends in access to genetic resources	
	T12.2. Benefit shared from the use of genetic resources	Ecosystem services	Trends in the benefits from the access to genetic resources shared	Ecosystem services
			Trends in the number of countries that have adopted legislative, administrative or policy frameworks to ensure fair and equitable sharing of benefits	
			Trends in the contribution of benefits to conservation and sustainable use	
	T12.3. Benefits resulting from use of traditional knowledge associated with genetic resources	Ecosystem services	Trends in use of traditional knowledge associated with genetic resource	Ecosystem services
Trends in benefits generated and shared from the use of traditional knowledge associated with genetic resources			Ecosystem services	
Target 13 By 2030, integrate biodiversity values into policies, regulations, planning, development processes, poverty reduction strategies and accounts at all levels, ensuring that biodiversity values are mainstreamed across all sectors and integrated into assessments of environmental impacts	T13.1. Biodiversity reflected in policies and planning at all levels		Trends in integration of biodiversity and ecosystem service values into planning processes	

			Trends in integration of biodiversity and ecosystem service values into development processes	
			Trends in integration of biodiversity and ecosystem service values into poverty reduction strategies	
			Trends in integration of biodiversity and ecosystem service values into sectoral plan	
	T13.2. Biodiversity reflected in national and other accounts	SEEA global assessment	Trends in integration of biodiversity and ecosystem service values into national accounts	SEEA global assessment
	T13.3. Biodiversity values are reflected in policies and regulations, including on biodiversity inclusive environmental impact assessments and strategic environmental assessments		Trends in integration of biodiversity and ecosystem service values into other accounts	
			Trends in the number of policies and regulations which incorporate biodiversity consideration	
			Trends in the number of policies and regulations requiring the use of strategic environmental impact assessment which incorporate biodiversity considerations	
Target 14 By 2030, achieve reduction of at least [50%] in negative impacts on biodiversity by ensuring production practices and supply chains are sustainable	T14.1. Reduction of at least [50%] in negative impacts on biodiversity		Trends in ecological limits reached or surpassed	
	T14.2. Sustainable production practices, including circular economy and waste management and sustainable supply chains at national and international levels	Material flows	Trends in sustainable production in sectors	Material flows

			Trends in the application of circular economy principles and practices	
			Trends in waste management	
	T14.3. Sustainable supply chains at national and international levels		Trends in certification of supply chains	
			Trends by financial sector in developing and applying biodiversity risk assessment policies and processes, demonstrating decreasing negative impacts on ecosystems and biodiversity in their portfolios and trends in developing tools for biodiversity financing, demonstrating increasing amounts of dedicated finance.	
			Trends in a proportion of supply chains which are legal and sustainable	
Target 15 By 2030, eliminate unsustainable consumption patterns, ensuring people everywhere understand and appreciate the value of biodiversity, make responsible choices commensurate with 2050 biodiversity vision, taking into account individual and national cultural and socioeconomic conditions	T15.1. Sustainable consumption patterns	Ecosystem services; Material flows	Trends in use of non-renewable natural resources	Material flows
			Trends in use of renewable natural resources	Material flows
			Trends in use of biological resource	Ecosystem services
			Trends in ecological limits reached or surpassed	Ecosystem services
	T15.2. New vision of good quality of life based on sustainability		Trends in public engagement and attitudes towards biodiversity	

	and new social norms for sustainability			
	T15.3. Peoples' responsibility for their choice	Environmental Goods and Services Sector	Trends in demand for more environmentally friendly products	Environmental Goods and Services Sector
Target 16 By 2030, establish and implement measures to prevent, manage or control potential adverse impacts of biotechnology on biodiversity and human health reducing these impacts by [X]	T16.1. Measures to prevent potential adverse impacts of biotechnology on biodiversity and human health		Trends in development and adoption of the necessary biosafety legal, administrative and other measures	
	T16.2. Measures to manage adverse impacts of biotechnology on biodiversity and human health		Trends in scientifically sound risk assessments and management of the identified risks.	
	T16.3. Measures to control adverse impacts of biotechnology on biodiversity and human health		Trends in number of countries that share and have access to biosafety-related information for the safe use of the products of biotechnology	
	T16.4 Restoration and compensation for damage to biodiversity caused by LMOs		Trends in number of countries that have systems in place for restoration and compensation for damage to biodiversity	
Target 17 By 2030, redirect, repurpose, reform or eliminate incentives harmful for biodiversity, including [X] reduction in the	T17.1. Increase in positive public and private economic and regulatory incentives	Environmental taxes and subsidies	Trends in development and application of public incentives that promote biodiversity conservation and sustainable use	Environmental taxes and subsidies

most harmful subsidies, ensuring that incentives, including public and private economic and regulatory incentives, are either positive or neutral for biodiversity			Trends in development and application of private incentives that promote biodiversity conservation and sustainable us	Enviromental taxes and subsidies
	T17.2. Elimination, phasing out or reform of incentives and subsidies the most harmful to biodiversity		Trends in the number and value of subsidies, harmful to biodiversity	
Target 18 By 2030, increase by [X%] financial resources from all international and domestic sources, through new, additional and effective financial resources commensurate with the ambition of the goals and targets of the Framework and implement the strategy for capacity-building and technology transfer and scientific cooperation to meet the needs for implementing the post2020 global biodiversity framework	T18.1. Identification of funding needs to meet ambition of the goals and targets of the Framework		Trends in the number of countries which have assessed funding needs	
	T18.2. Increase in financial resources from international source	Environmental Protection Expenditure Accounts	Trends in the mobilization financial resources from public international financial flows	Environmental Protection Expenditure Accounts
			Trends in the mobilization of financial resources from private secto	
			Trends in the mobilization of financial resources from charitable organisations	
	T18.3. Increase in financial resources from domestic sources	Environmental Protection Expenditure Accounts	Trends in public domestic resource mobilization	Environmental Protection Expenditure Accounts
			Trends in the mobilization of financial resources from private sectors	
			Trends in the mobilization of financial resources from charitable organisations	
		Trends in support to capacity building		

	T18.4. Implementation of the strategy for capacity - building		Trends in capacity building activities	
	T18.5. Implementation of the strategy for technology transfer and scientific cooperation		Trends in technology transfer	
			Trends in scientific cooperation	
Target 19 By 2030, ensure that quality information, including traditional knowledge, is available to decision makers and public for the effective management of biodiversity through promoting awareness, education and research	T19.1. Availability of reliable and up-to-date biodiversity related information		Trends in the availability of biodiversity related information	
	T19.2. Promotion of awareness of values of biodiversity		Trends in awareness of biodiversity values	
	T19.3. Promotion of biodiversity in education		Trends in the integration of biodiversity into academic curricula	
	T19.4. Availability of research and knowledge, including traditional knowledge, innovations and practices of indigenous peoples and local communities with their free, prior and informed consent		Trends in the development of biodiversity related knowledge	
		Trends in access to biodiversity related knowledge		
			Trends in documentation and use of traditional knowledge, innovations and practices with their free, prior and informed consent	

Target 20 By 2030, ensure equitable participation in decision-making related to biodiversity and ensure rights over relevant resources of indigenous peoples and local communities, women and girls as well as youth, in accordance with national circumstances	T20.1. Equitable participation of IPLCs in decision-making related to biodiversity and rights over relevant resources		Trends in the participation of indigenous peoples and local communities in decision making	
			Trends in the recognition of rights over relevant resources	
	T20.2. Equitable participation of women and girls in decision-making related to biodiversity and rights over relevant resources		Trends in the participation of women and girls in decision making	
			Trends in the recognition of rights over relevant resource	
	T20.3. Equitable participation of youth in decision-making related to biodiversity and rights over relevant resources		Trends in the participation of youth in decision making	
			Trends in the recognition of rights over relevant resources	
	68	37	154	75

Table 3: Proposed indicators in the draft monitoring framework that can be compiled by SEEA

A. Proposed Global Indicators	B. Relevant Goals and Targets	Row Number
(a) Hazardous waste generated per capita; and (b) proportion of hazardous waste treated, by type of treatment (SDG indicator 12.4.2)	6, 14	2
(a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets; and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental Economic Accounting (SDG indicator 15.9.1)	13	4
(a) Official development assistance on conservation and sustainable use of biodiversity (SDG indicator 15.a.1)	D, 18	5
15.a.1 (b) revenue generated and finance mobilized from biodiversity- relevant economic instruments (SDG indicator 15.a.1)	D	6
Amount of fossil-fuel subsidies per unit of GDP (production and consumption)(SDG indicator 12.c.1)	17	9
Area of forest under sustainable management: total FSC and PEFC forest management certification	9, 14	11
Areas of agricultural land under conservation agriculture.	9	12
Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities (SDG indicator 11.7.1)	11	15
Change in the extent of water-related ecosystems over time (SDG indicator 6.6.1)	A, 10	21
Change in water use efficiency over time (SDG indicator 6.4.1).	14	22
Change on the extent of water related ecosystems (SDG Indicator 6.6.1)	A, 1	23
CO ₂ emission per unit of value added (SDG indicator 9.4.1)	14	24
Continuous Global Mangrove Forest Cover	A, 1	26
Coverage by protected areas of important sites for mountain biodiversity (SDG indicator 15.4.1)	2	27
Coverage of other effective area-based conservation measures	A, 2	28
Coverage of protected areas in relation to marine areas (SDG indicator 14.5.1)	2	29
Cumulative human impacts on marine ecosystems	A, 1	30
Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP (SDG indicators 8.4.2 and 12.2.2)	14, 15	36
Ecological Footprint	14, 15	37
Estimated % of monetary and non- monetary benefits directed towards conservation and sustainable use of biodiversity	12	39
Forest area as a proportion of total land area (SDG indicator 15.1.1)	A, 1	41
Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (SDG indicator 6.4.2)	14, 15	49
Material footprint, material footprint per capita, and material footprint per GDP (SDG indicators 8.4.1 and 12.2.1)	14, 15	52
Mountain Green Cover Index (SDG indicator 15.4.2)	1	53
National recycling rate, tons of material recycled (SDG indicator 12.5.1)	15	55
Percentage of cropped landscapes with at least 10% natural land	1	84
Primary forest deforestation	1	98
Proportion of agricultural area under productive and sustainable agriculture (SDG indicator 2.4.1)	9	100
Proportion of bodies of water with good ambient water quality (SDG indicator 6.3.2)	B, 10	101
Proportion of fish stocks under sustainable management certification schemes	8	104
Proportion of fish stocks within biologically sustainable levels (SDG indicator 14.4.1)	4, 8	105

Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	2	106
Proportion of land that is degraded over total land area (SDG indicator 15.3.1)	A, 1, 9	108
Proportion of terrestrial, freshwater and marine ecological regions which are conserved by PAs or OECMs.	2	114
Protected area coverage	A, 2	119
Protected Area Coverage of key biodiversity areas	A, 2	120
Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries (SDG indicator 14.7.1)	8	130
Tree cover loss	A	135
Trends in land cover change (SDG indicator 15.3.1)	1	138
Trends in mangrove extent	A, 1	141
Trends in the number and value of government fossil fuel support measure	17	146
Wetland Extent Trends Index	A, 1	152

Table 4: Proposed indicators in the draft monitoring framework that are aligned with the SEEA framework

A. Proposed Global Indicators	B. Relevant Goals and Targets	Row Number
(a) Index of coastal eutrophication; and (b) plastic debris density (SDG indicator 14.1.1)	6	3
Average marine acidity (pH) measured at agreed suite of representative sampling stations (SDG indicator 14.3.1)	A	14
Bioclimatic Ecosystem Resilience Index (BERI)	1	16
Biodiversity Barometer	15, 19	17
Biodiversity Engagement Indicator	15	18
Biodiversity Habitat Index	A, B, 1	19
Biodiversity Intactness Index	A	20
Comprehensiveness of conservation of socioeconomically as well as culturally valuable species.	A	25
Ecoregion Intactness Index	1	38
Global coral reef extent	A	42
Global saltmarsh extent	A	43
Global seagrass extent	A, 1	44
Human Appropriation of Net Primary Production (HANPP)	14	48
Live coral cover	A, 1	50
Living Planet Index and derivatives	A, 8	51
Nitrogen Balances	6	56
Number of species extinctions (birds and mammals).	A	81
Ocean Health Index	A, 1	83
Percentage of threatened species that are improving in status.	3	96
Phosphorus balances	6	97
Proportion of known species assessed through the IUCN Red List.	19	107
Proportion of traded wildlife that was poached or illicitly trafficked (SDG indicators 15.7.1 and 15.c.1)	4	116
Protected Area Connectedness Index (PARC-Connectedness).	2	118
Protected Area Representativeness Index (PARC-Representativeness)	A, 2	121
Red List Index and derivatives	A, B, 1, 3, 5, 8, 9	125
Red List Index for Ecosystems	A, 1	126
Species Habitat Index	A, B	127
Species Protection Index	A, 2	128
Species Status Information Index	19	129
Trends in Loss of Reactive Nitrogen to the Environment.	6	140
Trends in Nitrogen Deposition.	6	142
Trends in Protected area downgrading, downsizing and degazettement (PADDD)	2	145