Indicator metadata form

1. Indicator name

Insert full indicator name

2.2 Area under restoration

2. Date of metadata update

Insert date of metadata update

June 2023

3. Goals and Targets addressed

Please provide details about the proposed goals and targets of the post-2020 global biodiversity framework for which the indicator will measure progress in the post-2020 global biodiversity framework

3a. Goal

If relevant, Provide the corresponding draft goal name, draft goal number, or N/A

N/A

3b. Target

Provide the corresponding draft target name, draft target number, or N/A

Target 2: Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

4. Rationale

Description of the purpose and rational behind the indicator, noting its relevance to the corresponding draft goal or target

The Food and Agriculture Organization of the United Nations (FAO), as co-lead of the UN Decade on Ecosystem Restoration ("UN Decade") and lead of the Task Force on Monitoring ("the Task Force") follows the request and mandate given by the United Nations General Assembly (UNGA) to report on the status of ecosystem restoration in its eighty-first session (resolution A/RES/73/284 from March 2019): "*The General Assembly, (…) 7. Requests the Secretary-General to report to the General Assembly at its eighty-first session on the status of the implementation of the present resolution, including its contribution to the implementation of the 2030 Agenda for Sustainable Development".*

The Task Force brings together hundreds of technical experts from over 100 organizations tasked with collaboratively developing a monitoring framework for the UN Decade. The monitoring framework for the UN Decade intends to support monitoring and reporting of the progress and achievements of ecosystem restoration for the UN Decade (2021–2030). The framework was subsequently created and named the Framework for Ecosystem Restoration Monitoring (FERM). A description of the Task Force can be found here: TF link.

Through an extensive consultative and analytical process, a set of 20 headline indicators were identified from existing formal country data collection processes. The report on headline indicators (FAO and UNEP, 2022), was launched at the XV World Forestry Congress in May 2022. From the analysis of existing country data collection processes, it was clear that there are currently no indicators that can be used as the basis for area-based assessment of restoration. Given this, a working group was created to support development of a methodology for area-based estimates for UN Decade progress reporting and for Target 2. The FERM registry was launched at the XV World Forestry Congress to harmonise and collect area-based data on ecosystem restoration projects and programs (https://ferm.fao.org/). The FERM data visualisation geoportal has been developed to visualise progress and provide indicators and data to help practitioners to monitor ecosystem restoration (https://data.apps.fao.org/ferm/).

FAO support to monitoring Target 2 removes duplication of effort and ensures alignment between the monitoring of the UN Decade and CBD restoration targets.

As of November 2022, FAO, in collaboration with the Task Force on Monitoring and the working group on Target 2, have developed a draft methodology for monitoring and reporting area under restoration as described below. The methodology is applicable for reporting progress under the UN Decade, which can then be disaggregated to the final agreed formulation of Target 2. With this approach, a single data compilation and validation exercise for area under restoration can support monitoring and reporting requirements for several needs (CBD and UN Decade). It is planned that the methodology will be finalized in 2024 to ensure disaggregation to the final agreed formulation of Target 2. A draft version is available here.

5. Definitions, concepts and classifications

5a. Definition:

Precise definition of the indicator, including references to standards and classifications. The indicator definition should be unambiguous and in expressed in universally applicable terms. It must clearly express the unit of measurement (proportion, dollars, number of people, etc.).

a) Ecosystem:

Within the article 2 of the Convention on Biological Diversity (UN, 1992), ecosystem is defined as:

"Dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit."

b) Degraded ecosystem:

No definition was found from the CBD or other conventions, it is defined by Dunster and Dunster (1996) as:

"An ecosystem where, due to any process or activity, the viability of ecosystem functions and processes, and hence biodiversity, have been removed or lessened."

A similar but more frequently used term is degraded land. There are various definitions of land degradation. The United Nations Convention to Combat Desertification (UNCCD) defines it as:

"The reduction or loss of the biological or economic productivity and complexity of rain fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from a combination of pressures, including land use and management practices."

This definition was adopted by, and is used by, the 196 countries that are Party to the UNCCD for reporting on SDG Indicator 15.3.1.

c) Ecosystem restoration:

Within the UN Decade, ecosystem restoration is defined as:

"The process of halting and reversing degradation, resulting in improved ecosystem services and recovered biodiversity. Ecosystem restoration encompasses a wide continuum of practices, depending on local conditions and societal choice." (UNEP, 2021).

Within the CBD post-2020 Global Biodiversity Framework, ecosystem restoration is described as follows (CBD, 2021a):

"Restoration may include: (a) restoring converted areas back to natural states; (b) improving the ecological integrity of degraded natural areas; and (c) rehabilitating converted and degraded areas (e.g. degraded agricultural lands) to improve both productivity and integrity."

d) Ecological restoration:

Ecological restoration is a type of ecosystem restoration. According to CBD (2016), it is defined as:

"The process of managing or assisting the recovery of an ecosystem that has been degraded, damaged or destroyed as a means of sustaining ecosystem resilience and conserving biodiversity."

The Society for Ecological Restoration (SER) defines ecological restoration as:

"The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. (Ecosystem restoration is sometimes used inter-changeably with ecological restoration, but ecological restoration always addresses biodiversity conservation and ecological integrity, whereas some approaches to ecosystem restoration may focus solely on the delivery of ecosystem services.)" (Gann *et al.*, 2019).

The CBD Secretariat and SER have provided a glossary to help distinguish different versions of restoration and explain how they intersect (CBD Secretariat and SER, 2019).

e) Rehabilitation:

The Society for Ecological Restoration (SER) defines rehabilitation as:

"Management actions that aim to reinstate a level of ecosystem functioning on degraded sites, where the goal is renewed and ongoing provision of ecosystem services rather than the biodiversity and integrity of a designated native reference ecosystem" (Gann *et al.*, 2019).

Rehabilitation is a type of ecosystem restoration. Ecosystem rehabilitation is focused on restoring and improving functions within transformed ecosystems, while ecological restoration is focused on restoration to a natural state.

f) Effective restoration:

There currently is not definition for effective restoration, this will be established with the finalized methodology of Target 2.

g) Ecological connectivity:

The Convention on Migratory Species (2020) defines ecological connectivity as:

"The unimpeded movement of species and the flow of natural processes that sustain life on Earth"

h) Ecological integrity:

Within the CBD post-2020 Global Biodiversity Framework (CBD, 2021), ecological integrity is described as follows:

"An ecosystem is generally understood to have (ecological) integrity when its dominant ecological characteristics (e.g. elements of composition, structure, function, and ecological processes) occur within their natural ranges of variation and can withstand and recover from most perturbations."

Ecological integrity is an essential element in Goal A, and is also addressed in Target 1, Target 2 and Target 12. Parties to the CBD are also working to adopt a consistent and accurate method to define, measure and operationalize it.

5b. Method of computation

At the moment, there is no mechanism for collecting area-based information on ecosystem restoration. FAO and key partners from the Monitoring Task Force of the UN Decade on Ecosystem Restoration are defining a methodology for data collection, compilation, and reporting. The proposed workflow consists of four main elements: data compilation, country validation, reporting and capacity development, as illustrated in Figure 1. The workflow will be used to estimate area under restoration for reporting to both CBD Target 2 and the UN Decade.

The primary platforms and reporting mechanisms for collecting information on restoration areas identified by the Working Group, include the Framework for Ecosystem Restoration Monitoring (FERM), Sustainable Development Goals (SDGs), Restor, Restoration Barometer, UNCCD's Performance Review and Assessment of the Implementation System (PRAIS), World Database for Protected Areas (WDPA), the Global Forest Resource Assessment (FRA), International Coral Reef Initiative (ICRI), Ramsar, UNFCCC and other REDD+ reporting mechanisms.

The Task Force will work with platform developers to harmonize the data collected by each platform and work towards collecting the data parameters for reporting on areas under restoration. The Project Information Sharing Framework from the Global Restoration Observatory (GRO) (Gann *et al.*, 2022) provides a useful framework for interoperability between platforms. The goal of interoperability

between the key restoration platforms is to enable the exchange and integration of data from different sources, to have an API that will share data seamlessly between platforms, reducing duplication of effort, reporting burden, and the likelihood of double counting of restoration areas.

Restoration initiatives, led by public entities, private sector, civil society and individuals can share area based data and additional parameters for reporting area under restoration through any of the key identified platforms. FAO will compile data from the key platforms and harmonize the data through the FERM registry so long as data providers, be they national institutions or private sector, have consented to share those data with the UN Decade. Spatially explicit area information is strongly recommended; as such, information will be used to transparently share the areas under restoration, restoration commitments and areas successfully restored, as well as calculate the connectivity metrics between ecosystems. The additional parameters will assist in avoiding double counting and providing disaggregated estimates for different reporting mechanisms. A quality assurance quality control (QA/QC) procedure in the FERM registry will be defined to include only complete and relevant data in the estimate and avoid double counting, as much as possible.

FAO, jointly with the Task Force and the CBD secretariat, will rely on the CBD national focal point or country representatives to complete the data validation and reporting for Target 2 and UN Decade area-based estimates. The country representatives will be presented with a pre-compiled form in the FERM registry, based on the data compilation from the various platforms. Countries will have the opportunity to modify the information in the FERM registry, add areas under restoration from national databases, validate the pre-compiled data, and define which information is shared through the FERM platform. Additionally, countries that have unassisted natural restoration that is not being overseen by a particular entity will be invited to record the area of restoration through the FERM registry. This process is referred to as country validation.

There will be capacity development opportunities for collecting geospatial information on restoration areas and activities and entering data to the FERM registry. Support will be provided to UN Decade Flagships, Global Environment Facility (GEF) projects, and additional funding is in the process of being secured to expand capacity development efforts.

Depending on the data source, the compiled data by ecosystem is classified into tiers before the country validation process to facilitate transparent communication of where the data originates from and if it has already undergone prior country validation to avoid the duplication of validation efforts. The tier classification will be applied to the data sources for the country validation and only officially validated data will be published in the FERM platform. The tiers for the data sources are defined as:

- Tier 1: Estimated data from non-official sources (e.g. produced by non-government organizations or from scientific literature).
- Tier 2: Estimated data from official sources (e.g. produced by custodian agencies).
- Tier 3: Country data. Country directly reported data.

For the country validation process the data will be aggregated at the national scale by ecosystem, when possible. Possible validation outcomes are: a) country validates as country data; b) approval of publishing the data as estimated data; c) rejection of publishing the estimated data; d) non-response - data reported as estimated data. Validated statistics, aggregated from data validated as country data or estimated data on areas under restoration will be reported to the CBD and in the annual reporting mechanism of the UN Decade.

The data parameters for area under restoration include information for directly deriving relevant information on area under restoration and additional parameters for ensuring the quality, consistency and transparency of the data reported. Table 1 outlines the data parameters recommended for reporting area under restoration under three broad groups: area, status, and additional information. Area is used to measure the extent of restoration and ecosystem being restored for aggregation and disaggregation. Status provides an indication of whether an area being reported can be counted towards a reporting period. Additional information helps identify potential duplicates from multiple platforms. It is also used for filtering restoration initiatives and areas for different reporting processes.

Specifically:

1. **Committed area to restore** includes pledges, targets or commitments by country or conventions. Commitments can be reported as time-bounded absolute values with units, e.g., to restore 500 hectares by 2030. This parameter will not be counted as area under restoration but will serve as a

reference to monitor restoration progress. Therefore, they should be included in the reporting process, when possible. Data type: tabular.

2. **Area under restoration** and 3. **Ecosystem** describes the area where restoration is happening. It will be reported by ecosystem and by country. There are two data types, tabular and spatially explicit data, and are described as the following:

I. Tabular

Tabular value is the estimate of ecosystem restoration by ecosystem in the appropriate units (e.g., number of hectares of forests, number of kilometers of rivers). It can be compiled from global or regional reporting processes for country validation or directly reported by national focal points. Ecosystems can be reported using the UN Decade ecosystems, the IUCN Global Ecosystem Typology 2.0 (Keith *et al.*, 2022) or country specified ecosystems. Disaggregation by ecosystems may or may not be available, depending on the data sources.

II. Spatially explicit (Spatially explicit information on restoration areas is encouraged but not a requirement.)

A. Point or administrative data: Areas under restoration can be associated to a coordinate that is within the area or the administrative unit where the activities are taking place. In the FERM registry a point location or administrative boundary (using administrative level 1 or 2) shall be provided as a minimum requirement for a restoration initiative. Additional tabular data will be required for the area under restoration by ecosystem, consistent with the reporting ecosystem classification system and by country. The IUCN Global Ecosystem Typology map will be provided as the default dataset of the ecosystems that intersect with the coordinate or administrative boundaries. The default ecosystems can be confirmed or modified to report using the UN Decade ecosystems, the IUCN Global Ecosystem Typology 2.0 (Keith *et al.*, 2022) or country specified ecosystems.

B. Delineation of areas under restoration: If spatially explicit information of a restoration initiative is provided in the FERM registry and represents the entirety of the area under restoration (i.e. polygons of the areas are provided), by default, the restoration area by ecosystem and by country is calculated based on the polygons. The area under restoration can be modified as a tabular input if the calculated areas do not align with the total area under restoration. The IUCN Global Ecosystem Typology map will be provided as the default dataset of the ecosystems that intersect with the polygons. The default ecosystems can be confirmed or modified to report using the UN Decade ecosystems, the IUCN Global Ecosystem Typology 2.0 (Keith *et al.*, 2022) or country specified ecosystems.

Delineation of areas under restoration is required for calculating the component indicator on ecosystem connectivity.

A global ecosystem dataset is used as default data to make the map overlay that covers aquatic and terrestrial ecosystems. Available global ecosystem maps were evaluated (Annex 1) and the outcome of the analysis found the most detailed and complete information is provided by the IUCN Global Ecosystem Typology 2.0 (Keith *et al.*, 2022). The IUCN Global Ecosystem Typology 2.0 is the outcome of critical review and input by an extensive international network of ecosystem scientists, containing profiles for 25 biomes and 108 ecosystem functional groups (EFGs). Biomes will be used for disaggregation by ecosystems for reporting. Data type: tabular or spatially explicit.

4. **Restoration status** will provide an indication of whether the restoration area can be counted towards a reporting period. Restoration status is broken down into four components and an area specifies one of the components to represent its status. Each restoration status is characterized by a temporal component, which includes the start year of the restoration activities and end year, if applicable. Information on the start and end years will be compared to the reference period (2011-2020) (CBD/COP/DEC/15/5.2) and reporting periods for CBD reporting and UN Decade reporting. This will also enable reporting to multiple conventions by sub-setting the data by year. Temporal components might be difficult to define for areas with unassisted natural restoration and further instructions will need to be provided. The restoration status is characterized by three phases, in preparation, in progress and post-completion monitoring, described as the following:

- In preparation: enabling environment, funds committed, area gazetted for restoration, activities have not yet begun, and impacts of restoration may not yet be measurable.

- In progress: ongoing restoration activities and depending on the time that the activities have been ongoing, impacts may start to be measurable.
- Post-completion monitoring: restoration activities completed and efforts in place to monitor the restoration results. It is acknowledged that an area will not be restored as soon as activities are completed, therefore, post-completion assessments on the restoration status shall be made periodically. The four possible values are:
    - restored
    - under restoration
    - degrading or degraded
    - unknown - no longer being monitored

Areas that are considered “in preparation” will count towards the area committed to restore. Areas with the status “in progress” and “post-completion monitoring-under restoration” will be reported as “under restoration”. An area can be considered to be “restored” when all key ecological attributes resemble those of the natural ecosystem reference that is the target of restoration, thus requiring high ecological integrity (Gann *et al.*, 2019). For successfully restored areas, it is encouraged to continue monitoring and assessing the status periodically. Efforts should be made to prevent new degradation and maintain the restored status. They will be reported as “area restored” as long as the status remains restored. Data type: descriptive.

5. **Type of restoration**. The possible values are ecological restoration and rehabilitation. This can be determined by analyzing the current and target ecosystem (natural or transformed). Examples of transformed ecosystems are: farmlands, forest plantation, urban ecosystems. As a useful rule of thumb, if the target ecosystem is natural, the restoration will be ecological restoration. If the target ecosystem is transformed, the restoration will be rehabilitation (see Figure 2). Target 2 includes both ecological restoration and rehabilitation. Data type: descriptive.

6. **Restoration activity** describes what is being implemented on the ground in order to achieve restoration objectives. Activities are adapted from the Glossary of restoration interventions of the TEER initiative. They are divided into two main categories (biophysical and enabling) and secondary categories according to the IPBES report (IPBES, 2018). Implementing enabling activities often corresponds to the preparation stage. Data type: descriptive.

7. **Lead entity** and 8. **Tenure status** provide information on the entity leading the restoration effort and legal status of the area under restoration. Information on tenure status should include documentation of Free and Prior Consent (FPIC) to ensure that people’s rights are respected in the process of restoration and adherence to the UN Decade principles (FAO, IUCN CEM & SER, 2021) as well as the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) (FAO, 2022). Data type: descriptive.

Additional parameters are being developed for area of degraded ecosystems and other effectiveness parameters, such as restoration plans.

To calculate the coverage using spatially explicit data, UNEP-WCMC and IUCN (2021) provides a methodology. Overlapping areas in the spatially explicit data where the restoration status corresponds to under restoration will be counted only once to calculate the coverage of the spatially explicit data for the total area under restoration.

5c. Data collection method

Description of all methods used for data collection. This description should include, when applicable, the questions used to collect the data, the type of interview, the dates/duration of fieldwork, the sample size and the response rate. Hyperlinks to methodologies are acceptable

The indicator for monitoring the extent of restoration shall leverage platforms for monitoring the progress of the UN Decade, and to the extent possible, build on existing frameworks and well-established processes. The Monitoring Task Force has identified data sources through which data will be collected. FAO will be compiling data and publishing in the FERM platform after validation. Data of restoration initiatives can also be entered directly into the FERM registry.

5d. Accessibility of methodology

Note whether the methodology for the indicator and the underlying data are published in a peer reviewed location that can be accessed, and the methodology can be repeated by other scientists or agencies with the same

overall result obtained. For "global indicators" please note whether a methodology is available for use at national or regional scales.

The methodology is not currently published in a peer-reviewed location. A guidance and methodology document is being drafted by FAO and CBD (available herehttps://www.fao.org/fileadmin/user_upload/faoweb/NFM/UNDecade_Target2_Monitoring_Mergeddocument.pdf) and will be published b during 2023. This will be the contribution to the Ad Hoc Technical Expert Group, which will finalize the methodology in 2024. Once compiled and available, the underlying data will be aggregated and published through the FERM platform, and using this underlying data, the methodology can be repeated by other scientists or agencies to obtain the same overall result.

The methodology can be used at national, regional scales and global.

5e. Data sources

Description of all actual and recommended sources of data.

Table 1 is a summary of the data parameters and examples of data sources with corresponding tiers (tiers are defined in Section 5b). The working group will analyze each data source to extract the tabular estimates of area under restoration (ha). Tabular estimates form the basis of reporting and can be strengthened by countries as they develop capacity to report using spatially explicit data on area under restoration. Spatially explicit data compilation includes data directly entered into the FERM registry, global reporting frameworks and restoration platforms that collect spatial information. It is required for calculating a component indicator on ecosystem connectivity.

Table 1. Summary of data parameters and example sources.

Group	Data parameter	Data type	Data source examples: official data (Tier 2 & 3)	Data source examples: unofficial data (Tier 1)
Area	Committed area to restore (ha)	Tabular	Nationally Determined Contributions (NDC), National Biodiversity Strategies and Action Plans (NBSAPs), Bonn Challenge, Ramsar Convention, Global Restoration Commitments database (Sewell *et al.*, 2020)	UN Decade Hub Nature Commitments
	Area under restoration (ha)*	Tabular	Sustainable Development Goals Indicators Database , Forest Resources Assessment (FRA), UNCCD Performance Review and Implementation System (PRAIS), REDD+ reporting – e.g., UNFCCC Forest Reference Levels (FRL) and Biannual Update Reports (BUR), Architecture for REDD+ Transactions (ART), Lowering Emissions by Accelerating Forest finance (LEAF), The Forest Carbon Partnership Facility (FCPF)	
		Spatially explicit	Framework for Ecosystem Restoration Monitoring (FERM), World Database on Protected Areas (WDPA) , Performance Review and Implementation System (PRAIS)	International Coral Reef Initiative (ICRI), Global Mangrove Alliance, Restor, Society for Ecological Restoration - Restoration Resource Center
	Ecosystem	Descriptive	UN Decade Ecosystems	

		Spatially explicit	International Union for Conservation of Nature (IUCN) Ecosystem Typology 2.0 (biomes)	
Status	Restoration status	Descriptive	Framework for Ecosystem Restoration Monitoring (FERM) , World Database on Protected Areas (WDPA), Restoration Barometer	
Additional information	Type of restoration	Descriptive	Framework for Ecosystem Restoration Monitoring (FERM)	
	Activity	Descriptive	Framework for Ecosystem Restoration Monitoring (FERM), The Economics of Ecosystem Restoration (TEER), World Overview of Conservation Approaches and Technologies (WOCAT)	
	Lead entity	Descriptive	Framework for Ecosystem Restoration Monitoring (FERM)	
	Tenure status	Descriptive	Framework for Ecosystem Restoration Monitoring (FERM)	

** Required field*

5f. Availability and release calendar

Please note whether the indicator is available now or in development. If in development, please state the year it will be available. Additionally, state how often the indicator will be updated with additional data. (e.g. annually, every five years etc). For existing indicators, please note whether data/indicator are freely available/available on request. Please provide a link for the relevant website where the indicator is accessible.

The indicator is currently in development. The formulation of the target was agreed at COP 15 in December 2022 and in parallel the draft guidance and methodology document was made available within the same time frame. The methodology will be finalized in 2024 by the Ad hoc Technical Expert Group. The indicator compilation exercise will be updated on a yearly basis with national reports in for official reporting in 2026 and 2029.

5g. Time series

Date range for which indicator is available, e.g. 1993 – 2021 and date of next update.

Expected availability: 2021-2030

First update: Seventh National Report (NR7) in 2026

5h. Data providers

Identification of data provider(s), where relevant noting any national data providers. Specify the organisation(s) responsible for producing the data. For BIP partners only: if needed, please provide updated partner logos

See Table 1 in 5e.Data sources.

5i. Data compilers

Organisation(s) responsible for compilation of this indicator. For BIP partners only: if needed, please provide updated partner logos

FAO will be compiling data from different sources.

5j. Gaps in data coverage

Please note any gaps in the data coverage for this indicator (e.g. taxonomic, thematic, or geographic data gaps)

The data compiling will take place in a step-wise approach and aim for completeness in terms of coverage by ecosystem and by country.

For country-level tabular data on area under restoration, disaggregation by ecosystems may or may not be available depending on the data sources.

5k. Treatment of missing values

Description of the methodology employed for producing estimates for the indicator when country data are not available, including any mathematical formulas and description of additional variables used as input into the estimation process.

Global/International context only: Description of how missing values for individual countries or areas are imputed or otherwise estimated by international agencies to derive regional or global aggregates of the indicator

FAO will be compiling data from existing processes and platforms. Each custodian agency and platform has its own methodology of treating missing values. Therefore, no further estimates will be made by FAO. After the compilation, estimates will be produced and provided for countries to validate. Missing values will not be imputed or otherwise estimated.

6. Scale

6a. Scale of use

Indicate if indicator data is applicable at the global, national, regional scale. Specify whether global or regional scale indicators can be disaggregated for national use, and/or whether national data can be collated to form global indicator. Additionally, please mention any plans to nationalise the indicator.

Scale of application (please check all relevant boxes): Global: x Regional: x National: x

Scale of data disaggregation/aggregation: data is compiled at the national scale and is then aggregated to the regional and global scales.

Global/ regional scale indicator can be disaggregated to national level:

National data is collated to form global indicator: x

Please add additional information as required:

6b. National/regional indicator production

For global indicators, please note whether a national/regional methodology available for use and provide links to any online documentation. Please also specify if underlying data can be accessed and used by countries to produce national indicators.

The scale of indicator 2.0.1 is national and can be aggregated globally.

6c. Sources of differences between global and national figures

Explanation on the differences between country produced and internationally estimated data on the indicator, highlighting and summarising the main sources of differences.

6d. Regional and global estimates & data collection for global monitoring

6d.1 Description of the methodology

Include any mathematical formulas, used for the calculation of the regional/global aggregates from the country values. Description of the weighting structure used for aggregating country indicator values to regional and global levels.

6d.2 Additional methodological details

Description of how the data from countries or areas is assembled by custodian international agencies to provide regional and global aggregates. This is distinct from the method of computation section), which looks at how the indicator is compiled at a national level.

6d.3 Description of the mechanism for collecting data from countries

Include: (i) the official counterpart at the country level; (ii) description of any validation and consultation process; (iii) description of any adjustments with respect to use of standard classifications and harmonization of

breakdowns for age group and other dimensions, or adjustments made for compliance with specific international or national definitions.

Depending on the data source, the compiled data by ecosystem is classified into tiers before the country validation process to facilitate transparent communication of where the data originates from and if it has already undergone prior country validation to avoid the duplication of validation efforts. The tier classification will be applied to the data sources for the country validation and only officially validated data will be published in the FERM platform as the estimates for Target 2. The tiers for the data sources are defined as:

- Tier 1: Estimated data from non-official sources (e.g. produced by non-government organizations or from scientific literature).
- Tier 2: Estimated data from official sources (e.g. produced by custodian agencies).
- Tier 3: Country data. Country directly reported data.

For the country validation process the data will be aggregated at the national scale by ecosystem, when possible. Possible validation outcomes are: a) country validates as country data; b) approval of publishing the data as estimated data; c) rejection of publishing the estimated data; d) non-response - data reported as estimated data. Validated statistics, aggregated from data validated as country data or estimated data on areas under restoration will be reported to the CBD and in the annual reporting mechanism of the UN Decade.

7. Other MEAs, processes and organisations

7a. Other MEA and processes

Please note where the indicator is already in use (e.g. by the CBD, other MEAs (such as CITES, CMS, Ramsar, UNCCD),SDGs, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services – IPBES, and the name of the IPBES assessment it is included in).

The indicator itself is not used in other MEAs or processes. However, data are compiled from existing MEAs and processes. For details please refer to Table 1.

7b. Biodiversity Indicator Partnership

Is the indicator include in those approved and promoted by the Biodiversity Indicators Partnership?

Yes: ☐ No: x

8. Disaggregation

Specification of the dimensions and levels used for disaggregation of the indicator (e.g., species, taxa, ecosystem, geographic location, income, sex, age group, disability status, etc.)

The indicator will be able to disaggregate by country and by ecosystems. The IUCN global ecosystem typology map allows disaggregation by ecosystem. Functional biomes from the ecosystem typology are used for disaggregation.

It is also possible to disaggregate by additional parameters listed in Table 1, such as by restoration status (area under restoration and area restored).

9. Related goals, targets and indicators

Description of linkages to other indicators proposed in the first draft monitoring framework

Target 2 is related to various goals and targets, including Goal A (ecological restoration and restoring converted ecosystems), Goal B (Restoration of ecosystem functions and services), Target 1 (spatial planning) and Target 3 (implementing protected areas).

10. Data reporter

10a. Organisation

Organisation of the contact person(s) for the data or metadata

FAO

10b. Contact person(s)

Person(s) and email addresses to be contacted with any questions regarding the data or metadata.

Julian.Fox@fao.org

11. References

Links to other literature helpful in understanding, interpreting and using the indicator.

CBD Secretariat and SER. (2019). A companion to the Short-Term Action Plan on Ecosystem Restoration - Resources, cases studies, and biodiversity considerations in the context of restoration science and practice. Montreal, Canada.CMS. (2020). UNEP/CMS/Resolution 12.26 (Rev.COP13). Available at: https://www.cms.int/aquatic-warbler/sites/default/files/document/cms_cop13_res.12.26_rev.cop13_e.pdf

Dunster J. and Dunster K. (1996). Dictionary of natural resources management. University of British Columbia University Press. Vancouver, BC, 363 pp. + xv.

FAO. 2022. Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. First revision. Rome. https://doi.org/10.4060/i2801ehttps://www.fao.org/forest-resources-assessment/en/FAO, IUCN CEM & SER. (2021). Principles for ecosystem restoration to guide the United Nations Decade 2021–2030. Rome, FAO.

Future Earth and GEO BON. (2022). Ecosystem restoration in the Global Biodiversity Framework: A focus on land degradation and terrestrial ecosystem restoration. Available at: https://geobon.org/science-briefs/

Gann, G.D., McDonald, T., Walder, B., Aronson, J., Nelson, C.R., Jonson J., ... & Dixon, K.W. (2019). International principles and standards for the practice of ecological restoration. Restoration Ecology. 27 (S1): S1-S46., 27(S1), S1-S46.

Gann, G.D., Walder B., Gladstone J., Manirajah S.M., Roe S. (2022). Restoration Project Information Sharing Framework. Society for Ecological Restoration and Climate Focus. Washington, D.C.

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12. Graphs and diagrams

Provide updated images of any graphs and diagrams, with captions

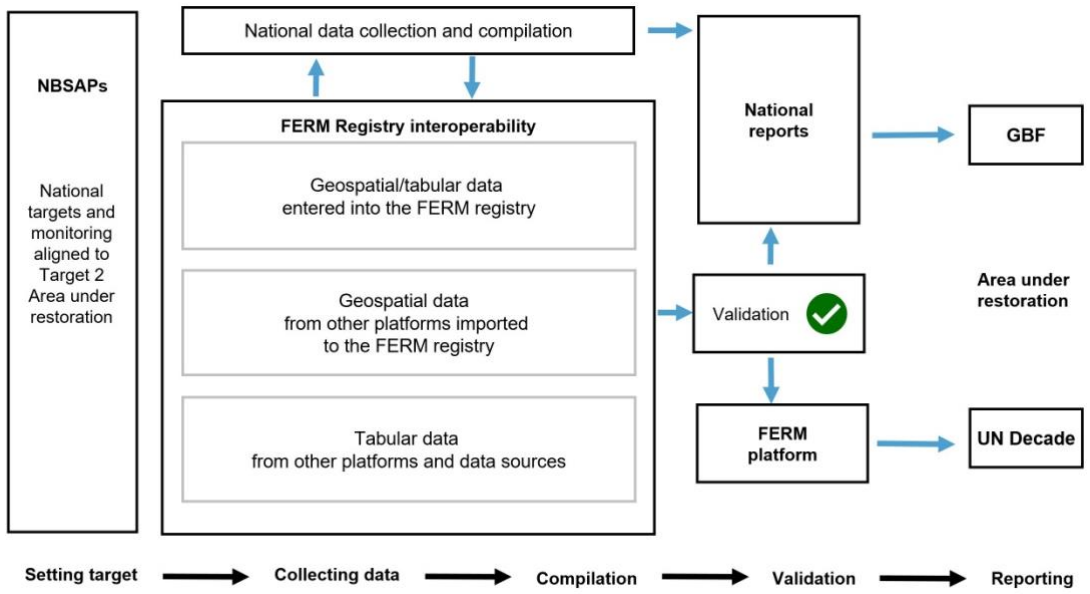

Figure 1. Proposed workflow for reporting area under restoration. The flowchart shows the possible pathways to follow from setting national restoration area targets, data collection and compilation through the FERM as well as national scale, data validation and reportingthe area estimates. National estimates of areas under restoration are reported under the Global Biodiversity Framework and the UN Decade on Ecosystem Restoration.

Source: Author.

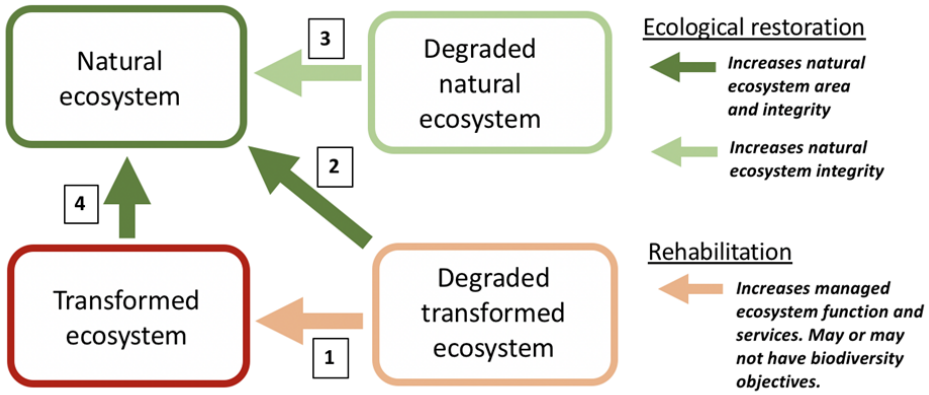

Figure 2. Comparison between ecological restoration and rehabilitation.

Source: Future Earth and GEO BON, 2022.